ECONOMICS

THE DEFINITIVE ENCYCLOPEDIA FROM THEORY TO PRACTICE

DAVID A. DIETERLE, EDITOR

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The Definitive Encyclopedia from Theory to Practice

Volume 1: Foundations of Economics

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Contents

Preface

When I was in graduate school a professor described the subject of economics as the "clothesline of life." There were several meanings to his phrase. One, there are many ways to approach the world of economics. Two, economics is a living, breathing discipline we use to play out our lives every day. Economics is part art, part science, part history, and all human behavior. If one digs down into the subjects of life, one will find a component of economics in virtually every subject. Economics surrounds us daily. *Economics: The Definitive Encyclopedia from Theory to Practice* has been created in a way to make economics come alive. Within our four volumes, including the comprehensive glossary, document excerpts, and other appendices, *Economics: The Definitive Encyclopedia from Theory to Practice* explores all corners of economic history, the individuals who gave economics life, the economic events that have shaped our world, and the foundational concepts and ideas that make, define, and sculpt our economic world.

We began this project with several goals. Our first, and most important, was to assemble a comprehensive and varied collection of entries on economic history, personal finance, money and banking, environmental, and behavioral economics, to name a few of the subdisciplines that hang from the "economics clothesline." An extension of that first goal was to provide a comprehensive, readable, one-stop resource for the general reader as well as for students, teachers, and researchers of economics, personal finance, and entrepreneurship.

To do so required assembling a diverse collection of economics material. Contained within the four volumes of the *Definitive Encyclopedia* are the people who laid the groundwork for economics as a science, the historical events upon which economics grew, and the concepts and ideas on which they built their legacy. I strongly believe we have accomplished these goals.

Volume 1, Foundations of Economics, is the "economics clothesline." In Volume 1 we present the people, concepts, history, the events, and places and institutions on which economics is built. It includes basic economic concepts such as opportunity cost and marginal analysis. Also included are the business tycoons who shaped the early U.S. economy, such as Henry Ford and John D. Rockefeller. No book on foundations of economics would be complete without the economists who laid the groundwork for economics such as Adam Smith, John Maynard Keynes, and Friedrich Hayek. Not to be forgotten are the political leaders whose contributions to their respective economies during their lives is still with us today, including U.S. president Ronald Reagan, Great Britain's Margaret Thatcher, and the Soviet Union's Joseph Stalin.

Volume 2, Macroeconomics, is our big picture volume. As the title suggests, Volume 2 focuses on the institutions, people, events, and places that have shaped the roles and responsibilities of the economy as a whole—the macroeconomy. Volume 2 presents the different methods and ways in which economies are measured and also explores government's role in the economy. Macroeconomics is about the institutions that measure our economies, such as the Bureau of Economic Analysis (BEA) or the Bureau of Labor Statistics (BLS). Key political figures such as Winston Churchill and President Franklin D. Roosevelt are featured for their economic contributions to world history.

Volume 3, Microeconomics, takes on markets, prices, and looking at the economy under the proverbial microscope. Volume 3 presents how markets function and the institutions that allow markets to work more efficiently and equitably for both the producer and the consumer. In Volume 3 you will find the concepts, economists, institutions, and historical events along with major market events such as the transitioning of the automobile industry and the economic bubbles, such as the "dot-com" bubble, that have determined the behavior and interaction of producers and consumers in today's modern economy. In Volume 3 we explore subfields such as environmental economics with entries such as "Tragedy of the Commons," "Clean Water Act," and "Clean Air Act," along with other environmental issues. Personal finance is a highlighted subfield in the "Annuity," "Debt Credit Counseling," and "Health Insurance" entries.

Volume 4, Global Economics, is the volume of the future. Volume 4 encapsulates the first three volumes in the context of an ever-growing global economy. Barring a cataclysmic event, today's world will continue to get smaller and smaller, translating into a more global economic community. Volume 4 includes concepts such as "Comparative Advantage" and "Balance of Payments." Volume 4 introduces the reader to the individuals changing the world, such as Muhammad Yunus and his Grameen Bank. As the new rules of a global community take shape to include all of the world's 7 billion inhabitants, at the forefront of those conversations and debates are the global institutions: the International Monetary Fund (IMF) and the World Bank, along with the United Nations.

Of equal value to the teacher, student, and researcher are primary documents in economic history; a list of Nobel laureates in economics; a timeline of economic events; and a glossary. The Primary Documents section includes 27 documents, such as the Tariff Act of 1930 and the Financial Reform Act of 2010, better known as the Dodd-Frank Act. The *Definitive Encyclopedia* would not be complete without highlighting some of the most important documents that have shaped the economic landscape of the United States. The Appendix of Nobel laureates highlights those individuals who have changed the course of economics. The Timeline presents key events in the global economy from 1776 to 2016. The Glossary presents a second layer to the all-inclusive nature of the *Definitive Encyclopedia*. Approximately 1,000 additional concepts, people, and events in the Glossary go beyond the four volumes' 850-plus entries.

Throughout my career in economics and economic education one of my main concerns has been that economics often has been presented as a subject beyond the scope of the average reader. In compiling *Economics: The Definitive Encyclopedia from Theory to Practice* we took aim at that notion head-on. Our goal was to bring to both the general and experienced student of economics a readable source to better understand the economic world around them. I strongly believe we have succeeded in this goal.

Of course, a project of this magnitude would not be possible without a team of highly dedicated contributors. I owe a huge debt of gratitude and big thank-you to the contributors without whose efforts this project would not have succeeded. My team of contributors possessed the quality and expertise needed for this project. As some of the best college professors and high school AP economics teachers anywhere, they represent all that is good about economic education. I am humbled they would give of their precious time to be part of the team. I owe them a major debt of gratitude. I owe a debt of gratitude as well to Jillian Davidson for her research and editing assistance.

I would like to thank Brian Romer for bringing me onto this project and then passing the baton into the capable hands of Hilary Claggett, Patrick Hall, and the rest of the ABC-CLIO team who had a hand in this project's development. Thanks for making us look good. I also need to thank my many colleagues, students, and friends who also provided support, feedback, and a kick in the pants when necessary. Most of all I need to thank my family and friends for putting up with me during this time. There were times I was a bit like the candy bar commercial. I owe a big thanks to each and every one of them for their patience and understanding. Finally, I dedicate this project to my mom and my four daughters—Branda, Laura, Jillian, and Mary. They say behind every successful man is a woman. Well, I don't know about being successful but I do have five very precious women behind me. This is for you.

David A. Dieterle

Introduction to Volume 1: Foundations of Economics

Economics is a word that conjures up different meanings for different people. If one were to stand on a street corner with clipboard in hand (or in today's world, an iPad) and ask 100 individuals the first thought they have when they hear the word *economics*, the array of different responses would be vast. Some would state "money," while others might mention "inflation" or "markets." Of the 100 individuals, most certainly some would respond, "I don't know." Other than the "I don't know" group, all the other responses would probably be partially correct in that the response would have something to do with the economy. But an absolutely correct response would probably not be in the group of responses—or it would be in only be a few of the responses. If it is not money, or inflation, or markets, then what is economics? Glad you asked.

How many of the 100 individuals would have responded with "decision-making"? Possibly a handful who have had a good economics course. In its purest form, economics is the science of decision-making. The world of economics is the constant battle between (1) the human condition of always desiring goods and services and (2) the ever-present condition that the resources available to produce them are limited. Pitting the human desire for unlimited wants against the limited resources available to produce them presents a conundrum. People have to make decisions about where to allocate those precious limited resources to the goods and services they desire most. Notice that in economics, *want* is a noun, even though we still use the word as a verb. Because we live in a world of scarcity, people have to choose.

Having to choose is one of the core principles of economics. Economics, therefore, is the science of decision-making. How we make decisions is vitally important to us, because it will determine how we use our valuable, limited resources. However, there is a second part of the decision-making story that is just as important as choosing: the question "What are we willing to give up?" When we make a decision, two events occur simultaneously. First, we make a decision to do something. This may be as minor as going to the movies or buying a hamburger. It may be a major decision like going to college, asking that special someone to marry, or choosing a career to pursue. In all cases, a second principle of economics is at work: Every decision we make has a cost.

Economics is not only the science of decision-making, where we decide what we are going to do or buy, where we are going to live or work, and so on. It is just as important to understand that with each decision, we are going to give up the opportunity for another action with those same resources. In economics, the alternative we give up is called the *opportunity cost*. We forego the opportunity to have another item in favor of the one we choose. An opportunity cost is the next best alternative *only*; it is not *all* the alternatives.

Remember the collision between unlimited wants and limited resources? The bottom line is that we can't have it all. Because our resources are limited, every time we choose to do one thing, we are giving up the opportunity to do something else. When people go into the local fast-food hamburger restaurant with one dollar, they can have a hamburger, French fries, a milk shake, or a soda. They just can't have them all. One of these items will be chosen, a second one will be the opportunity cost, and yet another one was not an option. For people who are more hungry than thirsty, the shake and the soda are not really options, even though they are on the menu.

Economics, as the science of decision-making, leads us to the study of how to make decisions in the most efficient and effective way, so that we use the smallest amount of our limited resources at the same time that we receive the greatest amount of goods and services. This dilemma applies not just to individuals, but to organizations and social structures as well—to families, to businesses, and to governmental units, whether local, state, or federal. It applies to everyone and everything, even though people sometimes act like they are immune to these two basic economic principles. We all have to make the same choices. With every choice we make, we are giving up the opportunity to choose something else.

Decisions are often made based on emotion or desire, and not economics. All decisions have a third principle, in that all decisions have consequences that lie in the future. The future may range from shortly after the decision is made to as far off as a generation, or longer. Consequences can be positive or negative. Throughout economic history, decisions were made long before the consequence was realized. For example, in *The Wealth of Nations*, Adam Smith's view was that private property and the invisible hand were the positive consequences of generations putting nationalism ahead of individualism. Another example: Adolf Hitler was elected in 1933, partially as a consequence of the result of World War I and the winning nations' desire to impose heavy war reparations upon a losing Germany. And another: The near collapse of the U.S. domestic automobile industry can be traced back generations to the decisions made during bargaining between the unions and the automakers. Time is not a factor.

Knowing that a decision comes with an opportunity cost and a consequence is a good start. Opportunity costs and consequences, however, are not the entire story. If we want to avoid regretting a decision because we didn't consider the opportunity costs or future consequences in advance, then how decisions are made becomes critically important. Decision-making can be as straightforward as weighing the expected costs of a potential decision against its expected benefits. Decisions can be approached in a more complex, quantitative formula. A decision tree identifying possible outcomes with their costs and consequences is a form of decision-making.

A population that is economically literate is a population that explores the expected costs and consequences before making a decision, not experiencing the consequences or realizing that the decision costs were too high after the decision was made. All of us have made decisions based on emotions or on a desire to have a good or service. But the realization that we can control, in some manner, how we are affected by decisions can go a long way toward creating an economically literate society. Of course, there can be consequences or costs that we did not consider. We often hear of these unintended consequences in the political world. As individuals we can certainly experience them. But having the foresight to consider the costs and consequences, as well as the benefits, can go a long way toward producing a society that allocates our precious limited resources efficiently.

Ask any builder what is the first thing needed for any structure to last; the response will be "a solid foundation." Every subject taught in school has a foundation on which it is based. To learn advanced math, we must first learn how to add, subtract, multiply, and divide. Any of the sciences have principles and foundations upon which the advanced subject matter is based. Economics, too, has its foundation.

A

ACCOUNTANT

An accountant is an individual who is integral to the functioning of U.S. (and international) businesses. This individual measures, discloses, and/or provides financial information professionally. The accountant's findings are provided to managers, investors, tax authorities, and others. This information is used to assist decision-makers with financial resource allocation.

The accounting duties for companies include performing audits and creating financial statements and analyses. This information is crucial to the proper functioning of modern business. A business needs to understand how much money is coming in and going out. Financial records must be maintained and properly updated for tax reporting as well. Firms either employ their own internal accountants or contract their accounting work to specialized organizations.

Individuals frequently hire an accountant to assist with complicated personal financial decisions as well as tax preparation.

Accountants Skills and Job Tasks

All financial transactions, record-keeping, and analyses fall under the accountant's responsibilities. An accountant's duties in a company span payroll, cash collections, payments or disbursements, procurement, inventory, and property accounting. Preparing the company's budget and financial statements is another common accounting responsibility.

Payroll is the task of managing the salary and wages of every employee. This massive responsibility includes maintaining accurate work records, calculating gross and net pay. As a quick explanation, *gross pay* is the total amount earned before any deductions such as taxes, Medicare, or Social Security payments. The *net pay* is the amount of pay left after normal deductions. This is the money that remains for the employee to spend and save.

It's not unusual for new workers to suffer a shock when they find out their promised $13 per hour pay is really closer to $10 per hour after all of the deductions are factored in. The $520 per week income they earned is reduced to $400 for them to spend and save. Fortunately for the accountant, there are many computer programs that assist with the payroll process.

The cash collections responsibilities require the accountant to identify, record, and monitor all cash transactions. In addition to the cash being tracked, it must be included in the financial reports. Deciding how much cash to keep on hand and how much to bank—and which account(s) to put the cash into—is another administrative accounting task.

As one would expect, after monitoring the incoming cash, the accountant needs to oversee payments or disbursements. The accounting department of a firm may prepare checks or it may pay bills and expenses electronically. These bill payment duties are similar to the ones required by individuals in everyday life.

Large and small companies need to make purchases in order to run smoothly. Accountants use purchase orders to track all procurement. The accountant implements and maintains the systems that track purchases and methods of payment, and reconciles them with inventory. Cash management is important for ensuring that credit purchases are paid for on time without accruing interest or late fee penalties.

Accounting departments integrate with sales departments to track which products are selling and which are languishing on the shelves. This information is used to drive business strategy decisions.

The corporate financial records and required government filings are under the accountant's umbrella as well. The accountant prepares the financial statements, which include budget, cash flow statement, income (or profit and loss) statement, and balance sheet.

Generally Accepted Accounting Principles

All of these statements and tasks are driven by generally accepted accounting practices. *GAAP* (pronounced "gap"), the common term for "Generally Accepted Accounting Principles," is a set of accounting principles, standards, and procedures that include "common practice" and regulated procedures.

GAAP are crucial for standardizing the accounting field. For companies to maintain their own systems of recording and tracking financial records would be quite confusing when the time came to do business with other companies. This would be a problem not only for employees and managers within a company, but also for the tax authority and shareholders of public companies.

GAAP cover revenue recognition (or when income is recorded), balance sheet items, and financial statements. Although there are standards and procedures for creating accounting documents, leeway remains within the documents. Thus, investors and other stakeholders need to scrutinize, interpret, and analyze accounting statements.

An article exploring some famous examples of unscrupulous accountants who have massaged financial data to their own benefit is listed under "Further Reading" at the end of this entry.

Professional Certifications and Types of Accountants

Accountants are a loosely regulated profession. Accounting professional certifications give companies and consumers a designation by which to assess a minimum level of competency. In general, the Certified Public Accountant (CPA) designation offers a consumer confidence and indicates a level of competency. Other designations also indicate expertise in specific accounting-related areas.

There are ethical standards and professional certifications for accountants. The CPA designation is a prestigious qualification that the individual earns by completing an examination and fulfilling specific work requirements. The American Institute of Certified Public Accountants (AICPA) oversees this qualification. The Chartered Accountant (CA) is the Canadian equivalent of the U.S. CPA.

Additional accounting certifications include the Certified Management Accountant (CMA), Certified Financial Manager (CFM), Certified Fraud Examiner (CFE), Certified Internal Auditor (CIA), Enrolled Agent (EA), and Certified Government Financial Manager (CGFM).

The various certifications equip the accountant for specialized accounting work. For example, enrolled agents are tax experts and are the only federally licensed tax practitioners who can also represent the taxpayer before the Internal Revenue Service (IRS). These tax professionals pass an examination of the tax code or have worked at the IRS and interpreted the tax code for at least five years.

The CMA combines skill in accounting and strategic management. In order to obtain this designation, the college graduate must attend a CMA program and pass a series of tests. Upon completion, the CMA is well versed in both accounting and management skills and would be an asset to a company looking for a manager with accounting expertise to make important business decisions.

In addition to an accountant, a bookkeeper may complete the company's more basic financial duties. Ultimately, the accountant oversees the bookkeeper's work and uses the inputs for more advanced financial processes.

Accounting responsibilities are performed in every business, and the accounting field continues to evolve. Although the proliferation of computer programs makes routine accounting tasks more efficient, the accountant is responsible for financial analysis and interpretation.

Barbara A. Friedberg

See also: Budget; *Vol. 2: Macroeconomics:* Debt; Financial Reform Act of 2010 (Dodd-Frank Act); Great Recession, 2009; Securities and Exchange Commission; *Vol. 3: Microeconomics:* Consumer Credit and Debt; Liquidity

Further Reading

Accounting-Degree.org. The 10 worst corporate accounting scandals of all time. http://www.accounting-degree.org/scandals/ (accessed February 20, 2014).

National Association of Enrolled Agents. n.d. What is an enrolled agent? http://www.naea.org/taxpayers/what-enrolled-agent (accessed February 20, 2014).

Tracy, John. 2013. What does an accountant do? In *Accounting for Dummies®*. 5th ed. New York: Wiley. http://www.dummies.com/how-to/content/what-does-an-accountant-do.html (accessed February 20, 2014).

AGRICULTURE AND THE ENVIRONMENT

Agriculture affects the environment, and at the same time is affected by the environment. Agriculture affects the environment mainly because agricultural lands comprise over a third of the world's land area. At the same time, agricultural productivity is directly tied to the environment through the quality of topsoil, climate, and weather. Air pollution and water pollution can also affect agricultural productivity. Given the direct importance of climate's effect on agriculture, climate has been a key focus of studies on the potential impacts of climate change.

Land dedicated to agricultural production is composed mainly of pasture, range, and croplands. Except for Africa and parts of Latin America, the vast majority of arable land on the planet is now used as cultivated pasture or in crop production. In more developed nations, a relatively small portion of arable land has been converted to urban and suburban uses. The physical scale of agriculture shows farmers are indeed key stewards of our environment.

Agricultural production affects environmental quality in many ways, both direct and indirect. Many native landscapes, such as the tall grass prairies of the midwestern United States, nearly vanished generations ago as they were displaced with some of the most productive cropland in the world. Regular tilling of former grasslands has contributed to widespread erosion of topsoil.

Aside from loss of soil and some key wildlife habitats, agricultural production is a source of many nonpoint source water pollutants—especially nitrogen and phosphorus fertilizers, but many other chemicals as well. New crop varieties were bred to take advantage of these chemical fertilizers, which allowed plants to better harness the sun's energy and soil moisture in photosynthesis. These advances created a green revolution that grew crop yields three- to fourfold over the last 75 years. This growth in productivity has helped to feed a rapidly growing human population that possesses an ever-growing appetite for resource-expensive foods like meat and dairy products.

An externality from fertilizer applications is that crops or other plants in photosynthesis never absorb a portion of of that fertilizer. In time, the fertilizers leach out of the soil into streams and rivers, upsetting natural aquatic ecosystems. Livestock animal waste can also leach into waterways. Altogether, agriculture is perhaps a principal source of water pollution, especially in developed nations. These excess nutrients feed algae blooms that rapidly absorb oxygen in the water, giving rise to vast aquatic dead zones that are nearly devoid of sea life. The broader ecological consequence of such dead zones remains unclear and is an active research area.

In her famous book *Silent Spring*, Rachel Carson made the general public aware of the loss of habitats that was resulting from vast chemical use. The book helped to inspire early environmental movements that were probably instrumental in bringing about the ban on dichlorodiphenyltrichloroethane (DDT), the establishment of the Environmental Protection Agency (EPA), and the enactment of the Clean Water Act.

Over the last decade or so, a fair amount of controversy has erupted over the emergence and rapid adoption of genetically modified crops, or genetically modified organisms (GMOs). The most prevalent kinds of GMOs include a gene that makes crop plants resistant to glyphosate (brand name Roundup), a popular herbicide developed by Monsanto. These so-called Roundup-ready crops make it much easier and less costly for farmers to control weeds. Although there has been no evidence or scientific rationale for how these crops could cause direct harm to humans, widespread use of the seed and glyphosate has bred weeds that are resistant to the herbicide. Farmers and seed companies are now looking for new herbicides to control weeds that have become resistant to the herbicide.

While it is easy to see some of the environmental harm caused by modern chemical-intensive agricultural production, there are also great, if indirect, environmental benefits. Were it not for the great advances in productivity that has been brought about principally by chemical use, much more land would need to be cultivated to feed burgeoning human populations. Agricultural commodity prices would be much higher than they are today. Millions and perhaps billions more people would be hungry and malnourished, and remaining forest and grasslands areas would be even less prevalent.

Of course, environmental attributes also affect agriculture. Soil depth, soil acidity, nutrient content in soils, precipitation, temperature, carbon dioxide concentrations, and solar radiation are all fundamental to plant development and photosynthesis, from which nearly all food and life are ultimately derived. To some extent, human activities can augment these characteristics of the environment, but doing so can be costly.

Land is allocated to various crops, livestock, and other land uses depending on the geophysical attributes that determine its greatest comparative advantage. Wheat is most often grown in relatively cool climates; corn and soybeans are grown in warmer climates, and rice is cultivated in warmer regions that have access to plentiful and inexpensive irrigation water.

Pollution also affects crop outcomes. High ozone concentrations are known to reduce grain yields, and reduced ozone concentrations in the United States may have contributed significantly to productivity growth over the past few decades.

Deforestation and burning of fossil fuels have caused atmospheric carbon dioxide concentrations to rise rapidly, with the result that the earth's climate has warmed and rainfall patterns are probably changing. All of these changes affect agricultural production. Higher carbon dioxide concentrations can increase the efficiency of water and radiation use in some plants, possibly boosting crop yields and drought resistance. At the same time, warmer temperatures may lengthen growing seasons and open up new areas in northern latitudes to crop production.

But warmer temperatures may also increase water loss through evaporation and evapotranspiration, and they may cause other heat-related stresses. Total rainfall is expected to increase, but its spatial and temporal patterns could change markedly. Episodes of flooding are expected to increase.

While considerable uncertainty remains about the net global influence of climate change on agricultural production, early optimism about global gains now seems more dubious, as mounting evidence and recent experience suggest that extreme heat can be very damaging and that the benefits from carbon dioxide may be less than previously believed.

Michael J. Roberts

See also: Environmentalism; Land Use; *Vol. 2: Macroeconomics:* Externality; Water Pollution

Further Reading

Carson, Rachel. 1962. *Silent Spring*. Boston: Houghton Mifflin.

Field, Christopher B., Vincente Barros, Thomas F. Stocker, and Qin Dahe. 2012. *Managing the risks of extreme events and disasters to advance climate change adaptation: Special report of the Intergovernmental Panel on Climate Change*. Cambridge, UK: Cambridge Univ. Press.

Long, Stephen P., Elizabeth A. Ainsworth, Andrew D. B. Leakey, Josef Nosberger, and Donald R. Ort. 2006. Food for thought: Lower-than-expected crop yield stimulation with rising CO_2 concentrations. *Science* 312 (5782):1918–21.

Schlenker, Wolfram, and Michael J. Roberts. 2009. Nonlinear temperature effects indicate severe damages to U.S. crop yields under climate change. *Proceedings of the National Academy of Sciences* 106 (37):15594–98.

AMERICAN ECONOMIC ASSOCIATION

The American Economic Association (AEA) was founded on September 8, 1885, in Saratoga, New York, to encourage the study of economics. Prior to the creation of the AEA, Dr. Edmund J. James and Simon N. Patten discussed creating the Society for the Study of the National Economy. But the society never caught on; instead, the idea of forming an "American Economic Association" came into being. The AEA was established by a group of economists who sought to focus on economic research, on publications on economic topics, and on economic discussion that was not limited by partisan views.

When a draft of this potential economic organization's constitution was released, a meeting was set for September 8–11, 1885, in connection with the American Historical Association (AHA). At the annual AHA meeting, members began looking into the formation of an American Economic Association. By September 9, the objectives and statement of principles were revised and agreed upon, and the American Economic Association was born. Francis A. Walker served as president; Henry C. Adams served as first vice president, Richard T. Ely served as secretary, and Edwin R. A. Seligman served as treasurer (the organization also had a second and third vice president). Some of these men, as well as other members, had studied in Germany under what was referred to as the German school of thought and had also studied political economy (the name for economics at the time).

As an early organization, the AEA had as its goal to bring economists together, and everyone who expressed an interest in membership was accepted as a member. Geographical regional branches were created across the United States to encourage further discussion of economic ideas and thought. As the field of economics gained more attention and became its own discipline, it began making its way into the college and university curricula, and later into the secondary schools.

The organization started its first academic journal, *American Economic Review*, in 1911. This journal depended on scholars to write articles on meaningful economic topics. The journal also published book reviews to attract attention to the field of economics. Two other journals would later follow: the *Journal of Economic Literature,* in 1963, and the *Journal of Economic Perspectives*, in 1987.

After the start of World War I, the AEA gained some notoriety. The federal government paid attention to this organization as it criticized the statistics being used by the U.S. Department of Agriculture. The organization gained more attention, and in 1939 it pushed for the formation of the American Finance Association.

During and after World War II, the AEA sought to define its role in society. Due to changes in economic thought, there was an increase in the demand for economists. Furthermore, economics became a part of the curriculum at various military academies and also had a role in national security and affairs.

The organization is still well known, and it holds an annual meeting in which papers on economic subjects are presented. The AEA also regularly publishes seven journals that cover various aspects of economic thought. It has various committees that enable it to address many different economic issues. The AEA has approximately 18,000 members, including many college professors and business professionals.

Angela M. LoPiccolo

See also: *Vol. 2: Macroeconomics:* Friedman, Milton; Samuelson, Paul

Further Reading

American Economic Association. General information. http://www.aeaweb.org/AboutAEA/gen_info.php (accessed April 13, 2013).

Bernstein, Michael A. 2008. A brief history of the American Economic Association. *American Journal of Economics and Sociology* 67 (November): 1007–23.

Ely, Richard T. 1910. American Economic Association 1885–1909. *American Economic Association Quarterly* 11 (April): 49–111.

Ely, Richard T. 1936. The founding and early history of the American Economic Association. *American Economic Review* 26 (March): 141–50.

Hinshaw, C. Elton, and John J. Siegfried. 1991. The role of the American Economic Association in economic education: A brief history. *The Journal of Economic Education* 22 (Autumn): 373–81.

Margo, Robert A. 2011. The economic history of the American Economic Review: A century's explosion of economics research. *American Economic Review* 101 (February): 9–35.

Siegfried, John J. 1998. Who is a member of the AEA? *Journal of Economic Perspectives* 12: 211–22.

AMERICAN FEDERATION OF LABOR AND CONGRESS OF INDUSTRIAL ORGANIZATIONS

The American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) is an umbrella federation. It consists of 56 national and international unions that represent 12.5 million people. The American Federation of Labor (AFL) and the Committee for Industrial Organization (CIO) merged in 1955 to create the AFL-CIO, a voluntary federation providing representation to multiple unions. In addition, through its community affiliate Working America, the AFL-CIO provides representation to 3.2 million people who do not have a union at their work. Further, the AFL-CIO has partnerships with working centers and other groups of people—such as day laborers, nannies, housekeepers, and in-home caretakers—who do not have the protection of many labor laws. The goals of the AFL-CIO are (1) to provide one voice that can help improve workers' wages, hours, and working conditions and (2) to protect the rights of the workers who are members of the AFL-CIO. The AFL-CIO provides an all-inclusive national federation for all labor unions.

Since membership in the AFL-CIO is generally unrestricted, the federation is made up of a variety of different unions representing multiple different careers. The AFL-CIO includes the unions that people typically think of, such as miners, teachers, firefighters, pilots, and public employees. It also represents unions such as farm workers, bakers, engineers, doctors, and nurses, as well as various other trade groups. The largest union in the AFL-CIO is the American Federation of State, County and Municipal Employees (AFSCME), which has more than 1.6 million members, both working and retired. Some of the best-known unions that are part of the AFL-CIO are the American Postal Workers Union (APWU); the Screen Actors Guild-American Federation of Television and Radio Artists (SAG-AFTRA); and the United Automobile, Aerospace & Agricultural Implement Workers of America, International Union (UAW). The AFL-CIO also has six trade and industrial departments that are mandated by the UAW Constitution. These are the Building and Construction Trades Department, the Maritime Trades Department, the Metal Trades Department, the Department for Professional Employees, the Transportation Trades Department, and the Union Label and Service Trades Department.

The AFL-CIO holds a convention every four years during the last six months of the year; delegates from each member union attend, and all AFL-CIO members are represented. The national or international union and organizing committees is entitled to a certain number of delegates based on their proportional representation. The delegates should represent the racial and gender diversity of their membership in order to better serve their constituents. Each state, area, or local central body is entitled to one delegate. Every directly affiliated local union, and each trade and industrial department, is also entitled to one delegate. At the convention, the delegates help to set policies and goals for the union movement, set dues, and vote on changes to the AFL-CIO's Constitution. The delegates at the convention also elect the president, secretary-treasurer, and executive vice president of the AFL-CIO. These three officers, along with vice presidents from each union, make of the AFL-CIO Executive Council. The Executive Council is the governing body of the federation during the four-year gap between the conventions. The Executive Council is authorized to carry out the decisions that were made at the conventions. The Executive Council is required to meet at least twice a year, but it may meet more often than that if necessary. The Executive Council is also responsible for monitoring legislative activities that would impact the goals and beliefs of the AFL-CIO. If the AFL-CIO Executive Council believes that legislative activities may negatively impact the unions they represent, the Council is empowered to take action to help change the legislation.

In recent years, the AFL-CIO has seen multiple changes in its affiliated unions. The union UNITE HERE was formed in 2004 when the Union of Needletrades, Industrial, and Textile Employees (UNITE) and the Hotel Employees and Restaurant Employees Union (HERE) merged. In 2005, the International Brotherhood of Teamsters (IBT); the Service Employees International Union (SEIU); the United

Farm Workers (UFW); the United Brotherhood of Carpenters (UBC); the Laborers' International Union of North America (LIUNA); the Union of Needletrades, Industrial, and Textile Employees and Hotel Employees and Restaurant Employees Union (UNITE HERE); and the United Food and Commercial Workers (UFCW) all disaffiliated from the AFL-CIO to form the Change to Win Federation (CtW). The Laborers' International Union of North America (LIUNA); the Union of Needletrades, Industrial, and Textile Employees and Hotel Employees and Restaurant Employees Union (UNITE HERE); and the United Food and Commercial Workers (UFCW) all decided to rejoin the AFL-CIO due to dissatisfaction with the CtW. In 2006, the AFL-CIO's Executive Council authorized worker centers to formally affiliate with state labor federations, local labor councils, and Working America. The AFL-CIO also entered into a partnership with the National Day Laborer Organizing Network (NDLON), under which the two organizations pledged to work together on immigration reform and on state and local enforcement of workers' rights. In September 2011, the National Taxi Workers' Alliance (NTWA) became the first nontraditional workers' organization in over six decades to become formally chartered by the national AFL-CIO. The International Longshore and Warehouse Union (ILWU) disaffiliated from the AFL-CIO in August 2013; the ILWU objected strongly to affiliated unions within the AFL-CIO crossing ILWU picket lines without repercussions and also disagreed with the AFL-CIO's positions on immigration, labor law reform, health care reform, and international labor, which they perceived as moderate and overly compromising.

Kimberly Cousino

See also: Craft Guilds; *Vol. 2: Macroeconomics:* Labor Productivity; Labor Uprisings, 1936–1939; *Lechmere, Inc. v. National Labor Relations Board*; National Labor Relations Board; National Labor Unrest, 1894; Taft-Hartley Act, 1947; *Vol. 3: Microeconomics:* Labor Economics; National Steel Strike, 1919; National Steel Strike, 1959; Sherman Antitrust Act of 1890; *Vol. 4: Global Economics:* International Labor Organization

Further Reading

AFL-CIO. 2014. AFL-CIO constitution. http://www.aflcio.org/About/Exec-Council/AFL-CIO-Constitution (accessed June 15, 2015).

AFL-CIO. 2015. What the AFL-CIO does. http://www.aflcio.org/About/What-the-AFL-CIO-Does (accessed June 15, 2015).

Trumka, Richard. 2013. ILWU disaffiliation. August 29. http://www.scribd.com/doc/164542066/ILWU-Disaffiliation-8-29-2013 (accessed June 15, 2015).

ANCIENT THOUGHT, OR *OECONOMICUS*

Oeconomicus is a Socratic dialogue written by the Greek philosopher Xenophon. One of the earliest works on economics, it focuses on household management, providing details on the daily life of the ancient Greeks during the fourth century BCE. It presents the *oikos*, or "household/family," as the center of society and consumption in Greece, where it was imperative for the household to keep order both in organization and also financially. In *Oeconomicus*, the woman's role is to manage her husband's wealth by budgeting carefully and keeping track of household expenses.

Oeconomicus is written as an account of a conversation that Xenophon's mentor Socrates had with a Greek gentleman named Ischomachus. According to Xenophon, wealth is more than just money and property, because income and expenses must be taken into account. Xenophon felt that large amounts of property were unnecessary; he believed that property could be viewed as a form of wealth only if the owner used it properly. He also considered knowledge and information to be important and necessary for achieving wealth. He makes this clear in *Oeconomicus* in an exchange that Socrates has with Critobulus (the son of an Athenian businessman) about property; Socrates advises Critobulus that first he needs to acquire wisdom.

In *Oeconomicus*, Socrates seeks to teach Critobulus to think beyond the concept of money and more about doing things that are worth the time and effort. In the end, the goal is to turn Critobulus into a Greek gentleman, but he is far from having the gentlemanly virtue that Socrates saw exhibited by Ischomachus.

In *Oeconomicus*, Socrates is seen as wealthier than Critobulus because of his lower ratio of income to expense. Socrates also gained skills regarding household management from Ischomachus. Socrates uses Ischomachus as his role model, and discusses his conversations with Critobulus in an effort to see if Ischomachus's way of life was one worth emulating. The meaning of *Oeconomicus* focuses on people being able to manage all aspects of their lives, not just their household affairs.

Some scholars believe that *Oeconomicus* was written carefully as an apology, by both Xenophon and Socrates. Xenophon may have been apologizing for not choosing to adopt Socrates's lifestyle, and Socrates may have been apologizing for not making it clear that he approved of Xenophon's way of life.

Oeconomicus gives advice regarding the organization of the household as well as farming. For Greek gentlemen, the goal was to increase their wealth and then to make proper use of their resources, including their money. Xenophon also stressed the desire to have good labor and productivity within the community, and he favored the specialization of labor. Another important part of *Oeconomicus* is education; Xenophon pushed for women to be educated in order to carry out the managerial roles of the household.

Oeconomicus offers much insight into the field of economics. Wealth, labor, specialization, and education were all topics that were considered important in ancient Greece and still influence economic thought today.

Angela M. LoPiccolo

See also: Economic History; Factors of Production; Money, History of

Further Reading

Alvey, James E. 2011. The ethical foundations of economics in ancient Greece, focusing on Socrates and Xenophon. *International Journal of Social Economics* 38 (8): 714–33.

Danzig, Gabriel. 2003. Why Socrates was not a farmer: Xenophon's *Oeconomicus* as philosophical dialogue. *Greece and Rome* 50 (April): 57–76.

Gates, Donald K., and Peter Steane. 2007. Historical origins and development of economic rationalism. *Journal of Management History* 13: 330–58.
Nadon, Christopher. 1996. From republic to empire: Political and the common good in Xenophon's *Education of Cyrus*. *American Political Science Review* 90 (June): 361–74.
O'Flannery, Jennifer. 2003. Xenophon's (The Education of Cyrus) and ideal leadership lessons for modern public administration. *Public Administration Quarterly* 27 (1/2) (Spring–Summer 2003): 41–64.
Stevens, John A. 1994. Friendship and profit in Xenophon's *Oeconomicus*. In *The Socratic Movement*, ed. Paul A. Vander Waerdt. Ithaca, NY: Cornell Univ. Press.
Walker, Stephen P., and Sue Llewellyn. 2000. Accounting at home: Some interdisciplinary perspectives. *Accounting, Auditing, and Accountability Journal* 13: 425–49.
Xenophon. 2009. *Cyropaedia: The Education of Cyrus*. Lawrence, KS: Neeland Media.
Xenophon. 2012. *Oeconomicus*. Stockbridge, MA: Hard Press Editions.

ANIMAL SPIRITS

Animal spirits is a term that broadly describes individual economic behavior when that behavior is influenced by psychology forces such as feelings and dispositions. Animal spirits are seen as producing outcomes that are different from the outcomes assumed to result from rational expectations as defined by traditional economics, where emotions play no substantive role in decision-making. The idea of animal spirits constitutes an important foundation of behavioral macroeconomics. There has been a growing integration of animal spirits in contemporary research, especially after the Global Financial Crisis and the Great Recession of the early 21st century. Animal spirits are used mainly to explain phenomena such as economic fluctuations, financial and housing crises, and persistent unemployment. In some cases, animal spirits function as a separate fundamental feature in economic modeling and have the same methodological status as preferences, endowments, and technology.

As introduced by John Maynard Keynes (1936, 161), animal spirits are a "spontaneous urge to action" and "spontaneous optimism." They represent the innate disposition of entrepreneurs characterized by "temperament and constructive impulses" (Keynes 1936, 150). Keynes used the notion of animal spirits to describe the driving force of entrepreneurship—in particular, real-world decision-making about the prospective yield of an investment when knowledge about the future is thin and, therefore, mathematical expectations cannot justify action under fundamental uncertainty.

Animal spirits have been situated within Keynes's broader theory of fundamental uncertainty, which was developed in the post-Keynesian tradition. In this account, animal spirits are interpreted as influencing both expectations and confidence and interacting with cognition. Beyond production, this process also takes place in financial markets. Through variations of optimism and pessimism in an uncertain financial environment, animal spirits lead to changes in confidence and in liquidity preference—and they can cause financial crises. The incorporation of animal spirits in financial markets stands as an important challenge for modern macroeconomic modeling.

After a long period during which it was rarely utilized, the idea of animal spirits has been given renewed and considerable attention in mainstream economics. The best-known contemporary approach, by Akerlof and Shiller (2009), links animal spirits to human psychology and describes them as individual feelings, impressions, and passions and as a basic mental energy. This account transforms animal spirits into a general psychology force that influences the entire economy. In addition, animal spirits are represented by five aspects: confidence, fairness, corruption and antisocial behavior, money illusion, and media stories.

Contemporary mainstream macroeconomic modeling utilizes a variety of economic expectations related to animal spirits, including self-fulfilling, extrapolative, regressive, and adaptive expectations. Initially, animal spirits were understood in modern macroeconomic models as self-fulfilling expectations. Their impact was generalized as a random exogenous shock to beliefs, which could explain economic fluctuations. However, recent research in behavioral macroeconomics endogenizes animal spirits in adaptive models of heterogeneous expectations to produce multiple unemployment equilibria.

There has been extensive debate on whether Keynes used the notion of animal spirits to imply irrationality. Some economists support the implication of irrationality because it relates to irrational exuberance, unconscious mental action, and visceral reactions. However, other authors claim that explanations based on animal spirits do not imply irrationality. Contradictory views have ranged from the idea that impulses and sentiment are perfectly rational to the proposition that animal spirits operate fully in the human subconscious. A middle ground has also been sought, attempting to situate animal spirits between perfect rationality and irrationality (Dow and Dow 2011).

A promising approach that effectively resolves this conflict is to consider animal spirits as part of a strong form of bounded rationality. Kahneman (2003) has introduced a dual-system framework of bounded rationality, in which perception and intuition belong in a primitive automatic system while reasoning takes place within another more advanced system. Animal spirits in the form of emotions (described by an affective heuristic) and automatic reactions function within the primitive system of bounded rationality, but they interact with cognitive processes of reasoning. Considerable research, which is already under way, will be required to successfully explain animal spirits in terms of modern human psychology and to operationalize animal spirits in a coherent manner for behavioral macroeconomic modeling.

Theodore Koutsobinas

See also: Economic Psychology; Emotions and Decision-Making; Intuition and Decision-Making; Keynes, John Maynard; *Vol. 3: Microeconomics:* Kahneman, Daniel; Liquidity Trap and Liquidity Preference; Shiller, Robert

Further Reading

Akerlof, George A., and Robert J. Shiller. 2009. *Animal spirits: How human psychology drives the economy, and why it matters for global capitalism.* Princeton, NJ: Princeton Univ. Press.

Dow, Alexander, and Sheila C. Dow. 2011. Animal spirits revisited. *Capitalism and Society* 6:1–23.
Kahneman, Daniel. 2003. Maps of bounded rationality: Psychology for behavioral economics. *American Economic Review* 93: 1449–75.
Keynes, John M. 1936. *The general theory of employment, interest and money*. London: Macmillan.

ASSET ALLOCATION

Asset allocation is widely considered the first step in investment portfolio management. Investing is a money management strategy to increase the investor's long-term financial wealth. Investors are assumed to desire the largest financial return on their funds for the least amount of risk. Asset allocation is designed to smooth out the volatility or risk of a portfolio while maximizing investors' returns. Diversification among asset classes reduces an investment portfolio's risk. Asset allocation is a way to create a diversified investment portfolio.

An asset allocation represents an investor's choice of broad asset classes and the percentages distributed across the categories. This decision divides total investable funds by percent into specific investment categories.

An *asset class* refers to the categorization of financial investable assets. The asset classes used most often include stocks, bonds, and cash equivalents. A *stock asset class* contains individual stocks and groups of stocks combined and sold as mutual funds, as well as many additional categorizations within the broad stock category. The *cash asset class* refers to bank savings accounts, money market mutual funds, and short-term U.S. Treasury bills. There are many varieties of bonds for the cash asset class; governments, municipalities, and corporations issue bonds for this class, and it also includes bond mutual funds. The bond category is also considered the fixed income asset class.

Fixed income refers to a financial asset such as a bond or a certificate of deposit that pays the holder regular interest or a regular dividend.

The asset allocation concept is derived from the seminal work of Harry Markowitz, founder of modern portfolio theory (Markowitz 1952). The asset allocation decision is grounded in a study of observed historical asset class returns and volatility. From January 1926 through June 2012, the rolling 10-year annualized geometric returns of the broad U.S. stock market averaged 10 percent (Davis et al. 2012). That stellar return hides shorter periods of low and even negative stock market returns. The benefit of asset allocation is that when several less-correlated asset classes are combined in an investment portfolio, if one component underperforms, the other asset classes serve to reduce the losses and may increase or at least maintain the portfolio's total value.

How to Create an Asset Allocation

The asset allocation decision has two parts. Part one is an assessment of investors' individual risk tolerance. Generally, retirees are more conservative or risk-averse than younger investors. This is because if the value of a retiree's portfolio goes down, the retiree does not have a long work-life remaining during which to earn back the loss in value. Younger individuals may be more aggressive or risk-tolerant, for the opposite reason. If 30-year-old investors have losses in the value of their investment portfolio, they have many years to recoup that loss. Of course, older individuals are not always more conservative investors than younger ones. Some 30-year-olds cannot tolerate the volatility of an aggressive portfolio, and they do not want to see even a moderate decline in the value of their investments; conversely, there are aggressive investors who are older and can tolerate the ups and downs in value of their investments.

There are many publicly available measures to help investors ascertain their personal risk tolerance. A popular risk quiz, first published in the *Wall Street Journal* in 1998 (Bodie et al. 2011), showed that people who have a higher risk tolerance and are more willing to experience ups and downs in the value of their investments will allocate a greater percent of their total investable assets to riskier investments. Stocks and stock mutual funds are widely considered riskier, because although historically they have offered higher returns, there is an accompanying chance of greater losses in the stock investments. Investors with less tolerance for risk will stick to less volatile asset classes, such as cash equivalents and bonds. For example, older investors and less-risk-tolerant investors might allocate a greater percent of assets to bonds and cash investments and a smaller percentage to stock investments.

The second part of the asset allocation decision deals with choosing which financial assets to include in each broad category. For example, in the stock asset class, investors can choose from individual stocks, actively managed stock mutual funds, or passively managed stock index funds. Simply put, a *stock* is a part ownership in a company. For example, if Matthew buys 10 shares of Apple stock, he owns a tiny portion of the company. A *mutual fund* is a combination of many individual stocks, bonds, or both, managed by a company. The mutual fund gives the small investor access to many stocks and/or bonds for a relatively low fee.

The bond category might include investments in individual bonds, bond mutual funds, or bond exchange traded funds. A *bond* is a loan to a company or government. In exchange for the loan, the bond holder receives periodic interest payments. A bond mutual fund contains only bonds. An exchange-traded fund is similar to a mutual fund. The distinctions between mutual funds and exchange-traded funds are discussed fully in their individual entries.

Asset allocation may be as simple as holding two mutual funds in an investment portfolio. For example, a two-fund asset allocation might include one all-world international stock index mutual fund for the equity (or stock) portion of the portfolio. This is simply a fund that buys a small amount of the stock of many different companies from the United States and across the globe. This gives the investor an opportunity to own lots of stock investments for a small amount of money.

The second mutual fund in this simple asset allocation might be a diversified bond fund. Similar to the stock mutual fund, this bond fund would buy bonds from many individual companies and may include some government bonds as well.

The percentages in each portion are determined by the investor's age and risk tolerance. Other investors divide the asset allocation decision into more complicated asset classes, and they may include percentages in small, medium, and large company stock mutual funds or other types of categories. More sophisticated asset allocation decisions may include international securities and alternative investments such as real estate and commodities.

Rebalancing

In deciding on their personal asset allocation percentages, investors review the historical asset class performance of their investments and adjust for the expected future returns and volatility, based upon economic projections and personal judgments. In general, after making asset allocation decisions, investors check the percentages in each category annually—to ensure that any changes in the value of the financial assets have not deviated significantly from their original asset allocation decision.

The rebalancing decision returns asset class percentages to their original proportions. For example, conservative investors might choose an asset allocation of 50 percent in an international stock mutual fund and 50 percent in a diversified bond mutual fund. At the end of one year, if the international stock markets outperformed the bond markets and the investor's stock holdings were 60 percent and the bond investments were only 40 percent of the overall total, then the investors would need to sell enough of the stock investments and buy enough of the bond investments to return to the previously determined 50 percent amount in each of the asset classes.

Tactical Asset Allocation

Advocates of traditional asset allocation maintain a consistent asset allocation for years, and they adjust when the investor ages and approaches retirement or if the investor's risk profile changes. Historically, the asset allocation decision took a "Set it and forget it" approach. Recently, changes in the research introduced the concept of "tactical asset allocation." This approach is an answer to the problem of long periods of subpar performance of certain asset classes and an attempt to boost investment returns. Tactical asset allocation adjusts the percentages allocated to specific asset classes based on market valuation or other economic factors.

In the Financial Planning Association's "Trends in Investing" special report, 81 percent of respondents indicated that they regularly reevaluate their asset allocation decisions (Kitces 2012). In an article about the report, Michael Kitces reported that planners made tactical asset allocation decisions twice year, on average. This is decidedly more frequent than the traditional age- and risk-based adjustments.

A new class of mutual funds called *target date mutual funds* uses an asset allocation age-based approach to adjust the asset allocation of the mutual funds based on investor age, with more equities for younger investors, transitioning to more fixed investment percentages as investors reach retirement age. The target date funds use asset allocation research, along with investor age, to provide a comprehensive financial planning product.

In summary, the asset allocation decision is an investment method to reduce the volatility in an investor's portfolio by investing in diverse classes of investment assets. Lower correlation between asset classes enables an opportunity for higher investment returns with less risk.

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See also: Financial Literacy; Investing; *Vol. 3: Microeconomics:* Bonds; Index Mutual Funds; Mutual Funds and Exchange-Trade Funds; Risk; Stocks

Further Reading

Bodie, Zvi, Alex Kane, and Alan J. Marcus. 2011. *Investments*. 9th ed., 166–67. New York: McGraw-Hill/Irwin.

Davis, Joseph, Roger Aliaga-Diaz, and Charles J. Thomas. 2012. Forecasting stock returns: What signals matter, and what do they say now? *Vanguard Research*, October. https://personal.vanguard.com/pdf/s338.pdf (accessed September 30, 2016).

Kitces, Michael E. 2012. The rise of tactical asset allocation. *Journal of Financial Planning* (June): 28–29.

Markowitz, Harry. 1952. Portfolio selection. *Journal of Finance* 7 (1): 77–91.

ASSOCIATION OF ENVIRONMENTAL AND RESOURCE ECONOMISTS

The Association of Environmental and Resource Economists (AERE) is an international association for economists working on environmental and natural resources issues. The AERE was founded in 1979 and has about 1,000 members. Most of the members hold a doctoral degree and work in academic institutions. The AERE's goal is to promote communication among economists who are interested in environmental and natural resource economics. The major activities of the association are joint sponsorship of the World Congress of Environmental and Resource Economists, hosting of the AERE Summer Meeting, sponsorship of sessions at other conferences, the publication of two journals and the *AERE Newsletter*, and various honors and awards. The AERE is governed by a president, president-elect, past president, vice president, secretary, treasurer, and six elected board members.

The World Congress of Environmental and Resource Economists is jointly sponsored by The AERE and the European Association of Environmental and Resource Economists. Locations alternate between North America and the rest of the world. It has been held in Venice (1998), Monterey (2002), Kyoto (2006), Montreal (2010), and Istanbul (2014). It is a large conference with over 500 paper presentations and participants from more than 50 countries. The annual AERE Summer Conference is an extension of the original AERE Workshops. Between 1985 and 2009, 22 Workshops were held—small conferences with presentations of 10 or more papers that focused on a specific topic such as energy, fisheries, or health. The first AERE Workshop was held in Boulder, Colorado; the last one was held in Washington, D.C., in 2009, hosted by Resources for the Future. The inaugural AERE Summer Conference was held in Seattle, Washington, in 2011 with 340 attendees. The AERE Workshop lives on through thematic sponsored sessions within the summer conference. The

AERE also sponsors sessions at the Allied Social Science Associations annual meeting, Agricultural and Applied Economics Association annual meeting, and regional economics conferences such as the Southern Economic Association and Western Economic Association International.

The *Journal of Environmental Economics and Management* (JEEM) began publication in 1974 and became the official journal of the AERE in 1983. JEEM publishes theoretical and empirical papers devoted to environmental and resource issues, and it is widely considered the top journal in the field. The November 2013 issue of JEEM was the last published as the official journal of the AERE; the association is planning to launch a new official journal, the *Journal of the Association of Environmental and Resource Economists*. The journal *Review of Environmental Economics and Policy* (REEP) publishes nontechnical articles that "fill the gap between traditional academic journals and the general interest press." The journal's content includes symposia on a focused topic, articles that survey the current literature, and regular features such as policy monitor and individual reflections. The *AERE Newsletter* is published twice each year and contains a president's column, announcements, and essays.

The AERE honors and awards are the Distinguished Service Award, Fellows, Outstanding Publication in JEEM, and the Publication of Enduring Quality. There have been eight recipients of the AERE Distinguished Service Award, including founding members, JEEM editors, and the executive secretary. In 2005, the AERE began its Fellows Award to recognize members who have made significant contributions to the field. Six members were awarded fellowships in 2005, 2006, and 2007, and three members have been awarded fellowships annually since. The Publication of Enduring Quality award is given to a publication that has had a lasting and significant contribution to the field. Since 1989, 30 articles and books have received the Publication of Enduring Quality Award. In 2009, the AERE began to recognize the Outstanding Article in JEEM. A list of all past recipients of AERE awards can be found on the AERE website (www.aere.org).

John C. Whitehead

See also: Environmentalism; Resources; United States Society for Ecological Economics; *Vol. 3: Microeconomics:* Fisheries Economics Associations; *Vol. 4: Global Economics:* International Association for Energy Economics

Further Reading

Krutilla, John V. 1980. Activation of the Association of Environmental and Resource Economists. *Journal of Environmental Economics and Management* 7 (2): 77–80.

Russell, Clifford S., compiler. 1995. An early history of the Association of Environmental and Resource Economists. *AERE Handbook*. https://aere.memberclicks.net/assets/docs/handbook2016_000.pdf (accessed November 30, 2016).

AUSTRIAN ECONOMIC THOUGHT

The economic philosophy known as Austrian Economic Thought was founded in 1871. Its first formal introduction came in *Principles of Economics* (1871) by Carl Menger. In this classic text, Menger focused on the economic decisions of individuals and how individuals make decisions at the margin. Menger's propositions on individual decision-making and marginalism received further support from the works of both Stanley Jevons and Leon Walras. Through his work, Menger has been credited with focusing on individual choice as the central tenet of economics and not consumption.

The Austrian School of economics is based on a series of market-oriented, individual-choice foundations. The first foundation focuses on the most basic economic principle: individuals make choices, and all choices involve a cost and a consequence that lies in the future. Important to this principle is the identification of as many consequences as possible and the avoidance of any unintended consequences of a choice. A second foundation of the Austrian School includes the study of markets, of consumer and producer behavior, and of the role that prices play in creating orderly markets and their institutions.

A key foundation is the belief that people behave based on what they know. In this case adherents to the Austrian School differentiate their philosophy from other economic philosophies with their focus on human action, not economic prediction or quantitative analysis. Human action is so important to the Austrian School's philosophy that the book which some consider the "bible" of modern Austrian economics bears its name: Ludwig von Mises's *Human Action* (1949).

This basic foundation of human action experienced a major philosophical confrontation with objective and quantitative 19th-century economic philosophy. While the British economist Alfred Marshall argued for applying objective values to costs, the Austrians held that values to costs were subjective and were based on one's decisions and the alternative choices that were not chosen—that is, opportunity costs.

A follow-up foundation is the important role that prices play in creating such a market. According to Austrian economists, prices when allowed to function properly determine the rules by which markets function most efficiently.

Of all the foundations on which Austrian economic thought is based, the private ownership of productive resources and private property is the most important. Private ownership of the productive resources provides the incentives necessary for any economy to grow. Ludwig von Mises, considered by some to be the father of Austrian economics, strongly emphasized how socialism (government ownership of the productive resources) eliminated the proper incentives for efficient resource allocation. According to von Mises, the inefficient allocation and lack of proper incentives limits the ability of prices to function properly as an allocation mechanism. This scenario ultimately dooms any economy.

A final foundation of Austrian economic thought focuses on an economy's ability to promote both competition and, by extension, the entrepreneurial spirit. Competition leads to a role for the entrepreneur in an economy. Without competition, the desire and incentives for entrepreneurial and technological advancements are not present. An economy becomes stagnant. Through the right incentives (private property, free markets), an economy finds the most efficient allocation of productive resources and achieves economic growth and a higher standard of living.

In the 20th century, the most notable Austrian economists were Ludwig von Mises and Friedrich von Hayek. Their writings and teachings still serve as the basis and foundations for most modern Austrian economic thought. Other notables include Eugen von Böhm-Bawerk, Israel Kirzner, Ludwig Lachmann, Fritz Machlup, and Murray Rothbard, along with Menger, Jevons, and Walras.

David A. Dieterle

See also: Böhm-Bawerk, Eugen von; Entrepreneurship; Hayek, Friedrich von; Mises, Ludwig von; *Vol. 2: Macroeconomics:* Property Rights; *Vol. 3: Microeconomics:* Jevons, William Stanley; Walras, Leon

Further Reading

Boettke, Peter J. n.d. Austrian school of economics. *The concise encyclopedia of economics*. Library of Economics and Liberty. www.econlib.org/library/Enc/AustrianSchoolofEconomics.html (accessed January 10, 2016).

Boettke, Peter J., and Peter Leeson. 2003. The Austrian school of economics: 1950–2000. In Jeff Biddle and Warren Samuels, eds., *The Blackwell companion to the history of economic thought.* London: Blackwell.

Foldvary, Fred E. 2015. Austrian economics explained. www.progress.org/article/austrian-economics-explained (accessed January 10, 2016).

Mises, Ludwig von. 1949. *Human action: A treatise on economics.* New Haven, CT: Yale Univ. Press.

Mises Institute. n.d. What is Austrian economics? mises.org/about-mises/what-austrian-economics (accessed January 10, 2016).

B

BANKING

Banking is the financial activity of protecting and storing capital for individuals and institutions. The bank lends that capital to others for a profit. Depositors earn interest on their deposits, the banks use the depositors' funds to make loans to borrowers, and the borrowers use the funds to buy homes, expand businesses, or for a variety of personal uses.

Banks profit from the difference between the interest paid on deposits and the interest payments received from borrowers, called the "interest rate spread." For example, if the bank pays the depositor 1 percent interest on deposits and charges borrowers 5 percent interest, the bank's profit or spread is 4 percent. Banks also make money selling investment products and services.

Banking participants began as banks, savings and loan mutual companies, and credit unions and grew to include credit card companies, large financial conglomerates, investment brokerage companies, and some large retail institutions. Initially, banking occurred at a brick-and-mortar location that handled all transactions. Today, Internet, mobile, electronic, home, and automatic teller machine (ATM) financial management are surpassing traditional banking methods. Banking methods, locations, services, and products are evolving at a rapid rate.

History

Banking in the United States began with no regulation or oversight. Anyone could open a bank, take in deposits, and make loans. By 1920, the United States was home to almost 30,000 banks. At that time, there were more banks in the United States than in all countries in the rest of the world combined. After the Great Depression and a tidal wave of bank failures, the federal government created the Federal Deposit Insurance Corporation (FDIC) in an attempt to reduce bank failures and protect consumer's deposits. The FDIC insures every depositor funds up to $250,000 per insured bank.

Historically, banks operated exclusively within a particular state and could not expand across state lines. In 1994, interstate banking was passed into law. The Riegle–Neal Interstate Banking and Branching Efficiency Act of 1994 improved convenience and product availability for consumers and completely reshaped the banking industry in the United States.

Payment Services

Traditional banking services include checking or demand deposits. Designed as a method to pay bills, a checking account is usually a no-interest deposit account; funds are transferred into and out of it to meet financial obligations. Electronic bill payment and check deposits are replacing paper check payments in popularity. Automatic teller machines (ATMs) have added to the convenience of depositing funds and withdrawing cash. A debit card, issued by the bank, gives consumers ready access to their bank funds and can be used at ATMs as well as to make purchases from merchants.

Fees are occasionally charged on checking accounts. Some checking accounts pay interest if depositors agree to maintain a specific minimum level of cash in the account.

Savings

Savings accounts or time deposits pay interest on customers' deposits and are useful for protecting and growing cash for the future. Consumers deposit funds for easy access at a later date. Banks usually pay interest on savings accounts. Banks may charge fees for these accounts if deposits fall below a specified amount. Banks offer certificates of deposit (CDs) to consumers who are willing to tie up their funds for longer periods of time in exchange for higher interest payments.

Borrowing

At some time in their lives, most consumers need to borrow funds for a major purchase. Vehicle loans and home mortgage loans are among the most common types of loans. Consumers may also take out personal loans to fund expenses such as home improvements. Businesses borrow to fund start-up and expansion costs.

In the past, banks were a major source of funding for mortgage, business, and personal loans. Consumers would apply for a loan and provide information about their work and credit history; if applicants were deemed reliable, the bank would loan them the funds. After lending the money, the banks serviced the loan (collected the payments due on it) until the loan amount was paid off. Today, it is common for banks to immediately sell their loans to other financial market participants.

Supplementary Financial Services

The differences between banks, credit unions, savings and loan mutual companies, credit card companies, investment brokerage companies, insurance companies, and other financial management organizations are blurred as additional financial services are offered.

Over time, banks have sought new ways to serve customers and increase bank profits by offering investment and insurance products. Credit card, investment brokerage, insurance, and other financial companies now offer banking services as well. Banks and financial companies offer investment products, insurance services, and a variety of accounts through which consumers can access these additional offerings.

Specialized retirement accounts that were once the purview of investment brokers are now available at banking institutions as well. The best-known types of these are Individual Retirement Accounts (IRAs), Roth IRAs (which allow the account holder to withdraw funds from the account during retirement without paying any tax), and educational savings accounts commonly known as 529 Savings Plans.

Quasi-Banking Entities

PayPal and peer-to-peer (PTP) or social lending are two banking-related services through which nontraditional quasi-banking entities fill a banking need. PayPal provides payment transfer services for electronic money transfers. Used to pay merchants and individuals online, this nonbank entity also links individual's credit card and bank accounts to offer a myriad of payment transfer options.

Customers have alternative borrowing and lending options through PTP or social-lending networks. These networks connect individuals who have funds to lend with borrowers who are in need of small to medium-sized loans. Lenders receive interest payments, and borrowers get funded by their peers.

Banking Trends

Banking began as a location-specific service industry confined to operations during weekday business hours. As society came to be based more and more on the Internet, mobile devices, and a global and electronic society, time-pressed consumers demanded around-the-clock access to their financial transactions. As the number of brick-and-mortar bank, savings and loan, and credit union branches decreased, their business hours expanded to include weekends in addition to the traditional Monday-through-Friday hours.

Banking access continues to expand with the advent of Internet-only banks and banking services offered by credit card companies, investment brokers, and large retail conglomerates. Banking today is location-independent, with options spanning a multitude of providers.

Fee structures range from free to fee-for-service. Returns and interest rates vary by institution and type of service. Banking from home has overtaken branch banking, with consumers paying bills and transferring funds electronically. Check writing is rapidly being replaced by online bill payment. Mobile devices allow customers to make bank deposits remotely by simply scanning a check and sending it straight to the financial institution.

Quasi-banking has expanded further along with the growth of electronic commerce (e-commerce) and nontraditional banking and borrowing options, including PayPal payment systems, peer-to-peer lending, and prepaid debit cards. The banking industry is rapidly growing and changing to meet the needs of a demanding and evolving public.

Barbara A. Friedberg

See also: Investing; Social Lending and Peer-to-Peer Lending; *Vol. 2: Macroeconomics:* Federal Deposit Insurance Corporation; Federal Reserve System; Financial Intermediation; *Vol. 3: Microeconomics:* Certificate of Deposit; Demand Deposits; Interest Rates; Investment Banks versus Commercial Banks; Money Market Account; Retirement Accounts

Further Reading

Gordon, John Steele. 2008. A short banking history of the United States. *Wall Street Journal*, October 10. http://online.wsj.com/article/SB122360636585322023.html (accessed November 20, 2016).

Neely, Michelle Clark, 1994. Going interstate: A new dawn for U.S. banking. *The Regional Economist*. http://www.stlouisfed.org/publications/re/articles/?id=1885 (accessed November 20, 2016).

Tinnila, Markku. 2012. Impact of future trends on banking services. *Journal of Internet Banking and Commerce* 17 (2): 1–15.

BANKING, HISTORY OF

Banking began around 2000 BCE in Babylon and Assyria, with the use of grain loans to farmers and traders who carried goods between cities. Later, in ancient Greece and the Roman Empire, lenders based in temples made loans and added two important features to banking: deposits and money-changing. There is evidence that banking and money-lending took place in ancient China and India as well.

The first recorded use of paper money was in China in the seventh century. However, the practice of "banking" did not become widespread until nearly a thousand years later. In the 17th century, bankers began to specialize—with the rich and more influential ones associated increasingly with foreign trade and exchange transactions. Since these wealthy businessmen (bankers) were richer and more sophisticated than the general population, they became increasingly concerned with questions of political significance. Stability of a country's currency, war and peace, dynastic marriages, and worldwide trading monopolies became the focus of the financiers.

The bankers' relationships with governments were always in monetary terms and not real terms, since the bankers' focus was with the stability of monetary exchanges between countries. The bankers used their power and influence to get all money and debts expressed in terms of a strictly limited commodity; ultimately, this commodity was gold. Bankers believed that with a stable commodity such as gold, private banking could handle these exchanges better than governments could.

Currency, particularly coins, needed to be kept in a safe place. Since ancient homes did not have the benefit of steel safes, wealthy people held accounts at their temples. Priests or temple workers, who were believed to be both devout and honest, occupied the temples, providing a sense of security. Records from ancient Greece, Rome, Egypt, and Babylon suggest that temples loaned money in addition to keeping it safe. The fact that most temples were also the financial centers in their cities is the major reason why they were ransacked during wars and invasions.

The Roman era parallels the biblical accounts of various banking events and guidelines for lending with interest. In the Roman Catholic Church, charging interest was considered a sin if a Christian charged another Christian. The same teaching applies in the Old Testament. However, the Old Testament book of Deuteronomy (23:20) allows Hebrew lenders to charge interest if the borrowers are non-Hebrew ("foreigners"). Charging interest—sometimes at very high rates, or *usury*—is now a staple of successful banking. This now-common practice has fueled anti-Jewish sentiment throughout history.

Banking in Europe

Banking, in the modern sense of the word, can be traced to the Middle Ages and to the Renaissance era in Italy, specifically in the wealthy cities of Florence, Venice, and Genoa. The Bardi and Peruzzi families dominated banking in 14th-century Florence, and they established branches of banks in many other parts of Europe as well. Probably the most famous Italian bank was the Medici Bank, established by Giovanni Medici in 1397.

The oldest bank still in existence is Banca Monte dei Paschi di Siena. Located in Siena, Italy, it has been in operation continuously since 1472. In the 16th century, the position of the Medicis was eventually taken over by the Fuggers and the Welsers. Many important banking innovations took place in Amsterdam during the Dutch Republic in the 17th century and in London in the 18th century.

The development of banking spread from northern Italy throughout the Holy Roman Empire. The Romans moved banking out of the temples and formalized it with distinct buildings. Even though the Roman Empire eventually crumbled, some of its banking institutions remained in the form of papal bankers who emerged in the Holy Roman Empire and the Knights Templar during the Crusades.

Commercial capitalism in the period from 1440 to 1815 was marked by the supremacy of chartered companies such as the Hudson's Bay Company, Dutch East India Company, and East India Company British Company, the Virginia Company, and the Company of Merchant Adventurers. England's greatest rivals in all of these activities were defeated by England's greater power and isolationist security.

Great Britain's victories over Louis XIV in the period of 1667–1715 and over the French Revolutionary governments and Napoleon in 1792–1815 had many causes, but one in particular was England's discovery of credit. Economically, England had embarked on the Industrial Revolution.

The Founding of the Bank of England

The use of credit was known to Italians and Netherlanders long before it became one of the instruments of Great Britain's world supremacy. The founding of the Bank of England by William Paterson and his friends in 1664 is one of the most noted dates in world banking history. For years, men had sought to avoid the one drawback of gold, its weight, by using pieces of paper that represented specific pieces of gold. Today such pieces of paper are called gold certificates.

Gold certificates entitled bearers to exchange said certificate for its piece of gold on demand, but in view of the convenience of paper, only a small fraction of certificate-holders ever made such demands. It became clear early on that gold needed be kept on hand only in the amount needed to cover the fraction of certificates likely to be presented for payment. The rest of the gold could be used for business purposes. In addition, the number of certificates issued could be greater than the volume of gold reserves available for payment of demand against them. These excess paper claims against reserves are now called banknotes.

Modern Banking in the New World

Banking was already well established in the British Empire when Adam Smith wrote *An Inquiry into the Wealth of Nations* in 1776. Empowered by Smith's views of a self-regulated economy, moneylenders and bankers managed to limit the state's involvement in the banking sector and the economy as a whole. This free market, capitalism, became the way of doing business in the New World, where the United States of America was about to emerge.

In the beginning, Smith's idea of a free market economy did not benefit the American banking industry. The average life for an American bank was five years, after which most banknotes from the default banks became worthless. These state-chartered banks could only issue notes against the gold and silver coins they had in reserve.

In 1791, Secretary of the Treasury Alexander Hamilton established a national bank in the United States with a 20-year charter. The roles of the bank included the following: The bank would (1) accept and hold the money that the government collected in taxes; (2) help the government carry out its powers to tax; (3) borrow money in the public interest; (4) regulate interstate and foreign commerce; (5) issue representative money in the form of banknotes (which were backed by gold and silver); and (6) ensure that state-chartered banks held sufficient gold and silver to exchange for banknotes should the demand rise. The First Bank of the United States succeeded in bringing order and stability to American banking.

In 1811, when the First Bank's charter ran out, state banks began issuing banknotes that they could not back with gold or silver. Without no supervision or regulation, financial confusion reigned. Neither merchants nor customers had confidence in the value of the paper money in circulation. Different banks issued different currencies, and the temptation for banks to print more money than they had in gold or silver was real.

To eliminate this financial chaos, in 1816 Congress chartered the Second Bank of the United States. Like the First Bank, the Second Bank was limited to a 20-year charter. Despite the creation of another central bank, the people of the United States distrusted the federal government's banking power.

The fall of the Second Bank of the United States once again triggered a period dominated by state-chartered banks. The period between 1837 and 1863 is known as the Free Banking Era (aka the Wildcat Era). The number of state-chartered banks tripled, leading to a series of problems in banking. State-chartered banks did not keep enough gold and silver on hand to back the paper currency that they issued. Some banks were located in extremely remote areas. A few banks engaged in fraud by issuing banknotes for deposited gold or silver and then disappearing. Anyone who had bought the notes lost that money. During this era, state-chartered banks were allowed to issue currency—and so were private banks, railroads, stores, churches, and individuals. By 1860, an estimated 8,000 different banks were circulating currencies.

With the Civil War raging, the federal government enacted reforms aimed at restoring confidence in paper currency. These reforms resulted in the National Banking Acts of 1863 and 1864. Together, these acts gave the federal government three important powers: (1) the power to charter banks, (2) the power to require banks to hold adequate gold and silver reserves to cover their banknotes, and (3) the power to issue a single national currency. The new national currency led to the elimination of the many different currencies in use and helped stabilize the country's money supply.

Despite the reforms made during the Civil War, the country was still plagued by money and banking problems. In the 1870s the nation adopted the gold standard. This monetary system required that any paper or coin money issued would be equal to the value of a certain amount of gold. It set a definite value for the dollar, so that one ounce of gold equaled about $20. It also forced the government to issue currency only if it had gold in the Treasury to back the notes. The gold standard fulfilled an essential requirement of a banking system: a stable currency that inspires the confidence of the public.

Merchant Banks

Because the national banking system was so inconsistent, most of the economic duties that would have been handled by the national banking system fell to the large merchant banks to handle. During this period of unrest, which lasted until the 1920s, these merchant banks used their international connections to increase their political and financial power. These banks included Goldman and Sachs, Kuhn, Loeb, and J. P. Morgan and Company. While upstart banks came and went, these family-held merchant banks had long histories of successful transactions.

J. P. Morgan and Company emerged at the head of the merchant banks during the late 1800s. It was connected directly to London, which at that time was the financial center of the world and had considerable political clout in the United States. Although there were well-established merchant banks at the dawn of the 1900s, it was difficult for the average American to get loans from them. The merchant banks did not advertise, and they rarely extended credit to the "common" people.

In 1907, when the collapse of shares of copper trust set off a panic that had people rushing to pull their money out of banks, the need for a central bank became obvious. It took J. P. Morgan to stop the panic; he used his considerable clout to induce all of the major economic players to maneuver their credit and any capital they controlled—similar to what a government-run bank would do to slow a panic. The fact that it took a single man with immense banking power to resolve the Panic of 1907 prompted the federal government to act.

U.S. Banking in the Modern Era

Banking today still revolves around an act of Congress from 1913. In 1913 the Federal Reserve Act was passed, creating the United States' central bank: the Federal Reserve System. This act of Congress, signed into law by President Woodrow Wilson, restructured the banking industry in the United States.

The Federal Reserve's Board of Governors are appointed by the president and confirmed by the Senate. The Federal Reserve System is made up of 12 regional Federal Reserve Banks, each with its own president and board. The major responsibilities of the nation's central bank are to regulate member banks, act as lender of last resort for banking stability, serve as the federal government's fiscal agent, and monitor the nation's money supply. The main tools Federal Reserve uses to monitor the money supply are the reserve requirement, the discount rate, or the buying and selling of government securities through the Federal Open Market Committee (FOMC).

Tracy L. Ripley

See also: Banking; Central Bank; *Vol. 2: Macroeconomics:* Banking Act of 1933 (Glass-Steagall Act); Federal Open Market Committee; Federal Reserve Act of 1913; Federal Reserve System; Gold Standard; National Bank Act of 1863; *Vol. 3: Microeconomics:* Banking Trends: Electronic and International; Wildcat Banking; *Primary Document*: Banking Act of 1933 (Glass-Steagall Act)

Further Reading

Beattie, Andrew. 2011. The evolution of banking. *Investopedia*. http://www.investopedia.com/articles/07/banking.asp?rp=i (accessed November 23, 2014).

Bodenhorn, Howard. 2000. *A history of banking in antebellum America: Financial markets and economic development in an era of nation-building*. Cambridge, UK: Cambridge Univ. Press.

O'Sullivan, Arthur, and Steven M. Sheffrin. 2005. *Economics: Principles in action.* Upper Saddle River, NJ: Pearson/Prentice Hall.

Rothbard, Murray N. 2002. *History of money and banking in the United States: The colonial era to World War II*. Auburn, AL: Ludwig von Mises Institute.

BANKRUPTCY

Bankruptcy is a legal process that allows individuals and businesses that can no longer pay their bills to seek protection from their creditors. There are several types of bankruptcy, and various methods of debt settlement and repayment. Often referred to as an "economic fresh start," bankruptcy is addressed in the U.S. Constitution, Article I, Section 8, which authorizes Congress to enact "uniform Laws on the subject of Bankruptcies."

All individual consumers who file for bankruptcy must first undergo credit counseling with an approved nonprofit budget and credit counseling agency within six months before filing their bankruptcy petition. Also, before the court will grant a discharge of debt, consumer debtors must complete a financial management instructional course with an approved provider.

History of Bankruptcy

In medieval Europe, when merchants or tradesmen failed to pay their bills, they were deemed *banca rotta*, or "broken bench," and the lender to whom they owed money would literally destroy their means of livelihood. Treatment of debtors could be harsh; for example, in England this included imprisonment and in extreme cases even death (Tabb 1995).

As the founding fathers were drafting the U.S. Constitution, they made a provision for bankruptcy. Yet it wasn't until 1898 that a long-term and comprehensive bankruptcy code was passed. It was also the first time that bankruptcy law became more favorable to the debtor, as previous laws were more creditor-focused.

The most recent update to the bankruptcy law was the passage of the Bankruptcy Abuse Prevention and Consumer Protection Act of 2005, also known as BAPCPA.

Bankruptcy Process

Because bankruptcy is governed by federal law, the process is administered in federal courts and cannot be filed in a state court. The individual or business filing a case in bankruptcy court is referred to as a debtor. The creditors are those to whom the debtor owes money. The bankruptcy court assigns a trustee to administer the bankruptcy estate that is created by the filing of the petition. The trustee's responsibilities include reviewing the paperwork that the debtor has submitted to the court and bringing actions against creditors or the debtor to recover property of the bankruptcy estate.

In a Chapter 7 bankruptcy, the trustee liquidates property of the estate and uses the resulting money to repay creditors. In a Chapter 12 or Chapter 13 bankruptcy, the trustee oversees the debtor's repayment plan by actually receiving monthly payments from the debtor and then forwarding those payments to creditors. The judge in a bankruptcy court may hear and decide any matter related to a bankruptcy case; however, much of the bankruptcy process is administrative; and a debtor's involvement with the judge is usually very limited.

Bankruptcy Chapters

The different types of bankruptcy that individuals and businesses can file take their names from the actual bankruptcy code itself, which appears in Title 11 of the United States Code.

Chapter 7 bankruptcy is also known as liquidation bankruptcy. The reason for this is that the debtor's non-exempt (debtors are allowed to keep some items) assets are collected and sold by the trustee. The cash proceeds are then used to repay the creditors. Upon completion of the case, the debtor receives discharge and forgiveness of the debts under Chapter 7, with certain exceptions that are prohibited from discharge, such as taxes, child support, and student loans. Forgiveness means that certain debts do not need to be repaid. Consumer debtors are required to complete a financial analysis, referred to as a means test, to determine whether, based on their income it is more appropriate for them to file a Chapter 13 bankruptcy. Most bankruptcies filed in the United States are Chapter 7 cases.

Chapter 11 bankruptcy is also known as the rehabilitation bankruptcy. Debtors can use Chapter 11 to reorganize their debts while continuing to operate their business. The vast majority of Chapter 11 cases are filed by businesses, although higher-income individuals may also use this chapter. These debtors often work with their creditors (who will form a creditor committee) to create a reorganization plan, in which they repay all or part of their debts. Upon completion of the case, the debtor receives discharge and forgiveness of any remaining debts, with certain exceptions that are prohibited from discharge.

Chapter 12 is the bankruptcy chapter specifically designed for family farmers and fisherman. This chapter is similar to Chapter 13, except that it allows for higher debt levels and more flexibility regarding when payments can be made to the courts, thereby making allowances for harvest schedules. In Chapter 12, debtors may keep their property and not be forced to liquidate it. They will repay all or part of their debts by making payments through the court-appointed trustee over a period of three to five years. Upon completion of the case, the debtor receives discharge and forgiveness of the remaining debts, with certain exceptions that are prohibited from discharge.

Chapter 13 is also known as the wage-earner's bankruptcy. Debtors can use this chapter to reorganize their debts, as long as they can demonstrate to the court that they have a regular income. Also, to be eligible for Chapter 13, a debtor may not have more than a certain amount of debt, as set forth in the Bankruptcy Code. In a Chapter 13 bankruptcy, debtors may keep their property and not be forced to liquidate it. They will repay all or part of their debts by making payments through the court-appointed trustee over a period of three to five years. Upon completion of the case, the debtor receives discharge and forgiveness of the remaining debts, with certain exceptions that are prohibited from discharge.

Bankruptcy Considerations

The U.S. population continues to see growth in outstanding consumer credit levels, while the national savings rate has declined to less than 3 percent per year. Each year, over one million Americans file for bankruptcy. Before filing for bankruptcy, each of these consumers must weigh both the pros and the cons of this important decision.

There are advantages to filing for bankruptcy protection; the most notable of these is debtors' economic fresh start after they receive their discharge. The idea is that when debtors are no longer burdened by unmanageable debt, they can become productive and contributing members of the economy. Also, with the filing of the bankruptcy petition all collection efforts must stop. Further, individuals cannot be fired from their jobs because they have filed for bankruptcy.

There are disadvantages as well. Because bankruptcy filings are a matter of public record, debtors may find that for several years after they have filed, they have to disclose this information whenever they apply for professional licenses or credit. Also, for up to 10 years the information will show on their credit reports, which can impact consumers' future finances and the cost of credit. A study by Purdue University found that about one-third of consumers who filed for bankruptcy had obtained new credit within three years of filing, and by the fifth year one-half had obtained credit, even with the negative information on the credit report.

John C. Linfield

See also: *Vol. 2: Macroeconomics:* Debt; *Vol. 3: Microeconomics:* Consumer Credit and Debt; Debt Collection

Further Reading

American Bankruptcy Institute. n.d. Bankruptcy resources. http://bankruptcyresources.org/ (accessed July 21, 2016).

American Bar Association. n.d. Bankruptcy. http://www.americanbar.org/groups/public_education/resources/law_issues_for_consumers/bankruptcypros.html (accessed October 15, 2013).

Elias, Stephen, and Leon Bayer. 2013. *The new bankruptcy: Will it work for you?* 5th ed. San Francisco, CA: Nolo Press.

Tabb, Charles Jordan. 1995. The history of the bankruptcy laws in the United States. *American Bankruptcy Institute Law Review* III (5): 5–51.

United States Courts. n.d. Bankruptcy. http://www.uscourts.gov/FederalCourts/Bankruptcy.aspx (accessed October 15, 2013).

BASIC ECONOMIC QUESTIONS

The *basic economic questions* are the universal questions that all economies, past and present, seek to answer:

- What goods and services shall we produce?
- How shall we produce them?
- For whom shall we produce them?

How an economy answers these basic questions helps to distinguish one economic system from another. There are many ways to classify economies. Economists often consider how the basic economic questions are answered by traditional economies, pure market economies, and pure command economies. In reality, there are no pure economies operating in the global economy. Instead, all economies are "mixed economies." Today, most economies lean toward the market economy model, while a few lean toward the command economy model.

The question "What goods and services shall we produce?" deals with decisions that individuals, firms, and countries make about which goods and services should be produced. A *good* is any object that satisfies a person's wants or needs. A *service* is any productive activity that satisfies a want or need. In a market-oriented economy, such as the United States or Japan, individuals are mainly responsible for answering the "What goods and services shall we produce?" question. This is because consumers cast their "dollar votes" for or against certain goods and services through their buying decisions. Today, consumers value automobiles and the skills of auto mechanics, so consumers' dollar votes are cast in favor of this good and this productive service. Dollar votes are no longer cast for horse-drawn carriages or blacksmiths, however, because newer technologies have rendered this good and this productive service obsolete. In command-oriented economies, such as Cuba or North Korea, government economic planners dictate the answer to the question "What goods and services shall we produce?" Government planners create central plans, often called *five-year plans*, to allocate scarce resources. In command economies, government-determined goals are more important than the individual's wants or needs.

The question "How shall we produce them?" concerns the employment of society's factors of production: natural resources, human resources, and capital goods. In market-oriented economies, business firms answer the "How shall we produce them?" question. In the highly industrialized market economies, such as the United States, business firms determine the most efficient mix of resources to use in production. Often, firms employ sophisticated capital goods—such as precision tools, robots, computers, and software—to increase productivity in their plants. Firms in market economies also employ other needed resources, including human and natural resources. Production in the United States and other highly industrialized market-oriented economies is *capital-intensive*, or heavily reliant on capital goods and technology, to produce products. In command-oriented economies, the question of "How shall we produce them?" is largely determined by the central planners. These planners control society's factors of production, and they allocate natural, human, and capital resources to meet government objectives.

In today's global economy, production in the few command-oriented economies tends to be *labor-intensive*, or heavily reliant on human labor. This is mainly due to the low development status of countries such as Cuba and North Korea, however, rather than their commitment to a centrally planned economy.

The question "For whom shall we produce them?" concerns the distribution of society's output. In effect, this question deals with who will receive the goods and services that are produced. In the market-oriented economies, "For whom shall we produce them?" is determined mainly by an individual's income and the prevailing prices of goods and services. People with higher incomes are better able to purchase goods and services than people with lower incomes. As a result, higher-income groups have a higher standard of living than people with lower incomes. During the 20th century, all industrialized market-oriented economies instituted programs to influence income distribution. The government adjusts the distribution of income through public transfer payments, which supplement the income of the needy. Transfer payments improve people's access to necessary goods and services, and thus they elevate people's standard of living.

Examples of public transfer payments in the U.S. economy include Temporary Assistance to Needy Families (TANF), food stamps, Medicare and Medicaid, and Social Security payments. In command-oriented economies, the “For whom shall we produce them?” question is determined by the government. Government planners set both the wage rates for workers and the prices of most goods. By controlling wages and prices, the government determines each person’s share of national output. In command economies, the government also provides some low-cost or no-cost services, such as health care and housing, to support a minimum standard of living.

David E. O’Connor

See also: Command Economy; Economic Systems; *Vol. 2: Macroeconomics:* Macroeconomics

Further Reading

Black, John. 2003. *A dictionary of economics.* 2nd ed. New York: Oxford Univ. Press.
Heilbroner, Robert, and Lester Thurow. 1998. *Economics explained.* New York: Touchstone.
O’Connor, David E. 2004. *The basics of economics.* Westport, CT: Greenwood Press.
O’Connor, David E., and Christopher Failles. 2000. *Basic economic principles: A guide for students.* Westport, CT: Greenwood Press.

BASTIAT, FRÉDÉRIC

Born: June 30, 1801, in Bayonne, Aquitaine, France; Died: December 24, 1850, in Rome; Nationality: French; Professional Interests: proponent of free trade; Major Work: *The Law* (1850).

Frédéric Bastiat was a French economist and journalist who championed free trade and laissez-faire government. His career as an economist began in 1844 during a time when France was undergoing a trend toward socialism. Most of his works were published around the time of the French Revolution of 1848. Bastiat’s arguments against socialism are characterized by their clear organization, use of parables, and understandable writing style. In his most famous work, *The Law*, Bastiat argues that government should exist only to protect humans’ God-given rights, which are life, liberty, and property. This work was published in June, just a few months prior to his death. Bastiat died in 1850.

Claude Frédéric Bastiat was born on June 30, 1801, in Bayonne, Aquitaine, France. Bayonne, Aquitaine, is located in the south of France on the Bay of Biscay. Bastiat was orphaned at the age of nine and was raised by his paternal grandparents. He spent his youth on his grandfather’s farm in Mugron in the south of France. Not fond of working on the farm, he passed most of his time reading. At age 17, he left school to work at his uncle’s trading company. While working at his uncle’s firm, he perceived that its inability to flourish was due in part to the government’s restrictive economic controls. It was at this time that young Bastiat declared that his ambition was “nothing less than to become acquainted with politics, history, geography, mathematics, mechanics, natural history, botany, and four or five languages.”

Bastiat was particularly inspired by the works of Jean-Baptiste Say and Adam Smith. Their ideas convinced Bastiat that social and economic progress could not exist outside of a free-market economy. When Bastiat was 24, his grandfather died, leaving him the countryside family estate in Mugron. Bastiat spent the next 20 years running the farm and quietly debating politics with his friends. During the French Revolution of 1830, Bastiat was inspired to join the cause in the name of driving out oppressive government rule in France. His analytical thinking and dedication did not go unnoticed. Soon after the Revolution of 1830, Bastiat was named justice of the peace in Mugron, and two years later he was elected to membership in the General Council of Landes.

Even under a new ruler, Louis Phillipe, France soon fell back into the same oppressive patterns. Poor citizens were not allowed to vote, the publication of negative articles about Louis Phillipe were prohibited, and the king used the power of the government to benefit some citizens at the expense of others. Witnessing the once-promising ruler fall into the socialist patterns of his predecessors, Bastiat became even more convinced that increasing government regulation was not beneficial to the citizens of a society.

Bastiat was particularly sensitive to the issue of tariffs. After traveling to Spain and Portugal, and seeing those countries mirror some of the same mistakes France had made, he became more passionate about free trade and fighting government protectionism. To defend himself against criticism from his fellow Frenchmen, he began reading English works. It was while reading *The Globe and Traveler* that he discovered the ideas of Richard Cobden and the Anti-Corn-Law League. Inspired by what he read, Bastiat submitted a treatise on tariffs to the *Journal des Economistes*. The article was printed in October 1844, and Bastiat's career as a journalist began.

Bastiat's articles were popular with French readers, and he became a regular contributor to the *Journal des Economistes.* His writing was characterized by satirical wit and the use of parables. His early articles were published collectively as *Economic Sophisms* in 1845. One of the articles in *Economics Sophisms* uses the analogy of a broken railroad to explain how tariffs are counterproductive. The illustration tells a fictitious story of a railroad built between Spain and France to facilitate trade. Soon, the producers in each country complain that the importing country is now able to provide certain goods at lower prices, threatening the profitability and security of the exporting countries' businesses. The producers demand that tariffs be enacted to artificially raise the price of the competing goods. Bastiat suggests that the tariffs negate the benefit of the cost of building the railroad in the first place, and that the consumer suffers by not enjoying the most competitive price. He sarcastically suggests that instead of imposing tariffs, the government should simply destroy the railroad anywhere that competition threatens to lower the price to consumers.

One of Bastiat's most famous parables attacking protectionism is "The Petition of the Candlemakers." In this satirical essay, he asks that a law be passed requiring that all doors, curtains, and other openings be closed in order to block out the sun, which is competing unfairly with the candle-makers' products. In the essay, on behalf of the candle makers, Bastiat declares that the candle-makers' occupation is under attack by the sun, which certainly has an unfair competitive advantage. The sun can provide an abundance of light at a very low price. Bastiat goes on to claim this law against the sun is absolutely necessary to prevent this French industry, candle-making, from totally disappearing.

In 1846, Bastiat established the Association of Free Trade and began his own newspaper, *Le libre-échange*, devoted to free trade. He began a journey through France to establish affiliate free-trade associations. The free-trade movement in France failed to gain popularity, however, and in 1848 Bastiat's association ceased to exist. Bastiat was elected to the French National Assembly in 1848. He continued to write, lecture, and serve in the Assembly until his death in 1850.

In June of 1850, Bastiat returned to Mugron for a few days and penned his most famous work, *The Law*. In this last work, Bastiat warned against socialism and again praised limited government and individual freedom. In *The Law*, he asserts his belief that the responsibility of the law is to preserve life, liberty, and property. He argues that the law was instead being used to benefit one group of citizens to the detriment of another group.

Frédéric Bastiat died on December 24, 1850, in Rome at the age of 49 after contracting tuberculosis. His works are still considered relevant arguments against the effects of socialism, and they are better known in the United States than in France. Since Bastiat offered no unique economic theories, some current economists do not consider him an economist in his own right but instead a talented journalist and communicator.

Aimee Register Gray

See also: Capitalism; Say, Jean-Baptiste; Smith, Adam; *Vol. 2: Macroeconomics:* Property Rights

Further Reading

Bastiat, Claude Frédéric. 1996. *Economic sophisms*. Trans. A. Goddard. Irvington-on-Hudson, NY: Foundation for Economic Education. (Orig. pub. 1845.)

Bastiat, Claude Frédéric. 1995. *Selected essays on political economy*. Trans. S. Cain. Irvington -on-Hudson, NY: Foundation for Economic Education. (Orig. pub. 1848.)

Bastiat, Claude Frédéric. 1995. *The Law*. Trans. Dean Russell. Irvington-on-Hudson, NY: Foundation for Economic Education. (Orig. pub. 1850.)

Bastiat, Claude Frédéric. 1997. *Economic harmonies*. Ed. George B. De Huszar and trans. W. H. Boyers. Irvington-on-Hudson, NY: Foundation for Economic Education. (Orig. pub. 1850.)

Böhm-Bawerk, Eugen. 1970. *Capital and interest: A critical history of economical theory*. Trans. with a preface and analysis by William Smart. New York: Kelley.

Kirzner, Israel M. 1976. *The economic point of view: An essay in the history of economic thought*. 2nd ed. Kansas City, MO: Sheed and Ward.

Roche, G. C. 1971. *Frederic Bastiat: A man alone*. New Rochelle, NY: Arlington House.

BEHAVIORAL ECONOMICS

In contrast to traditional economics, a key distinguishing feature of behavioral economics is its particular emphasis on the realism of the behavioral, sociological, and institutional assumptions that form the basis of economic models. Although all models require simplifying assumptions, behavioral economics places strong emphasis on avoiding simplistic assumptions that have little to do with how individuals behave in the real world. Traditional economics can produce misleading economic analyses and predictions, and it can confuse correlation with causation. Related to this, behavioral economics is strongly rooted in building economic theory through an understanding of how individuals actually behave—and then explaining this behavior.

Contemporary behavioral economics is often associated with the contributions of Hebert Simon and, more recently, Daniel Kahneman, Amos Tversky, George Akerlof, and Richard Thaler. Behavioral economists have developed new theories that either supplement or revise conventional microeconomic and macroeconomic theories when these can't explain economic behavior or economic events. A cornerstone of behavior economics has been the introduction of noneconomic variables or factors to the economic toolbox, especially psychological, sociological (including gender and economic class), institutional (political), and, more recently, neurological variables. But behavior economics does not reject the importance of relative prices and incomes determining decision-making and choices. It's just that traditional economic variables alone often are not good enough to produce rigorous economic analysis.

Simon introduced the concepts of *bounded rationality* and *satisficing*, integrating into economic theory the fact that the brain's cognitive—or processing and information-gathering—capacity is limited, making these tasks costly. The brain is, in fact, a scarce resource, like clean water, oil, and food. In addition, the individual's decision-making environment is often less than ideal. Information is not only costly to obtain but also asymmetric; that is, some individuals have better information than others. For example, the seller of a used car or a financial asset has better information than the buyer, and the worker has better information about the work process than the employer. In additional, individuals can't predict with any degree of certainty the implications of their choices for their future. This imposes additional constraints on how rational people can go about making decisions. For these reasons, bounded rational or smart individuals—as opposed to the unboundedly rational individuals of traditional economics—develop and adopt procedures and decision-making shortcuts or heuristics to limit such costs. These decision-making procedures typically differ quite significantly from what is suggested by traditional economics, which assumes that the brain is not a scarce resource and that the decision-making environment is ideal.

"Satisficing," as opposed to maximizing, is what rational individuals attempt do in a world of bounded rationality. They attempt to achieve the best possible outcomes given the constraints that they face. In a world of bounded rationality, a firm's output and profit and the individual's level of satisfaction or utility can be less than these might in in world where there brain is not a scarce resource and where the decision-making environment is ideal. However, some behavioral economists argue that given bounded rationality, individuals often end up making *superior* decisions when applying satisficing decision-rules as opposed to those recommended in traditional economics. In fact, economist Friedrich Hayek, analyzing the dynamics of complex information, made this point in the 1940s. In additional, economic models based on bounded rationality and satisficing can be more descriptively and causally accurate than traditional economic models.

Apart from bounded rationality and satisficing, Simon and more contemporary behavioral economists also emphasize the significance of differential power relationships among decision-makers, conflicts, fairness, altruism, trust, emotions, identity, intuitions, norms, social capital, and institutions for modeling human decision-making in the realm of economics. These variables were not given much attention in traditional economic theory, as they were assumed not to be of much consequence to understanding economic outcomes. The evidence now shows that these factors often play an important role in decision-making. For example, contrary to conventional economics, individuals often don't simply focus on increasing their own income; often they willingly sacrifice some income in the name of fairness or justice. Also, emotion and intuition often play a role, often a positive one, in decision-making.

More recently, Kahneman and Tversky (two psychologists) developed *prospect theory*, which is a hallmark of contemporary behavioral economics, based on their empirical findings on human decision-making. Prospect theory is offered as a new and improved alternative to traditional economics subjective expected utility (SEU) theory. In contrast to SEU theory, in prospect theory individuals, on average, aren't income or wealth maximizers after their preferences regarding different levels of risk are accounted for. Rather, individuals are willing to sacrifice income for the certainty of outcomes. Individuals, on average, aren't willing risk significant losses today for uncertain gains and possible losses in the future. Also, a dollar gained is given a lower weight than a dollar lost. So, unlike in the conventional wisdom, on average, if you win a dollar and you lose a dollar, your net gain is not zero; rather it is negative. So, it is argued, individuals tend to be adverse to losses (loss aversion). In addition, individuals tend to evaluate losses and gains from a subjective benchmark, as opposed to their absolute net gains in income and wealth. Also, individuals often evaluate their well-being relative to others. Therefore, absolute increases or levels of income and wealth are less important than improvements to a person's relative positioning are. Much of this is driven by the role of emotions in decision-making, as compared to "rational" calculation. For this reason, wealth maximization is not the end game in prospect theory's descriptive modelling framework. In addition, Kahneman and Tversky, as well as other behavioral economists and economic psychologists, have argued that individuals' decisions are affected by, among other things, lack of self-control: individuals often do things that they prefer not to do, and they soon regret so doing. Individuals also tend to be overconfident, shortsighted, or myopic, and they are heavily influenced by the behavior of others, driving them to "copycat" or "herding" behavior that, according to many behavioral economists, results in errors in decision-making.

Harvey Leibenstein developed the concepts of efficiency wages and X-efficiency theory. Based on the evidence, he assumes that effort inputs into the process of production are variable—not fixed, usually at some maximum, as is assumed in conventional theory. Therefore, costs need not be minimized nor output maximized. In this model, effort maximizing remains the ideal for wealth maximization or X-efficiency to be achieved. However, for this to transpire, appropriate market conditions and in-firm incentive environments (often far removed from neoclassical norms) must be developed. For example, fairness, trust, happiness, and voluntary cooperation, as well as competitive pressures, become important to motivating increasing effort levels. The efficiency wage modeling has being extended to provide rational explanations for nominal wage rigidity.

Two major perspectives have developed in behavioral economics. One follows and extends the work of Kahneman and Tversky. This perspective is especially focused on demonstrating through experiments the extent to which human decision-making deviates from conventional economics best-practice behavioral norms. The latter are typically used as the benchmark for economic rationality. By such standards individuals are often found to be irrational, generating inefficiencies in consumption and production. But such behavior can often be corrected through education or government intervention.

The other approach to behavioral economics builds on the contributions of James March and Herbert Simon. Individuals are assumed to be largely rational and intelligent, even when they deviate significantly from traditional economic behavioral norms. Rather, individuals develop procedures and institutions that best suit their individual needs given the constraints they face. More often than not, such deviant behavior yields superior and more efficient outcomes in consumption and production than would conventional behavioral norms. Errors in decision-making are often corrected through learning, experience, and improvements to the decision-making environment. This approach to human behavior is sometimes referred to as "ecological rationality," and it is championed by experimentalist Vernon Smith and psychologist Gerd Gigerenzer.

Behavioral economics enriches conventional economic theory by introducing important variables and parameters that are often neglected. This helps generate more rigorous models in terms of prediction, description, causality, and policy. It allows us to better understand how and why individuals make the choices they make given the constraints they face and their psychological and neurological endowments.

Morris Altman

See also: Behavioral Finance; Culture and Behavioral Economics; Discrimination and Behavioral Economics; Feminism and Behavioral Economics; Golden Rule and Behavioral Economics; Social Capital and Behavioral Economics; Tversky, Amos; *Vol. 2: Macroeconomics:* Moral Hazard and Behavioral Economics; *Vol. 3: Microeconomics:* Akerlof, George; Behavioral Law and Economics; Kahneman, Daniel; Profit Maximization and Behavioral Economics; Prospect Theory; Shiller, Robert; Simon, Herbert; Smith, Vernon

Further Reading

Akerlof, George A. 2002. Behavioral macroeconomics and macroeconomic behavior. *American Economic Review* 92: 411–33.

Altman, Morris, ed. 2006. *Handbook of contemporary behavioral economics: Foundations and developments*. Armonk, NY: M. E. Sharpe.
Altman, Morris. 2012. *Behavioral economics for dummies*. Mississauga, Canada: Wiley.
Camerer, Colin F., George Lowenstein, and Matthew Rabin, eds. 2003. *Advances in behavioral economics*. Princeton, NJ: Princeton Univ. Press.
Cyert, Richard M., and James C. March. 1963. *A behavioral theory of the firm.* Englewood Cliffs, NJ: Prentice-Hall.
Frank, Robert H. 1988. *Passions within reason: The strategic role of the emotions.* New York: Norton.
Kahneman, Daniel, and Amos Tversky. 1979. Prospect theory: An analysis of decision under risk. *Econometrica* 47: 263–91.
Kahneman, Daniel. 2011. *Thinking, fast and slow*. New York: Farrar, Straus & Giroux.
Katona, George. 1951. *Psychological analysis of economic behavior*. New York: McGraw-Hill.
Leibenstein, Harvey. 1966. Allocative efficiency vs. "x-efficiency." *American Economic Review* 56: 392–415.
Simon, Herbert A. 1987. Behavioral economics. In *The new Palgrave: A dictionary of economics*, ed. John Eatwell, Murray Millgate, and Peter Newman, 221–25. London: Macmillan.
Simon, Herbert A. 1978. Rationality as a process and as a product of thought. *American Economic Review* 70: 1–16.
Smith, Vernon L. 2003. Constructivist and ecological rationality in economics. *American Economic Review* 93: 465–508.
Stiglitz, Joseph E. 1987. The causes and consequences of the dependence of quantity on price. *Journal of Economic Literature* 25: 1–48.
Thaler, Richard H. 1992. *The winner's curse: Paradoxes and anomalies of economic life*. New York: Free Press.
Tversky, Amos, and Daniel Kahneman. 1981. The framing of decisions and the psychology of choice. *Science* 211: 453–58.

BEHAVIORAL FINANCE

Behavioral finance is the field of research that studies how investors make judgments and choices in financial markets. Its models incorporate findings from different social sciences (economics, psychology, and sociology) and, more recently, brain sciences to explain investor preferences and behaviors. In contrast to traditional finance, which is based on normative rationality (based on traditional economics) assumptions, behavioral finance proposes more descriptive market theories. One of the most important aims of this research area is to show how cognitive errors or biases and affective reactions of individual investors influence and modify price changes on the market.

Behavioral finance theories are typically classified into two groups: belief-based and preference-based. The former refers to judgments concerning risks and expected returns, whereas the latter is related to decisions on what and when to trade.

When making intuitive judgments in a complex environment (a financial market), people typically use different mental shortcuts that psychology defines as *heuristics*. Empirical research has demonstrated that heuristic information-processing may lead to systematic biases and deviations from traditional economic rationality. Examples of cognitive biases that can be observed in financial judgment are *anchoring* or *representativeness*. Anchoring can be interpreted in terms of investors relying too much on a past reference (initial share price) or a certain piece of information (earnings announcement) when making financial forecasts for the future. When people make judgments according to the representativeness heuristic, they base those judgments on different stereotypes. For example, investors tend to be optimistic about prospects of stocks that were recent winners and pessimistic about the future of stocks that were recent losers. In other words, they fail to think in terms of the regression to the mean phenomenon (DeBondt and Thaler 1985).

Biases in financial judgment result not only from cognition but also from motivation. It has been shown that investors are overly confident in their knowledge and tend to be prone to wishful thinking. One of the consequences of the overconfidence illusion is exuberant trading frequency resulting in a worse performance (Barber and Odean 2000).

The second category of behavioral finance models concerns preferences and choices. The main basis for these models is *prospect theory*, which shows that people's preferences are context-dependent and strongly loss-averse. Researchers have used both effects to explain investors' tendency to hold on to losing stocks for too long and sell winning stocks too soon—the tendency referred to as the *disposition effect* (Shefrin and Statman 1985). Prospect theory suggests that people are risk-averse in the domain of gains but risk-seeking in the domain of losses. If stock appreciates, investors sell it early because they do not want to accept the risk of trend reversal. On the other hand, if stock declines and its price falls below the purchase level, investors accept the risk of further price decreases to avoid losses resulting from selling.

Behavioral finance research on preferences examines not only the when-to-trade issue but also the what-to-trade issue. It has been documented, for example, that investors are not rational (or highly calculating and search-intensive) in how they diversify their portfolios, and that they rarely use the sophisticated methods offered by traditional financial models. For example, they use the 1/N heuristic (Benartzi and Thaler 2001) to invest, meaning that they divide their assets evenly across different funds (50 percent of assets are invested in safe bonds and another 50 percent in risky stocks). Another illustration is represented by the home-bias effect (French and Poterba 1991): Investors tend to choose equities that they are more familiar with (domestic stocks) and avoid those that are less-recognized (international stocks), which results in a poor portfolio diversification. But some scholars argue that such heuristic behavior can yield the best possible results in a world of complexity, and that they are therefore bounded rational (Gigerenzer).

For many years, behavioral finance was perceived as a controversial field of research, with its ideas used to explain the so-called anomalies of investors' beliefs and preferences. Today, behavioral finance is becoming increasingly the norm—and an important part of the theory of financial economics.

Tomasz Zaleskiewicz

See also: Behavioral Economics; *Vol. 3: Microeconomics:* Bubbles; Prospect Theory; Shiller, Robert; Thaler, Richard

Further Reading

Baker, Kent H., and John R. Nofsinger, eds. 2010. *Behavioral finance: Investors, corporations, and markets*. New York: Wiley.

Barber, Brad M., and Terrance Odean. 2000. Trading is hazardous to your wealth: The common stock investment performance of individual investors. *Journal of Finance* 55: 773–806.

Benartzi, Shlomo, and Richard R. Thaler. 2001. Naïve diversification strategies in retirement saving plans. *American Economic Review* 91: 79–98.

DeBondt, Werner F. M., and Richard R. Thaler. 1985. Does the stock market overreact? *Journal of Finance* 40: 793–805.

French, Kenneth L., and James Poterba. 1991. Investor diversification and international equity markets. *American Economic Review* 81: 222–26.

Gigerenzer, Gerd. 2007. *Gut feelings: The intelligence of the unconscious*. New York: Viking.

Shefrin, Hersh. 2000. *Beyond greed and fear: Understanding behavioral finance and the psychology of investing*. Boston: Harvard Business School Press.

Shefrin, Hersh, and Meir Statman. 1985. The disposition to sell winners too early and ride losers too long: Theory and evidence. *Journal of Finance* 40: 777–90.

BERNOULLI, JACOB

Born: December 27, 1654, in Basel, Switzerland; Died: August 16, 1705, in Basel, Switzerland; Nationality: Swiss; Professional Interests: quantitative economics; Major Work: *Ars Conjectandi* (1713).

Jacob Bernoulli proved equations in calculus and created equations that helped businesses grow. Even though he made his mathematical discoveries in the 1600s, they are still used today to help describe and explain our economy.

Jacob Bernoulli was born on December 27, 1654, in Basel, Switzerland. The Bernoullis were an intellectual family with a background in philosophy and theology. Jacob's mother Margaretha came from an important family of bankers and councilors, while his father Nicolaus was a member of the council of Basel. Jacob also had a brother, Johann, who became a well-known mathematics professor at Basel University. Jacob graduated from Basel University in 1671 with a master's degree in Philosophy. He had a hidden interest in mathematics and astronomy, and studying mathematics was his true passion. He made two amazing findings in the mathematics field: the Constant *E* and the Law of Large Numbers.

Bernoulli's Constant *E* is a way to measure compound interest. Compound interest is one of the most efficient ways to measure finance, while *E* is one of the most important numbers and is irrational. The *E* is used in Bernoulli's equation to try to determine the interest of something. It gives value, which is added to interest over time.

The Law of Large Numbers is an economic equation for determining whether a company might grow so large that it will be larger than the economy. The law claims that a business or some type of entity cannot keep growing forever—that at some point, the growth will diminish or decline. This law can be used to show businesses whether their company is growing at a rate that cannot be sustained in the long run.

The Law of Large Numbers has various uses in describing a company or an economy. In the investing world, the equation can be applied to determine whether buying stocks in a given company is a good idea. The investor can predict if the business still has growth potential and is worth investing in the company. Note that Apple and Google are types of businesses that have continued to grow and the law has not applied.

In the 1600s, Jacob Bernoulli established new ways for economists and investors to view today's economy. Using his equations, economists and financial strategists can measure the growth rate of a business and find the compound interest. Both mathematical concepts are extremely useful in economics.

Jacob Bernoulli died August 16, 1705, in Basel, Switzerland.

Mallory Macksood
David A. Dieterle

See also: Investing; *Vol. 3: Microeconomics:* Interest Rates; Stock Market; Stocks

Further Reading

Bernoulli, Jacob. 1713. *Ars conjectandi*. Impensis Thurnisiorum, fratum.

Bernoulli, Jacob. 2006. *The art of conjecturing: Together with letters to a friend on sets in court tennis*. Trans. Edith Dudley Sylla. Baltimore, MD: Johns Hopkins Univ. Press. (Orig. pub. 1713.)

Ferraro, Giovanni. 2007. *The rise and development of the theory of series up to the early 1820s*, 79–85. Berlin: Springer Science + Business Media.

O'Connor, J. J., and E. F. Robertson. Jacob (Jacques) Bernoulli. www-history.mcs.st-andrews.ac.uk/history/Biographies/Bernoulli_Jacob.html (accessed October 21, 2015).

BIODIVERSITY

Biodiversity does not have a single, clear definition. The United Nations Convention on Biological Diversity defines *biodiversity* as the variability among living organisms from all sources, including, among other things, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems. *Genetic diversity* is a range of genetic characteristics within a species, and *species diversity* is the measure of different types of organisms at the community level, ecosystem, or higher level of ecological organization. Commonly, species diversity serves as a proxy for biodiversity. Species diversity has two major components: species richness and species evenness. *Species richness* is the total number of species within a community. *Species evenness* is the relative abundance with which each species is represented in an area.

In addition to definitional difficulties, there exists great uncertainty with regard to the estimate of the number of species. This level of uncertainty is nontrivial. Approximately 8.7 million species exist globally, with only 14 percent, or 1.2 million species, described. Given this high level of uncertainty, taxonomic surveys are important instruments in the understanding of biodiversity. Unfortunately, taxonomic surveys are time-consuming and costly.

Economists are interested in biodiversity because variability among living things provides important benefits but is threatened by human activity. Cultural values (especially for indigenous peoples), recreational opportunities, regulation of nutrient cycles, carbon sequestration, natural pest control, pollination, genetic resources, food, and fuelwood are among the benefits derived from biodiversity. In addition to the use-value motives for biodiversity preservation, there are preservation motives that are based on passive-use value and future-unknown-use values. As regards passive-use value, individuals are better off simply knowing that certain species and ecosystems exist, unrelated to any current or expected future usage. Because future needs are unpredictable, there is also a significant option value associated with biodiversity. For example, the Pacific yew tree, once considered to be of little commercial value, was crucial in the development of the anticancer drug Taxol. The irreversible destruction of species such as the Pacific yew tree would have precluded the discovery of the previously unknown benefits.

Similar to the definitions and measures for biodiversity, the threats to biodiversity are also numerous and include habitat destruction, invasive species, overexploited resources, pollution, and climate change. Habitat destruction, or modification due to expansion of human populations and human activities, is the greatest threat to biodiversity. Habitat destruction may be carried out in a complete form, where an area of land is directly developed, or it may be done in a partial form (fragmentation). Habitat fragmentation occurs where relatively continuous geographic areas are split into smaller discontinuous areas, which may be too small to maintain viable native populations. Invasive and alien species can also be extremely detrimental to biodiversity. For example, the introduction of the Nile perch to Lake Victoria was the cause of possibly the largest single vertebrate extinction in the 20th century. Mainly due to Nile perch predation, it is estimated that 200 to 300 of the endemic *Haplochromine cichlids* species have gone extinct or are threatened with extinction. Climate change affects biodiversity adversely by altering the distribution or range of many terrestrial species and causing stress on other species. It also impacts marine systems by changing the timing and length of the spring bloom of phytoplankton and changing ocean chemistry. Finally, biodiversity is threatened by pollution. For example, pollution in the form of agricultural runoff, especially nitrates, is responsible for the decline and/or the extinction of certain amphibian species.

In an ideal world, decisions regarding biodiversity would be addressed through cost-benefit analysis with certainty and complete information. Unfortunately, this is not the case. There is evidence that biodiversity expenditures are based on intuition or on the ranking of the projects without consideration of the costs. Also, conservation efforts are greatly affected by the characteristics of the species and the public's knowledge of the species. People are more willing to donate to conservation efforts if they are familiar with the species or if they perceive the species to be attractive. As a result, certain threatened species, including many invertebrates that play critical roles in ecosystem function, are underrepresented in conservation efforts.

Although climate change and the preservation of biodiversity are considered to be the two most significant environmental issues today, both are plagued by underprovisioning and by the complexities associated with global public goods. Since biodiversity is a normal good, richer countries have a greater willingness and ability to preserve biodiversity, while poorer countries have the incentive to convert areas of biodiversity into pasture and arable land. However, areas of rich biodiversity (e.g., rainforests and coral reefs) tend to be located in poorer countries. This discrepancy in the distribution of monetary and species wealth has prompted various nations and nongovernmental organizations to engage in environmental assistance in the form of financial transfers and technical expertise. However, many biodiversity projects are beset with the weak enforcement of property rights, poor monitoring, and other factors that reduce the effectiveness of these efforts.

Paul E. Chambers

See also: Environmentalism; Resources; *Vol. 2: Macroeconomics:* Property Rights; Public Goods

Further Reading

Ferraro, Paul J. 2003. Assigning priority to environmental policy interventions in a heterogeneous world. *Journal of Policy Analysis and Management* 22 (1): 27–43.

Ferraro, Paul J., and Subhrendu K. Pattanayak. 2006. Money for nothing? A call for empirical evaluation of biodiversity conservation investments. *PLoS Biology* 4: e105.

Metrick, Andrew, and Martin L. Weitzman. 1998. Conflicts and choices in biodiversity preservation. *Journal of Economic Perspectives* 12 (3): 21–34.

Solow, Andrew, Stephen Polasky, and James Broadus. 1993. On the measurement of biological diversity. *Journal of Environmental Economics and Management* 24: 60–68.

Weitzman, Martin L. 1992. On diversity. *Quarterly Journal of Economics* 107: 363–405.

BÖHM-BAWERK, EUGEN VON

Born: February 12, 1851, in Vienna, Austria; Died: August 27, 1914, in Vienna, Austria; Nationality: Austrian; Professional Interests: Austrian School economist; Major Work: *Capital and Interest* (vols. 1, 2, and 3, 1884–1890).

Eugen von Böhm-Bawerk's early contributions led to the further advancement of the Austrian School of economics. His contribution to the Austrian School was his theory of capital and interest. He published three volumes of his magnum opus, *Capital and Interest.* A focus of his writing was the basis of the Austrian School's theory of the business cycle, later communicated by Ludwig von Mises and Frederick Hayek. Early in his career, he wrote a damaging critique of Karl Marx's exploitation theory. As Austrian finance minister, he advocated for tax reform, a fixed gold standard, and a balanced budget. Böhm-Bawerk died in 1914.

Böhm-Bawerk was born February 12, 1851, in Vienna, Austria. He was studying law at the University of Vienna when he read Carl Menger's *Principles of Economics.* He became a dedicated supporter of Menger's theories and those of the Austrian School of economics. Böhm-Bawerk's unique contribution to the Austrian School was his theory of capital and interest. After completing his university studies, Böhm-Bawerk taught at the University of Innsbruck. He was appointed minister of finance in 1895, serving till 1900. In 1904, he returned to teaching economics, at the University of Vienna.

Böhm-Bawerk's principal contributions to economics were his theories of interest and capital. During the 1880s, he published two of the three volumes of his magnum opus, *Capital and Interest*. The first volume, titled *History and Critique of Interest Theories* and published in 1884, is an exhaustive survey of the alternative treatments of interest—including the use theories on productivity and abstinence, which were only two of the many that Böhm-Bawerk put forward. Böhm-Bawerk stated that interest would be paid to the owners of capital, irrespective to who owned the capital. Economists today continue to accept this argument.

Böhm-Bawerk did not go beyond monetary theory in his thinking and writings. If he had, he would have conveyed the Austrian School's theory of the business cycle. His bull's-eye concentric circles could have reflected how lower interest rates create new money, eventually misallocating resources and creating unsustainable growth leading to economic crises. This was later communicated by von Mises and Hayek.

Böhm-Bawerk's economics analysis was one of the first serious examinations of the works of Karl Marx. Early in his career Böhm-Bawerk wrote a damaging critique of Marx's exploitation theory. Böhm-Bawerk submitted that capitalists do not exploit their workers, but in fact just the opposite: Capitalists provide workers with an income before receiving any revenue from production. Böhm-Bawerk maintained that the exploitation of workers did not create interest. He also maintained that production was cyclical and that therefore some financing that Marx attributed to workers must go toward capital. Böhm-Bawerk's alternative views of the exploitation theory gained him recognition in the discipline of economic thought. This rebuttal of Marx and socialist doctrine brought a new spectrum in economic thought to capitalism.

Böhm-Bawerk's work in the area of capital change formulated the early Austrian thought on the relationship between saving and consumption. He asserted a tradeoff between consumption and saving. Savings could increase only with a decrease of consumption, and vice versa. This zero-sum interpretation was broadened to include the relationship between saving and capital formation. Using his bull's-eye model, Böhm-Bawerk asserted that capital increases in the inner rings could be accomplished only with increased savings in the outer rings. In a market economy, the relative value of the capital among the different rings would determine the economic activity of businesses.

Böhm-Bawerk was a classical liberal, yet by today's standards he would not fit the label of Austrian economist. His writings exhibited a concern for completely unfettered free markets. Combining his theory of interest and theory of marginal value proposed by his early champion Menger, Böhm-Bawerk showed that given a market wage rate, capitalists engage in activities that employ a full labor force.

Böhm-Bawerk presented a bull's-eye type of figure to more fully illustrate his work on capital and interest. This bull's-eye pattern of concentric rings portrayed timing in the production of goods. The center circle (the bull's-eye) represented the factors of production (land and labor). Each succeeding concentric circle represented a new time frame in the production process, until the final outside circle represented the final good. Böhm-Bawerk also used the bull's-eye illustration to represent an orderly economy. Even though the bull's-eye model was static by design, it was intended to reflect a dynamic analysis of change.

On his economic theories, Böhm-Bawerk also had his detractors, both within the Austrian School and outside it. Within the Austrian School, it was considered that his theory relied too much on psychology and subjective. Outside the Austrian School, many thought that his work lacked mathematical strength and that his perspective was historical.

Later in his career, Böhm-Bawerk served as the Austrian minister of finance. He held this position at various times during the 1890s until 1904. As finance minister, he advocated for tax reform and a rigorous preservation of a fixed gold standard and a balanced budget. His tax reforms were considered very successful.

He also eliminated the long-standing sugar subsidy. He increased the financial demands to support the army, creating serious budget imbalances. This led to his resignation in 1904. He was honored later by being the image on Austria's 100-schilling note.

After his service in the Austrian government, he returned to teaching. In 1904, he became chair at the University of Vienna. He joined Friedrich von Wieser on the faculty, as well as succeeding the retired Menger. His legacy of work continued through the work of his students during his tenure, including Ludwig von Mises and Joseph Schumpeter.

Eugen von Böhm-Bawerk died in Vienna on August 27, 1914.

David A. Dieterle

See also: Austrian Economic Thought; Capitalism; Hayek, Friedrich von; Marx, Karl; Menger, Carl; Mises, Ludwig von; Schumpeter, Joseph

Further Reading

Böhm-Bawerk, Eugen von. 1895. The positive theory of capital and its critics. *Quarterly Journal of Economics* 9 (2): 113–31.

Böhm-Bawerk, Eugen von. 1959. *Capital and interest*. Vol. 1, *History and critique of interest theories*, trans. George Huncke and Hans F. Senholz. South Holland, IL: Libertarian Press. (Orig. pub. 1884.)

Böhm-Bawerk, Eugen von. 1959. *Capital and interest*. Vol. 2, *Positive theory of capital*, trans. George Huncke and Hans F. Senholz. South Holland, IL: Libertarian Press. (Orig. pub. 1889.)

Böhm-Bawerk, Eugen von. 1959. *Capital and interest*. Vol. 3, *Value and price*, trans. George Huncke and Hans F. Senholz. South Holland, IL: Libertarian Press. (Orig. pub. 1890.)

Garrison, Roger W. 1990. Austrian capital theory: The early controversies. In *Carl Menger and his legacy in economics*, 133–54. History of Political Economy Annual Supplement, Bruce J. Caldwell, ed. Durham, NC: Duke Univ. Press.

Hennings, Klaus H. 1997. *The Austrian theory of value and capital: Studies in the life and work of Eugen von Böhm-Bawerk*. Brookfield, VT: Edward Elgar.

Kirzner, Israel. 1996. *Essays on capital and interest: An Austrian perspective*. Brookfield, VT: Edward Elgar.

Kuenne, Robert E. 1971. *Eugen von Böhm-Bawerk.* Columbia Essays on Great Economists. New York: Columbia Univ. Press.
Schumpeter, Joseph A. 1951. *Ten great economists.* New York: Oxford Univ. Press.

BOULDING, KENNETH

Born: January 18, 1910, in Liverpool, England; Died: March 18, 1993, in Boulder, Colorado; Nationality: naturalized U.S. citizen; Professional Interests: capital theory, evolutionary economics, pricing, income distribution; Major Work: *A Reconstruction of Economics* (1950).

Kenneth E. Boulding was an economist with a very broad disciplinary and topical sphere of influence. Born the son of a plumber in Liverpool, England, in 1910, Boulding was the first in his family to receive more than an elementary school education. He was classically trained in politics, philosophy, and economics at Oxford, after an initial brief foray into chemistry. Shortly after he received his undergraduate degree in 1931, his paper on displacement costs was published in *The Economic Journal*, which at that time was edited by John Maynard Keynes. Boulding held a postgraduate fellowship at Oxford and then received a Commonwealth Fellowship to study in the United States, primarily at Harvard and Chicago, where he was influenced by luminaries such as Joseph Schumpeter, Frank Knight, and Jacob Viner. And he influenced them as well. Knight's article "The Theory of Investment Once More: Mr. Boulding and the Austrians" was published in the *Quarterly Journal of Economics* in 1936, when Boulding was just 26 years old.

From the beginning, Boulding's work challenged conventional assumptions on a range of topics, such as capital theory, pricing, and income distribution. Although a strong theorist to the core, he was averse to economic canon that failed to capture the complexity of real-world problems. While mathematically competent himself, he decried what he viewed as economics' overemphasis on mathematization in the mid-20th century. As his career evolved, he dedicated more attention to a fully integrative model of social science that drew heavily from psychology, sociology, and philosophy, as well as economics. This interdisciplinary approach may reflect the influence of his wife, Elise, a distinguished scholar of sociology, but it also revealed a curious mind stimulated by the complexity of life. His topics of inquiry evolved as well from an early emphasis on conventional matters of capital, markets, and income to more unorthodox topics (for the time) of peace, conflict, population, and the environment. A Quaker, Boulding was deeply committed to the ideals of social justice.

Boulding's work on the environment became evident first in his book *A Reconstruction of Economics* (1950), which proposed an ecological framework for the workings of society and the economy, and somewhat later with his work on evolutionary economics and principles of entropy, which comingled with the work of Nicholas Georgescu-Roegen and K. W. Kapp. His attention to population dynamics was unique for its time, and his emphasis on *homeostasis*—or sustaining the condition of stocks manufactured or natural over the enlargement of flows as a determinant of human welfare—was and remains controversial within economics.

In his 1966 essay "The Economics of the Coming Spaceship Earth," he argued that standard economics texts failed to recognize the transition of Earth from an open system, a virtually limitless plane, from which humans can draw materials and into which humans can expel wastes, to a closed system in which "the outputs of all parts of the system are linked to the inputs of other parts." This tied back to the foundations laid in Reconstruction, which established a basic conflict between the consumption necessary to sustain full employment and the drawing down of stocks (in this case the natural environment) necessary to enrich human lives.

Boulding experienced success and recognition in mainstream economics for much of his career. The remarkable callout to Boulding in the title of Knight's 1936 article perhaps foretold Boulding's destiny as a 1949 winner of the John Bates Clark medal for an economist under the age of 40. Two generations of economists who were trained in the mid-20th century cut their teeth on his textbook *Economic Analysis*. He was voted president of the American Economic Association in 1968, and he was purported to be nominated for the Nobel Prize in both Economics and Peace. Yet it may also be fair to say that he was a man whose views were widely respected, but often ignored in the economics profession. His own writings suggest an awareness of this juxtaposition, but one that did not embitter him so much as motivate him to push the boundaries of economic thought and application. In later life, he still viewed himself as an economist, even if there were some within the field who may have assumed he had launched to another intellectual island. Despite any questions about the extent of Kenneth Boulding's acceptance by the economics mainstream, his influence on the development of environmental economics on topics such as sustainability, population, and green national accounts is both clear and profound.

Brian C. Murray

See also: Austrian Economic Thought; Ecological Economics; Environmental Economics; Keynes, John Maynard; Schumpeter, Joseph

Further Reading

Boulding, Kenneth. 1950. *A reconstruction of economics*. New York: Wiley.
Boulding, Kenneth. 1966. *Economic analysis*. 4th ed. New York: Harper.
Boulding, Kenneth. 1966. The economics of the coming spaceship Earth. In *Environmental economics: A reader*, ed. A. Markandya and J. Richardson. New York: St. Martin's Press.
Glahe, Fred, ed. 1971. *Collected papers of Kenneth E. Boulding: 001*. Boulder: Colorado Associated Univ. Press.
Knight, Frank. 1936. The theory of investment once more: Mr. Boulding and the Austrians. *Quarterly Journal of Economics* 50 (1): 36–67.
Mott, Tracy. 2000. Kenneth Boulding: 1910–1993. *The Economic Journal* 110 (464): 430–44.

BUDGET

A *budget* is the document that categorizes income received into spending, saving, and investing categories. Individuals, organizations, governments, and corporations all use budgets to monitor their income and expenses. The budget creation process is similar for all entities and involves several discrete stages.

The Consumer Budget

Creating a budget or a spending plan may be the consumer's most important money management activity. A *budget* is the spending plan that integrates the consumer's income and expenses and earmarks funds for the important spending, saving, and investing categories. The consumer creates an initial budget by tracking and analyzing spending habits so the amounts for each category can be accurately predicted. After the budget is created and expenses are recorded, the consumer compares actual spending with the budgeted amounts for each section. Adjustments are made so that the spending plan is realistic and meets the targeted spending and saving classifications.

Pre-Budget: Track Expenses

To develop a budget accurately, it's helpful to keep track of one's expenses for a few weeks; otherwise, the budget category estimates will likely be inaccurate.

Maya, a recent college graduate, gets her first job and wants to create a budget. After tracking her expenses for a few weeks, she finds that her $2,700/month salary doesn't last very long. Federal, state, Social Security, and Medicare taxes eat up $700, leaving $2,000 to cover rent, food, utilities, car payment, gas, entertainment, phone, eating out, charity, saving, buying clothes, and investing for the future.

Maya spent $750 on rent and utilities. She paid $500 for groceries, eating out, and entertainment. Her car payment and insurance were $325 per month, and gas consumed another $200. That added up to $1,775, with just $225 remaining for charity, clothes, and saving. By tracking her expenses for a month, Maya understood why her savings account was low and her credit card bill was not paid in full at the end of the month.

Creating the Budget or Spending Plan

Once a consumer has that knowledge of prior income and spending in hand, step two of preparing a budget involves financial goal setting. Before creating the spending plan, decide upon saving and spending financial goals. These might include saving for retirement, saving to buy a home, going out for entertainment several times a month, saving for a vacation, buying a car, buying new clothing, and so on. To decide how to allocate limited personal income or corporate revenue, both individuals and corporations must prioritize their wants and needs.

After financial goals are decided on and prioritized, the working budget creation begins. The budgeter reviews prior income and spending data and financial goals, and then uses the information as a guide for the budget.

Maya created a few goals, including saving for retirement, taking a vacation, and buying new clothes. She also wanted to save several months' worth income for emergencies. In the first example above, it was clear that Maya didn't have enough room in her budget for her newly outlined goals. She needed to reduce spending to make room for her future expenses.

By integrating all of her prior spending and goals, she came up with a working budget. This is a flexible document that she will try out and amend as needed.

Maya decides to contribute $200 per month to her workplace 401(k) retirement account. Her boss contributes another $135 per month, or 5 percent of her pretax income. This retirement account contribution is made before taxes are taken out, so it reduces her taxable income. In spite of contributing $200 per month to a retirement savings account, her taxable income declines only $69, which leaves $1,931 for the month's remaining spending and saving. Maya's rent and utilities remain at $750, but she reduces her spending on food and entertainment to $425. After shopping around for more economical auto insurance, she is able to reduce her monthly auto-related payments to $290. She decides to carpool, which cuts her gas spending down to $100.

These small changes leave Maya $366 to spend on charity, clothes, vacation, and emergency savings.

That's how the budgeting process works, for individuals. Organizations receive revenue instead of income, and they spend on different categories than individuals, but the budgeting process is similar.

After trying out the budget for a month or so, the budgeter reevaluates the spending and saving to make sure the benchmarks are accurate.

Common Budget Guidelines

There is no hard and fast rule about how much of one's income should be allocated to various budget categories, although recommended guidelines exist. In particular, savings and housing guidelines are widely accepted. Federal, state, local, and other taxes cannot be overlooked.

In general, the following approximations are guidelines to help allocate personal income. In order to have money for future expenses such as retirement and long-term goals, individuals are advised to save 10 percent of their *gross* income (that is, before taxes and deductions are subtracted from the paycheck). It is widely accepted that housing costs should require no more than 30 percent of one's income. It's preferable to keep housing costs closer to 20–25 percent if possible. Taxes take up to 25–30 percent of one's income. This figure varies based upon many factors, including whether one has children or other dependents. Taking the most conservative estimate, after housing, tax, and savings goals are deducted, 30–40 percent remains for food, clothes, insurance, transportation, entertainment, and miscellaneous expenses.

This hypothetical budget scenario illustrates the importance for consumers to consider their expenses carefully, so that they are able to live within their means and avoid excess credit or debt.

Monitoring the Budget

There are many ways to keep track of a budget, including online tools, computer programs, paper and pencil, and envelopes.

The envelope system—one of the oldest methods of budgeting—consists of placing each category's monthly funds in a separate envelope. For visits to the supermarket, money is taken from the Food envelope. When that envelope is empty, the spending for that category should end for the month.

Another traditional approach is to record income and expenses in a ledger and compare the actual spending with the predetermined budgeted amounts.

Online tools allow the consumer to input or even download income and expenses from the bank, credit card, or debit card. The actual spending is compared with the targeted spending, and adjustments are made as needed.

A unique budgeting strategy first described by the well-known financial journalist Jane Bryant Quinn suggests automatically deducting all saving and investing into the appropriate financial accounts. The individual is free to spend whatever money remains, confident that the future is provided for.

Regardless of which budgeting method is used, it is an ongoing process. As income and expenses evolve, the budget will change as well.

Barbara A. Friedberg

See also: Banking; Decision Costs; Financial Literacy; Opportunity Cost; *Vol. 2: Macroeconomics:* Debt; *Vol. 3: Microeconomics:* Debt Collection; Debt and Credit Counseling

Further Reading

Kapoor, Jack R., Les R. Dlabay, and Robert J. Hughes. 2009. *Personal finance*. 9th ed. New York: McGraw-Hill/Irwin.

BUFFETT, WARREN

Born: August 30, 1930, in Omaha, Nebraska; Nationality: American; Professional Interests: businessman, investor, owner of Berkshire Hathaway, one of the wealthiest people in the world.

Warren Buffett is one of the wealthiest people in the world, a legendary investor, and the owner of Berkshire Hathaway. He is the son of Leila Buffett and Howard Buffett. His father was a stockbroker and a member of the U.S. Congress. Warren Buffett was born in Omaha, Nebraska, and he's the middle of three children and the only boy. It was evident from an early age that Buffett had an aptitude for investment; he likely was influenced by visiting his father's office. Buffett demonstrated his business acumen as a child and frequently resold items for a profit.

Buffett purchased his first shares of stock when he was only 11 years old. The stock he purchased, Cities Service Preferred, dropped after he purchased it. Buffett waited patiently for the stock to rebound, and when it did, he sold it. However, he immediately regretted the decision, since the share price of Cities Service increased even more in the time following the sale. That buy-and-hold lesson is still the crux of Buffett's financial philosophy.

Buffett did not want to go to college, since he already had made considerable money as a paperboy, work that he had been doing since age 13. He also purchased pinball machines with a friend, resold them, and within a few months reaped quite a profit. He eventually sold that business, and at his father's insistence he attended the University of Pennsylvania's Wharton School of Business. Unimpressed with his education, Buffett eventually transferred to the University of Nebraska, Lincoln where he finished his education. For graduate school, Buffett attended Columbia University in 1956—after being rejected by Harvard. At Columbia he met Ben Graham, who became his mentor and teacher.

After graduation, Buffett wanted to work for Graham, but Graham did not hire him, so Buffett returned home to work for his father. Shortly thereafter, he met Susie Thompson, whom he married in 1952. The young couple did not make a large income, so they lived modestly, even using a drawer as a crib for their first child. Eventually, Buffett was able to fulfill his dream of working for Graham, when Graham hired him and invited him to work at his firm in New York.

Buffett was extremely successful and hardworking, and he learned a great deal about the investment industry under Graham's tutelage. He eventually formed his own investment partnership, which proved immensely successful. Just before he liquidated that partnership, he became a major stakeholder in Berkshire Hathaway, which at the time was a textile company. It eventually morphed into a holding company, and Buffett began accumulating more stock and other companies: the luxury candy company See's Candies, GEICO, Nebraska Furniture Mart, Scott Fetzer, and Executive Jet. He also invested in the *Washington Post*. Perhaps his best-known acquisition was a large percentage of the Coca-Cola Company.

Buffett's investment strategy has changed over time, but overall his investment style can best be described as having patience in the market, studying the habits of business owners, learning from mistakes, and investing only in businesses that he truly understands. Buffett is also well known for going against popular opinion and for being frugal, even living in the same modest house that he has owned for many years.

Over the past few decades, Buffett has demonstrated a strong commitment to charitable giving. He has donated substantial amounts of money to many charities, and in 2006 he announced that he would give his entire wealth to charity ($62 billion).

Buffett has not written any books, but many people have written books about him. Of these, the best known is *The Snowball: Warren Buffett and the Business of Life*, by Alice Schroeder.

Over the years, Buffett's personal life was tumultuous. He and his wife Susie separated, and in an unusual move, his wife gave her blessing for Buffett to date other people. Buffett and Susie remained close, even traveling and spending Christmas holidays together. With Susie's knowledge and approval, a waitress named Astrid Menks moved in with Buffett.

Buffett's wife has since passed away, and Buffett eventually married Menks in 2006 in a modest ceremony. He has three children—Susie, Howard, and Peter—all of whom work in different fields and own their own foundations. Buffett has donated heavily to each of their foundations, and he recently donated $2 billion to the Bill and Melinda Gates Foundation. Although he is famous for not giving overwhelming amounts of money to his children individually, he has pledged to donate more to their foundations in the future so that they can continue their charitable work around the world.

Ultimately, Warren Buffett has had an extraordinary career thus far and is a prime example of someone succeeding in the pursuit of the American Dream. He will remain one of the most famous and most successful investors in history, inspiring millions of people along the way.

Catherine Alford

See also: Investing; *Vol. 3: Microeconomics:* Bonds; Gates, Bill; Stock Market; Stocks

Further Reading

Biography.com. n.d. Warren Buffett biography. http://www.biography.com/people/warren-buffett-9230729 (accessed August 15, 2013).

Ro, Sam. 2014. Warren Buffett's 23 most brilliant insights about investing. http://www.businessinsider.com/warren-buffett-quotes-2012-8#this-is-the-most-important-thing-1 (accessed February 24, 2014).

Schroeder, Alice. 2009. *The snowball: Warren Buffett and the business of life*. New York: Bantam.

Wall Street Journal Online. 2013. The experts: What lessons can investors learn from Warren Buffett?" April 7. http://online.wsj.com/article/SB10001424127887323646604578403021463980536.html (accessed August 15, 2013).

C

CANTILLON, RICHARD

Born: ca. 1680 in County Kerry, Ireland; Died: May 1734 in London, England; Nationality: Irish–French; Professional Interests: political economy; Major Work: *Essai sur la Nature du Commerce en Général* [Essay on the Nature of Trade in General] (1755).

Richard Cantillon was best known for his treatise *Essai Sur la Nature du Commerce en Général,* which was written in French circa 1732 and published anonymously in England 20 years after his death. Cantillon was an Irishman who moved to France and made a personal fortune in banking and investing in the British mercantilist John Law's Mississippi Company. Cantillon's *Essai* is considered the first dedicated treatise of economics as an analysis of the entire economic system. The broad scope of Cantillon's *Essai* implies that Richard Cantillon, not Adam Smith, is the rightful father of modern political economy and the true founder of modern economics. The Physiocrats and the French school of economics knew Cantillon's work; however, he was not viewed with the degree of fame as Smith until William Stanley Jevons, a cofounder of the marginalist revolution, rediscovered the *Essai* in the 1880s. Jevons writes that the *Essai* is "a systematic and connected treatise, going over in a concise manner nearly the whole field of economics. . . . It is thus, more than any other book I know, the first treatise on economics" (Jevons 1881). Cantillon died in 1734.

Richard Cantillon was born in the 1680s in County Kerry, Ireland, to a family of Catholic landlords who had fought for the Stuart cause and later lost their lands to Oliver Cromwell. Cantillon moved to France in 1708, and became a French citizen. Then he clerked as an assistant of the British paymaster general, James Brydges, in Spain where he organized payments to British prisoners of war during the War of the Spanish Succession. In Paris, Cantillon's cousin—who also went by the name Richard Cantillon—hired Cantillon to work in the family banking business. By 1716, Cantillon bought out his cousin and attained complete ownership of the Paris branch of the bank. He became very successful due to his contacts and connections throughout the major commercial centers of Western Europe.

Cantillon built a personal fortune by investing in British mercantilist John Law's Mississippi Company and profiting from the South Sea Bubble of 1711. Predicting an inevitable crash from Law's money-induced speculative bubble, Cantillon lent heavily to clients at high rates of interest that took future inflation into account. As a result, these clients owed Cantillon a significant financial debt, causing much animosity and enmity. Cantillon did not agree with Law's inflationist theories, but he understood their composition and the reasons for their eventual collapse. Until his death, debtors filed numerous lawsuits against Cantillon, leading to multiple murder plots and criminal accusations.

Cantillon's *Essai* is significant as it was the first *general* inquiry into economic theory and was quite different from the pamphlets of the day. As such, the *Essai* played a role in the early development of modern economic thought, and it influenced such thinkers as Adam Smith, many of the Physiocrats, A. R. J. Turgot, and Jean-Baptiste Say. The treatise is one of the few referenced in Adam Smith's *Wealth of Nations*. The document's extensive range and influence led Jevons to call the *Essai* "the cradle of political economy."

Cantillon's *Essai* is distinctive for its organization; it uses cause-and-effect methodology. Cantillon also wrote of positive economics only, excluding his own ethics or value judgments. He also used the *ceteris paribus* assumption, as well as a small isolated state to eliminate extra complications within the model. This scientific approach and logical-deductive reasoning is impressive and unique when placed in context historically.

Significantly, in the *Essai* Cantillon introduces and explains the concept of the "entrepreneur" as a risk-taker who balances supply and demand in a market while bearing the risk of uncertainty. These entrepreneurs—farmers, independent craftsmen, merchants, and manufacturers—are different from "hired men" who earn a fixed income.

Cantillon also writes that demand and relative scarcity determine market price. Price as "intrinsic value," or price based on opportunity cost and the factors of production, may differ from actual market price due to the forces of supply and demand. Intrinsic value is a measure of cost, yet it is important to note that Cantillon considered all resources to be heterogeneous. It becomes nearly impossible to determine their respective intrinsic value, because each piece of land or each worker is of a different quality. In addition, Cantillon explains the value of the alternative uses of land and labor, thus introducing the concept of opportunity cost to determine choice.

Cantillon wrote of monetary theory and the microeconomic aspect of monetary inflation. He explained how an increase in the volume of money in circulation will lead to an increase in the price level of goods and services where it enters the economy, as opposed to general inflation. He also explained that the forces of supply and demand of new money would influence the interest rate in the hands of money-lenders. In addition, Cantillon disagreed with the mercantilist–monetarist goal of continual increases in the money supply. Except as a result of extenuating circumstances, the money supply should remain stable. Cantillon was also the first to clearly outline the creation of the spatial theory of economics, the population theory (which later influenced Malthus and Smith), and the business cycle.

Richard Cantillon played a significant role in the history of economic thought, although his *Essai* was visible to only a few for a long period after its publication. Jevons served as a catalyst for renewed interest in the *Essai*, and Higgs's translation to English allowed significantly more readers to study the beginnings of modern economic thought. Unfortunately, Cantillon's discharged cook ultimately murdered him and set Cantillon's house on fire to cover the crime.

Richard Cantillon died in his London home in May 1734.

Kathryn Lloyd Gustafson

See also: Capitalism; Economic History; Economic Systems; Malthus, Thomas; Say, Jean-Baptiste; Smith, Adam; *Vol. 3: Microeconomics:* Business Cycle; Jevons, William Stanley

Further Reading

Brewer, Anthony. 1992. *Richard Cantillon: Pioneer of economic theory.* London: Routledge.

Cantillon, Richard. 1959. *Essaí sur la nature du commerce en général*, ed. and trans. Henry Higgs. London: Frank Cass. (Orig. pub. 1755.)

Hebert, Robert F. 1985. Was Richard Cantillon an Austrian economist? *The Journal of Libertarian Studies* 7 (2): 269–79.

Jevons, William Stanley. 1881. Richard Cantillon and the nationality of political economy. (First published in the *Contemporary Review*.)

Murphy, Antoin E. 1987. *Richard Cantillon: Entrepreneur and economist.* New York: Oxford Univ. Press.

CAPITAL GAINS AND LOSSES

Capital gains and losses refer to an increase or decrease in value of a capital asset when compared with its purchase price. A *capital asset* refers to an investment in such financial assets as stocks, bonds, mutual funds, or other investment vehicles. Real estate is also considered a capital asset. Additionally, today's definition of a *capital asset* might also include precious gems; gold, silver, and other metals; a car used for commuting; or a stamp collection.

Imagine that someone bought a home for $250,000. The next year, a change in position at work caused the home buyer to be transferred to a city across the country. The person sold the home for $200,000—resulting in a capital loss of $250,000 less $200,000, or $50,000. The reverse holds true for a capital gain.

There is a long history behind the tax treatment of these capital gains and losses. The tax treatment of capital gains and losses had financial implications in the past, just as it has today. These tax treatments are important to savers and investors.

History

In the 1900s, the income taxes on gains from capital assets were the same as those from ordinary income (Auten 1999). The definition of a *capital asset* along with the capital gains and losses applied almost exclusively to fixed (capital) assets (Arnett 1967). A *fixed capital asset* is a building or equipment that is used in business production and is not "used up." At that time, capital losses were deductible only if losses were associated with the taxpayer's trade or business, and they were deductible only up to the amount of any capital gains.

The Revenue Act of 1921 changed the capital gains and losses tax treatment by dividing assets into short-term and long-term. Simply, a *short-term gain and loss* is the profit or loss that is garnered when an asset is sold within one year of purchase. Assets held longer than one year are subject to long-term tax treatment. Normally, taxes are lower and investors benefit by owning assets longer than one year.

World War Two and the Revenue Act of 1942 changed the capital losses treatment and consolidated the tax treatment of short- and long-term losses. A five-year carryforward was created so that net capital losses could be used to offset capital gains and up to $1,000 of ordinary income in succeeding years. A *loss carryforward* is an accounting term that allows prior years' losses to be used in subsequent years to offset profits, thus reducing taxable income.

During the 1960s through the 1970s, new tax laws affecting capital gains and losses were enacted. The Revenue Act of 1964 repealed the five-year loss carryover for capital losses and replaced it with an unlimited loss carryover. Net losses, however, were still deductible against only $1,000 of ordinary income in any given year.

From 1986 to 2002, previous tax treatment laws over capital gains and losses were amended once again. One legal change during that 16-year period included the Taxpayer Relief Act of 1997, which changed the capital gains tax treatment by lowering the maximum tax rate on long-term capital gains income to 20 percent (and creating a 10-percent maximum capital gains tax rate for individuals in the 15-percent tax bracket). The capital loss treatment remains unchanged.

Present

At present, under current income tax law, a capital gain or loss is the result of a sale or exchange of a capital asset. Property held for less than a year is considered short-term, otherwise the gain or loss is considered long term.

Any short-term gain in excess of a short-term loss is taxed at ordinary income tax rates. Assets held for longer than one year are subject to long-term capital gains and losses tax treatment. The long-term capital gains tax rate is usually lower than a taxpayer's ordinary income rate, and it can range from 15 percent to 20 percent, depending upon the taxpayer's marginal tax bracket. In certain instances, the capital gains tax rate may be higher.

Capital losses offset capital gains, eliminating any tax implications. Long-term capital losses that are not offset by gains may be used to reduce taxable income up to $3,000 ($1,500 if the taxpayer is married and filing separately), with additional losses carried forward indefinitely into later years.

As mentioned earlier, short-term capital gains are taxed at the individual's tax rate and long-term gains are taxed at 15 percent, in most cases. For example, if an investor buys stock for $15,000 and sells it after seven months for $20,000, the $5,000 short-term capital gain is taxed like any other taxable income. However, if the stock was sold more than a year later, the capital gain will be taxed at the 15-percent long-term capital gain rate (depending on the individual's marginal tax rate).

Taxpayers can elect to avoid taxes entirely on capital gains by holding the securities until death. Then the value of securities is taxed as part of the deceased's estate, and the asset is transferred to the individual who inherits with the cost basis value for the asset equal to current value. This is favorable for taxpayers who want to avoid capital gains tax on the appreciation.

Joseph Krupke

See also: Accountant; Investing; *Vol. 2: Macroeconomics:* Tax Forms: U.S. Federal Tax System; Taxes

Further Reading

Arnett, Harold E. 1967. The importance of capital gains and losses in investment analysis. *Financial Analysts Journal* 23 (1): 39.

Auten, Gerald. 1999. Capital gains taxation—From The Encyclopedia of Taxation and Tax Policy. *Urban Institute,* October 1. http://www.urban.org/research/publication/capital-gains-taxation (accessed October 21, 2013).

Internal Revenue Service. 2015. Ordinary or capital gain or loss. Publication 544. IRS.gov. http://www.irs.gov/publications/p544/ch02.html (accessed October 21, 2013).

Young, Angelo. 2013. Capital gains tax: PIMCO chief Bill Gross says era of taxing investment income lower than other income should end. *International Business Times*, October 31. http://www.ibtimes.com/capital-gains-tax-pimco-chief-bill-gross-says-era-taxing-investment-income-lower-1450154 (accessed October 21, 2013).

CAPITAL MARKETS

Capital markets are institutions that channel surplus money into medium- and long-term productive investments—investments that last at least one year. Domestic capital markets include such institutions as commercial banks, stock and bond markets, and insurance companies. Some capital markets are designed to supply investment capital mainly to borrowers in global markets. Examples include the international bond market, the Eurodollar market, and such international financial institutions (IFIs) as regional development banks and the World Bank. Further, transnational corporations (TNCs) are a major component of today's capital markets. TNCs are the source of most foreign direct investment (FDI). Well-functioning capital markets are essential to productive investment in individual countries and in the larger global economy. As the wellspring of investment funds, capital markets enable business firms and governments to raise needed money for private sector and public sector investment. Productive investments, in turn, promote economic growth, job creation, capital formation, and higher living standards for the peoples of the world.

Access to capital markets in the global economy is uneven. The advanced economies of the Northern Hemisphere typically have highly sophisticated domestic capital markets, which have evolved over time. By the early 2000s, 19,000 depository institutions in the United States had amassed over $9 trillion in assets. About 80 percent of these assets were held by commercial banks, and the remainder was held by savings banks, savings and loan associations, and credit unions. Other features of U.S. capital markets were sophisticated stock exchanges, such as the NASDAQ stock market and the New York Stock Exchange; active computerized bond markets for corporate and government securities; multibillion-dollar insurance corporations and pension funds; and a variety of smaller institutions, such as venture capital funds.

Key reasons for the stability of domestic capital markets in the advanced economies are transparency in rules-based financial dealings, effective regulation and supervision of financial institutions, accurate and timely reporting of financial information, and a modern infrastructure for information and communications technologies (ICT). In addition, investors from the advanced economies are generally perceived to be creditworthy, and they are better connected to international capital markets. This connectivity gives investors from the rich countries easy access to funds in global capital markets.

The Eurodollar market is one popular source of funding for well-connected investors. Eurodollars are U.S. dollars deposited in any foreign bank. Wealthy individuals, corporations, central banks, and governments make these dollar-denominated deposits. In the Eurodollar market, foreign banks loan U.S. dollars to investors such as TNCs. Interest rates on these loans are generally lower than rates in the United States because Eurodollar loans are not regulated, and the Eurodollar deposits are not subject to Federal Deposit Insurance Corporation (FDIC) fees or Federal Reserve System reserve requirements. Governments and corporations can also sell bonds in the international bond market to raise needed capital for public and private investments.

Capital markets in most emerging market and developing economies are less sophisticated than those in the advanced economies. Underdeveloped domestic capital markets stem from a number of factors related to the history and development status of countries. For example, poorer countries have a low gross national income (GNI) per capita, which reduces people's ability to save money. Low domestic savings retards the development of depository institutions such as banks. Other limitations include capital flight, as domestic funds are whisked away to more secure institutions abroad; poor management, due to limited experience in forming viable financial institutions; and the absence of good governance and the rule of law. These factors reduce the creditworthiness of investors from the Southern Hemisphere, and they limit their access to funds in global capital markets.

IFIs are able to pick up some of the slack by extending development loans to emerging market and developing countries. For example, regional development banks provide billions of dollars in development loans to regional member countries. The four main regional development banks are the African Development Bank Group (ADB Group), the Asian Development Bank (ADB), the Inter-American Development Bank (IDB), and the European Bank for Reconstruction and Development (EBRD). The World Bank Group also provides a variety of development loans to support government and private development through the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), and the International Finance Corporation (IFC).

In recent years, capital markets have been at the center of a firestorm in the global economy. Core concerns include how to promote efficient capital markets in the developing countries, and how to level the playing field for poorer borrowers in global financial markets. Often, the reform of capital markets is lumped together with other reforms in the global financial architecture—the sum total of all types of financial transfers between nations. Several major proposals for reforming capital markets and the overall global financial architecture are under discussion. First, uniform rules for borrowing, and TNC investment, are essential. Second, corruption and cronyism in developing countries must be curtailed. Third, additional funds are required in order to deal with liquidity crises in poorer nations. Fourth, external debt rescheduling and other debt relief is necessary for heavily indebted countries. Fifth, additional development loans to poorer countries are needed in order to complement the work of the World Bank and other IFIs.

Microfinance, a nontraditional source of development financing, is another promising source of development funds. Microfinance, also called microcredit, is a means by which the poor obtain small loans, called microloans, to start or expand a small business. Microfinance institutions accept deposits and grant loans, some as small as \$50–\$100, to support entrepreneurship. Thus, microfinance institutions represent a more grassroots capital market. Microloans are made to poor people who are routinely excluded from traditional financing by banks because they do not meet established lending criteria, such as income level and collateral requirements. Microfinance is not a new idea in the realm of development financing, however. The Grameen Bank of Bangladesh has made microloans to the poor of Bangladesh since 1983. Under the direction of its founder, Muhammad Yunus, the Grameen Bank has made nearly 4 million microloans to local entrepreneurs—mainly women. Since the 1970s, major international organizations, such as the United Nations and regional development banks, have recognized the importance of microfinance and have developed programs to expand microcredit in the global economy. Today, thousands of microfinance institutions operate in the global economy, some offering related services such as insurance.

David E. O'Connor

See also: *Vol. 4: Global Economics:* African Development Bank Group; Asian Development Bank; European Bank for Reconstruction and Development; Inter-American Development Bank; Microfinance Institutions; World Bank; Yunus, Muhammad

Further Reading

Birdsall, Nancy. 2003. *What role for regional development banks in financing for development?* Washington, DC: Institute for International Economics.

Fabozzi, Frank J., and Franco Modigliani. 2002. *Capital markets: Institutions and instruments.* 3rd ed. Old Tappan, NJ: Prentice Hall.

International Monetary Fund. 1998. *World economic outlook and international capital markets.* Washington, DC: International Monetary Fund.

Litan, Robert, Michael Pomerleano, and V. Sundararajan. 2003. *The future of domestic capital markets in developing countries.* Washington, DC: Brookings Institution Press.

Yunus, Muhammad. 2003. *Banker to the poor: Micro-lending and the battle against world poverty.* Washington, DC: Public Affairs.

CAPITAL RESOURCES

Capital resources, sometimes referred to as productive capital or capital goods, are durable goods used to produce other goods; they can be in the form of equipment, tools, or machinery. These resources are necessary to the manufacture of consumer goods and services, as well as for a country to achieve economic growth.

The use and implementation of capital resources was impacted by the Industrial Revolution and the Transportation Revolution. As countries industrialized, the production of goods became more mechanized and efficient. Furthermore, the more specialized these economies became, the more subdivided the production of capital resources became. Eventually, businesses were also able to take advantage of economies of scale as they produced more of a particular good. In addition, an increase in capital resources led to labor-saving methods as manufacturing became more machine-based. Finally, as transportation methods also became more efficient, it cost businesses less money to ship and transport their goods to the market.

Businesses use capital resources based on the notion that those resources will be useful for more than one year. Businesses invest in the resources that they receive the most marginal benefit from and that are the most cost-effective. Businesses must decide whether to purchase or lease capital resources, and many external factors play a role in this decision. First, some capital resources, such as heavy machinery, need periodic maintenance in order to last a long time; business must take this additional cost into consideration. Second, access to money, interest rates, technological innovation, and the current economic situation are also important factors in this decision.

A business decides whether to acquire capital resources based on a number of factors: (1) whether it can acquire the capital resources at a lower price; (2) whether it has the appropriate money for more capital goods; and (3) whether it needs the additional resources to maintain the its projected growth, or to support a new business venture, or to stay competitive in a particular market.

Capital resources are also closely tied to technological innovation, and this places new demands on capital goods. Specialized machinery is important for facilitating technological change. This specialization and use of technology increase economic growth, and they lead to more capital resources being used efficiently. There is another side to innovation, which focuses on workers' resistance to new ways of doing things. Innovation may require workers to learn new skills and increase their human capital in order to use equipment or resources efficiently. In addition, as workers adapt to new production or manufacturing techniques, they may need to unlearn the previous way of doing things. Potential or future technological innovation also plays a role in whether or not a business will purchase or lease specific capital resources.

In many cases, capital resources are also affected by fluctuations in the business cycle. When the manufacturing sector of an economy suffers, there is less demand for capital resources. When economic times are prosperous, there is an increase in demand for capital resources and large-scale projects that require their use, such as improvements to bridges and highways. The state of the global economy also affects capital resources, as countries are more hesitant to invest in additional resources when the economic outlook is uncertain.

Countries with a lower level of economic development often lack adequate capital resources. Developing nations may also have a difficult time increasing their infrastructure, and because of a lack of specialization and human capital they often choose to import capital goods. The internal development of capital resources is crucial to a country's economic development and independence.

The future of capital resources seems to be in technological advancements—and in how goods can be used in new, more efficient ways in areas such as energy and telecommunications.

Angela M. LoPiccolo

See also: Capitalism; Factors of Production; Human Capital; Industrial Revolution; *Vol. 2: Macroeconomics:* Gross Domestic Product; *Vol. 3: Microeconomics:* Business Cycle; Industrial Policy; Bursting of the Dot-Com Technology Bubble

Further Reading

Baker, H. Kent, and Gary Powell. 2005. *Understanding financial management: A practical guide.* Malden, MA: Blackwell.

Cavallo, Michele, and Anthony Landry. 2010. The qualitative role of capital goods imports in U.S. growth. *American Economic Review: Papers and Proceedings* 100 (May): 78–82.

Collins, William J., and Jeffrey G. Williams. 2001. Capital-good prices and investment, 1870–1950. *The Journal of Economic History* 61 (March): 59–94.

Forbes Insights. 2012. U.S. capital goods and equipment financing outlook: A focus on essential acquisitions. http://www.forbes.com/forbesinsights/capital_goods_financing_outlook_2012/index.html (accessed June 1, 2013).

Rosenberg, Nathan. 1963. Capital goods, technology, and economic growth. *Oxford Economics Papers* 15 (3): 217–27.

CAPITALISM

Adam Smith is credited with synthesizing the tenets of capitalism in his book *The Wealth of Nations* (first published in 1776), which has become the classic reference for capitalism's underlying theories and principles. Capitalism is related to personal finance and money management in several ways. First, it is important to understand the basis for the economic environment in which people live and work. In capitalistic nations, individuals compromise between the benefit of (traditionally) lower taxes and the disadvantage of less social welfare and a smaller public safety net.

Capitalism is a type of economic system in which the majority of property, resources, and means of production are owned privately rather than by the government. More generally, capitalism is based on individual rights and political freedom. In contrast, an economic system based on communism supports public (government) ownership and control of all property and production. In capitalistic nations, the government and the economy are separated such that the government has limited control over businesses and the market. The role of the government is to enforce private property rights, support competition through antitrust laws, and create a stable political and fiscal environment. Decisions concerning the production, distribution, and pricing of products and services are market-driven rather than being governmentally determined. Advanced economies are usually based on capitalism.

The underlying philosophy of capitalism contends that individual entities, such as people or businesses, have the right to own property and earn profit from their efforts and investments. Proponents of capitalism argue that since people and companies can own property such as land, equipment, and homes, they can influence their own well-being. Thus, capitalism allows for the incentive of personal wealth accumulation, which drives people to work harder if they want to improve their economic situation.

In contrast, in communistic societies, where the government accumulates funds from the owners and producers of goods and services and then allocates the funds evenly across citizens, neither individuals nor businesses have the incentive to work harder since their end rewards do not change.

Advantages of Capitalism

Similarly, under capitalism, individuals are able to choose their professions based on their skills and preferences instead of being assigned jobs by the government. In order to maximize individual wealth, people can pair their careers with their expertise. As such, people and businesses are motivated to make the most efficient use of resources, which can result in specialization. Both individuals and businesses can focus on doing the activities to which they add the most value, which increases value creation for the entire economy.

Additionally, individuals have free choice, such as options for what to purchase. Businesses decide what to produce and in which markets to compete. The prices of goods and services change in response to supply and demand fluctuations. In turn, businesses must compete for the purchasing decisions of their customers. Thus, businesses have the incentive to match their products and services to the needs and wants of consumers. This competition drives innovation that brings new products and services to the market, increases product quality, and improves the standard of living. Competition between businesses also compels the optimization of production and the reduction of pricing. Capitalism also encourages entrepreneurship as people seek to improve their living standard by meeting market needs. It is argued that capitalism is the economic system that supports market growth, since it advances the competition, innovation, and entrepreneurship that drive economies.

Another foundational tenet of capitalism is the minimization of government intervention in commerce. As such, businesses in capitalist countries usually have fewer regulatory constraints than in other nations. This type of government–economy relationship is called *laissez-faire*, translated from the French to mean "let do" or "leave to do." Today, the *laissez-faire* term is an accepted name for a government with minimal government intervention. On the one hand, this means that the governments of capitalistic countries have less ability to coordinate national economic goals. In practice, businesses optimize performance based on their market environment, not government intervention.

Disadvantages of Capitalism

While capitalism has many benefits, disadvantages are evident. It has been argued that in capitalistic nations, "the rich get richer and the poor get poorer." The ensuing income inequality occurs because the wealthy do not need to overcome the same hurdles as the poor in order to increase their assets. Additionally, just as individuals in capitalistic nations have incentives to work harder for material rewards, individuals without the ability to do so are left behind, which can result in higher income inequality than is found in other types of economic systems. Unlike economic systems in which the government distributes wealth evenly, capitalism does not redistribute assets. Similarly, capitalistic economies tend to have less social welfare to help citizens in need.

In wealth maximization, businesses direct resources to the opportunities with the most profit-earning potential. This improves the efficient use of capital and assets, but it may not meet the needs of the society. For example, under capitalism pharmaceutical companies may focus on developing drugs with the most lucrative market potential, while ailments without such high profit potential are ignored, even though the ailment's influence on society may be much worse.

Another weakness of capitalism is the potentially negative effects of competition. Firms that operate in price-sensitive industries are incentivized to reduce costs to further increase their margins and competitive advantage. The drive to reduce costs increases the potential for workers' rights violations and product quality concerns. For example, firms that find cheaper labor in other countries with fewer workplace safety or child labor regulations may exploit those workers. Businesses may use the least expensive materials to minimize costs even though those materials reduce the performance of the product.

A system that promotes individual parties maximizing their own well-being also increases the likelihood of negative externalities (e.g., pollution, traffic, or noise). For example, a farm must choose between using pesticides that pollute the groundwater of nearby residents and using farming methods that take more time and money but do not harm the environment or health of those nearby. Profit maximization rewards the use of the lower-costing materials, regardless of the effect that this use has on society.

Capitalism, like any economic model, has its advantages and disadvantages. U.S. workers and managers prize their freedom and independence from extensive governmental regulation. And entrepreneurs are influenced by the economic system in which a firm is started, since tax rates and autonomy are greatly influenced by the government's level of intervention.

Jennifer L. Woolley

See also: Entrepreneurship; Hayek, Friedrich von; Market Capitalism; Mises, Ludwig von; Smith, Adam; *Vol. 2: Macroeconomics:* Externality; Friedman, Milton; Property Rights; Taxes; Unemployment; Williams, Walter; *Vol. 3: Microeconomics:* Markets; Sowell, Thomas; *Vol. 4: Global Economics:* De Soto, Hernando; Open Economy

Further Reading

Bender, Frederic, ed. and trans. 2012. *The communist manifesto*. 2nd ed. Norton Critical Editions. New York: Norton.

Smith, Adam. 1933. *The wealth of nations.* New York: E. P. Dutton. (Orig. pub. 1776.)

CARLYLE, THOMAS

Born: December 4, 1795, in Ecclefechan, Dumfriesshire, Scotland; Died: February 5, 1881, in London, England; Nationality: Scottish; Professional Interests: British historian and essayist; Major Works: *Sartor Resartus* (1831), *The French Revolution* (1837), *History of Friedrich II of Prussia* (1858).

Thomas Carlyle was a Scottish-born historian and essayist. He was given credit for coining the term "the dismal science," referring to economics or the political economy. The term had nothing to do, however, with the topic of economics as a miserable or dull discipline. The phrase actually was a rebuttal to John Stewart Mill's *Principles of Political Economy* (1848). Carlyle held the view that humans from all races were not the same. Three ideas were prominent in Carlyle's political beliefs. He protested against the doctrine of laissez-faire, he supported the organization of labor, and he advocated for emigration. Carlyle died in 1881.

Thomas Carlyle was born in Ecclefechan, Dumfriesshire, Scotland, on December 4, 1795, to James Carlyle and Margaret Aitken Carlyle. As a member of a family strict in its adherence to Calvinist views of religion, discipline, and prudence, Carlyle seemed destined to join the ministry. He attended the village school at Ecclefechan and then attended Annan Academy. At the age of 14, Carlyle entered the University of Edinburgh to study mathematics and the classics, and he graduated with a bachelor of arts degree. He prepared to enter the ministry at the Church of Scotland, yet to his family's dismay he lost his faith in Christianity and decided against a career in theology. Instead, he became a schoolmaster for Annan Academy and then for Kirkcaldy Grammar School. With the help of his friend and mentor Edward Irving, in 1820 Carlyle landed a position as a tutor for Charles and Arthur Buller (sons of a wealthy Scotsman). Carlyle eventually moved to London, where he met some great literary figures, including Samuel Taylor Coleridge and Matthew Arnold.

By 1824, Carlyle was a full-time writer and a dedicated student of German idealism. In 1826, Carlyle married the writer Jane Baillie Welsh. They moved to Craigenputtock, where he wrote *Sartor Resartus, or* "The Tailor Retailored" (1831). The book was a general view about life, part autobiographical and part philosophy. *Sartor Resartus* was originally released as articles in *Erasers Magazine* between November 1833 and August 1834. Even though *Sartor Resartus* was not well received by the press, it would eventually become one of Carlyle's most notable writings. Carlyle had a difficult time finding a publisher, and *Sartor Resartus* was not published as a book until 1838.

Carlyle's next challenge—and his first real, successful accomplishment—would come in the form of his three-volume work *The French Revolution* (1837). In *The French Revolution,* Carlyle focuses the reader's attention on the egotism of the nobility and of the monarchy. The manuscript of the first volume was accidentally burned by a maid of John Stuart Mill, to whom Carlyle had loaned the original. Carlyle wrote the second and third volumes, then rewrote the first volume. When *The French Revolution* was finally published in 1837, Carlyle's fame as a leading writer of the era was solidified.

In 1840, Carlyle published *Chartism,* taking a stance against the conventional economic theory of the day. Chartism was a working-class movement that was made up of groups such as miners, factory operatives, rail makers, carpenters, handloom weavers, and artisans. It was primarily an urban and industrial phenomenon, not very well known in agricultural areas. The theory of Chartism reflected the contradiction in society between the rich and poor. It gave a voice to many people who had a grievance about their own situation or a complaint about the current disorder. Carlyle's response to the question of the English condition was that an active government and a responsible social and political order could elevate Britain out of its slump.

Carlyle's book drew much attention. *Chartism* expressed his opinion that England lacked a mental or spiritual vigor and enthusiasm. Carlyle's beliefs brought about his next two works. His lecture *On Heroes, Hero-Worship, and the Heroic in History* showed his respect for strength, especially when combined with a God-given mission. *Past and Present* embodied his detailed vision of a hero.

By 1857, Carlyle wrote a history of Frederick II of Prussia called *Frederick the Great.* This six-volume biography is considered Carlyle's greatest accomplishment in writing, because it showcased his exemplary talent at recounting character skillfully and constructing language beautifully. Frederick the Great was one of Carlyle's heroes as he admired Frederick's everlasting strength, discipline, leadership, writing abilities, and his hand in creating the Diplomatic Revolution. Carlyle called this masterpiece his own "Thirteen Years War." Writing *Frederick the Great* consumed much of his time, and took a toll on his health.

Carlyle lived his last 15 years as a recluse. Two events did spark his interest in his final years. One was his defense of Edward Eyre, the British governor of Jamaica, who was dismissed for brutally putting down a rebellion of black peasants. The other cause was the Franco-German War, in which Carlyle claimed Germany should be the leader of Europe.

Thomas Carlyle died on February 5, 1881, in London. Westminster Abbey was offered for his burial, but he requested to be placed beside his parents in Ecclefechan, Scotland.

Samantha Lohr

See also: Capitalism; Economic History; Economic Systems; Malthus, Thomas; Say, Jean-Baptiste; Smith, Adam; *Vol. 3: Microeconomics:* Business Cycle; Jevons, William Stanley

Further Reading

Ashton, Rosemary. 2002. *Thomas and Jane Carlyle: Portrait of a marriage.* London: Chatto & Windus.

Carlyle, Thomas. 1831. *Sartor resartus.* London: Chapman and Hall.

Carlyle, Thomas. 1837. *The French revolution.* Vol. 1, *The bastille*. Boston: Charles C. Little and James Brown.

Carlyle, Thomas. 1837. *The French revolution*. Vol. 3, *The guillotine*. London: James Fraser.

Carlyle, Thomas. 1840. *Chartism.* New York: Wiley and Putnam.

Carlyle, Thomas. 1841. *On heroes and hero worship and the heroic in history.* London: Grant Richards.

Carlyle, Thomas. 1843. *Past and present.* London: Chapman and Hall.

Carlyle, Thomas. 1858. *History of Friedrich II of Prussia.* Leipzig: Bernard Tauchnitz.

Carlyle, Thomas. 1838. *The French revolution: A history in three volumes*. Boston: Charles C. Little and James Brown.

Cumming, Mark. 2004. *The Carlyle encyclopedia.* Madison, NJ: Farleigh Dickinson Univ. Press.

Harold, Charles Frederick. 1963. *Carlyle and German thought, 1819–34.* Hamden, CT: Archon Books.

CARNEGIE, ANDREW

Born: November 25, 1835, in Dunfermline, Scotland; Died: August 11, 1919, in Lenox, Massachusetts; Nationality: Scottish-born, United States citizen; Professional Interests: industrialist and philanthropist; owned Carnegie Steel Company; Major Work: *Gospel of Wealth* (1889).

Andrew Carnegie, a Scottish-born industrialist and philanthropist, lived from 1835 to 1919. He became the wealthiest man in the world in 1901 when he sold his company, Carnegie Steel Company, to J. P. Morgan for $480 million. In today's dollars, that would be equivalent to $310 billion. To put that number into perspective, it is more than the projected gross domestic product of Israel, Denmark, or Ireland in 2015. This astronomical deal makes him the fourth wealthiest man of all time. Throughout his lifetime, he wrote many influential books. *Gospel of Wealth*, arguably his most famous publication, reflects his views on philanthropy. In it, Carnegie theorizes that any man can achieve wealth by putting in hard work; if the government does not interfere in business, then Darwin's theory of survival of the fittest will play out and the strong will prosper, while the weak will eventually cease to exist. Another example of his philanthropy is through the Carnegie Corporation, which gives grants to a variety of causes, from the discovery of insulin to the funding of Sesame Street.

Through the Carnegie Steel Company, Andrew was able to use efficient and innovative technology to produce steel at an affordable price. Producing steel at an affordable price led to high demand, because the steel could be used to create skyscrapers and bridges at a reasonable price. This fueled the Industrial Revolution that was occurring at this time. Building these bridges and skyscrapers called for many new jobs. So through his innovative way of cheaply producing steel, he helped accelerate the already booming economy. As a result, this raised the national prestige and improved many people's lives.

Although his business was booming, not all was well at the Carnegie Steel Company. While he ran a very efficient mill that produced a great amount of steel at a very low cost, he ran a dangerous sweatshop. His workers were paid extremely low wages, and the working conditions were less than desirable. For working in mills where accidents occurred regularly, the workers were equipped with only two pairs of wool long johns. The beliefs he wrote of in *Gospel of Wealth* are exhibited in the way that he treated his employees. He (the stronger party) prospered, while the workers (the weaker party) were suffering and not succeeding. So while there were many upsides to the Carnegie Steel Company, there were also many negative sides.

Andrew Carnegie is known as one of the most influential people of the 20th century because of his influence in the Industrial Revolution, which helped to accelerate the economy. Through his business, the Carnegie Steel Company, he was able to revolutionize the way that people look at business, because of his unconventional ideas involving efficiency in production.

Allisen Castles
David A. Dieterle

See also: *Vol. 3: Microeconomics:* Business Structures; Monopoly

Further Reading

Carnegie, Andrew. 2014. *The autobiography of Andrew Carnegie and his essay: The gospel of wealth*. Mineola, NY: Dover Publications.

Knoema.com. 2015. World GDP ranking 2015: Data and charts. https://knoema.com/nwnfkne/world-gdp-ranking-2015-data-and-charts (accessed October 25, 2015).

Nasaw, David. 2006. *Andrew Carnegie*. New York: Penguin Books.

PBS (Public Broadcasting Service). 2012. Robber barons or industrial giants? www.pbs.org/video/2236010457/ (accessed October 25, 2015).

CENTRAL BANK

A *central bank* is an independent institution that has been granted legal authority by a government or group of governments to manage a nation's or region's money supply and regulate its credit markets. A central bank can also be the legal authority for a group or region of nations—for example, the European Central Bank for the European Union's eurozone.

Dating back to at least 1668 with the founding of Sweden's Riksbank, central banks initially loaned governments funds for commerce and wars, or to quell recurring monetary crises. In the beginning, central banks were privately owned.

It can be argued that modern central banking in the United States had its genesis in 1913, when the Federal Reserve ("the Fed") was formally established as a private institution owned by member banks, yet authorized by Congress to create and destroy currency in order to maintain an appropriate money supply to facilitate daily economic transactions without significantly affecting prices. The Federal Reserve was formally charged with regulating and safeguarding the nation's banking system and employing monetary policy with a dual mandate: price stability (maintaining the real value, or purchasing power, of the currency) and high and sustainable economic growth (noninflationary full employment). Implicitly, a central bank is thus expected to maintain financial stability by offsetting economic shocks and crises and smoothing out greater business cycles.

Learning from the Great Depression, which ensued from a financial panic generated by banks' inability to meet depositors' immediate demands for withdrawals, the Fed subsequently required member banks to hold a percentage of all deposits in reserve, unavailable for loans. This would greatly reduce the likelihood of future panics.

Within this fractional reserve banking system, a central bank employs monetary policy in three primary ways, and many lesser ones. First, a central bank can manipulate the required reserve ratio. This action would legally change the amount of funds available for banks to lend. In reality, the Federal Reserve rarely uses this tool. If the reserve ratio is lowered, banks can make more loans, which eventually become deposits in other banks. New money, or reserves, is created for further loans (and so on), thus increasing the money supply by a multiple of the original deposit. A higher reserve ratio will require greater reserves, thereby reducing funds available for loans, and thus restricting the supply of money.

Second, a central bank can alter the discount rate, which is the interest rate the Fed directly charges banks for overnight loans in order to maintain legal reserve requirements. If the discount rate is increased, banks must pay more for short-term loans, thus requiring them to charge more for their own longer-term lending to customers.

Third, a central bank can influence the key interest rate and implement policies for the interest rate to remain within a preferred target range. This can be accomplished through open-market operations of buying and selling government securities. This key interest rate is the market-based interest rate charged to banks for overnight loans by other banks with excess reserves. If the rate strays too low, the central bank will sell government securities, which requires payment, thereby reducing funds available for other interbank loans, and thus pushing the rate upward. On the other hand, the central bank will purchase government securities (largely held in members' reserve accounts) and inject new money into the economy, thereby pressuring rates lower, incentivizing more borrowing.

Monetary policy intended to stimulate an economy is termed "easing," while restrictive policy (generally meant to combat inflationary forces) is referred to as "tightening." Other significant monetary tools that central banks might employ include raising or lowering capital requirements for bank lending and margin requirements for investing. Additionally, money can be created through the purchase of foreign currencies with new reserve dollars, or it can be withdrawn from the economy's circular flow through sales (requiring payment in dollars). There are limitations to monetary policy. Like the metaphorical horse that can be led to water but not forced to drink, banks can be incentivized to loan (or borrow) through interest rate policies, but they cannot be forced to actually loan.

Steven J. Eschrich

See also: The Great Depression and Wall Street Crash, 1929; *Vol. 2: Macroeconomics:* Federal Reserve Act of 1913; Federal Reserve System; Monetary Policy; Money; *Vol. 4: Global Economics:* European Central Bank

Further Reading

Bivens, Josh. 2013. The Fed turns 100: Lessons learned from a century of central banking. Economic Policy Institute. http://www.epi.org/publication/fed-turns-100-lessons-learned-century-central/ (accessed December 1, 2013).

Blinder, Alan S. 1998. *Central banking in theory and practice*. Boston: MIT Press.

Bordo, Michael D. n.d. A brief history of central banks. Federal Reserve Bank of Cleveland, Cleveland, Ohio. https://www.clevelandfed.org/en/newsroom-and-events/publications/economic-commentary/economic-commentary-archives/2007-economic-commentaries/ec-20071201-a-brief-history-of-central-banks.aspx (accessed December 1, 2013).

Federal Reserve Bank of San Francisco. n.d. So you want to be in charge of monetary policy? https://sffed-education.org/chairthefed/default.html (accessed December 1, 2013).

Federal Reserve Education. n.d. Constitutionality of a central bank. www.federalreserveeducation.org/resources/detail.cfm?r_id=fedd7ffa-dd86-4779-ae4c-b904655071c1 (accessed December 1, 2013).

Federal Reserve Education. n.d. History of central banking: From 1791 to the 21st century. www.federalreserveeducation.org/resources/detail.cfm?r_id=99715b95-6b72-4064-888b-608366208b23 (accessed December 1, 2013).

CENTRAL PLANNING

Central planning is a type of economic system in which a central authority is in control of the nation's economy. Centrally planned economies are also referred to as command economies. The central authority of the nation answers the three basic economic questions: (1) What to produce, (2) How to produce goods and services, and (3) For whom should goods and services be produced. This type of system does not allow the market interactions of consumers and producers to decide the three basic economic questions. The central government makes all economic decisions for the nation.

The answer to the "What to produce" question determines the allocation of an economy's resources. It is the central government's responsibility to provide enough raw materials and workers to ensure that the goods and services get produced. In this economic system the central government owns and controls the allocation of the land, the capital, and the labor force. Since the government is in complete control of land and capital, the government decides where individuals work and what wages workers will be paid.

The "How goods will be produced" question is an economy's efficiency question. Typically, the top bureaucracy decides the needs of society and then determines how those needs will be satisfied. The bureaucracy determines how the available resources will be used to fulfill these needs. The government, in control of all resources, provides the resources to the factories in which the workers assigned to this task by the bureaucracy will produce the goods. Consumers' wants are not considered in this type of structure.

The central authority determines "for whom the goods and services will be distributed" in the economy. Under market conditions, this question is answered by the determination of private versus public goods and services, or the interaction of buyers and sellers in the marketplace. In a command economy, the central authority decides the distribution of the final goods and services; this decision is made through any number of random variables, such as geography, income level, political affiliation, or even gender.

Several terms are closely associated with centrally planned economies: socialism, communism, fascism, and authoritarianism. Even though these terms are often used interchangeably, there are distinct differences between them.

Socialism

In this political structure, even though there is democracy the belief is that economic equality is the only way to achieve true equality. Wealth should be distributed (or redistributed) evenly throughout society; therefore, the public controls economic power. In order to achieve this fundamental goal, socialism requires a high level of central planning and authority.

In socialist nations, the government usually owns major industries, even though the people can control property and capital. Citizens have a great degree of freedom, but usually they pay high taxes to ensure wealth redistribution and to ensure that all citizens receive equal amounts of public goods, such as health care and education.

Communism

The philosophy of socialism, in which all people should equally share in the distribution of resources, led to the political system of communism. Under communism, all economic and political power lies with the central government. A distinct difference between socialism and communism is the issue of freedom. Socialism allows some freedoms, while communist nations believe in an authoritarian type of government.

Typically, in a communist nation the authoritarian government owns all of the resources, capital, and land. Communist nations are ruled by a single person or political party. That authoritarian government exerts strict order and rule over its citizens, and there are few, if any, freedoms.

Fascism

Fascism is different from socialism and communism in that most of the land, labor, and capital resources of the economy are privately owned. However, the central authority (the government) controls the use of private resources and property through its laws, rules, and autocratic answering of the three basic economic questions. Representatives of the central government determine what will be produced, how, and for whom. Fascism sets all prices, wages, and money supply, but it maintains the outward appearance of a market economy.

Positives and Negatives of Central Planning

Equality for all is a noble cause. The guarantee of a job, income, education, and health care for all citizens is very appealing. To maintain this type of structure and provide these types of services to all citizens, however, is extremely difficult.

One of the most difficult issues to solve in a centrally planned economy is lack of motivation. When citizens are given a job and are provided housing, education, and health care, the motivation to progress individually disappears. When people do not own their own property or control their own ideas, incentives to improve disappear. This causes diminishing production and eventually a shortage of goods and services, as production goals determined by the central authority are never achieved.

Another major issue under central planning is lack of freedom. To pursue societal goals, citizens must sacrifice personal freedoms and ownership of resources. It is hard to maintain motivation and progress in a system that does not reward innovation. Eventually, consumers' economic wants are not fulfilled, increasing workers' lack of willingness to perform at their highest levels. Historically, centrally planned economies have eventually failed due to lack of motivation and lack of available consumer goods and services.

Tracy L. Ripley

See also: Command Economy; Economic Systems; Lenin, Vladimir; Marx, Karl

Further Reading

Acemoglu, Daron, and James A. Robinson. 2013. *Why nations fail: The origins of power, prosperity, and poverty*. Danvers, MA: Crown Publications.

Hare, P. 2013. *Central planning*. London: Routledge.

Moore, Thomas Gale. 1991. *Central planning USA-style: The case against corporate average fuel economy (CAFE) standards*. Palo Alto, CA: Hoover Press.

O'Sullivan, Arthur, and Steven M. Sheffrin. 2005. *Economics: Principles in action*. Upper Saddle River, NJ: Pearson/Prentice Hall.

CHARITABLE DONATIONS

Charitable giving accounts for around 2 percent of the U.S. gross domestic product (GDP), and it has been steadily increasing in real terms, doubling over the past 20 years. This increase has been largely unaffected by economic turbulence, and it has allowed for the provision of many important public goods. What's more, economic research on charitable giving has enabled a clearer understanding of individual behavior, optimal fund-raising among charities, and government tax and spending policies. Each of these domains has received extensive treatment in the literature, often yielding substantial theoretical and practical insights.

The question of exactly what makes a donor say yes to a charity's solicitation presents a window into the economic behavior of individuals. While Adam Smith famously observed that people do not rely on the "*benevolence* of the butcher" for our dinner (Smith 1976), it is also true that people observe costly prosocial behaviors, like giving to charities across the globe. What accounts for this generosity? Two major possibilities that economists have considered include, first, that individuals give primarily to affect outcomes (Bergstrom, Blume, and Varian 1986) and, second, that there a "warm glow" to giving (Andreoni 1989), wherein people who contribute feel pleased to have "done their part." Beyond the internal psychological rewards of giving itself, donating to a charity is often a social activity: when groups are soliciting donations people are observing each other's giving decisions. Accordingly, those who donate may also do so because of external pressures, or because they have a desire for status.

Like individuals, charitable organizations also change their behavior in response to incentives. Andreoni and Payne (2003) document charities decreasing their fund-raising efforts due to increased government grant support. This fund-raising activity is itself the subject of extensive study focusing on its extent, methods, and effectiveness. Early field experiments on these topics evaluated the effectiveness of seed money (List and Lucking-Reiley 2002) and comparisons to others (Frey and Meier 2004) on individual donations, observing that both factors have an impact. Effective fund-raising activities can confer prestige on donors (Glazer and Konrad 1996) and can signal project quality (Vesterlund 2003, Andreoni 2006).

Governments often attempt to stimulate charitable giving by providing tax deductions, grants, and matching funds, as in the case of disaster relief. Research on changes in the tax deductibility policy tends to show that charitable giving is price-elastic, with a recent estimate placing the elasticity at –1.2 (Auten, Sieg, and Clotfelter 2002). That is, a small incidence of tax increase will lead to a proportionally larger decrease in charitable giving. Government grants to charities are shown to crowd out individual donations, but they also may signal quality and so may increase individual donations to a particular charity, counteracting the crowding-out effect to some degree (Andreoni and Payne 2011).

Stephan Meier
Matthew Stephenson

See also: Behavioral Economics; Smith, Adam: *Vol. 2: Macroeconomics:* Gross Domestic Product; Tax Forms: U.S Federal Tax System

Further Reading

Andreoni, James. 1989. Giving with impure altruism: Applications to charity and Ricardian equivalence. *Journal of Political Economy* 97: 1447–58.

Andreoni, James. 2006. Leadership giving in charitable fund-raising. *Journal of Public Economic Theory* 8: 1–22.

Andreoni, James, and B. Douglas Bernheim. 2009. Social image and the 50–50 norm: A theoretical and experimental analysis of audience effects. *Econometrica* 77: 1607–36.
Andreoni, James, and Abigail A. Payne. 2003. Do government grants to private charities crowd out giving or fundraising? *American Economic Review* 93: 792–812.
Andreoni, James, and Abigail A. Payne. 2011. Is crowding out due entirely to fundraising? Evidence from a panel of charities. *Journal of Public Economics* 95: 334–43.
Ariely, Dan, Anat Bracha, and Stephan Meier. 2009. Doing good or doing well? Image motivation and monetary incentives in behaving prosocially. *American Economic Review* 99: 544–55.
Auten, Gerald, Holger Sieg, and Charles Clotfelter. 2002. The distribution of charitable giving, income and taxes: An analysis of panel data. *American Economic Review* 92: 371–82.
Bergstrom, Theodore C., Larry E. Blume, and Hal R. Varian. 1986. On the private provision of public goods. *Journal of Public Economics* 29: 25–49.
Frey, Bruno S., and Stephan Meier. 2004. Social comparisons and pro-social behavior: Testing "conditional cooperation" in a field experiment. *American Economic Review* 94: 1717–22.
Glazer, Amihai, and Kai A. Konrad. 1996. A signaling explanation for charity. *American Economic Review* 86: 1019–28.
List, John A., and David Lucking-Reiley. 2002. The effects of seed money and refunds on charitable giving: Experimental evidence from a university capital campaign. *Journal of Political Economy* 110: 215–33.
Smith, Adam. 1976. *An inquiry into the nature and causes of the wealth of nations*. Ed. Edwin Cannan. Chicago, IL: Univ. of Chicago Press. (Orig. pub. 1776.)
Vesterlund, Lise. 2003. The informational value of sequential fundraising. *Journal of Public Economics* 87: 627–57.

CHICAGO SCHOOL OF ECONOMIC THOUGHT

Those who adhere to the economic philosophy of conservative economics, free markets, and monetarism embody the key tenets emboldened by the economics faculty at the University of Chicago. The Chicago School of Economic Thought became especially popular during the 1970s, during the tenure of the late Nobel laureate Milton Friedman.

The Chicago School of Economic Thought became a mainstream economic philosophy as additional economics faculty joined Friedman as Nobel laureates. The list of Nobel laureates and their topics included George Stigler (deregulation), Merton Miller (financial economics), Ronald Coase (Coase theorem), Gary Becker (nonmarket behavior), and Robert Lucas (rational expectations). While not a Nobel laureate, George Shultz can also be added to this illustrious list and the influence of the Chicago School of Economic Thought when he served as Dean of the University of Chicago's Graduate School of Business from 1962 to 1969. His influence expanded further with his service to the country as Secretary of Labor, Office of Management and Budget, and Secretary of Treasury under President Richard Nixon, and Secretary of State under President Ronald Reagan.

Long before Milton Friedman or George Shultz, J. Laurence Laughlin served as founding professor of the University of Chicago's department of economics. From the department's beginnings in 1892, Laughlin emphasized free market economics and free trade. Early scholars of the University of Chicago's free market philosophy included Frank H. Knight, Henry Simons, and Jacob Viner. These men were supporters of limited government involvement in an economy, along with free and open competitive markets.

National notoriety came to the University of Chicago and its economic philosophy with the faculty addition of Milton Friedman in 1946 and George Stigler in 1958. Friedman became the leader of the minority voices for free markets and limited government during the dominance of Keynesian economic thought, which promoted expanded government involvement and economic planning. Stigler also took on government involvement, writing against government involvement in business regulation.

While much of the writing based on the Chicago School of Economic Thought was mathematical and quantitative in its analysis, the Chicago School also contained a strong philosophical strand of individual liberty. This strong philosophical strand was the basis for the strong belief in free markets and individual choice, and that only limited government involvement can assure these individual freedoms.

Later, in his popularly acclaimed *Free to Choose* (Friedman 1980), coauthored with his wife Rose, Friedman elaborated on the Chicago School of Economic Thought and its extension into the political sphere. He proposed that for political freedom to exist, economic freedom must first exist. With the Chicago School of Economic Thought as his foundation, Friedman went as far to submit that without a free capitalistic market influenced only by the interaction of buyers and sellers, political freedom cannot be a reality for any society. He continued his assault on socialism and planned economies, suggesting that tyranny is the sure result of political and economic power under one person's control.

David A. Dieterle

See also: Capitalism; Market Capitalism; Nobel Prize in Economics; Reagan, Ronald; Socialism; *Vol. 2: Macroeconomics:* Friedman, Milton; Office of Management and Budget; Shultz, George; *Vol. 3: Microeconomics:* Markets; Stigler, George J.

Further Reading

BusinessDictionary.com. n.d. Chicago school of economics. www.businessdictionary.com/definition/Chicago-school-of-economics.html (accessed February 14, 2016).

Ebeling, Richard M. 2006. Milton Friedman and the Chicago school of economics. Foundation for Economic Education. fee.org/articles/milton-friedman-and-the-chicago-school-of-economics/ (accessed February 14, 2016).

Murphy, Robert P. 2011. The Chicago school vs. the Austrian school. Mises Institute, June 20. mises.org/library/chicago-school-versus-austrian-school (accessed February 14, 2016).

CIRCULAR FLOW OF ECONOMIC ACTIVITY

Multiple, simultaneous economic actions and interactions make the circular flow of economic activity a beautiful piece of economic art. The circular flow of economic activity is the mosaic of macroeconomics. It reveals through its illustration how money, goods and services, scarce resources, exports, imports, loans and interest move from one sector to the other, including households (individuals), businesses (entrepreneurs), government, financial institutions, and companies in foreign countries. From the circular flow, most of life's macro-market mysteries can be explained.

Society sets the first set of rules by answering the three basic economic questions: what to produce, how to produce it, and for whom in society will the good or service be made available. The first question suggests how the productive resources will be allocated in the production of goods and services. The second identifies how efficiency of production will occur so the productive resources are used as efficiently as possible. The third question reveals societal choices on whether goods and services will be distributed privately or publicly.

The circular flow of economic activity can be compared to a board game. A game has a board and players; the circular flow also has two main fields of play: the markets and various players. The markets are as follows: the Product Market, where goods and services are bought and sold; the Resources Market, where natural resources, human resources, and capital resources are bought and sold; the Financial Markets, where money flow is controlled; and the Foreign Markets of exports and imports. The players include households (individuals), businesses (entrepreneurs), government, financial institutions, and foreign companies.

Government's primary and most essential role is to protect individuals' and businesses' property rights through the rule of law and a creditable court system.

Finally, a core principle of every economy is that individuals and businesses respond to incentives in predictable ways. Incentives affect behaviors and the exchange of resources from households to businesses.

The Rules: Command (Central Planning) or Market?

The circular-flow economic model also needs to define the rules of how the economic system will function. The first of two key questions that needs to be answered by a society regarding its economic system is this: Who owns the natural, human, and capital resources of the society?

The two continuum extremes of resource ownership of an economic system are a pure market economy on one end and a command central planning economy on the other. As mentioned earlier, there are three questions that must be answered: what to produce, how to produce it, and for whom. The basic economic question of every question society is, "Who will answer the three basic economic questions?" Whoever owns the resources controls the economy.

Ownership of an economy's productive resources is a foundational concept for all economic behavior. If a government or a central authority owns the resources, an economy is labeled a command economy or central planning economy. If the resources are owned privately (i.e., by the households), the economy is labeled a market economy.

Circular-Flow Phase 1

In a pure market circular-flow economic model, households (individuals) take their natural, human, and capital resources to the Resource Market and voluntarily

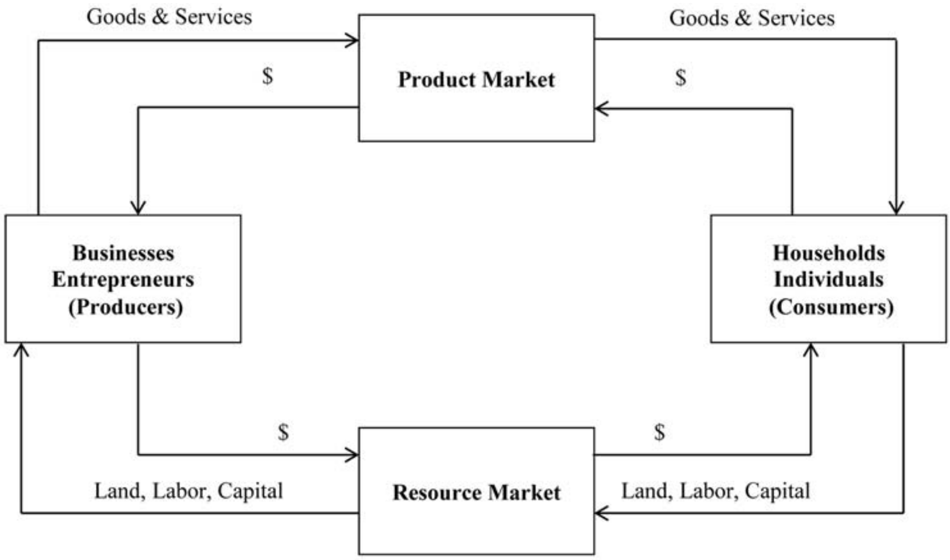

Figure 1. Phase 1: Circular flow of economic activity (businesses and households)

exchange their land, labor, and capital with businesses. In exchange, households receive wages, rents, and profits. The result of this voluntary exchange is that businesses have the resources to make and deliver goods and services in the Product Market, and households have the money to purchase goods and services in the Product Market.

So consumers take their money to the Product Market, and businesses take their goods and services there as well. When a market interaction occurs in the Product Market, businesses sell their goods and services to households (individuals) with the money the households earned in the Resource Market.

Phase 1 is the phase of "non-negotiable." Every market and component of Phase 1 is essential for the economy to operate.

Circular-Flow Phase 2 Adds Financial Institutions (Federal Reserve System, Banks, Credit Unions, etc.)

Financial institutions make loans to businesses and households for everything from homes and cars, to new machinery and equipment, to a college education. In return, the businesses and households repay the money they borrowed—with interest. Likewise, when businesses and households loan their money to financial institutions, they are rewarded by receiving interest from the financial institutions. For money to be a functional entity in the circular flow, financial institutions exist to perform central banking monetary and intermediary functions.

As a financial intermediary, an institution receives money from households and businesses, and in return the institution pays interest. It then reallocates the funds back into the economy to businesses and households. Households use the loans from financial institutions for purchasing such durable goods as homes, cars, washing machines, and college loans. Loans are made to businesses for buying

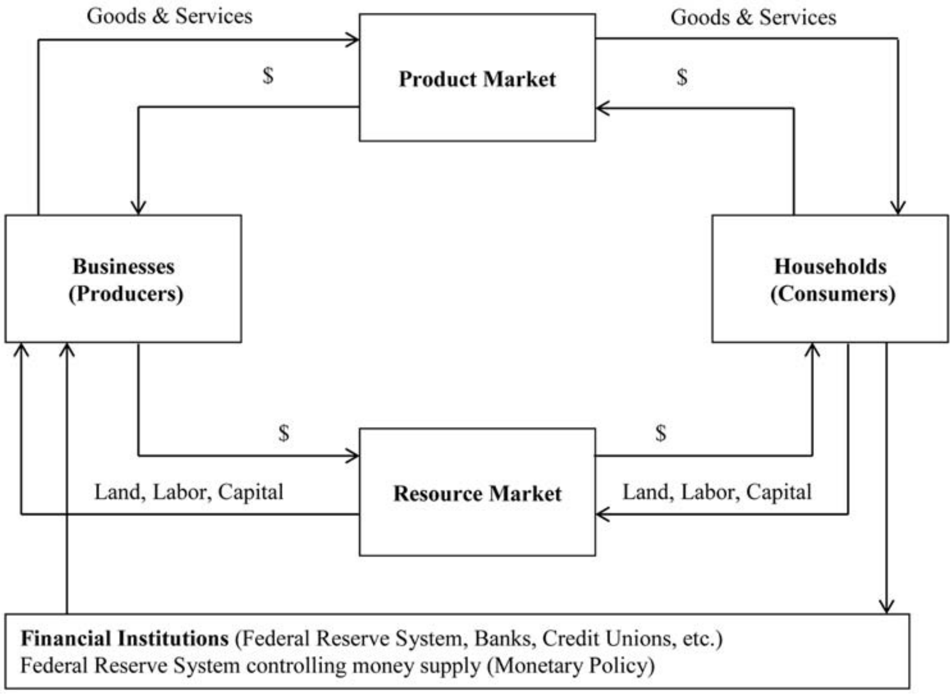

Figure 2. Phase 2: Circular flow of economic activity (Phase 1 + financial institutions)

new capital equipment, such as lathes and drills and real estate and for performing other expansion and start-up functions, such as hiring additional labor. In return, banking institutions receive money, in the form of interest, from the households and businesses to which they loan money. The net result is economic growth for an economy.

Circular-Flow Phase 3 Adds Government (National, State, and Local)

Governments at all levels (local, state, and national) are certainly direct, major participants in the Resource Market as users of human resources. As the view of the circular flow of the economy becomes more advanced, and economic "Who" questions are addressed by a combination of the market and the government, the government's role in the economy becomes more sophisticated. In addition to protecting property rights, governments provide public goods and programs that people are entitled to receive when they become qualified for a given program. Governments also provide contracts to businesses, and the businesses perform certain public services that the governments cannot perform or choose not to perform themselves.

Entitlements are payments to households from a government entity. A few of these programs are unemployment, housing subsidies for low-income individuals, food stamps, Medicare, Medicaid, and Social Security.

Public goods are those goods that society has deemed necessary for all citizens, not just those who are willing and able to pay for them. Examples of public goods include fire and police protection, national military, education for kindergarten through 12th grade and higher, roads and highways, and parks.

Some public goods, such as higher education, can also be provided as private goods. As a societal value, it has been determined that higher education should be available to any citizen who desires the service. That societal value does not preclude organizations or individuals from organizing their own private schools to operate under their own rules and values.

Contracts refer to the practice of privatization where arrangements between government and private businesses are made for the purpose of providing public goods and services. Government/business contracts include building military planes, tanks, and armaments; constructing public schools and roads; and, of course, buying the operational pen-and-paper goods that the government needs in order to function.

The full role of government in an economy becomes highly dependent on *who* answers the "what," "how," and "for whom" questions. The extent of government's role in our economic model will determine the set of rules of the economic sphere.

In a command economy, government is the "great provider" and answers the three questions. When government is involved to the extent that it answers the "what," "how," and "for whom" questions, incentives are shifted from the individual to the government. Command economy primarily exists to its fullest when government is singularly ruled (that is, by a dictator or a communistic government).

Government participates in a market economy through privatization contracts, loans, and subsidies to private businesses for the provision of goods and services

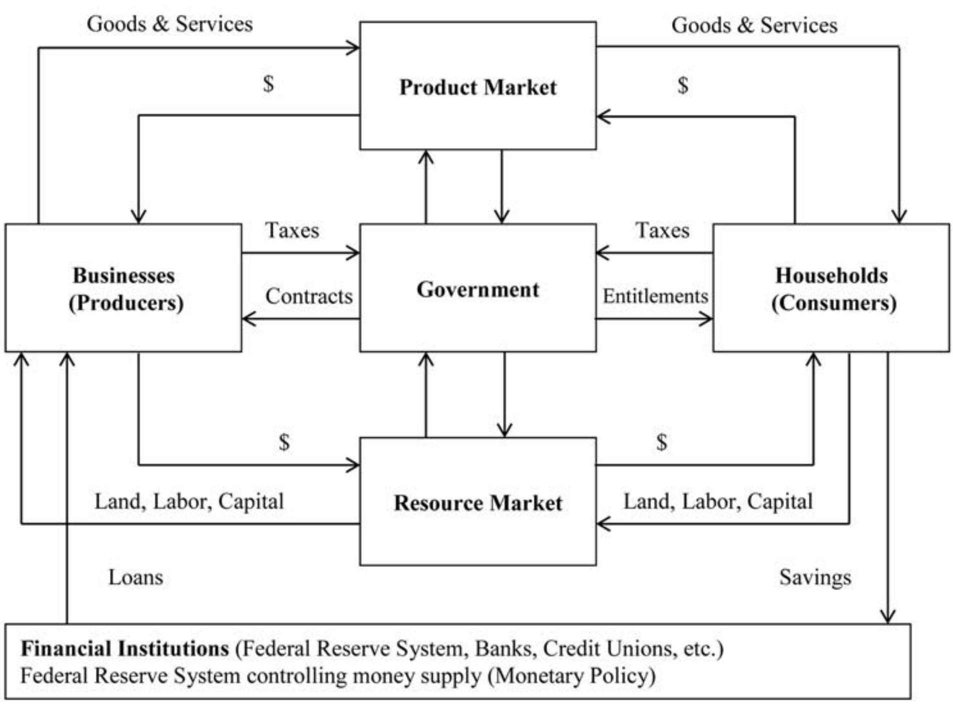

Figure 3. Phase 3: Circular flow of economic activity (Phase 2 + government)

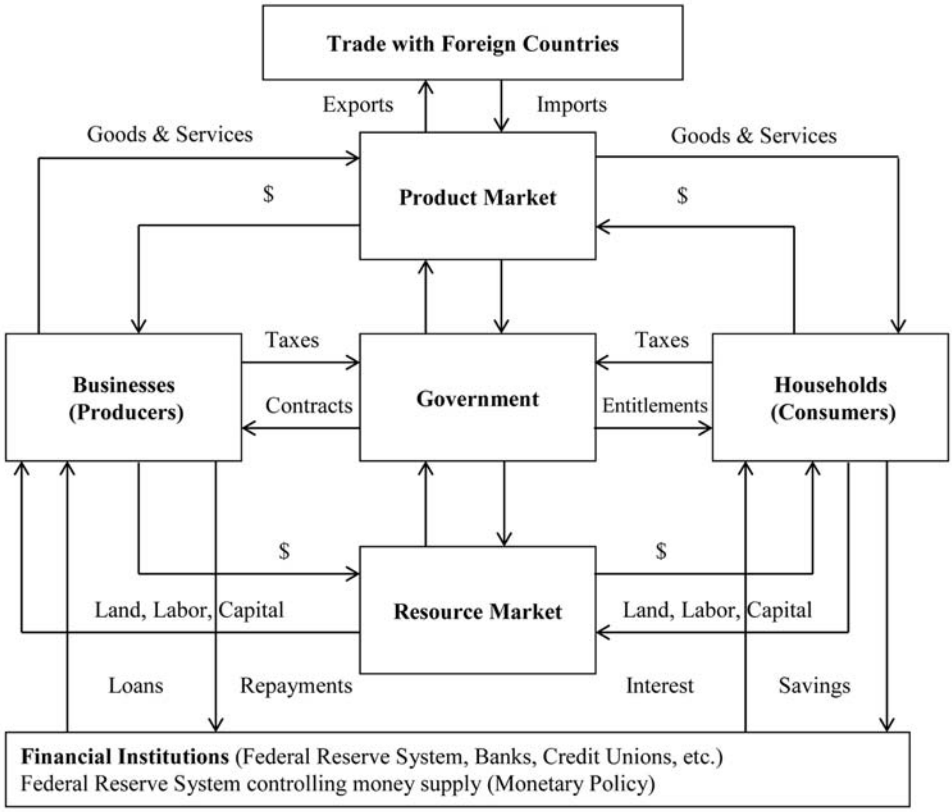

Figure 4. Phase 4: Circular flow of economic activity (Phase 3 + foreign markets and foreign companies)

such as roads, schools, military hardware, and bridges. It provides entitlements and loans to households to increase their participation in the Product Market.

Circular-Flow Phase 4 Adds Foreign Countries (Exports and Imports [X & M])

A growing component of most economies is the influence of foreign countries through exports and imports. *Exports* are those goods and services a domestic producer sends to other countries, while *imports* are those goods and services the domestic consumer can purchase which were produced in foreign countries.

Summary

Every society must answer three questions for their economy: what to produce, how to produce it, and for whom. The major question is the basic economic question: Who answers the three questions—the market interactions between producers and consumers or a central planning authority?

For every market economy, the fundamentals are private property and the presence of incentives. Private ownership of the productive resources by individuals (households) is a must. The second important concept, which affects the exchange of resources from households to businesses, is incentives.

When both households and businesses are better off, everyone wins. The households (consumers) have obtained the goods and services they desire, while entrepreneurs and businesses (producers) have reaped the benefits of good business decisions by efficiently and effectively using the productive resources they purchased in the Resource Market. Or they have suffered the consequences of bad decisions. Either way, society is better off.

David A. Dieterle

See also: Capitalism; Privatization; Resources; *Vol. 2: Macroeconomics:* Macroeconomics; Property Rights; *Vol. 4: Global Economics:* Trade Policy

Further Reading

Beggs, Jodi. n.d. The circular-flow model. *abouteducation*. economics.about.com/od/economics-basics/ss/The-Circular-Flow-Model.htm (accessed November 30, 2016).

Federal Reserve Bank of St. Louis. Circular flow—The economic lowdown video series. Episode 6. www.stlouisfed.org/education/economic-lowdown-video-series/episode-6-circular-flow (accessed November 30, 2016).

Study.com. n.d. Circular flow of economic activity: The flow of goods, services & resources. Chapter 4/Lesson 1. study.com/academy/lesson/circular-flow-of-economic-activity-the-flow-of-goods-services-resources.html (accessed November 30, 2016).

CITIZENS UNITED V. FEDERAL ELECTION COMMISSION

Citizens United v. Federal Election Commission, 558 U.S. (2010) was a 2010 case in which the U.S. Supreme Court upheld the First Amendment rights of corporations, nonprofits, and unions to make unlimited financial contributions for the purpose of electioneering. The decision involved such key economic concepts as private property and economic rent.

Congress passed the Bipartisan Campaign Reform Act of 2002 (BCRA) in an effort to change the manner in which money is obtained and used for political campaigning in the United States of America, hopefully for the better. The focus in the *Citizens United v. Federal Elections Commission* case was on corporations, nonprofits, and labor unions and their right, without government restraint, to contribute to political campaigns. However, when an individual votes or contributes to a politician's campaign, it is with the expectation he or she will be looked out for as a constituent.

Large corporations or unions are not like people who can cast a ballot. When they contribute to campaigns, the expectation is much different. The *quid pro quo* could include a corporation's receiving economic rent through special legislation that will benefit its business; less severe regulation; tax credits; or perhaps some political appointments. In an effort to adjust this imbalance and limit the contributions these organizations could make toward getting leaders elected to political office, Congress in effect abridged the organizations' First Amendment right to free speech. The constitutional question before the Court was whether or not Congress had the authority to stifle free speech by these legal organizations, whose contributions could have external economic effects on the nation.

Following this decision, changes did indeed take place in the manner in which money was channeled toward and spent on political campaigns in an effort to obtain economic rents. Large firms, sensitive to government policies, are able to contribute unlimited assets to the political economy with few restrictions. The economic and political results of this case still remain to be seen. Nevertheless, it can be argued that the impact of this case has altered the finances of the political landscape more than any other case in recent history.

Case Summary

The race for the White House is the most expensive political race in the world. Some people have suggested that presidential candidates should wear outfits like race car drivers do, with corporate support advertised openly and no sponsor secrets hidden. These garments would make more than just a fashion statement. In the case of race car drivers, their right to wear such apparel is protected by the First Amendment to the Constitution. In *Citizens United v. Federal Election Commission*, the First Amendment, politics, and economics collided over a film produced by Citizens United that criticized candidate Hillary Clinton during her 2008 presidential campaign.

In 1905, in his campaign for a second term, President Theodore Roosevelt called for Congress to ban corporate contributions for political purposes. The evolution of regulatory policies aimed at limiting the richest Americans' influence on the outcome of federal elections has continued.

In February 1972, the Federal Election Campaign Act (FECA) was passed, designed to focus on disclosure of contributors. In 1974, FECA was amended to tighten limits on these contributions. In addition, this amendment created the Federal Election Commission (FEC). The FEC is an independent regulatory agency led by six members, appointed by the president and confirmed by the Senate; by law, half of the members must be Republicans and half must be Democrats. The members' duty is to disclose, enforce, and oversee federal elections legislation passed by Congress.

During the 2008 presidential campaign, Citizens United, a wealthy nonprofit corporation that runs a political action committee (PAC), produced a 90-minute movie (*Hillary: The Movie*) about Senator Hillary Clinton. The film listed character traits and background evaluations, and it scrutinized her political *vita* in a manner that would discourage voters from casting their ballot for her as the next president. Citizens United paid over a million dollars from funds in its general treasury to have the film aired on pay-per-view cable television within 30 days prior to the primaries. However, according to the amended section of BCRA, no electioneering communication that clearly identifies a candidate could be funded by the general treasury of a corporation and broadcast 30 days prior to a primary election. The law made it a felony, punishable with up to five years in jail, for corporations to violate this law. When the FEC banned Citizens United from airing the broadcast, the corporation filed suit in the Federal District Court of Washington, D.C., to obtain an injunction (put a legal stop to an action) to lift the ban. The District Court denied the injunction based on *McConnell v. FEC,* 540 U.S. 93 (2003), in which the Supreme Court upheld BCRA, stating that not all political speech was protected by the First Amendment.

The plaintiff appealed the case to the Supreme Court. The Roberts Court heard the first round of arguments in March 2009. Theodore Olson, arguing on behalf of the petitioner, claimed that political speech was a core principle guaranteed in the First Amendment. The punishment for a corporation that expressed its political opinion in film was five years in jail. Olson argued that the First Amendment exists to guarantee intense political debate and participation. He claimed that the process of expression is fundamental, and that government limitations on corporate political speech are therefore a violation of the Constitution.

Olson noted the fact that there was an exemption for media corporations added to the unconstitutionality of the issue; for example, corporations such as Disney and National Public Radio did not have to follow the same rules. In addition, the 90-minute documentary speech was not only offered by the speaker but also invited by the listener, who had to choose to hear it, and was thereby entitled to heightened First Amendment scrutiny.

On behalf of the defense, Malcolm Stewart countered with the legislative statutes included in BCRA. Congress did not ban political corporate speech; rather, it banned how the speech was funded and in what time frames it was to be presented. The law was not intended to take away constitutional freedoms, but rather to level the playing field of political influence in a democracy, where corporations did not get the high ground simply because they could afford it. Stewart argued that whether the subject is a book, a newsletter, a sign, or a film, the ban on using corporate treasury funds is a clear violation of the law and within the constitutional powers of Congress to enact. It was also within the power of Congress, according to the McConnell case (which upheld BCRA and claimed that not all political speech is protected), to grant exemptions to media corporations. In fact, the media exemption for publishing corporations is an effort to safeguard First Amendment rights.

The Supreme Court heard arguments a second time on this case in September 2009. Again, Olson brought forth the argument that this fundamental right to free political speech was denied to corporations, even the vast number of small, single-shareholder-owned businesses. However, Solicitor General Elena Kagan, who a year later would be an associate justice on the Supreme Court, contributed to the government's defense, stating that there was great concern about the overall corrupting influence that campaign finance had on the political system, and that BCRA may well have been the most unselfish act of Congress in a very long time. To this she added that there had been compiled before Congress a great number of records indicating the validity of this corruption and the need to address it through legislation regulating political expenditures, particularly by corporations. Seth Waxman spoke as well, on behalf of Senator John McCain and others as *amicus curiae* (friends of the court) in support of the government. In his brief time, he reminded the Court of the historical dangers involved in allowing corporations to contribute to and spend within political elections without regulation.

In January 2010, the Court decided 5–4 for Citizens United. The Court overruled *Austin v. Michigan Chamber of Commerce,* which had upheld a restriction on corporate speech and portions of the *McConnell* case. The conservative justices John Roberts, Antonin Scalia, Samuel Alito, Clarence Thomas, and Anthony Kennedy, who wrote the opinion, held that the First Amendment supports corporate funding of independent political broadcasts in elections and cannot be limited. The more liberal Justice John Paul Stevens dissented, and he was joined by Justices Ruth Bader Ginsburg, Stephen Breyer, and Sonia Sotomayor, all of who maintained that narrow disruption to a corporation's right to free speech was the lesser evil, considering the danger it posed to the political process.

Nevertheless, the majority also held that the BCRA's disclosure of contributors' identities was constitutional because it served a justifiable government interest in educating the people as to resources behind the spending. In addition, the Court maintained the ban on direct contributions to candidates from corporations and unions with regard to the appearance of impropriety.

Between the original oral arguments and the second round of oral arguments, the Court saw the retirement of Justice David Souter and the addition of Justice Sotomayor. Since the outcome was divided on ideological lines, changing one liberal justice for another did not change the end vote. Nonetheless, anyone who listened to the oral arguments would have heard the passion with which these principles were discussed. This case revealed a true concern for the electoral process—a desire to balance rights with guidelines, and a deep respect for judicial and legislative traditions—and it had a dramatic effect on the political economy of U.S. democracy. The decision is new, and more time is needed before its impact on the relationships among the political power of wealthy corporations, free and fair elections, and First Amendment free speech rights is fully understood.

Kathleen C. Simmons

See also: Private Property; Supreme Court; *Vol. 2: Macroeconomics:* Property Rights; *Vol. 3: Microeconomics:* Economic Rent

Further Reading

Citizens United. http://www.citizensunited.org/ (accessed November 24, 2013).

Cornell University Law School, Legal Information Institute. 2010. *Citizens United v. Federal Election Comm'n (No. 08-205)*. http://www.law.cornell.edu/supct/html/08-205.ZO.html (Transcript of Justice Kennedy's opinion of the Court.) (accessed November 24, 2013).

Cornell University Law School, Legal Information Institute. 2010. *Citizens United v. Federal Election Comm'n (No. 08-205)*. http://www.law.cornell.edu/supct/html/08-205.ZC.html (Transcript of Justice Roberts's concurring opinion.) (accessed November 24, 2013).

Cornell University Law School, Legal Information Institute. 2010. *Citizens United v. Federal Election Comm'n (No. 08-205)*. http://www.law.cornell.edu/supct/html/08-205.ZC1.html (Transcript of Justice Scalia's concurring opinion.) (accessed November 24, 2013).

Cornell University Law School, Legal Information Institute. 2010. *Citizens United v. Federal Election Comm'n (No. 08-205)*. http://www.law.cornell.edu/supct/html/08-205.ZX.html (Transcript of the opinion of Justice Stevens.) (accessed November 24, 2013).

Cornell University Law School, Legal Information Institute. 2010. *Citizens United v. Federal Election Comm'n (No. 08-205)*. http://www.law.cornell.edu/supct/html/08-205.ZX1.html (Transcript of the opinion of Justice Thomas.) (accessed November 24, 2013).

United States Supreme Court. 2010. Syllabus, *Citizens United v. Federal Election Commission*, Appeal from the United States District Court for the District of Columbia. http://www.supremecourt.gov/opinions/09pdf/08-205.pdf (Supreme Court syllabus and transcripts of opinions in the case.) (accessed November 24, 2013).

Vogel, Kenneth P. 2011. Year after ruling: Right gloats, left vows fight. *Politico*, January 21. http://www.politico.com/news/stories/0111/47955.html#ixzz2lseYsDzy (accessed November 24, 2013).

CIVIL WAR ECONOMICS, SHORTAGES, AND INFLATION, 1861–1865

One cause of the Civil War was the difference between the economies in the North and South, and these economic differences continued to play out during and after the war. The Civil War would bring the North prosperity and a major advance in industry. It also brought an end to the long recession after the panic of 1857. Both sides suffered shortages during the war, but those experienced by the South were extreme because of naval blockades of foreign goods and because it had no access to northern manufacturing. The South also had labor shortages throughout the war. The South had been fighting for lower tariffs for decades, but though the war brought the desired removal of tariffs, the Union naval blockade prevented the South from benefiting. Shortages of clothing were worse in the South than in the North; although the South had the cotton, it depended on New England and Europe to convert it into cloth. After the war, inflation increased prices in the North and the South by about 75 percent.

During the war, labor shortages were less problematic in the North because the flood of Irish immigrants into New York, Boston, and Philadelphia was a source of soldiers and cheap labor. Young male immigrants were barely ashore before they were enlisted and marched off to train. On both sides, the average recruit earned about $13 a month, with a reenlistment bonus as high as $200. Both sides instituted a draft to fill their army's ranks. In the North, a draftee could purchase a substitute for $300. With the average wages in the North being $500 a year, however, substitution was mostly for the wealthy. The draft would eventually lead to riots in New York and other cities; the 1863 Draft Riot in New York took 150 lives. The Union was forced to withdraw battle-hardened troops from Gettysburg in order to stop a week of riots and the burning of whole city blocks.

The cost of the war resulted in the first direct taxation of Americans on both sides. Before the Civil War, most of the government income came from tariffs. The North used a package of excise, direct, and income taxes to finance the war. Excise taxes, which were imposed on the manufacture and purchase of all products, were the most effective in raising funds. As the war progressed, the North imposed a 5 percent tax on incomes over $600 and a 10 percent tax on incomes over $10,000. The income tax, at best, accounted for 20 percent of the war funding and required a new federal agency to collect the taxes. The Confederacy initially applied direct taxes on agricultural products, but it lacked the administration to fully collect taxes. Later in the war, the Confederacy imposed an income tax, but it lacked the administrative power to fully enforce this tax as well.

Currency was a major problem for smaller businesses, even in the North. The strong northern banking system was able to support manufacturers, but the government stopped minting coinage at the start of the war. The supply of coins in circulation dried up, and the federal government began issuing paper money. The general public lacked confidence in these "greenbacks"—with good reason. By the end of the war, the paper bills were worth only 39 percent of their original value. In total, the government issued $500 million in greenbacks. Many merchants, however, reverted to bartering and IOUs. The government issued fractional paper money and glueless stamps, to be used as a replacement for coins.

The Confederacy had even greater problems with its currency. Initially, the Confederate paper dollar was valued at 95 cents in U.S. dollars. By 1863, the Confederate dollar was worth 37 cents. At Lee's surrender, a Confederate dollar was worth 1.6 cents, and a month later it sold in bales of 1,200 dollars for one U.S. dollar. By 1863, a Confederate soldier could not feed his family on the pay he earned, forcing wives to move into the labor force.

Lincoln also used tariffs to raise money for the war (war had been a basic use of tariffs for decades). Protectionism remained the core policy of the Lincoln administration, and it provided a solid income stream for the North during the war. Lincoln's economic adviser, Henry C. Carey, was a huge supporter of Clay's American System and a strong supporter of tariffs throughout the prewar period. Tariffs would drive up production of pig iron, and there is no demand for iron like the demand created during war. As much as 25 percent of the union's artillery (15 percent at Fort Pitt Foundry alone) was made in Pittsburgh, creating a boom previously unseen in the industrial North. At least 80 percent of the Union's naval iron plate for ships was made in Ohio and rolled in Pittsburgh. Most of the Union's armor plate was rolled in Pittsburgh. All of the artillery carriage axles and most railroad axles were also forged in Pittsburgh. Most of the raw pig iron, however, came from southern and eastern Ohio. Cleveland, Ohio, which had no iron foundries in 1860, had more than 50 after the war.

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See also: Money, History of; War of 1812; *Vol. 2: Macroeconomics:* Inflation

Further Reading

Guelzo, Allen. 2012. *Fateful lightning: A new history of the civil war and reconstruction.* New York: Oxford Univ. Press.

Varhola, Michael O. 1999. *Everyday life during the civil war.* Cincinnati: Writer's Digest Books.

CLASSICAL ECONOMICS

The term *classical economics* denotes a philosophical system that dominated economic thought and policy from the end of the 18th century until the middle of the 19th century. This system, with many contributors and characteristics, was influenced most especially by the writings of Adam Smith (1723–1790), Thomas Robert Malthus (1766–1834), David Ricardo (1772–1823), Jean-Baptiste Say (1767–1832), and John Stuart Mill (1806–1873).

Sometimes referred to as a "system of natural liberty," classical economics described government as having a circumscribed role in the economy. Classical economics emphasized the importance of natural law, natural rights, and a Newtonian order of society. The essential features of classical economics include the following concepts: laissez-faire, economic growth and competition, value and utility theory, the population principle, and Say's Law. Economic growth and competition are additional cornerstones of the system, incorporating private property rights, arguments in favor of free trade, the encouragement of emerging markets, and an expanding division of labor and a wage-earning class. As the factory system developed and manufacturing began to exert a greater influence on the economy beginning in the 18th century, use and exchange value of a good or service was incorporated in the classical theory of value. This theory, which maintained a "paradox of value"—an expression that stressed the dichotomy between "use" value and "exchange" value for each good or service—would be subsequently replaced by a more complete value analysis. This change would be spearheaded during the latter half of the 19th century by three important marginalist writers: William Stanley Jevons (1835–1882), Leon Walras (1834–1910), and Carl Menger (1840–1921). *Utility*, the idea that value comes from the pleasure or benefit produced by a good, and not the good itself, was refined throughout the classical period. The population principle, which later led to the notion of a "Malthusian trap," provided the classical paradigm with subsistence wage rates and a stationary state, leading many later writers to label economics as the "dismal science." Finally, the general acceptance of Say's Law, or the law of markets, also pervaded classical discussions. Although Say's Law is controversial and somewhat limiting in its description, it implies that in a state of equilibrium, and generally in the long run, goods and services are simply bought with other goods and services.

Adam Smith, the first major classical writer, was born in Kirkcaldy, Scotland. Smith entered the University of Glasgow at the age of 14 and also studied at Oxford. In 1751, he was appointed a professor of logic at Glasgow, and in 1752 he was appointed chair of moral philosophy. Smith's first publication, *Theory of Moral Sentiments* (1759), was a widespread success. In 1776, Smith's seminal work, *An Inquiry into the Nature and Causes of the Wealth of Nations*, was published. The global success of *The Wealth of Nations* was the beginning of the classical period. Smith's focus on growth and development exemplified the ideas of the Scottish Enlightenment. In *The Wealth of Nations*, Smith attacked mercantilism, the popular economic system of his day. As the originator of the classical school of economics, Smith developed the theory of value, wages, rents, and profits. Smith promoted the natural liberty of the individual and the free enterprise economic system, making him the originator of classical economics philosophy.

Smith identified three roles for government: national defense, the maintenance of law and order, and the building and maintenance of a public infrastructure and public institutions. Smith is arguably most popular for his economic concept of the invisible hand, the idea that individuals promote the general welfare by seeking to advance their personal welfare.

Thomas Robert Malthus, born in Surrey, England, studied at Cambridge and became a clergyman in the Church of England. He later assumed the post of professor of history and political economy at the East India College. His most famous work, *Essay on the Principle of Population as It Affects the Future Improvement of Society* (1798), was initially published anonymously and created a controversy in the academic community of his day. While many contemporary writers asserted the inexorable ascent of human happiness and prosperity, Malthus's work denied this claim. He argued instead that ultimately a country's population would outstrip its food supply, thereby dampening future economic growth and development. The policy implication of this population principle, even with positive and preventive checks, was an eventual subsistence wage rate and economic stagnation.

David Ricardo, born in London, England, entered his father's brokerage firm at the age of 14 after a short business education in Holland. He left the firm when he was 21—after his marriage and subsequent conversion from Judaism to Christianity. With the financial support of numerous members of the exchange, he eventually became extremely wealthy on his own as a trader and stockbroker on the London Exchange. He retired from business in 1814. He later became a member of Parliament, and it was in this capacity that he took an active part in the public policy debates of his day, including bank reform, tax proposals, the resumption of specie payments, and the national debt. Ricardo contributed numerous articles and pamphlets pertaining to various pressing issues in monetary and fiscal policy of the early 19th century, especially his spirited debate with Malthus regarding the repeal of the Corn Laws. His most important work, however, was *On the Principles of Political Economy and Taxation* (1817).

Improving and borrowing from classical rent theory, Malthus's population theory, and the wages-fund doctrine of Adam Smith, Ricardo forged a highly abstract analytical system that focused on the problem of income distribution. Additional insights included his recognition of an imperfect measure of value, a long-run stationary state, and an analysis of comparative advantage.

French-born Jean-Baptiste Say was a businessman in England before he returned to France. Upon his return, he edited a magazine promoting ideas of the French Revolution. In 1799, when he was appointed to the Tribunate, he promoted his laissez-faire philosophy publicly. Say was later relieved of his duties by Napoleon, who did not agree with his views. His *Treatise on Political Economy* was published in 1803. It was widely read through many editions in both the United States and Europe. While the phrase "supply creates its own demand" is incorrectly attributed to Say, the book is credited with spreading the ideas of Adam Smith to continental Europe.

John Stuart Mill, the oldest son of James Mill, published his *Principles of Political Economy with Some Application to Social Philosophy* in 1848. *Principles* was the most-used economics textbook in the English-speaking world until the late 1800s, when it was replaced by Alfred Marshall's *Principles of Economics* (1890). Mill's philosophy was a combination of the utility theory of Jeremy Bentham and the intellectual ideas of David Ricardo. Mill addressed many of the microeconomic topics and public policy issues of his day. He supported social change through his support of inheritance taxes, women's suffrage, and compulsory education.

Although classical economics had declined in importance as a system of thought by the end of the 19th century due to the rise and importance of marginalism, the emergence of socialist and historicist critics, and its inability to adequately answer some of the great policy debates of the day, it continues to be the starting point for modern micro- and macroeconomic analysis.

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See also: Malthus, Thomas; Market Capitalism; Mill, John Stuart; Ricardo, David; Say, Jean-Baptiste; Smith, Adam

Further Reading

Liberty Fund. 2005. *The industrial revolution*. Indianapolis, IN: Liberty Fund.
O'Brien, D. P. 2004. *The classical economists revisited*. Princeton, NJ: Princeton Univ. Press.
Rothbard, Murray N. 1995. *Classical economics*. Cheltenham, UK: Edward Elgar.
Sandoz, Ellis, ed. 1998. *Political sermons of the American founding era: 1730–1805*. 2 vols. Indianapolis, IN: Liberty Fund.
Smith, Adam. 1982. *The wealth of nations*. R. H. Campbell and A. S. Skinner, eds. 2 vols. Indianapolis, IN: Liberty Press. (Orig. pub. 1776.)
Sowell, Thomas. 2006. *On classical economics*. New Haven, CT: Yale Univ. Press.

COLONIALISM

Colonialism is the control by one nation over another territory through unequal annexation, procurement, exploitation, and profiteering. It also involves a transfer of people from the conquering nation to the conquered territory. Colonialism dates back to the late 15th century, when Europeans began partitioning the world. From the early 16th century to the middle of the 20th century, European settlers and exploitative colonies were established in the Americas, Africa, and Asia. At first, mercantilist policies were instituted to benefit the home country at the colony's expense, and later, free market policies were established to justify further colonization.

Settler colonialism is often motivated by the need for land acquisition as well as religious, political, and economic considerations. Imperial motives compel large groups of immigrants to move into a region. Often, depopulation or dislocation of indigenous inhabitants is a prerequisite, as the colonizing people play the vital role of bringing "civilization" to the territory. Moreover, Social Darwinist theory and the idea that Europeans are racially superior to native peoples appear to have justified expansion. As an example, after the United States became independent of British rule in the late 18th century, the British sought out a new colony in Australia to exploit its resources by resettling some of their skilled prisoner population there. A type of indentured servitude agreement allowed convicted prisoners to serve out their sentences by building the infrastructure needed for a long-term sustainable colony. As a result, aboriginals were pushed out of their ancestral homelands as white settlers colonized much of the continent.

Exploitation colonialism usually entails intense resource extraction by native labor under the supervision of settlers; the resources are often sent back to the colonizers' homeland or to a major trade center. Financial and governmental administrative bases serve to further the interests of the colonizing nation while relying on indigenous expertise, resources, and labor. Commodities such as agricultural products, precious minerals, timber, and other goods are extracted mostly for the benefit of the colonizing nation while a limited infrastructure is built for the colonized territory. During the slave trade era, slaves were used in the Americas largely as a result of the Atlantic slave trade. This was chattel slavery. Slavery in Africa was a different form of slavery. In Africa slavery was instituted to pay off a debt or punishment for a crime.

Mercantilism was at the forefront of the early economic policies of colonizing nations from the 1500s to the 1700s. In promoting mercantilist policies, individual European nations sought to strengthen their positions vis-à-vis other competing nations by forcing their colonized territories to trade only with them. This ensured a favorable balance of trade, an increase in bullion reserves, and high-value commodities obtained at the expense of the colonized regions. Mercantilism encouraged colonialism by giving many nations a need to expand overseas to extract minerals, raw resources, and labor to compete for economic and political prestige.

Free market policies took a dominant role at home for many European nations, while the lack of free markets abroad continued to make colonies an expensive enterprise. During the mid-1800s, the most dominant European power, the British Empire, relinquished mercantilist and trade restrictive policies but did not fully employ free market principles in its colonies. The resulting British monopoly over Indian industry caused Mahatma Gandhi to seek India's political and economic independence from the European empire. Nations throughout Africa and Asia were the last to declare their sovereignty from the influence of European nations.

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See also: Slavery and the Slave Trade; *Vol. 2: Macroeconomics:* War Financing Crisis, 1776; *Vol. 4: Global Economics:* Imperialism; Triangle Trade

Further Reading

Cohn, Bernard S. 1996. *Colonialism and its forms of knowledge: The British in India*. Princeton, NJ: Princeton Univ. Press.

PortCitiesBristol. n.d. Slavery in Africa. http://discoveringbristol.org.uk/slavery/people-involved/enslaved-people/enslaved-africans/africa-slavery/ (accessed September 11, 2016).

Settles, Joshua Dwayne. 1996. *The impact of colonialism on African economic development*. Honors thesis, Univ. of Tennessee–Knoxville.
Wolny, Philip. 2005. *Colonialism: A primary source analysis*. New York: Rosen Publishing Group.

COMMAND ECONOMY

In a command economy, also known as a centrally planned economy, the factors of production or resources are owned by a central authority, usually the government. Government has the responsibility to determine how to solve the economic problem of scarcity. Government planners or central committees answer these economic questions: What to produce? How to produce? For whom to produce?

Command economies are usually combined with a highly authoritative political system. The ideas of socialism and communism are most often used in reference to a command economy. *Socialism* is an economic theory in which most resources are publicly owned, and general assemblies along with workers and consumers make economic decisions. *Communism* refers to a centrally planned economy in which the government maintains all economic and political power. Communist nations have an authoritarian government or a single political party or dictator.

Central planners try to allocate the best use of land, labor, and capital to provide a basic standard of living for all peoples within the society. Central planners create production and hiring targets to achieve such economic goals as price stability, economic growth, and full employment. To achieve these goals, the planners determine the levels of production for capital goods and consumer goods.

A command economy functions on short- and long-term goals devised by the central authority. Often, plans are set to achieve objectives over five-year periods, with additional smaller targets. In contrast to a market economy, where the interactions of consumers and producers establish prices and determine signals, planned-economy prices do not signal the value or distribution of goods or services, as the central authority has already established the prices and allocations within its plan.

Advantages

Due to the central decision-making process, a centrally planned economy is usually able to mobilize economic resources for large-scale projects with relative ease. Historically, this has allowed such economies to transform large societies and encourage rapid industrialization, especially in developing a military complex. A short-term advantage is the emphasis on full employment and equitable distribution of goods. This advantage is very appealing to the voters of developing nations when it is proposed by their populist politicians. A second advantage is the emphasis placed on economic security, with promises that all citizens will have jobs and that basic needs as such medical care, housing, and education will be met. Societies that do not normally practice command economies have also found a centrally planned economy useful and advantageous during wartime, as it allows focused production on those goods and services deemed necessary for success during the conflict.

Disadvantages

Consumer sovereignty does not play a role in a planned economy. In a command economy, it is common for production targets to not be clearly communicated between the government and the manufacturer, leading to a lack of coordination and resulting in low product quality and inaccurate production quantities. This coordination problem highlights the emphasis of quantity over quality. Five-year plans and smaller target goals make consumer wants and needs difficult to predict, leading to market misallocations and frequent shortages. Personal limitations and a lack of consumer goods facilitate the rise of shadow economies and/or political corruption.

In addition, a goal of full employment may force people to work in an industry or at a job they did not choose. There is a loss of individual innovation and incentive, as all effort is focused on the production target or the five-year state goal, rather than on market interactions between business and labor or producer and consumer.

History and Examples

Planned economies existed as long ago as the Incan empire of 16th-century Peru. The Viennese economist Otto Neurath used this method to control hyperinflation after World War I. The Mormons in 19th-century Utah, Maoist China, Castro's Cuba, and the United States during World War II mobilization have all used planned economies. The former Soviet Union is considered the essential case study.

The story of the Union of Soviet Socialist Republics (USSR) begins with German economist Karl Marx and philosopher Friedrich Engels. The two wrote *The Communist Manifesto* in 1848, after observing the numerous, deplorable working conditions common during the Industrial Revolution. Marx and Engels wrote of an alternative system in which the *proletariat*, or working class, would rise up and overthrow the *bourgeoisie*, or factory owners; society would form a classless society—which Marx and Engels would be a "utopia."

Vladimir Lenin led the Bolsheviks to try this great social experiment upon the overthrow of czarist Russia in 1917. The new state claimed ownership of the means of production, and government committees began planning and performing the prior functions of the market. Lenin quickly realized that some ownership of private property (the New Economic Policy) was necessary for a smooth economy, yet the government would maintain control of what Lenin termed the "commanding heights" or major infrastructure industries, such as coal, steel, and transportation.

After the Bolshevik Revolution and the communist consolidation of power following the Russian Civil War, Soviet leaders decided to move away from Lenin's New Economic Policy. Stalin rose to power upon Lenin's death in 1924, and in 1928 the USSR embarked on a rapid industrialization movement known as the First Five-Year Plan. A number of other five-year plans followed, with differing amounts of success. However, the Soviet Union was successful in becoming one of the major industrial and military powers in the world in the 1930s.

While the Soviet Union put an emphasis on the production of capital goods in the industrial sector, it moved toward collectivization in the agricultural sector. From 1927 to 1937, the state took control of the country's agricultural inputs. These collectivization efforts led to a famine in 1932–1933, resulting in millions of deaths due to starvation. The production of agricultural goods was slow to recover, and for years afterward the Soviet Union was forced to import large quantities of these goods.

After World War II, the Soviet Union exerted its influence over the nations of Eastern Europe by creating Soviet-style governments throughout the region. The Soviet Union forced the economies of these nations to specialize in the creation of certain goods under the Council for Mutual Economic Assistance (COMECON). Under both Nikita Khrushchev and Leonid Brezhnev, the Soviet Union placed emphasis on creating more consumer goods than it had in the Stalin era.

By the 1980s, the inefficiencies of central planning were having disastrous effects on the Soviet economy. When Mikhail Gorbachev took the reins of leadership in the Soviet Union in 1985, he embarked on a policy called *perestroika*, which introduced more market principles into the Soviet economy. Still, crippling shortages and massive military spending because of an arms race with the United States helped contribute to the end of the Soviet Union in 1991.

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See also: Economic Systems; Market Capitalism; Marx, Karl; Marxism; *Vol. 2: Macroeconomics:* Congressional Budget Office

Further Reading

Amadeo, Kimberly. n.d. Command economy: Characteristics, pros, con, and examples. *TheBalance.com*. https://www.thebalance.com/command-economy-characteristics-pros-cons-and-examples-3305585 (accessed November 24, 2013).

Marx, Karl, with Frederick Engels. 2008. *The communist manifesto*. Stillwell, KS: Digireads Publishing. (Orig. pub. 1848.)

Merriman, John. 2004. *A history of modern Europe: From the renaissance to the present.* 2nd ed. New York: Norton.

COMMUNISM

Communism is a type of economic system based on government ownership and control of the factors of production—natural resources, human resources, and capital goods. A communist economy relies on centralized, public-sector decision-making. Thus, central planners within the government answer the basic economic questions of what, how, and for whom to produce. Modern communism is based on the theories of Karl Marx, a German-born philosopher, economist, historian, and revolutionary. The 20th-century applications and adaptations of Marxist thought, often called Marxism, reshaped the economic landscape of the global economy.

Communist economies during much of the 20th century were inward-looking, choosing to isolate themselves from most forms of connectivity in the global economy. For instance, communist confiscations of business firms in Russia, China, Cuba, and elsewhere terminated many economic or financial contacts with outside firms. Government-imposed restrictions on international trade and foreign investment also limited most cross-border flows from noncommunist nations. From 1949 to 1991, the Soviet Union stressed economic cooperation and economic integration only among the COMECON countries. COMECON, the Council for Mutual Economic Assistance, was a type of economic alliance to promote economic, scientific, and technical cooperation among member nations. Its original members included Bulgaria, Czechoslovakia, Hungary, Poland, Romania, and the Soviet Union. Over time, additional nations joined, including Albania (from 1949 to 1961), East Germany (from 1950 to1990), Mongolia (since 1962), Cuba (since 1972), and Vietnam (since 1978). As the dominant economic and military partner in this economic alliance, the Soviet Union thwarted most outside contacts through its inward-looking policies. COMECON, and the Union of Soviet Socialist Republics, formally disbanded in 1991.

The theoretical underpinnings of modern communism are found in the writings of Karl Marx, the acknowledged founder of communism. Many of the basic principles of modern communism are explained in *The Communist Manifesto* (1848), co-authored by Marx and his lifelong friend Friedrich Engels. A more exhaustive treatment of Marxist theory is outlined in Marx's three-volume tome, *Das Kapital*. The first volume of *Das Kapital* was published in 1867. The final two volumes were published in 1883, shortly after Marx's death. During the 20th century, the writings of Marx fueled the fires of revolution in Russia, China, Cuba, and elsewhere. During much of the 20th century, communism posed a formidable challenge to capitalism in the global economy.

Marxism is built on several core principles: the theory of surplus value, dialectical materialism, and the inevitability of communism. First, *surplus value* is the gap between the monetary value of the worker's output and the monetary value of the worker's wage. In Marx's view, the capitalists, who owned the factories and other businesses, confiscated this surplus value to enrich themselves. The common workers were doomed to lives of poverty. Marx's second principle, *dialectical materialism*, explains how history progresses from one stage to the next. Marx believed that all history was a matter of class struggle between exploited and exploiter classes. He predicted that the injustices during the capitalist stage would eventually boil over into revolution, pitting the *proletariat*, or propertyless laboring class, against the *bourgeoisie*, or capitalist owners of society's wealth. The proletariat's victory would create a new stage in humankind's evolutionary history, called socialism. Third, the "inevitability of communism" theorized that perfect communism was the natural culmination of past class conflicts. Marx believed that, under socialism, classes would be eliminated through the abolition of all private property, private profits, and other capitalist "baggage." The gradual perfection of socialism would lead to the ultimate goal—communism. Under communism, people would be willing to work for the common good and would be willing to distribute society's output according to people's need. The government, which was itself viewed as an instrument of oppression, would eventually "wither away" during the transition.

The Soviet Union, the People's Republic of China, Cuba, and other countries adapted communism to support revolutions and to organize economic activity during the 20th century. The first communist government was formed in Russia. Russian revolutionaries, under the leadership of Vladimir I. Lenin and Leon Trotsky, brought communism to Russia in 1917. The Bolsheviks, one branch of the Russian communist movement, had long favored violent revolution as a means of creating a communist state in Russia. As a tight-knit band of professional revolutionaries, the Bolsheviks were also quick to seize opportunities. In the fall of 1917, Lenin and Trotsky pounced on the teetering Russian provisional government, which had just been formed in the spring of that year. The provisional government was unable to defeat Germany in World War I, and unable to quell the chaos caused by wartime shortages of food and other essential goods. A disciplined Bolshevik assault on the weakened provisional government put the Bolsheviks in the driver's seat with Lenin at the wheel. Communism had arrived, but with a Leninist twist. While Lenin accepted the traditional Marxist proposition that the urban proletariat would be in the vanguard of the revolution, he also stressed the importance of the peasantry in transforming the agricultural sector along communist lines. Thus, Marx's vision of revolution by an urban proletariat was adapted to include a revolutionary rural peasantry.

The Russian brand of communism vacillated between the theoretical and the practical during the 1920s. Under war communism (1917–1921), Russia's resources were mobilized to win a fierce civil war. During this period, the communists expropriated domestic and foreign-owned banks, manufacturers, mines, railroads, and other industries. Crops were confiscated. Forced labor was instituted. By the close of the civil war, Russia's economy was in shambles. To jump-start economic activity during the post-war years, in 1921 Lenin immediately introduced the New Economic Policy (NEP), a program of small-scale private enterprise. Under the NEP, the government permitted peasants to own and farm private plots of land, and to sell their surpluses—the amount left over after an assigned quota had been delivered to the government—on the open market. The positive results of the NEP were felt almost immediately. Production of most goods and services rose to pre-war levels, and the economy stabilized under the watchful eye of the Bolshevik leadership, the Red Army, and the Cheka (secret police).

Joseph Stalin jockeyed for power after Lenin's death in 1924. Under Stalin's tyrannical rule, from 1927 to 1953, the Soviet economy was redesigned to stamp out the remnants of private enterprise. Stalin created a command economy, built on a foundation of public ownership of the means of production and central planning. Entire villages were absorbed into massive state-owned farms. Millions of rich peasants, or *kulaks*, were slaughtered, many of them dying from famine or disease in the countryside or in Siberian slave labor camps. Smaller industries were again expropriated. Stalin also introduced the five-year plan to the Soviet economy. Five-year plans, which began in 1928, established priorities for national production and set specific production targets, called production quotas, for state-owned industries. Gosplan, the state planning agency, created and implemented the five-year plans. The concept of centralized decision-making was transplanted by the Soviet Union into the communist-occupied countries of Eastern Europe after World War II. These occupied countries, called the Eastern Bloc, included Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, and Romania.

By the late 1960s and 1970s, the Soviet economy began to unravel, and by the mid-1980s, the Soviet economy was in crisis. Premier Mikhail Gorbachev attempted to rescue the faltering economy with a series of economic and political reforms. Economic reforms were packaged under the banner of *perestroika*. Perestroika restructured the Soviet economy along more market-oriented lines to promote economic growth and modernization. Under perestroika, limited private enterprise was encouraged, many wage and price controls were lifted, subsidies to state-owned enterprises (SOEs) were reduced, commercial contacts in the global economy were expanded, and individual plant managers were empowered to make many production decisions. Gorbachev also introduced national campaigns to reduce corruption, alcoholism, and other drags on the fragile economy. Political reforms, under the heading of *glasnost*, were also instituted to support a more open political process and individual freedoms.

The inherent weaknesses of the communist system overwhelmed the Soviet Union. Severely limiting the effectiveness of Gorbachev's reforms were bloated and corrupt government bureaucracies, obsolete capital goods, low worker productivity, weak incentives, and the lack of entrepreneurial skills and business expertise. International stresses also weakened the faltering Soviet economy. Government coffers were drained by the unsuccessful Soviet invasion of Afghanistan from 1980 to 1989, and by an ongoing arms race with the United States. Festering resentments by people in certain Soviet republics and in the Soviet-occupied Eastern Bloc nations also boiled over into the streets. By 1991, the Baltic republics of Lithuania, Latvia, and Estonia had declared their independence from the Soviet Union. Poland, under the leadership of Lech Walesa and the Solidarity Movement, openly challenged the communists' monopoly on political power in the Eastern Bloc. By the early 1990s, communism in the Soviet Union and Eastern Europe had collapsed. The Soviet Union was formally dissolved on December 26, 1991, and the 15 former Soviet "republics" became independent countries soon thereafter.

Communism came to China in 1949, the result of decades of armed struggle between the Chinese Communist Party (CCP), headed by Mao Zedong, and the Kuomintang Party (KMT), headed by Chiang Kai-shek. During the bloody Chinese civil war, Mao skillfully built alliances, especially with the peasantry. He promised the peasants land reform, an attractive pledge in a country where large landlords dominated the agricultural sector and dictated the conditions of life for millions of tenant farmers. In 1949 the KMT, or Nationalists—weakened by corruption, military defeats, and sagging popular support—fled to the island of Taiwan. Chiang Kai-shek established a separate Chinese government on Taiwan: the Republic of China. Meanwhile, on the Chinese mainland, Mao and the CCP triumphantly established the People's Republic of China in October 1949.

Chinese communism, often called Maoism, wavered between the pragmatic and the dogmatic from 1949 to Mao's death in 1976. Under Maoism, the CCP held a monopoly on political power, and the party permitted no opposition to policies emanating from Beijing, the nation's capital. Under its "people's democratic dictatorship," the CCP controlled the government and dictated China's economic course. The path toward communism was pitted with unrealistic "leaps" and painful retrenchments throughout the 1950s, 1960s, and 1970s, however. Production in agriculture, industry, and commerce were disrupted by unrealistic economic goals, faulty five-year plans, and widespread resistance to change.

Collectivization was the centerpiece of the government's agricultural policy from the 1950s to 1970s. The first step in the collectivization process was to rid the countryside of rich landlords and to redistribute land to the peasants in small private plots. This goal was achieved between 1949 and 1952. The second step was to introduce cooperative enterprise into the countryside. In 1953, small "collective farms" were created by government decree. The land on these collectives was still privately owned, but it was worked by several families, called mutual-aid teams. Soon, larger "cooperatives" were formed, with land, tools, draft animals, and other possessions owned by the cooperative enterprise rather than by individual peasants. Finally, in 1958, the "people's communes" were introduced, marking a radical leap toward communism. Almost overnight, over 100 million households were absorbed into people's communes. Now, the CCP leadership in each commune dictated the allocation of resources, including labor, to build the region's infrastructure, work the farms, and attend to other business activity in industry and commerce. The communes also controlled education and law enforcement, and they administered punishments for counterrevolutionary activity or dissent. All private property and private incentives were banned.

The negative reaction to the communes in the countryside was swift. Some peasants refused to plant or harvest crops without an incentive system, while others sabotaged farms and other businesses, destroyed their herds, or otherwise disrupted production. Widespread opposition by the peasants, and a serious drought, reduced crop yields. Faced with the specter of famine, the government restored limited incentives, including small private plots of land, to the peasantry from 1959 to 1961. The functioning of the commune system, with its limited and uncertain incentive system, fluctuated greatly during the 1960s and 1970s. Selective implementation of government policies by local CCP officials, economic chaos caused by the Great Proletariat Cultural Revolution during the 1960s and early 1970s, and the inevitable internal power struggles—all of these added to the confused state of Chinese agriculture and industry during the period.

Reform in China's industrial sector followed a similar course during the Maoist era. The 1950s witnessed the systematic dismantling of private enterprise and the rapid rise of SOEs. To coordinate the government's expropriation of private firms in industry and commerce, China embarked on its first five-year plan in 1953. By the end of this five-year plan in 1957, virtually all of the country's industrial and commercial firms were in government hands. Buoyed by its success in reigning in privately owned firms, the government imposed a second five-year plan (1958–1962), promising a Great Leap Forward to double the nation's industrial production. Under this plan, peasants in the people's communes were expected to contribute to China's rapid industrialization by constructing and operating "backyard furnaces" to increase China's production of steel and other heavy industrial products.

Inadequate capital goods, the lack of technical expertise, and nonexistent private incentives transformed the "Great Leap" into an economic freefall. By the early 1960s, the government was forced to retrench in the industrial sector, just as it had already done in agriculture. The crippled Chinese economy was given another negative jolt by the excesses of the Great Proletarian Cultural Revolution in the 1960s and 1970s.

The Cultural Revolution was meant to be a purification campaign to identify and punish counterrevolutionaries. Youthful militants, called the Red Guard, purged scientists, engineers, party officials, and other well-educated professionals to stamp out lingering capitalist ideas among China's elite. These purges destroyed important elements of China's human capital, however, a tragedy that rippled through China's already stumbling economy. After Mao's death in 1976, reform-minded leadership began a series of cautious, methodical experiments in free-market, incentive-based enterprises—China's first steps toward a market-oriented economy.

Communism came to Cuba in 1959 through revolution. Under the leadership of Fidel Castro, Cuba's dictatorship was toppled and the Republic of Cuba was established. Castro instituted a series of socialist reforms, including the expropriation of private enterprises and the elimination of dissent. He also introduced Soviet-style central planning to dictate the use of Cuba's resources. In response to Castro's aggressive seizure of private assets, including American-owned plantations and other businesses, the United States imposed a total embargo on Cuba in the early 1960s. This embargo halted U.S. trade, foreign investment, and other economic ties with Cuba. Castro turned to the Soviet Union for economic and military assistance, which the USSR generously supplied to its new friend in the Western Hemisphere.

Cuba instituted economic reforms during the 1990s, particularly after the collapse of its most important benefactor, the Soviet Union, in 1991. In 1993, the Castro dictatorship dismantled its cumbersome central planning agency, the Central Planning Board, in favor of more specialized planning ministries. This reshuffling within government was designed to promote tourism, industrial development, agricultural development, foreign direct investment, and other economic activity. During the 1990s, Castro also legalized many small-scale private enterprises, mainly in the services-producing sector. In agriculture, some large state-owned farms were divided into smaller producer cooperatives. These cooperatives were required to sell a portion of their output to the state for a set price, but they were encouraged to sell the remainder for profit in farmers' markets. The Cuban government also courted foreign investment and legalized the use of the U.S. dollar in most types of transactions.

By the early 2000s, the Castro regime had reversed course and abandoned some of the market reforms of the 1990s. The government reasserted its control over SOEs and cracked down on fledgling private sector business activity. In November 2004, Castro banned the use of U.S. dollars in Cuba and required citizens to convert dollars into pesos. Today, the vast majority of Cuba's human, capital, and natural resources remain firmly under the government's thumb. In addition, the communists retain a monopoly on political power, ruthlessly suppressing dissenting viewpoints.

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See also: Capitalism; Command Economy; Democratic Socialism; Economic System; Marx, Karl; *Vol. 4: Global Economics:* Emerging Market Economies; Third World Socialism

Further Reading

Burki, Shahid J., and Daniel P. Erikson, eds. 2005. *Transforming socialist economies: Lessons for Cuba and beyond.* New York: Palgrave Macmillan.

Busky, Donald. 2002. *From utopian socialism to the rise and fall of the Soviet Union: Communism in history and theory.* Westport, CT: Praeger.

Ebenstein, William, Edwin Fogelman, and Alan O. Ebenstein. 1999. *Today's ISMS: Socialism, capitalism, fascism, communism, and libertarianism.* 11th ed. Paramus, NJ: Prentice Hall.

Marx, Karl, and Friedrich Engels. 1964. *The communist manifesto.* New York: Washington Square Press. (Orig. pub. 1848.)

Pipes, Richard. 2001. *Communism: A history.* New York: Modern Library.

Schwartz, Benjamin, John K. Fairbanks, and Conrad Brandt. 2004. *A documentary history of Chinese communism.* New York: Routledge.

COMPOUND INTEREST

Compound interest is created when interest that is added to the principal of a deposit or loan also earns interest. Over a period of time, compounding can greatly magnify the amount of debt owed or savings accumulated. An understanding of this principle will help investors and consumers appreciate the importance of saving and the need to avoid debt.

Importance of Compound Interest

Compound interest is widely believed to be "one of the most powerful forces in the universe." Indeed, some claim that Albert Einstein described compound interest as the eighth Wonder of the World and remarked, "He who understands it, earns it . . . he who doesn't . . . pays it."

When people invest money, they receive interest on the original amount they invest (known as the principal). If they choose to add the interest to the principal (rather than withdraw and spend it), it also earns interest along with the interest paid on the principal. This is known as compounding. It is an important concept to understand, because it shows the importance of investing early and the power of reinvesting the interest earned. Money subject to compound interest will grow to a large sum over a long period of time. When it comes to deciding whether to postpone saving, compound interest is particularly important; if individuals delay, they may not enjoy the full benefits of this powerful force.

Suppose you invest $1,000 at 10 percent interest. At the end of the first year, you will receive $100 interest on your $1,000 investment. If you reinvest the interest, the $100 interest is added to your original investment of $1,000, so your investment at the start of the second year is now $1,100. In the second year, the interest on your investment is $110 (10 percent of $1,100), and you earn $10 more interest because your investment is worth $100 more than the amount in the first year.

In the third year, your investment will grow to $1,210 and the interest earned is $121. With compounding, the interest earned grows with time—$100 in the first year, $110 in the second year, and $121 in the third year. Consequently, the value of your investment grows exponentially with the passage of time. The money value of the increase is not so large in the early years, but it is very large in the later years.

In contrast, if you choose not to reinvest the interest, your original principal will earn *simple* interest of only $100 each year. A $1,000 investment will grow by just $100 each year. After two years, your investment will be worth only $1,200 (compared to $1,210 with annual compounding). It's over a long period of time that the differences between simple and compound interest can become enormous. Another simple example can demonstrate this: At 15 percent simple interest, $100 grows to $550 in 30 years, while at 15 percent interest compounded annually, $100 grows to $6,621 in 30 years, a difference of $6,071.

The frequency of adding interest, or compounding, can affect the amount of interest accrued. Interest can be added more frequently than once a year—it can be monthly, quarterly, semiannually, or annually. This is known as *compounding frequency*. The greater the frequency, the higher the amount of interest earned.

Suppose two banks offer two interest options: Bank A pays interest monthly and bank B pays interest annually. With interest added monthly, $1,000 at 10 percent will give you $104.71 of interest in year 1, while $1,000 at 10 percent with interest added annually will you $100 of interest, a difference of $4.71. However, over 30 years this can lead to a huge difference: $1,000 with 10 percent added monthly grows to $19,837, while $1,000 with 10 percent added annually grows to $17,449, a difference of $2,388.

Compound interest richly rewards those who invest early. The benefit of investing early can be illustrated by the story of twins: Hannah and Ellie. Hannah started work after leaving university at the age of 21, and she began investing $1,000 per annum with compound interest of 8 percent per year. Ellie also left university and started work at the same time, but she failed to set up a saving plan because she liked to party and buy clothes. Hannah stopped saving at age 30, when she left her job to have a baby. She left her savings to grow but did not invest any more. Ellie, on the other hand, started saving $1,000 per year earning 8 percent compound interest per year.

By age 65, Hannah has accumulated a bigger pot of savings. Although she has paid in only $10,000 over 10 years, her investment is now worth $231,324 because her investment has had 44 years of growth. Although Ellie has paid a total of $35,000 over the 35-year period, her investment is now worth less than Hannah's ($186,102) because of the shorter period of investment. The lesson is clear—the sooner you start saving, the better.

People often think that investing makes sense only if you have a lot of money to begin with. This is not true; compounding works on any starting sum. Whether the sum is large or small, compounding gives the same impressive percentage increase.

Borrowing and Compound Interest

While compound interest can work miracles when you save, it can have a ruinous effect when you borrow. For example, if you borrow $1,000 over 30 years at 10 percent per annum, the total amount you will have to repay is $17,449, which is more than 17 times the original amount borrowed.

Here, it might be worthwhile to distinguish between good debt and bad debt. People often borrow money to buy real estate, and this is perceived as good debt because the value of real estate is likely to grow over time. Although borrowers will have to repay more than the amount they owe, they take the risk in the hope that their asset will grow more in value and they can still make a profit. Bad debt, on the other hand, refers to assets whose value depreciates over time (e.g., cars, vacations, paying off other debts); money borrowed to acquire these types of assets will not enable individuals to accumulate wealth.

Compound interest, then, is a double-edged sword: It can help those who invest early to build a significant sum of money over a long period of time, and it will punish those who borrow money for a lengthy period. The lessons are clear: When it comes to saving, save early and leave the money to grow for as long as possible. When it comes to borrowing, borrow as little as possible, and repay it as quickly as possible.

Lien Luu

See also: Banking; Investing; *Vol. 2: Macroeconomics:* Debt; Dividend Income; *Vol. 3: Microeconomics:* Consumer Credit and Debt; Interest Rates; Time Value of Money

Further Reading

Binswanger, J., and K. G. Carman. 2010. The miracle of compound interest: Does our intuition fail? CentER Discussion Paper Series No. 2010-137. *Social Science Research Network*, December 10. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1742342 (accessed November 30, 2016).

Lofthouse, S. 1996. *How to fix your finances: A guide to personal financial planning*. New York: Wiley.

Madura, J. 2016. *Personal finance*. 6th ed. New York: Pearson.

COST-BENEFIT ANALYSIS

Cost-benefit analysis, or benefit-cost analysis, is the economic process of analyzing all costs and benefits associated with a decision. People should use this type of analysis to make good economic decisions, and they should do something only if the benefit outweighs the cost. Generally, this type of decision-making is applied to public programs and projects, where costs, including opportunity cost, and benefits of the project are weighed. Cost-benefit analysis was first used in the United

States in the 1930s as it related to water allocation. The concept was also applied to transportation in the United Kingdom in the 1960s.

Cost-benefit analysis is credited to the French economist and engineer Jules Dupuit. The concept was first applied to public works and transportation projects in the 1840s. Dupuit examined the costs of public projects differently than other economists had, and he first applied his reasoning to a canal project. He also favored charging people a toll to use the canal, with the price of this toll to be determined by an examination of the canal's utility to consumers as well as by price discrimination. Later, Dupuit extended his idea of cost-benefit analysis to examine who owns the good or service: the individual or the government.

Dupuit's contributions led cost-benefit analysis to be based on the following: identifying the costs and benefits associated with a project, measuring benefits based on both supply and demand prices, and determining tolls or any related costs by taking utility and potential deadweight loss into consideration. He also applied the terms *consumer surplus* and *producer surplus* to determine what the benefit would be to society, or the government, as well as to the people. Dupuit also examined what the effect of a tax would be, and he stated that taxation would decrease consumer and producer surplus. Dupuit also discovered that there would be a societal loss resulting from imposing a tax; today this is called deadweight loss.

One of the first steps in cost-benefit analysis is to identify the costs and benefits of a particular project. This also includes potential future costs of the project as well as external costs (or benefits) to society. Another area to be examined is how the project will affect supply and demand and the price of related goods. Some groups would lose utility due to this, while others would gain utility.

Cost-benefit analysis evolved to also include the tradeoffs of making a decision, or what is being given up to make a specific decision. The amount of alternative choices can also play a role in this analysis, as can the anticipated utility, or satisfaction. Behavioral economists believe that in some cases, people fail to use cost-benefit analysis because they postpone making a decision or they accept an option without weighing the true costs and benefits of the decision. It must also be considered that the "best decision" for one person may not the same for the next person.

Cost-benefit analysis also involves projects that maximize societal benefits and welfare, and it is not the same as examining only the financial costs and benefits of a decision or a project. It also contains analysis of external costs and benefits to society. Cost-benefit analysis does not include sunk costs, the costs incurred by society even if something is not implemented.

Cost-benefit analysis is increasingly used in environmental policy and behavioral economics, as well as in welfare economics.

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See also: Behavioral Economics; Behavioral Finance; Marginal Analysis; Marginal Cost; Opportunity Cost; Welfare Economics. *Vol. 3: Microeconomics:* Dupuit, Jules; Utility, Experienced

Further Reading

Buse, Lucian, Marian Siminica, and Daniel Circiumaru. 2008. Cost-benefit analysis: Economic tool used to aid decision-making regarding the distribution of public funds. *European Research Studies* XI: 19–30.

Hotelling, Harold. 1938. The general welfare in relation to problems of taxation and of railway and utility rates. *Econometrica* 6: 242–69.

Layard, Richard, and Stephen Glaister, eds. 1994. *Cost-benefit analysis*. 2nd ed. Cambridge, UK: Cambridge Univ. Press.

Maneschi, Andrea. 1996. Jules Dupuit: A sesquicentennial tribute to the founder of benefit-cost analysis. *The European Journal of the History of Economic Thought* 3 (Autumn): 411–32.

Mishan, E. J., and Euston Quah. 2007. *Cost-benefit analysis*. 5th ed. New York: Routledge.

Morrison, Clarence C. 2007. Was Jules Dupuit a market socialist: A retrospective note on marginal cost pricing. *International Atlantic Economic Society* 36 (December): 31–39.

Persky, Joseph. 2001. Retrospectives: Cost-benefit analysis and the classical creed. *Journal of Economic Perspectives* 15 (Fall): 199–208.

Smith, V. Kerry, and Eric M. Moore. 2010. Behavioral economics and benefit cost analysis. *Environmental and Resource Economics* 46 (February): 217–34.

Williams, Barry. 2008. Cost-benefit analysis. *Economic & Labour Market Review* 2 (December): 67–70.

CRAFT GUILDS

Craft guilds are associations of craftsmen that formed an alliance for their mutual aid and protection and to further their professional interests. Craft guilds were created soon after merchant guilds started to form, and their history can be traced back to the 10th century.

When labor began to divide and specialize, the craftsmen banded together to help regulate their trade. Years ago, these guilds were usually set up by families or towns that had specialized in a trade and were seeking to regulate their craft for their own best interests. This allowed the guilds to regulate their trade by setting quality standards and establishing basic rules. These standards set up expectations for the quality of the goods or services that the craftsmen were providing, which allowed the craftsmen to set prices that were stable and that reduced the competition among craftsmen of the same trade. The guilds helped to increase integrity in the trading process, since craftsmen of the same guild were not undercutting each other and providing inferior services. This helped to reduce competition among those in the same trade, and it added organization to trading processes. Craftsmen who did not adhere to the guild's rules and standards found themselves facing fines that were imposed by the officials within the guild who were responsible for investigating complaints.

While guilds have become rarer than they were many years ago, they still exist today for tradesmen such as plumbers, electricians, and carpenters. The guilds are structured so that people start their on-the-job training as apprentices, become journeymen, and eventually become masters. Apprentices start work with little or no experience in the particular field they have chosen. They are provided an education on how to perform the labor in a profession, and in exchange they agree to work for their employer for an agreed-upon period of time after they achieve a certain level of competence. Apprenticeships typically last for three to six years, depending upon the difficulty of the profession, the skill of the apprentice and the trainer, and the state of the overall economy. Apprentices learn their trade or profession from the master craftsman whom they were assigned to at the start of the program. They learn the majority of their chosen trade or profession through on-the-job training, but this is often supplemented with classes sponsored by the guild or company that the apprentice is affiliated with.

Once the guild deems that an apprentice has learned the craft but is not yet a master, the apprentice is promoted to journeyman. As a journeyman, the person can be certified and, if required by law, become a licensed journeyman. A journeyman's education depends largely on the field the person has chosen and the requirements of the laws governing the field. For some journeymen, their education continues for one to three years after they graduate from their apprenticeship. This additional training can be informal, on-the-job training, or it can be formal training with additional classes required in order to move to the level of master.

Journeymen typically are responsible for supervising the apprentices who are assigned to the master that the journeymen usually are working under. Journeymen have a greater knowledge of the industry than apprentices do, but they may not have the same knowledge as those who are considered masters. Journeymen often specialize in one area of their trade, but they are unable to offer their services in all areas of the trade like many masters are able to. Depending upon the trade and the profession, as well as the laws that govern it, "journeyman" may be the highest rank that is achievable in the guild.

For guilds that offer it, trainees can achieve "master" status after taking additional classes, passing various exams, and obtaining further licensing. Tradesmen who achieve master status can generally command higher pay than journeymen, since they have a greater knowledge and have faced more difficult requirements to achieve their status.

Many years ago, to start a business, a craftsman had to have achieved master status. For most people today, this does not apply; journeymen can open their own businesses and provide services to the public.

Some countries require that a person that has achieved master status must be involved in a trades business in order for the business to operate legally without fines. Many countries have eliminated this requirement in an effort to make it easier for people to start new businesses and drive the economy. Businesses that are still subject to these rules will often hire just one master tradesman in order to meet the requirements set forth in the laws. These requirements can be met even if a company has multiple locations and hundreds of employees; this requirement has led many countries to eliminate the requirement of having a master tradesman at each site.

The majority of guilds are no longer informal groups that are joined together by family; instead they are now formal unions that are representatives for their members. Many of these guild unions have joined the American Federation of

Labor and Congress of Industrial Organizations (AFL-CIO), the largest federation of unions in the United States.

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See also: American Federation of Labor and Congress of Industrial Organizations; *Vol. 2: Macroeconomics:* Labor Productivity; Labor Uprisings, 1936–1939; *Lechmere, Inc. v. National Labor Relations Board*; National Labor Relations Board; National Labor Unrest, 1894; Taft-Hartley Act, 1947; *Vol. 3: Microeconomics:* Labor Economics; Microeconomics; National Steel Strike, 1919; National Steel Strike, 1959; Sherman Anti-Trust Act of 1890; *Vol. 4: Global Economics:* International Labor Organization

Further Reading

Encyclopedia Britannica. n.d. Guild. https://www.britannica.com/topic/guild-trade-association (accessed March 23, 2015).

HighBeam Research. 2000. Medieval ways stifle in Web age: Germany wrestles with craft guilds that help hold down business formation. *The Christian Science Monitor*, June 9. http://www.highbeam.com/doc/1G1-62629487.html (accessed March 23, 2015).

CREATIVE DESTRUCTION

In *Krieg und Kapitalismu* (War and Capitalism), Werner Sombart (1913) originally brought *creative destruction* into the public sphere as an economic concept. Reinart and Reinart (2006) argue that the concept is actually attributable to the influence of Friedrich Nietzsche. Nietzsche interpreted creative destruction in attempts to remedy the need to create a new moral system and the subsequent need to dismantle the previous schema. This theme of the morality of innovation can be traced back even farther, to Hindu principles of creation and destruction. Creative destruction, however, is largely attributed to the work of Joseph Schumpeter—specifically, through his expansion of earlier works by Karl Marx and Friedrich Engels. In Marxist thought, *creative destruction* refers to a paradox in the nature of capitalist systems whereby capitalistic societies are being destroyed by capitalism's own creative success.

In their writings, Schumpeter and Marx both envision capitalism as a main creator of the socialist system. Furthermore, they both claim that capitalism will inevitably fail and give way to socialism. They differ, however, in that Marx pictures capitalism as failing as a result of economics, where Schumpeter postulates that capitalism will fall victim to its own incessant need for growth and expansion. This was the genesis of creative destruction, which is sometimes referred to as Schumpeter's Gale.

Capitalism as a system is fueled by growth and profits, especially those associated with new technologies and advances in business thinking. As a result, the system is supported by continued growth, which means it is ever-expanding. Therefore, new technologies frequently require the clearing of both physical space and market space, which will compete and subsequently destroy previous, outdated productions—or even existing, capable productions. To that extent, Schumpeter argues that any enterprise is threatened and put on the defensive as soon as it comes into existence. To exist, capitalism requires continual creation of growth and increasing wealth. This creation of new wealth requires the repurposing, or even the complete destruction, of past wealth. This is the core principle of creative destruction, and it can be applied to other aspects of capitalist societies, such as property, intellectual intelligence, and innovations. More modernly, it can be seen as a large factor in modes of globalization.

In *Grundrisse* (1939), Marx takes a much more critical look at the destruction of capital and other systematic apparatus as a necessity for the self-preservation of capitalism. He describes the end product of capitalism as cyclically growing into conditions of overreliance on the system and overdevelopment, bringing the immediate need for either destruction within its own system or expansion into dominance of other markets. Essentially, the overdevelopment and inevitable stagnation of growth within a given system leads inevitably to a recession. Sometimes, a more controlled or manipulative device within an economy—such as war, labor conflicts, and subsistence restrictions—may also be a by-product of the needs of preserving capitalism via the degradation of quality of life. Essentially, wealth, capital, subsistence, property, and markets all must continually grow. If there is not room for that growth, but there are vast technological improvements, they may be destroyed.

Wiggins and Ruefli (2005) assert that there are three key predictions of Schumpeter's theory. First, as time progresses, maintaining strategic competitive advantages becomes more difficult. Second, the paradox of creative destruction is increasing its reach to affect more industries. Third, competitive advantage is becoming more reliant on multiple advantages developed over time rather than a singular force. This increase in competition seems to lead the way for shorter cycles of creation before the inevitable counterbalance of destruction. It means the exponential precipitation of the needs of capitalism. It also means that established businesses are gaining advantages in their experience and utilization of past wealth for the creation of new wealth. As a result, the wealth gap between poor and rich is ever-expanding.

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See also: Capitalism; Marx, Karl; Privatization; Schumpeter, Joseph; *Vol. 2: Macroeconomics:* Property Rights; *Vol. 3: Microeconomics:* Markets; Microeconomics; *Vol. 4: Global Economics:* Globalization

Further Reading

Elliott, John E. 1978. Marx's "Grundrisse": Vision of capitalism's creative destruction. *Journal of Post Keynesian Economics* 1 (2): 148–69. www.jstor.org/stable/4537475 (accessed January 20, 2016).

Elliott, John E. 1980. Marx and Schumpeter on capitalism's creative destruction: A comparative restatement. *The Quarterly Journal of Economics* 95 (1): 45–68. www.jstor.org/stable/1885348 (accessed January 20, 2016).

Heilbroner, Robert L. 1984. Economics and political economy: Marx, Keynes, and Schumpeter. *Journal of Economic Issues* 18 (3): 681–95. www.jstor.org/stable/4225467 (accessed January 20, 2016).

Marx, Karl, and Friedrich Engels. 2002. *The communist manifesto*. London: Penguin Press. (Orig. pub. 1848.)
Reinart, Hugo, and Erik S. Reinart. 2006. Creative destruction in economics: Nietzsche, Sombart, Schumpeter. *The European Heritage in Economics and the Social Sciences* 3: 55–85.
Schumpeter, J. 1976. *Capitalism, socialism, and democracy*. London: Routledge.
Sombart, W. 1913. *Krieg und kapitalismus*. Munich: Duncker & Humblot.
Wiggins, Robert R., and Timothy W. Ruefli. 2005. Schumpeter's ghost: Is hypercompetition making the best of times shorter? *Strategic Management Journal* 26 (10): 887–911. www.jstor.org/stable/20142279 (accessed January 20, 2016).

CREDIT REPORT

A *credit report* is a tool that lending institutions such as banks use to determine if you are a good credit risk and will pay back the loan you are applying for. The credit report contains information about your past and current financial transactions that involve debt (such as credit cards) and loans. Additionally, it includes information on judgments and past credit inquiries from credit-granting institutions. You are allowed one free credit report a year from each of the reporting agencies. You may also request a report when you are denied credit.

Credit-reporting agencies are companies that, for a fee, will compile the data for your credit report and provide the information to banks and other institutions.

What Is on a Credit Report?

A credit report contains information related to your ability to pay back money that you borrow. It includes the following items:

Personal Identification Information—This includes your name, address, Social Security number, and phone number. It may also contain information from your past, such as former names, addresses, employers, and people you have a credit relationship with, such as your spouse.

Outstanding Debts—These are debts that you have not paid off in full. Examples are mortgages, car loans, student loans, and credit cards.

Past Debts—Any debts that you have finished paying off will continue to show on your credit reports. For example, once you have paid off a car loan, it will remain on your credit report as a debt paid in full. If you do not pay it in full, and instead use a settlement, then the credit report will indicate that the debt was settled and closed.

Payment History—Your credit report will show if you made your payments on time, or late. Typically, it will show On time, 30 days late, 60 days late, and 90 days or more late. After that point, the information typically will be moved to a collection status, such as "Referred to collection," Repossession, or Charged off. These last classifications indicate that you have not paid the debt as you originally agreed to do.

Your positive information on your payment history will typically stay on your report indefinitely, and your negative will be removed after seven years. Bankruptcy will stay on your report for 10 years.

Available Credit (Utilization)—Your report will show how much you have available on revolving credit. Available credit is considered the available credit line minus your outstanding balance. Thus, if your credit line is $20,000 and your balance is $5,000, you have available credit of $15,000.

The lower your utilization, the better your credit score appears; lenders look upon this favorably. If you are maxed out on your credit cards and are applying for more credit, lenders see this as a bad sign.

Public Records—Your credit report will also include any items that are on the public record, such as tax liens, court judgments, and bankruptcies.

Credit Inquiries—Anytime someone checks your credit, that request will show up on your credit report.

Dispute Statements—If your report contains an item that you disagree about, you can file a dispute statement; this will show up on your credit report. The credit-granting company you have the dispute with may also include a statement on the credit report detailing their version of the reason for the disagreement.

Types of Debt

Three types of credit will appear on your credit report:

1. *Revolving Credit*—This type is when you don't have a final end date for paying off the debt; you are allowed to continually use the credit, pay it off and then take out more. Examples of revolving credit are credit cards and home equity loans.
2. *Installment Loan*—This type of loan has a fixed loan amount, a fixed payment, and a fixed payoff date. Examples are auto loans and mortgages.
3. *Open Debt*—This is the least common among the types of debts, but it includes debts that must be paid in full every month. An example of this is some of the cards offered by American Express®; they have no credit limit, but you must pay the owed amount in full every month.

Purpose of a Credit Report

The purpose of the credit report is to help companies determine if you are good credit risk.

Credit reports are also used by insurance companies, some employers when you are applying for a job, landlords, and when granting military security clearance. These companies and institutions typically use the information to determine if you are responsible and will pay your debts.

Some employers, such as in the banking industry, want to learn whether you are able to handle constant interaction with money and will manage money responsibly for others. In the military, it has been shown that most unethical or illegal acts are perpetrated in order to gain money to pay off debts.

Credit Score

The credit report itself does not say whether you are a good or a bad risk. It is up to lending institutions to take the information from the report and make their own decisions regarding your credit-worthiness.

In an attempt to make this easier, the "credit score" was created to attempt to summarize your ability to pay; this is also known as your FICO score. This score is not part of your credit report. Companies pay extra to have this score given to them, in addition to your credit report.

When you get your annual free report, it will not include your credit score unless you pay an additional fee for access to the score.

Reporting Agencies

Your credit report is compiled by a credit reporting agency, also known as a credit bureau. The three major agencies are Experian, Equifax, and TransUnion.

To compile your report and score, each agency gathers information from lending agencies and and public records. While each company typically has obtained very similar information about you, there may be small differences between each of the agencies reports and the scores that they report to lending institutions.

These agencies are for-profit companies, and they make money by selling your reports to lending institutions and others that want the information. Companies requesting the credit report must get you permission to access your report. For example, if your landlord wants to run a credit report on you, you must sign an authorization form for the landlord to make the request and receive the information.

While lending institutions are not required to report any information on an individual's debts, they do so voluntarily to help create a complete picture of the person's credit.

The reporting agencies are monitored by the Federal Trade Commission (FTC).

Disputing Information on Credit Report

If you pull your credit report and determine that some information on it is false, then you can request that the reporting agencies remove that information from your report.

In order to have it removed you must submit a request. Then the agency has 30 days to verify the information or to remove the information.

It is possible, however, that the information may show up again at a later time. This occurs when a bank or lending institution has wrong information in its files. After the agency has removed the incorrect information, the bank may re-report the data and it will show up again on your report.

To guarantee that this incorrect data will not show up again, you must work with the lending institution to remove the bad information from the files they retain for you.

Andrea Travillian

See also: Bankruptcy; Financial Literacy; *Vol. 2: Macroeconomics:* Debt; *Vol. 3: Microeconomics:* Consumer Credit and Debt; Debt Collection; Debt and Credit Counseling

Further Reading

Consumer Financial Protection Bureau. n.d. Credit reports and scores. http://www.consumerfinance.gov/askcfpb/ (accessed March 12, 2014).

Experian Team. 2013. How utilization rate affects credit scores. *Experian*, October 30. http://www.experian.com/blogs/ask-experian/2013/10/30/how-utilization-rate-affects-credit-scores/ (accessed March 12, 2014).

Fay, Bill. n.d. How being in debt affects military clearance. *Debt.org*. http://www.debt.org/veterans/military-security-clearances/ (accessed March 18, 2014).

Moogalian, Diane. 2010. FAQ: How long does information stay on my credit report? *Equifax*, May 10. http://blog.equifax.com/credit/faq-how-long-does-information-stay-on-my-credit-report/ (accessed March 12, 2014).

CRONY CAPITALISM

A capitalist market is in force when individuals choose their roles as producers and consumers in an economy. Producers succeed or fail based on their skills and their ability to participate in the market and successfully conduct market transactions with buyers. In contrast, the transactions of a crony capitalist system are based on government officials selecting who will participate as producers by providing special treatment to a select group or groups—usually political allies and the friends of government officials. Crony capitalism is a form of capitalism in which government officials have chosen certain market participants to receive special favors such as subsidies, grants, or special payments to give a chosen business preferential treatment and an extra advantage over its competitors.

The bigger a government's budget and regulatory powers, the greater the potential for crony capitalism to occur. Crony capitalism exists even in democracies, as those with financial means seek to influence the government. The more the government becomes involved in the selection and designation of certain businesses, the more those businesses depend on government favors and support in order to be successful. This leads to a system of bribes to government officials and increased government corruption, as businesses and special interest groups vie for the government preferences. This often leads to instability in the government, sustaining a system of bribes and corruption. Because the participants—government officials and businesses receiving the special favors—have no incentive to change the system, crony capitalism reinforces the current corrupt political and economic structures and provides no incentives to change.

Crony capitalism often results in the misuse or misallocation of resources. It also emphasizes the use of economic rent (or rent-seeking behavior), which will be higher than necessary, leading to inefficiencies. *Economic rent* is a system in which the government grants favors to businesses while businesses must devote some resources to obtaining those favors. For example, a business, might ask the government for tariffs or quotas in an effort to protect domestic manufacturers; in exchange, the business supports the politicians who are providing the favors.

Crony capitalism perpetuates the influence of the political elite. The system also gives immense power to bureaucrats who make decisions on how to spend money that can benefit some people or groups over others. Even when the government seeks to provide public goods, such as roads, crony capitalism is present, as private interests seek to benefit. Crony capitalism threatens the distribution of income, as profits remain high for the few at the expense of both producers and consumers.

This system favors and benefits smaller groups of people, and the burdens of this favoritism are placed on the rest of society. In addition, those who are better off may be against projects that assist the poor, because the wealthier people would then be faced with higher taxes.

When crony capitalism has a strong presence in an economy, the country's legal system and the agencies that regulate markets are likely to be less strong. Lenders assume more risk as they interact, and have close relationships, with their borrowers.

Corruption is much more common in economies with a strong crony capitalism component. It disrupts the efficient allocation of resources in an economy, and it may affect both foreign and domestic investments.

There are some advantages to crony capitalism: It encourages investment in growth within an economy even when economic times are not especially strong. The presence of crony capitalism has also helped different world economies grow in the short run, including those in Asia. Many stakeholders, such as banks and businesses, can remain insulated from economic problems as a result of crony capitalism.

Crony capitalism is prevalent in developing nations where populist political leaders dispense political and economic favors to maintain control and power. Crony capitalism has been blamed in part for the economic problems of developing nations such as those in sub-Saharan Africa and South America. The Asian economic crisis of 1997 has also in part been blamed on crony capitalism. A close relationship among business, the government, and banks may have caused the crisis that affected Thailand, Indonesia, and South Korea and several other Asian countries.

In the United States, the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage (Freddie Mac) are organizations established by the government but operating in the private sector. As private businesses established by the federal government, they often take their business mission, direction, and role in the housing market from Congress. As a result of this close relationship between government and a private sector business, with the special preferential treatment they receive from government, they have often been labeled as the result of crony capitalism behavior. They benefit from their relationship with the government, which allowed them to promote and purchase below-market, substandard mortgages. Many consider this to be the primary cause of the housing bubble that led to the 2008 financial crisis. To avoid a potential financial collapse, the federal government bailed them out by purchasing some of their stock and guaranteeing loans to prevent homeowners from foreclosures; a private business without preferential government benefits would have been allowed to fail.

As mentioned, when both businesses and government officials benefit from crony capitalism, there is no incentive to change the structure. Additional government intervention and regulation can make the situation worse, which often leads to another government problem—moral hazard. Private businesses decide that it is not a problem if they fail, for the government will bail them out as it did Fannie Mae and Freddie Mac. It is difficult to prevent or even regulate crony capitalism.

Angela M. LoPiccolo

See also: Market Capitalism; *Vol. 3: Microeconomics:* Economic Rent; Federal Home Loan Mortgage Corporation (Freddie Mac); Federal National Mortgage Association (Fannie Mae)

Further Reading

Enderwick, Peter. 2005. What's bad about crony capitalism? *Asian Business & Management* 4: 117–32.

Holcombe, Randall G. 2013. Crony capitalism: By-product of big government. *The Independent Review* 17: 541–93.

Labaton, Stephen, and Edmund L. Andrews. 2008. In rescue to stabilize lending, U.S. takes over mortgage finance titans. *New York Times*, September 7. http://www.nytimes.com/2008/09/08/business/08fannie.html?pagewanted=all&_r=0 (accessed November 30 2016).

Lewis, Hunter. 2013. *Crony capitalism in America*. Edinburg, VA: Praktikos Books.

University of Puget Sound. n.d. *Corruption & crony capitalism.* http://www.pugetsound.edu/academics/departments-and-programs/undergraduate/ipe/resources/ipe-of-the-asian-crisis/corruption-crony-capitalism/ (accessed November 30 2016).

Wheeler, Bert. 2013. Crony capitalism. In *Bereans@The Gate*, August 23. http://bereansatthegate.com/crony-capitalism-4/ (accessed November 24, 2013).

CULTURAL ECONOMICS

Cultural economics is a field of economics that relates to the arts and heritage of cultural industries. Cultural economics covers several areas of cultural goods: the performing arts, which includes music, theater, dance, and opera; cultural heritage, which includes museums and other artifacts; and cultural or creative pursuits, such as broadcasting, film, sound recording, and software. Producing cultural goods is initially expensive, as fixed costs are high; but as subsequent units of the good are produced, the marginal cost decreases. A topic of frequent political debate is whether or not the cultural arts should be considered public goods and publicly funded.

Cultural economics began as "economics of the arts" in the 1960s, and it expanded in the 1970s. An influential book, *Performing Arts: The Economic Dilemma*, published in 1966 by William Baumol and William Bowen, led the way in the field of cultural economics. Baumol and Bowen asserted that as people earned more income, the arts, paradoxically, would face more financial difficulties. Furthermore, the rising cost in the wage of performers and artists would lead to a decrease in the demand for a performance yet an increase in the overall price of a performance. Therefore, a lack of revenue would lead to the subsidization of the arts to make up the needed revenue. Baumol and Bowen also believed that society as a whole benefited from the arts. This proposition ties cultural economics to the idea of welfare economics.

Cultural goods and artistic labor differ from other labor and do not necessarily grow due to technological change or advancement. The arts depend on public and private contributions for their maintenance. Conflicting ways of preserving the field of cultural economics also existed. Baumol and Bowen argued for subsidies to keep the arts alive so that there would always be financial support for it. Alan

Peacock, tied to cultural economics in the 1970s, felt differently; he was in favor of subsidies only to preserve the arts in schools.

Peacock developed a system to determine the output of an orchestra in order to determine the appropriate level of costs. This became known as cultural accounting, and it was used to standardize the approach to the financing of the arts. Peacock also explored how to make the arts more affordable for all citizens, and he examined a voucher approach, which would operate much like a subsidy.

Peacock contributed to cultural economics further through his work on museums and the "building of heritage," or the preservation of generational artifacts. Peacock examined the idea of charging visitors a fee to enter a museum, holding that these fees could help preserve the museum and provide for its restoration in the future.

Peacock was also a contributor to the field of broadcasting, studying how this public good would be financed. He applied economics to the field, through the idea that listeners (or viewers) should receive maximum satisfaction from the programs being broadcasted and also that a competitive market should exist.

Copyright is yet another area of cultural economics that is meant to protect the creativity and originality of artists' works of art, music, or literature. The current concern has to do with how digital versions of artists' works will affect copyright laws and regulations. Digitalization allows works to be shared for free in many cases, and this means many cultural goods are becoming public goods.

Cultural economics has made use of welfare economics and cost-benefit analysis to determine if new methods or techniques make economic sense for financing specific cultural industries. The field of cultural economics also looks to public finance, and it seeks to determine if the arts should be financed publicly since they contain the features of public goods.

The field of cultural economics has evolved beyond attending the theater, the opera, or a ballet; today it can be broadened to include many social media elements and pieces of technology. The field has expanded to include Facebook and its millions of users, as well as YouTube and everyone's immediate access to culture. The iPhone and iPod have revolutionized cultural economics, as songs can be downloaded quickly and inexpensively. Kindle and other e-readers have changed the face of culture, as people can download and read current bestsellers or classic works with just a few clicks. The field of cultural economics will continue to evolve and will change with the times and the technology.

Angela M. LoPiccolo

See also: Cost-Benefit Analysis; Welfare Economics; *Vol. 3: Microeconomics:* Baumol, William; Public Goods; *Vol. 4: Global Economics:* Subsidies

Further Reading

Baumol, William J., and William G. Bowen. 1966. *On the performing arts: The economic dilemma*. New York: Twentieth Century Fund.

Besharov, Gregory. 2005. The outbreak of the cost of disease: Baumol and Bowen's founding of cultural economics. *History of Political Economy* 37 (October): 413–30.

Brito, Paulo, and Carlos Barros. 2005. Learning-by-consuming and the dynamics of the demand and prices of cultural goods. *Journal of Cultural Economics* 29 (May): 83–106.
Cowen, Tyler. 2008. Why everything has changed: The recent revolution in cultural economics. *Journal of Cultural Economics* 32 (December): 261–73.
Hutter, Michael. 1996. The impact of cultural economics on theory. *Journal of Cultural Economics* 20 (December): 263–68.
Rushton, Michael. 1999. Methodological individualism and cultural economics. *Journal of Cultural Economics* 23 (August): 137–46.
Towse, Ruth. 2005. Alan Peacock and cultural economics. *The Economic Journal* 115 (June): F262–76.
Towse, Ruth. 2006. Copyright and artists: A view from cultural economics. *Journal of Economic Surveys* 20 (September): 567–85.
Towse, Ruth. 2010. *A textbook of cultural economics*. New York: Cambridge Univ. Press.
Towse, Ruth, ed. 2011. *A handbook of cultural economics*. Northampton, MA: Edward Elgar.

CULTURE AND BEHAVIORAL ECONOMICS

Culture is generally defined to mean the shared beliefs, values, and attitudes that influence the formation of people's preferences and their choices for goods and services. In a way, human actions are imprinted by their history. Conceptualizations of culture vary across disciplines. But culture, as a system of shared beliefs, values, and attitudes, provides collective understandings in forming people's choices.

According to Richerson and Boyd (2005), *culture* is information that individuals acquire from other members through teaching, imitation, and other forms of social transmission—information that then has the ability to affect individuals' behavior. By *information*, Richerson and Boyd mean any kind of mental state, conscious or not, that is acquired or modified by social learning and affects behavior. People are likely to perceive bits of information that is germane to existing schemata.

Culture can be understood as heterogeneous. Cultural differences are, to a large extent, due to environmental differences. Humans acquire large parts of their behavioral repertoire via forms of social learning (basically, through imitation). Therefore, patterns of social interaction affect the structure of cultural systems. Culture can be the mechanism that reduces "intra-group" differences and maintains "inter-group" differences, by biasing individuals in favor of copying the common beliefs, values, and attitudes.

In addition to being a source of preferences, culture can be introduced as a deviation from conventional economic predictions. Roth et al. (1991) published the first cross-cultural comparison study of an ultimatum game, conducted in the industrialized cities of Pittsburgh (U.S.), Tokyo (Japan), Ljubljana (Slovenia), and Jerusalem (Israel). Subjects were first assigned a role: proposers or responders. The responder could accept or reject a proposal. If the responder accepted the offer, the proposer got the demanded amount and the responder got the remainder. If the responder rejected the proposal, neither player received anything. In the test, modal offers by proposers generally approached 50 percent of the total stakes, with the mean offer ranging from a low of 37 percent (Israel) to a high of 47 percent (U.S.). Rejection rates by responders varied between 19 percent and 27 percent, with offers below 20 percent commonly being rejected. In contrast to these results, which were obtained in relatively industrialized settings, those of Henrich's (2000) experiment with the Machiguenga of the Peruvian Amazon nearly approached conventional economic predictions. That is, Machiguenga proposers seemed to possess little or no sense of obligation to provide an equal share to responders, and responders seemed to have little or no expectation of receiving an equal share. The modal offer of 15 percent seemed quite fair to most Machiguenga. Culture may have played a profound role in determining what was perceived as fair.

Cultural differences can affect economic behavior and, therefore, economic performance. In his classical work *The Protestant Ethic* and the *Spirit of Capitalism*, Max Weber (who lived from 1864 to 1920) saw culture as the driving force behind differences in economic development. Weber argued that the rise of the Protestant work ethic led to economic development of the Protestant regions of Europe, starting in the 16th century.

There is some evidence to support the argument that culture plays a fundamental role in explaining the wealth of nations (Tabellini 2010). Culture is measured to a degree by indicators such as trust, respect for others, and confidence in individual self-determination. Indeed, trust is a crucial factor for fostering cooperation among people, and trustful relations reduce transaction costs in economic interactions (Teraji 2008). If societies differ in their degree of trustworthiness, one would expect this variation to be reflected in economic performance. Also, differences in culture can affect decision-making processes and choices, resulting in different economic outcomes, which are stable over time. The outcomes can range from economies that are economically highly efficient to those that are highly inefficient (Altman 2001; Harrison 1993). According to Jones (2006), however, cultures seem sticky but can be fluid. Cultural change reflects better knowledge of alternative cultures, and such knowledge leads to cultural merger.

Shinji Teraji

See also: Evolutionary Economics; Institutional Economics; Social Preferences within a Population; *Vol. 4: Global Economics:* Developing Countries

Further Reading

Altman, Morris. 2001 Culture, human agency, and economic theory: Culture as a determinant of material welfare. *Journal of Socio-Economics* 30: 379–91.

Axelrod, Robert. 1997. The dissemination of culture: A model with local convergence and global polarization. *Journal of Conflict Resolution* 41: 203–26.

Harrison, Lawrence E. 1993. *Who prospers: How cultural values shape economic and political success*. New York: Basic Books.

Henrich, J. 2000. Does culture matter in economic behavior? Ultimatum game bargaining among the Machiguenga of the Peruvian Amazon. *American Economic Review* 90: 973–79.

Jones, Eric L. 2006. *Cultures merging: A Historical and economic critique of culture*. Princeton, NJ: Princeton Univ. Press.

Richerson, Peter J., and Richard Boyd. 2005. *Not by genes alone: How culture transformed human evolution*. Chicago, IL: Univ. of Chicago Press.

Roth, Alvin, Vesna Prasnikar, Masahiro Okuno-Fujiwara, and Shmuel Zamir. 1991. Bargaining and market behavior in Jerusalem, Ljubljana, Pittsburgh, and Tokyo: An experimental study. *American Economic Review* 81: 1068–95.
Tabellini, Guido. 2010. Culture and institutions: Economic development in the regions of Europe. *Journal of the European Economic Association* 8: 677–716.
Teraji, Shinji. 2008. Property rights, trust, and economic performance. *Journal of Socio-Economics* 37: 1584–96.
Weber, Max. 1958. *The Protestant ethic and the spirit of capitalism*. New York: Charles Scribner.

D

DECISION COSTS

The terms *decision cost*, *optimization cost*, and *deliberation cost* have all been used to describe the value of resources a decision-maker uses to sort through a set of alternatives and choose the one that best accomplishes the objective. *Decision cost* includes the cost of concentration, attention, thinking, checking, and deciding. As it is most typically conceived, decision cost does not include information cost. *Information cost* is the cost of gathering the information necessary to define the set of alternatives, while *decision cost* is the cost of sorting through the set of alternatives.

Decision costs arise because humans have limited cognitive capacities. It takes time, concentration, and effort to compare alternatives. These resources could be productively used in other ways, so there is an opportunity cost associated with any particular decision method. If human decision-makers had unlimited cognitive capacity, they could sort through a set of alternatives and without cost, but such is not the case. Thus, to say decision cost is positive is to say rationality is bounded.

Once decision-makers recognize that it is costly to make a choice, it becomes evident that it may not be best to consider all alternatives. One decision method may yield a choice closer to an optimum than another, but this benefit might be outweighed by a higher decision cost. This explains why people adopt a variety of decision-making modes—trial and error, imitation, obeying an authority, and habit—that fall short of comparing all alternatives.

It is tempting to think that decision-makers should optimally choose a choice method, but this line of thinking leads to a circularity problem that is most commonly referred to as the "infinite regress problem." If there is a decision cost to optimally solving the original decision problem, then the decision cost must be even larger when a decision-maker wants to also decide how to decide. Ultimately, the presence of decision cost implies that decision-makers must be arbitrary to some degree when adopting a decision method.

Because an optimal choice involves making a best choice with no decision cost, it is not possible both to make an optimal choice and to know with certainty that an optimal choice has been made. To the extent that decision-makers make optimal choices, they must find ways to limit decision cost. To the extent that they limit decision cost, they increase the likelihood the choice is not best.

A habitual choice may be near optimal, because it is reasonable to think the decision cost would be zero or near zero. Of course, the habitual choice could also be far from optimal, because it does not involve the consideration of alternatives. Therefore, occasionally deviating from a habit is reasonable. A deviation that leads to a significantly better choice indicates that the application of some other decision method should be fruitful. As trial and error, submitting to authority, imitation, and other more rational procedures lead the decision-maker toward the best choice, these methods become too expensive to further apply. Habit should then dominate. In summary, only a dynamic and evolutionary process can effectively lead a decision-maker to an optimal choice. Only such a process allows a decision-maker to balance the possibility of incurring too much decision cost against not using enough.

Competition in the marketplace incentivizes decision-makers to evolve their decision-making processes to effectively manage the trade-off between improving decisions by incurring decision cost and improving decisions by economizing on decision cost. It is hard to imagine optimal choices being achieved by any means other than conscious cognition. However, because conscious cognition is typically expensive, market competition will typically ensure that those who survive have developed habitual business practices that allow good choices to be made without much conscious cognition.

Decision cost has been offered as an explanation for a variety of important phenomena. Why pay human subjects in experiments? Answer: The instruction to "Do your best" is not enough to overcome the decision cost associated with performing the decision task. Why might having more alternatives not improve well-being? Answer: It may increase decision cost enough to discourage search sufficiently that a worse decision is made. Why might a decision-maker focus only upon similar probabilities or similar outcomes when considering uncertain prospects? Answer: The decision cost associated with the more complex approach of considering both probabilities and outcomes may be perceived to outweigh the potential usefulness.

Mark A. Pingle

See also: Behavioral Economics; Smith, Vernon

Further Reading

Buschena, David E., and Joseph A. Atwood. 2011. Evaluation of similarity models for expected utility violations. *Journal of Econometrics* 162: 105–13.

Chabris, Christopher F., Carrie L. Morris, Dmitry Taubinsky, David Laibson, and Jonathon P. Schuldt. 2009. The allocation of time in decision-making. *Journal of the European Economic Association* 7: 628–37.

Conlisk, John. 1988. Optimization cost. *Journal of Economic Behavior and Organization* 9: 213–28.

Conlisk, John. 1996. Why bounded rationality. *Journal of Economic Literature* 34: 669–700.

Day, Richard H., and Mark Pingle. 1996. Modes of economizing behavior: Experimental evidence. *Journal of Economic Behavior and Organization* 29: 191–209.

Gabaix, Xavier, David Laibson, Guillermo Moloche, and Stephen Weinberg. 2006. Costly information acquisition: Experimental analysis of a boundedly rational model. *American Economic Review* 96 (4): 1043–68.

Lu, Huei-Chung, Mingshen Chen, and Juin-Jen Chang. 2005. Are more alternatives better for decision-makers? A note on the role of decision cost. *Theory and Decision* 58 (3): 283–304.

Pingle, Mark. 2006. Deliberation cost as a foundation for behavioral economics. In *Handbook of contemporary behavioral economics: Foundations and developments*, ed. Morris Altman, 339–55. New York: M. E. Sharpe.

Smith, Vernon L. 1991. Rational choice: The contrast between economics and psychology. *Journal of Political Economy* 99: 877–97.

Smith, Vernon L., and Mark Walker. 1993. Monetary awards and decision cost in experimental economics. *Economic Inquiry* 31: 245–61.

Wilcox, Nathaniel T. 1993. Lottery choice: Incentives, complexity, and decision time. *The Economic Journal* 103: 1397–1417.

Wilcox, Nathaniel T. 1994. On a lottery pricing anomaly: Time tells the tale. *Journal of Risk and Uncertainty* 8: 311–24.

DEMOCRATIC SOCIALISM

Democratic socialism is a type of economic system in which core socialist beliefs guide national economic policy, and democratic institutions govern the nation. Democratic socialism is most concerned with creating an environment conducive to social and economic justice. Democratic socialism became a major player in the global economy during the post–World War II period by claiming electoral victories in many advanced countries. Democratic socialism is sometimes referred to as the "third way" to distinguish it from capitalism, which leans heavily toward the market model, and communism, which leans heavily toward the command model.

Democratic socialism in the post-war world was non-Marxist and gradualist, preferring to work within existing political institutions rather than toppling them from without. Its stronghold was in Scandinavia, Western Europe, and several regions of the British Commonwealth such as Australia and New Zealand. Democratic socialism in these regions embraced policies to bring the commanding heights of the economy under government control, create consensus-based economic plans, and construct comprehensive social-welfare programs. Further, democratic socialism invited open discussion of economic and political issues, guaranteed free elections, and protected the civil and human rights of citizens.

Once the electorate handed the reins of power to the democratic socialist governments, the new leadership moved to nationalize elements of the economy's commanding heights. The commanding heights of an economy represent key industries, including transportation, communications, energy, health care, and finance. Nationalization occurs when the government assumes ownership of an important firm or industry, but compensates the previous owner. Nationalized businesses were organized and managed in different ways. Most were restructured as public corporations, run by a government-appointed board of directors. Others were jointly owned and operated by public and private interests, or operated as appendages of certain government agencies. Democratic socialists supported nationalization to guarantee an adequate quantity and quality of essential goods and services. Nationalization also gave the government some control over prices and employment. In the post-war United Kingdom, a number of key industries were nationalized, including coal and steel, railways, docks and harbors, some public utilities, and the health care system. Similarly, in France, the government nationalized some public utilities, mining, banking, and insurance.

Another pillar of the democratic socialist agenda was indicative planning. *Indicative planning* is a collaborative economic planning process that gives a meaningful voice to labor leaders, business leaders, academicians, and public officials. Indicative plans establish national production goals, targets for inflation and unemployment, guidelines for public expenditures, and so on. The overriding goal of planning was to improve the standard of living and quality of life for the people, not to meddle in the affairs of private firms. France pioneered indicative planning at the close of World War II. By the 1960s, most other European countries—socialist and nonsocialist alike—adopted some form of economic planning. Not surprisingly, developing countries mimicked this European planning model even after these poorer countries achieved independence.

The final cornerstone of democratic socialist policy was the welfare state. In a *welfare state*, government programs redistribute some of society's wealth to promote people's economic well-being. By the 1950s, Sweden was the world's preeminent welfare state. It created an extensive network of mutually supporting social-welfare programs, which, over time, were woven into the fabric of Swedish society. Included were national health care, national accident insurance, unemployment insurance, job training programs, paid childbearing and childraising leaves, subsidized higher education and housing, paid vacations, and retirement and other pensions.

Challenges to democratic socialism stiffened over the last quarter of the 20th century. For example, by the late 1970s and 1980s, many governments moved to denationalize or privatize state-owned businesses. *Privatization* is the process of selling state-owned enterprises to individuals or firms. In the vanguard of privatization was Britain's Conservative prime minister Margaret Thatcher, who privatized telecommunications, coal, and some railways. In France, Prime Minister Jacques Chirac initiated privatization in many large industrial corporations, banks, and insurance companies by the late 1980s. At roughly the same time, enthusiasm for economic planning was waning. Led by Great Britain, most advanced countries shifted toward market-oriented solutions to economic problems. The welfare state concept was also under siege by the 1980s and 1990s. Many European nations dismantled elements of people's cradle-to-grave security blankets during this period. Even in Sweden, critics argued that heavy taxes, which financed the welfare state, were a disincentive to work, save, and invest. In the early 1990s, Swedish voters bumped the socialists out of office in favor of a more conservative administration. Soon, market reforms capped certain taxes on investment income, privatized some industries, and nurtured entrepreneurial activity. While elements of the social safety net remained in Sweden and other former socialist countries, it was clear by the 1990s that the economic pendulum had swung decisively toward the free market.

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See also: Capitalism; Command Economy; Communism; Economic System; Market Capitalism; *Vol. 2: Macroeconomics:* Pigou, Arthur Cecil; *Vol. 3: Microeconomics:*

Markets; *Vol. 4: Global Economics:* Emerging Market Economies; Third World Socialism

Further Reading

Albritton, Robert, John R. Bell, and Shannon Bell, eds. 2004. *New socialisms: Futures beyond globalization.* New York: Routledge.

Ebenstein, William, Edwin Fogelman, and Alan O. Ebenstein. 1999. *Today's ISMS: Socialism, capitalism, fascism, communism, and libertarianism.* 11th ed. Paramus, NJ: Prentice-Hall.

Fitzpatrick, Tony. 2003. *After the new social democracy: Social welfare for the 21st century.* Manchester, UK: Manchester Univ. Press.

Muravchik, Joshua. 2002. *Heaven on earth: The rise and fall of socialism.* San Francisco, CA: Encounter Books.

Webb, Sidney, and Beatrice Webb. 1923. *The decay of capitalist civilization.* New York: Harcourt, Brace and Company.

Yergin, Daniel, and Joseph Stanislaw. 2002. *The commanding heights: The battle for the world economy.* Rev. ed. New York: Free Press.

DEMOGRAPHICS IN ECONOMICS

Demographic economics is the study of economic decisions based on populations, ranging from residents of a small town to a population cohort such as the "baby boomers." College towns anywhere in the United States contain no shortage of fast-food restaurants. Burger King and Taco Bell not only sprinkle the streets in the Western world, but they can also be found crowding the university neighborhoods of Seoul and Tokyo. One is unlikely to find as many high-end automobile dealers in these areas, but drive through an upscale suburban neighborhood outside of Boston or New York, and a Lexus, BMW, or Volvo dealership will surely be among the town merchants.

There are reasons why various economic enterprises locate in some places but not others. These reasons range from the assumed income and educational levels to the ethnicities and financial priorities of residents of these neighborhoods. Knowing the ages, cultural backgrounds, and educational levels of people allows businesses to make informed decisions about where to locate and what to offer customers; this is known as demographic economics. The study of *demographics*, the science of population and it subsets, has long been employed by governments in order to meet the needs of their constituents. Similarly, businesses and economists use this information in order to determine and predict customer and societal needs and to understand the different choices that different groups of people make.

The term *demographics* originated in the Greek word *demos*, meaning "people." A *census*, a counting and cataloging of a society's populace, has historically been the method by which governments—and, more recently, other interested parties—learn who is where. Civilizations from the biblical era conducted censuses, and the ancient Romans held one every five years for tax purposes. Perhaps the earliest and most famous collection of demographic data that endures is the Domesday Book. Commissioned by William the Conqueror (1028–1087) of England in 1085, the Domesday Book catalogued all the citizens, their land, and their livestock in

William's realm of England at the time. The first census of the United States of America was conducted in 1790. It was the growth of this young nation that inspired a groundbreaking economic direction by one entrepreneur nearly a century later. As settlers populated the American West, store owner Richard Sears (1863–1914) of Chicago came up with a method of alerting consumers about his store's products, regardless of where they were living. The first Sears catalog, the *Book of Bargains: A Money Saver for Everyone*, was distributed in 1895 with a specific demographic in mind: namely, a widely dispersed population endeavoring to build and furnish homes far from Richard Sears's retail space in Chicago (Sears Archives n.d.). Even before to this, enterprising businesspeople were known to tailor their services to the demographics in the vicinity. Historically, the movement of military forces and the establishment of mining communities were quickly followed by businesses plying liquor and females offering paid companionship to the largely young, single males at hand.

A plethora of examples of demographic economics can be found after 1945, when the post-war baby boom gave rise to a mushrooming toy industry. Understanding this explosion, the Hassan brothers, founders of Hasbro, Inc., aired their first TV commercial in 1952 for the puzzle toy Mr. Potato Head.

Three years later, the Mattel company began advertising its wares on a new Disney program segment, the Mickey Mouse Club—spending $500,000 the first year. The spots paid off, boosting the sales of Mattel's previously unpopular toy the Burb Gun to $14 million annually in three years (Sears Archives n.d.).

Greater proliferation of the automobile and growing families around this same time led ice cream entrepreneur Howard Johnson to expand his New England-based operations nationwide. His chain of family-friendly hotels with their iconic orange roofs stretched as far as the Bahamas. This newfound mobility and explosion of youth in the United States was not lost on the technology sector of the economy either. With the introduction of the transistor into electronics, in the1960s young people were able to use battery-operated radios to enjoy their music independent of their parents.

The entertainment industry is also a keen barometer of demographics, which should not come as a surprise since the goal of its producers is to make a profit. Reflecting the surging push for racial equality in United States by 1965, the National Broadcasting Company (NBC) debuted its light-hearted espionage buddy show, "I Spy," which paired white and black leading men—the latter played by Bill Cosby (born 1937)—as globetrotting intelligence operatives. An effort to capitalize on the women's movement of the same era could be found in the Philip Morris tobacco company's introduction of a women's cigarette, Virginia Slims. As the baby boom generation came of age and a sexual revolution began, the reconsideration of traditional social values was also reflected in certain demographics. A Centers for Disease Control report illustrates that the number of divorces and annulments in the United States doubled between 1965 and 1975. This came after an era—the 1950s—that actually saw a decrease in this rate over various spans of time (NCHS 1987).

Marital status is another demographic factor, and the personal care industry was happy to exploit this increasing singlehood. Men's magazines were filled with advertisements for grooming products with names like Score, while television ads reminded viewers that "There's something about an Aqua Velva man."

The evolution of the American family has more recently been reflected in network television as well as advertising. By the end of the first decade of the 21st century, the American Broadcasting Company (ABC) network featured an openly gay male couple in its series "Modern Family." During commercial breaks in the show in 2013, viewers could have seen a commercial for Cheerios featuring an interracial couple. Such realities would not have been part of the commercial realm a generation earlier. In the interests of appealing to a wider audience by attracting viewers and customers from new, diverse demographics, ABC and General Mills made business decisions to adapt.

The demographics of various regions are often grist for a comedian's mill, and the economics of the state of Florida has surely been part of that mix over time. However, for all the references to golf courses and "early bird" specials in restaurants in the Sunshine State, it is worth noting a reality of the demographics there—namely, a senior citizen population that is quite sizable relative to other areas of the United States. Such a population came of age when American cars were the norm on U.S. roads, unlike today when Honda, Toyota, and BMW often outnumber GM and Ford in certain northern enclaves. The number of auto dealerships representing various makers in Florida reflects this older demographic, which is more accustomed to American brands; while 23 Volvo dealerships could be found across Florida in 2014, DealerRater listed 66 Buick dealerships statewide (DealerRater 2014).

Just has a clothing retailer seeks to offer what potential customers would like to see themselves in, any enterprise endeavoring to succeed in today's changing society should also bear in mind how its target market and society has its own look and way of thinking. The travel website TripAdvisor counts 954 establishments where one might find Indian food in a city far from India: London, England (TripAdvisor 2014).

For reasons ranging from global immigration to personal relationships that bridge ethnicities, races, and cultures that were seldom joined in an earlier time, most societies in the world today look very different from how they looked two generations ago. And many will look very different 20 years in the future. In order to succeed in an economic sense, one cannot afford to ignore this reality.

David S. Allen

See also: Behavioral Economics; Cultural Economics; Culture and Behavioral Economics; Population; *Vol. 3: Microeconomics:* Microeconomics

Further Reading

BoomerCafe. 2013. Baby boomers fueled growth of America's toy business. www.boomercafe.com/2013/12/12/baby-boomers-fueled-growth-americas-toy-business/ (accessed March 1, 2014).

DealerRater. n.d. Buick dealers in Florida. http://www.dealerrater.com/directory/Florida/Buick/ (accessed March 1, 2014).

DealerRater. n.d. Volvo Dealers in Florida. http://www.dealerrater.com/directory/Florida/Volvo/ (accessed March 1, 2014).

NCHS (National Center for Health Statistics). 1987. Advance report on final divorce statistics, 1985. *Monthly Vital Statistics Report* 36 (8, Supplement). www.cdc.gov/nchs/data/mvsr/supp/mv36_08sacc.pdf (accessed March 1, 2014).
Sears Archives. n.d. History of the Sears catalog. www.searsarchives.com/catalogs/history.htm (accessed March 1, 2014).
TripAdvisor. n.d. London Indian restaurants. www.tripadvisor.com/Restaurants-g186338-c24-London_England.html (accessed March 1, 2014).

DISCRIMINATION AND BEHAVIORAL ECONOMICS

In economics, *pay discrimination* is measured by differences in pay per unit of time worked that cannot be explained by traditional variables such as education and work experience. This translates into lower wages that are independent of a person's productivity—that is, unequal pay for equal work. Another aspect of discrimination is individuals being segmented in specific jobs independent of their qualifications. This can result in one group of individuals being paid less than another. Discrimination can take place against any group of individuals, but the largest group of people with documented economic discrimination is women. Women are and have been paid less than men throughout the world, although this pay gap has diminished in many countries. Currently, in developed economies the average gender pay gap is around 10 to 20 percent. Economists have attempted to explain and measure the extent of the gender pay gap and other pay gaps in order to determine the contribution of labor market discrimination to this gap.

Not all of this pay gap can be attributed to discrimination. Education levels, experience, age, and career choice also matter. Discrimination appears to play an important role in explaining about 50 percent of the gender pay gap in developed economies. In these economies, women are equal before the law, and there are strong social norms favoring nondiscriminatory behavior.

A classic argument in economics, pioneered by Gary Becker of the University of Chicago, is that preferences or a taste for discrimination can produce and help sustain, in the short run, a discrimination-based pay gap. Employers are assumed to maximize their level of utility of well-being, not simply their profits. Given their strong dislike for female employees, for example, employers feel a need to pay women less than men, even when women are as productive as men. This generates a pay gap measured by the preference-based coefficient of discrimination. Absent this pay gap, employers' utility is lower than it might be otherwise.

But conventional economics maintains, consistent with Becker, that market forces can be expected to eliminate the discriminatory portion of the gender pay gap. Nondiscriminating employees, with no taste for discrimination, should hire the lower-priced female workers. This should drive the discriminators, who employ high-wage males, into bankruptcy or force them into changing their discriminatory ways, ultimately equalizing male and female wages. But the evidence suggests that this evolutionary process, eliminating pay inequality, has not taken place.

One possible reason for sustainable discrimination-based gender pay inequality relates to the fact that productivity is a function of effort inputs, among other variables. And contrary to the conventional wisdom, effort typically is not at a maximum and typically is affected by the work environment, inclusive of wage rates. This relates to X-inefficiency theory. Effort might be less for women since they do most of the housework, including childcare, even in the most economically advanced and democratic societies. This is often a product of socialization. To the extent that household work absorbs effort from these women, they have less effort available for doing their paid work than men have. This can result in lower productivity and lower pay. This is an important example of how off-the-labor-market discrimination affects the gender pay gap.

On the labor market, X-inefficiency and efficiency wage theory suggests that workers who are paid less for discriminatory reasons retaliate by working less hard, thereby reducing their productivity. In this case, cheap female workers would no longer provide the nondiscriminators with a competitive advantage over the discriminators. Low wages, based on discrimination, become sustainable among firms that have a taste for discrimination.

Relatively low wages can also be a product of discrimination in the household—and also in the larger society, which socializes girls into taking jobs that are relatively low-paying. Once women are socialized, as children and young adults, into targeting low-wage careers, it is very costly for women to change their choices. They are locked into these choices even if they might regret past decisions. In addition, if women expect that training for certain jobs will not pay higher wages, due to discrimination, they will not prepare themselves for these types of potentially high-paying jobs. Thus, even pay gaps that do not appear to be discriminatory in nature might very well be so. Off-the-labor-market discrimination can be as important as on-the-market discrimination in generating a gender pay gap or a discrimination-based gap against other groups in society.

Morris Altman

See also: Behavioral Economics; Feminism and Behavioral Economics; *Vol. 3: Microeconomics:* Becker, Gary

Further Reading

Altman, Morris. 1995. Labor market discrimination, pay inequality, and effort variability: An alternative to the neoclassical model. *Eastern Economic Journal* 21: 157–69.

Becker, Gary S. 1971. *The economics of discrimination*. Chicago, IL: Univ. of Chicago Press. (Orig. pub. 1957.)

Becker, Gary S. 1985. Human capital, effort, and the sexual division of labor. *Journal of Labor Economics* 3: S33–58.

Cain, Glenn G. 1986. The economic analysis of labor market discrimination: A survey. In *Handbook of labor economics*, ed. Orley Ashenfelter and Richard Layard, 693–774. Amsterdam: Elsevier.

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ECOLOGICAL ECONOMICS

In the course of the raised social awareness in the West during the 1960s and 1970s, the concerns of those who publicly demonstrated unhappiness with government policies were made clear in demonstrations and various expression of pop art. An appreciation for ecosystems emerged—*ecosystems* being systems of different biological entities in which organisms interact with each other as well as their surroundings. As the 20th century came to a close, certain segments of societies around the globe became more concerned with the impact that unrestrained economic development was having, and an appreciation for an accommodation of area ecosystems became a greater part of discussions and planning with regard to development. To be *green*, which is to think and act in ways that accommodate, respect, and preserve the environment in its natural state, became a priority with people worldwide, and their sentiments frequently included criticism of business and governmental policies that they deemed less respectful of the natural world in its still unspoiled state. This sentiment has been known to spawn the rebuke to development that "The greenest house you can build is the one you don't build."

Although a relative newcomer to the subdisciplines of science, the concept of *ecology*, the realm of biology that involves relationships between organisms and their surroundings, can be traced back to 19th-century Europe, where German zoologist Ernst Haeckel developed the term based on the Greek term *oikos*, meaning "place to live" (Mounce n.d.).

In terms of another discipline, it can be thought of as the economics of nature, for reactions to demand and scarcity dictate what happens with regard to organisms and drives the actions of those who can impact them. Currently, there actually exists an International Society for Ecological Economics, which portrays itself as "a not-for-profit, member-governed, organization dedicated to advancing understanding of the relationships among ecological, social, and economic systems for the mutual well-being of nature and people" (ISEE n.d.). This topic is often seen as a transdisciplinary subject, with content in the realms of the ecology, history, and economics. It is important to realize a distinction between this subject matter and that of *environmental economics*, which considers the impact of the human on the world, with regard to matters such as waste and pollution and extending to the realm of climate change. In their book *Ecological Explanations: Principles and Applications*, Herman Daly and Joshua Farley suggest that the goal of teaching this topic is to "help the next generation of economists take proper stock of nature and nature's limits" (Daly and Farley 2001, xxi).

An awareness of the need to be cautious regarding the ecological interactions around us was most publicly raised by a 19th-century Scottish American named John Muir, whose appreciation for the natural beauty all about led him to found the Sierra Club in 1892.

The following decade, President Theodore Roosevelt signed legislation preserving large swaths of land in the western half of the nation with the intention of their eventually becoming national parks. The increased industrialization of the 20th century and the general mobilization necessitated by two world wars kept ecological and environmental concerns from being major political and societal priorities for more than half of the 20th century, but the emerging youth culture of the 1960s adapted an awareness of issues involving the well-being of nature and the larger planet.

As ecology involves the interaction of organisms, the materialism of the post–World War II era can be seen as an economic era with one-sided ecological priorities; the baby boom and accompanying commercialism spawned industrial production that accommodated social whims such as a national love affair with the automobile and governmental policies fostering the military industrial complex. The impact of these developments as well as less obvious creations such as Styrofoam and plastics in many consumer products posed ecological challenges as various consequences became clear. Although such items are not organisms, their use and disposal by an organism—people—impacts other organisms.

The economics of the most ubiquitous ecological relationship about us involve a genuine paradox. The basic human need for sustenance and nutrition drives the food production industry in the developed world and parts of the developing world. According to the United States Department of Agriculture's Economic Research Service, total costs for food consumption nationwide in 2012 were $1,375,516,000,000, nearly double the $791,862,000,000 spent in 1999 (ers.usda.gov). In spite of this increase, one economic reality of this growth is that a smaller percentage of the American workforce is involved on the agricultural end of this production. At the close of the 20th century, 3 percent of the nation's workforce was employed in some aspect of farming, but by the second decade of the 21st century, less than 1 percent of American workers were employed in agriculture. In spite of this fact, this same era involved oft-publicized medical concerns over the increasing numbers of obese Americans, with many scientific pronouncements claiming that up to one-third of Americans could be classified as obese. Industrial farming and genetically modified organisms (GMOs) help to explain this increased production to meet apparently equivalent demand, but the ecological impact of these economics is less visible. The ability to produce more food with a smaller percentage of the workforce has economic appeal to certain interests, such as those concerned with the costs of production. As regards the agricultural ecosystem and the cultivation and consumption of genetically modified crops and livestock products, by the second decade of the 21st century the ultimate results remain unclear.

A key requirement for healthy ecosystems to persist is *sustainability*, which can be defined as the use of a resource or system at levels that assure its continued viability and productivity. Various organisms threaten and diminish others within certain systems, such as invasive species that prey on other species. The Asian Black carp (*Mylopharyngodon piceus*) was accidentally introduced to waterways in the North American Great Lakes when ships discharged ballast water that had originated in the Pacific Ocean; the species was also intentionally introduced for phytoplankton control (USDA NISC n.d.).

Black carp are believed to "negatively impact native aquatic communities by feeding on, and reducing, populations of native mussels and snails, many of which are considered endangered or threatened"—to the point that in 2010, President Barack Obama signed the Asian Carp Control and Prevention Act to limit the transport of the species across state lines (NISC n.d.). This is a case where the introduction of a new species into the ecosystem has some major economic dimensions. The National Wildlife Federation has estimated that the fish's devouring of other species in the Great Lakes could cost the region more than $200 million in damage annually (NWF n.d.). The U.S. Army Corps of Engineers estimates that the cost of containing the carp to its present areas would run between $15 and $18 billion (GLMRIS 2014). Given the shared nature of large bodies of water, the latter expenses would be shared by governmental entities at the state and federal levels. Another ecological reality with a different economic dimension is the interaction of the Japanese beetle with fauna in North America. A 2014 Penn State study of the issue estimates that this species feeds on "nearly 300 different host plants," causing more than $460 million in damage annually in the United States, to the point that the U.S. Department of Agriculture published a pamphlet, "Managing the Japanese Beetle: A Homeowner's Handbook" (USDA APHIS 2004). Governments will contract pest control and tree removal services to deal with this organism, but so will businesses and private property owners. As the 2014 Penn State report suggests, the commercial exchanges involving these two multi-million-dollar industries clearly have an economic impact wherever this organism exists. Well-balanced ecosystems can yield a variety of economic benefits, but when human interaction is employed to restore such balances or to work towards their preservation, the economic impact of this course can also be significant.

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See also: Environmental Economics; Environmental Protection Agency; Environmentalism; *Vol. 2: Macroeconomics:* Water Pollution; *Vol. 3: Microeconomics:* Tragedy of the Commons; Water Conservation

Further Reading

Daly, Herman E., and Joshua Farley. 2011. *Ecological explanations: Principles and applications*. 2nd ed. Washington, DC: Island Press.

GLMRIS (Great Lakes and Mississippi River Interbasin Study). 2014. Protecting the Great Lakes from Asian carp K-3. http://glmris.anl.gov/documents/docs/glmrisreport/Appendix_K-Cost_Engineering.pdf (accessed October 31, 2014).

Hoover, Gregory. 2002. Japanese beetle control on ornamental plants. Penn State College of Agricultural Sciences. http://ento.psu.edu/extension/factsheets/japanese-beetle (accessed November 1, 2014).

ISEE (International Society for Ecological Economics). n.d. Cross-discipline approach. http://www.isecoeco.org/about/cross-discipline-approach/ (accessed November 1, 2014).

Mounce, Bill. n.d. History of the Greek language. https://www.teknia.com/greekalphabet/greeklanguage (accessed October 31, 2014).

NFW (National Wildlife Federation). n.d. Protecting the Great Lakes from Asian carp. http://www.nwf.org/~/media/PDFs/Regional/Great-Lakes/Asian-Carp-Factsheet-6-10.ashx (accessed October 31, 2014).

USDA APHIS (United States Department of Agriculture Animal and Plant Health Inspection). 2004. Managing the Japanese beetle: A homeowner's handbook. Program Aid No. 1599. https://www.aphis.usda.gov/publications/plant_health/2015/japanese-beetle-handbook.pdf (accessed November 1, 2014).

USDA ERS (United States Department of Agriculture Economic Research Service). n.d. Food Expenditures. http://www.ers.usda.gov/data-products/food-expenditures.aspx#26654 (accessed November 1, 2014).

USDA NISC (United States Department of Agriculture National Invasive Species Center). n.d. Aquatic species. http://www.invasivespeciesinfo.gov/aquatics/asiancarp.shtml (accessed November 1, 2014).

ECONOMIC ANTHROPOLOGY

Economic anthropology can be defined formally as the discipline in which societies determine how to produce and distribute goods and services in a way that makes the society's lives and economies more productive, while also making the individuals of that society as well off as possible.

Economic anthropology began as a subfield of anthropology, founded by the anthropologists Bronislaw Malinowski and Marcel Mauss. Both scholars were interested in bartering and gift exchanges as a means of acquiring goods and services—rather than a traditional market exchange method that relied merely on the transfer of traditional valued money. After World War II, the discipline would be highly influenced by Karl Polanyi. Polanyi was already a popular economic historian, but he would later become known for his work in economic anthropology. Exchange and bartering as a means of progress is the real focus of the discipline, which is why both anthropologists and economists are intrigued by it. Economic anthropology tries to describe economic behavior in the broadest way possible, whether historically, geographically, or culturally.

Economic anthropologists are best known for their specialized research and study, which includes three different sectors: (1) how social groups produce the things they want, need, and desire; (2) how those goods and services are exchanged; and (3) how those goods and services are consumed. The economic anthropologists' job is to study how humans provide the goods and services they need to make life possible. Economic anthropologists study the processes of production and the movement and consumption of all types of goods in different social settings. These goods and objects range from obvious material items, to less tangible objects, and to services that individuals perform in exchange for other goods or services. The social settings where these tasks are performed also vary greatly—from households, to villages and markets, and even on to firms.

Economists are mainly concerned with how societies and economies manage scarce resources. As early as the 1920s, Malinowski studied ceremonial exchanges of Kula bracelets in Milne Bay, a province of Papua New Guinea. This system, which was incredibly complicated and involved visits and exchanges, was one of Malinowski's primary areas of research. While the bracelets had no value of their own, they served as a social connection that continued throughout a recipient's life. Another example is cowrie shell money, which was used in ancient societies beginning in approximately 1200 BCE. At that time, the shells served as a medium of exchange and store of value worldwide, and they remain the most widely used and longest-used currency in history. Methods such as these have huge economic implications, as they are more difficult to measure, compare, predict, and understand.

The goal of economic anthropology is for people to recognize that all economies vary in the way they decide to make the best use of their resources and the way they conduct the exchange of goods and services that lead to progress and better, happier individuals. This can range from exchanging services for services, to bartering, to using commodities and objects such as shells and bracelets as a system of exchange.

Amber Thomas

See also: Economic History

Further Reading

Carrier, James G. n.d. Economic anthropology. *Discover anthropology*. www.discoveranthropology.org.uk/about-anthropology/specialist-areas/economic-anthropology.html (accessed November 20, 2015).

Davenport Academy of Natural Sciences. 1876. Proceedings of the Davenport academy of natural sciences. archive.org/details/proceedingsofdav02dave (accessed November 20, 2015).

Hart, Keith. 2007. A short history of economic anthropology. *The memory bank: A new commonwealth—Ver 5.0*. thememorybank.co.uk/2007/11/09/a-short-history-of-economic-anthropology/ (accessed November 20, 2015).

New World Encyclopedia. n.d. Kula ring. www.newworldencyclopedia.org/entry/Kula_ring (accessed November 20, 2015).

PBS (Public Broadcasting Service). 1996. The history of money. *Nova*, October 26 www.pbs.org/wgbh/nova/ancient/history-money.html (accessed November 20, 2015).

ECONOMIC FREEDOM

Economic freedom is the ability of individuals and businesses to freely choose how to use their private property in an economy. Consumers exercise freedom of choice in determining which goods or services to purchase. Workers express economic freedom by preparing for and securing gainful employment in an occupation, and by freely changing jobs or careers. Savers and investors freely select savings or investment instruments best suited to their financial situations. Businesses exercise freedom of enterprise to employ the best mix of resources in a production process. Economic freedom is embodied in the free enterprise system, or capitalism.

One of the world's most widely recognized measures of economic freedom is *Economic Freedom of the World* (*EFW*), an annual report published by the Fraser Institute in Canada. In the *EFW*, the policies and institutions of individual countries are evaluated, and a freedom ranking is compiled. The *EFW* considers five main categories of data to assess a country's degree of economic freedom: size of government; legal structure and property rights; access to sound money; freedom to trade; and regulation of credit, labor, and business. Generally, a country's freedom ranking is enhanced when policies and institutions support personal choice, individual initiative, good governance, macroeconomic stability, voluntary exchange, private property rights, and competitive markets. A country's freedom ranking falls when excessive government intervention or a negative business environment limits personal freedoms and distorts market incentives to work, save, invest, or produce.

In *Economic Freedom of the World: 2015 Annual Report*, 157 countries and territories were ranked by level of economic freedom during 2013. A nation's ranking is expressed in the freedom index, which is derived from a variety of reliable data. The top 10 countries for economic freedom in 2013 were Hong Kong; Singapore; New Zealand; Switzerland; United Arab Emirates; Mauritius; Jordan; Ireland; Canada; and the United Kingdom and Chile, which were tied for tenth. The 10 lowest-rated countries for 2013 were Angola; Zimbabwe; Central African Republic; Algeria; Argentina; Syria; Chad; Libya; the Republic of Congo; and, in last place, Venezuela. The United States was ranked 16th, Mexico was ranked 103rd, Canada was ranked 9th, and China was ranked 111th.

Another leading measure of economic freedom in the global economy is the *Index of Economic Freedom*, an annual publication of the Heritage Foundation and *the Wall Street Journal*. The 2016 *Index of Economic Freedom* evaluates economic conditions in 178 countries against 50 criteria. The 50 criteria, which are categorized under 10 headings, include trade policy, fiscal burden of government, government intervention in the economy, monetary policy, capital flows and foreign investment, banking and finance, wages and prices, property rights, regulation, and informal market activity. Like the *EFW*, the *Index of Economic Freedom* analyzes factors that affect economic growth. High country rankings in the *Index of Economic Freedom* are earned when countries support free trade, responsible and nonintrusive government policies, healthy financial institutions, and well-defined private property rights. In the 2016 *Index of Economic Freedom*, the Hong Kong SAR earned the highest freedom ranking. After Hong Kong, the remaining top 10 countries were Singapore, New Zealand, Switzerland, Australia, Canada, Chile, Ireland, Estonia, and the United Kingdom. The United States was 11th. The 10 lowest-ranked countries were Argentina, Equatorial Guinea, Iran, Republic of Congo, Eritrea, Turkmenistan, Zimbabwe, Venezuela, Cuba, and North Korea.

Research by credible think tanks and foundations suggests that economic freedom is an important determinant of investment, economic growth, and per capita income. Researchers at the Fraser Institute, the Cato Institute, the Heritage Foundation, and elsewhere have identified a series of causal relationships between economic freedom and the overall performance of economies. *Economic Freedom of the World: 2015 Annual Report* argues persuasively that there is a direct causal relationship between high levels of economic freedom and positive economic growth rates. *EFW* also correlates high freedom rankings with high per-capita incomes, high life expectancies, high adult literacy, low infant mortality, low corruption, greater political rights and civil liberties, and low rates of business activity in the extralegal or informal sector. The 2016 *Index of Economic Freedom* arrives at similar conclusions. The study of economic freedom and its impact on the wealth of nations is still in its infancy. The topic will likely provide fertile ground for further research in the coming years.

David E. O'Connor

See also: Capitalism; Economic Growth; Entrepreneurship; Hayek, Friedrich von; Market Capitalism; Smith, Adam; *Vol. 2: Macroeconomics:* Friedman, Milton; Markets

Further Reading

Gwartney, James, Robert Lawson, and Joshua Hall. 2015. *Economic freedom of the world: 2015 annual report.* Vancouver, Canada: Fraser Institute. https://www.fraserinstitute.org/sites/default/files/economic-freedom-of-the-world-2015.pdf (accessed March 2, 2016).

Miller, Terry, and Anthony B. Kim. 2016. *2016 Index of economic freedom*. Washington, DC: Heritage Foundation. www.heritage.org/index/ranking (accessed March 2, 2016).

Piano, Aili, and Arch Puddington. 2004. *Freedom in the world 2004: The annual survey of political rights and civil liberties.* New York: Freedom House.

World Economic Forum. 2004. *The global competitiveness report: 2004.* London: Palgrave Macmillan.

Ying Huang, Robert E. McCormick, and Lawrence J. McQuillan. 2004. *U.S. economic freedom index: 2004 Report.* San Francisco, CA: Pacific Research Institute.

ECONOMIC GROWTH

Economic growth occurs when the value of a nation's output increases over time. Economic growth is mainly concerned with long-term trends in national output, rather than with annual fluctuations in business activity. Economic growth is typically measured at the national level, but it can also be calculated for groups of nations, such as world regions or regional trade blocs, or for the entire global economy. Economic growth is sometimes confused with a broader term, *economic development*. Economic development deals with economic growth and with measurable improvements in people's quality of life. Economic growth and sustainable economic development are important goals for all countries.

The two most widely used measurements of economic growth are real gross domestic product (GDP) and real GDP per capita. The first measure, real GDP, calculates the dollar value of newly produced national output each year, after adjusting the data for inflation. The real GDP is a convenient measure of economic growth, enabling cross-border comparisons of total output and, thus, the overall size of an economy. From 2006 to 2016, the average growth rate for the United States was below 2 percent.

The determinants of economic growth are varied and often complementary. At the heart of long-term economic growth is higher productivity. Productivity measures the amount of output that is produced per unit of input, such as labor inputs or capital inputs. Economists typically measure productivity gains in terms of labor inputs. Key economic factors that support the growth of national output and productivity include (1) heavy investment in the factors of production, including capital goods, human resources, and natural resources, and (2) investment in research and development (R&D), information and communications technologies (ICTs), and entrepreneurship and innovation. The maintenance of formal economic institutions, such as capital markets, and informal institutions, such as profit incentives, is also critical. Good governance, the honest and competent administration of government, creates a pro-growth environment. Key government responsibilities include the building and maintenance of an economic infrastructure, legal protections for property rights and the sanctity of contracts, and responsible macroeconomic policies. Democratic political institutions, based on broad citizen participation, a free media, and an independent judiciary, also support a pro-growth national agenda.

Economic growth is illustrated by an outward shift in a nation's production possibilities curve (PPC). A PPC shows the range of possible production choices for a nation at a moment in time. In the illustration below, the inner PPC, AB, shows the original range of output for two types of goods, investment goods and consumption goods. At point A, all of the nation's resources are devoted to investment goods; hence, zero consumption goods are produced. At point B, all resources are used to produce consumption goods; hence, no investment goods are produced. In reality, a nation would likely choose to produce at a point between A and B, perhaps at point C. Economic growth is represented by a shift of the curve AB to YZ. Note that at every point along the curve YZ, more investment goods and consumption goods are produced. The outward shift of the PPC from AB to YZ illustrates economic growth.

The benefits of economic growth are readily observable. First, economic growth improves people's standard of living. Today, the most common standard of living measure is the gross national income (GNI) per capita. Most people who live in countries with a high GNI per capita are able to satisfy their economic needs for food, clothing, and housing. They also consume many types of luxury goods, such as automobiles, personal computers, televisions, artwork, vacations, and a wide variety of consumer durables. Second, economic growth improves people's quality of life. A higher quality of life implies a higher standard of living plus other

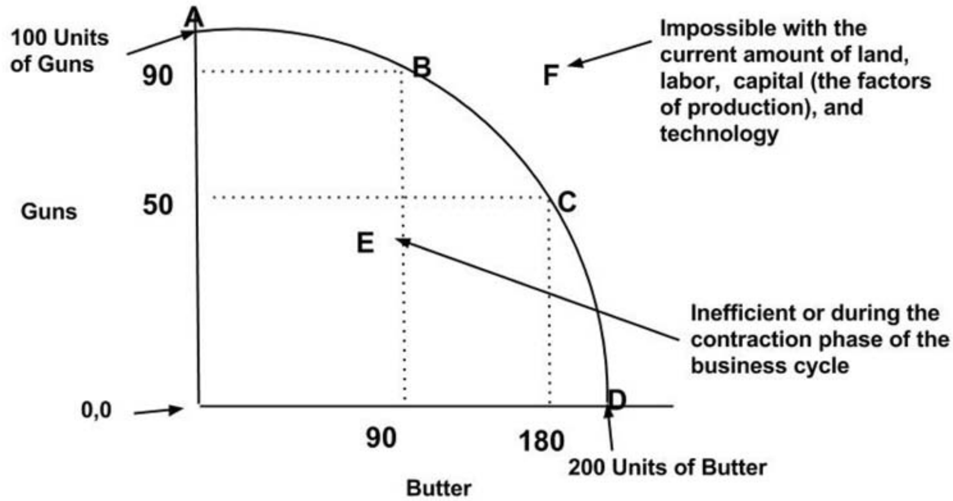

Figure 1. Production possibilities curve

improvements in the human condition, including access to education, health care, personal security, infrastructure, and social programs. Third, economic growth fuels the virtuous cycle of development. Economic growth promotes national savings, as well as productive investment in research and development, private and social capital, human capital, and entrepreneurship.

The costs of economic growth are also apparent. One cost is environmental degradation, an inevitable result of production. The severity of degradation varies widely among regions, yet the drive to increase national output fouls the air, water, and land with pollutants. This drive sometimes creates wastelands due to strip-mining and aggressive timbering, overgrazing, and overplanting. Toxic emissions into the atmosphere cause global warming, ozone depletion, acid rain, and other harmful effects on the global commons. A second cost of economic growth is resource depletion. *Resource depletion* occurs when resources are used in production but are not replaced. Nonrenewable resources, including petroleum and natural gas, are in finite supply. Finite resources are consumed in the production process and cannot be reclaimed for further use. A third cost of economic growth is a decline in some people's quality of life. For instance, the widening digital divide creates unequal economic opportunities in the global economy. People in the advanced countries receive far more benefit from global economic growth than do people in the world's poorest regions.

David E. O'Connor

See also: Business Cycle; Economic Growth; Production Possibilities Curve; Schumpeter, Joseph; *Vol. 2: Macroeconomics:* Gross Domestic Product; Solow, Robert M.; *Vol. 4: Global Economics:* Easterly, William; Sustainable Economic Development; World Bank

Further Reading

Easterly, William. 2002. *The elusive quest for growth: Economists' adventures and misadventures in the tropics.* Cambridge, MA: MIT Press.

Helpman, Elhanan. 2004. *The mystery of economic growth.* Cambridge, MA: Belknap Press.

Jones, Charles I. 2002. *Introduction to economic growth.* 2nd ed. New York: Norton.

OECD (Organisation for Economic Co-operation and Development). 2004. *Understanding economic growth.* London: Palgrave Macmillan.

The World Bank. 2004. *Doing business in 2005: Obstacles to growth.* Washington, DC: The World Bank.

The World Bank. 2004. *Responsible growth for the new millennium: Integrating society, ecology, and the economy.* Washington, DC: The World Bank.

ECONOMIC HISTORY

Economic history is the chronology of events involving exchanges of goods, services, and currencies, as well as an understanding of the incentives and meanings of them and an appreciation of the different economic systems that societies have adopted over time and the theories involving money that have emerged as a result.

The term *economics* has its origins in the Greek word *oikos*, relating to "household management"; the term *history* comes from the Greek word *historia*, which means "learning by inquiry." In the 1960s, the term *cliometrics* was coined to describe "economic history," and it used quantitative methods to understand the past through statistics and models (Cliometric Society n.d.). In ancient Greece, the figure *Clio* was known as the "muse"—the inspiration—of history, and *metrics* comes from the Greek word for "measurement." The Cliometric Society reasons that *economics*, the "science of how choices are made regarding resources and their scarcity resulting in exchanges," has etymological roots in Greek, as the basics of this social dynamic were evident in ancient Greece during the final centuries BCE.

The Greek society, like the Roman Empire, was agrarian and employed slave labor for much of its development. Both civilizations developed currencies in the form of coinage to facilitate exchanges and allow for "tribute," today called "taxes," to be paid to the governing interests. In Roman times, these coins were produced in a temple dedicated to the goddess *Moneta*, causing the commodity to be called money, with each unit produced being a store of value.

The coinage was made of silver and gold, valuable units of exchange that are thought to date back to 2000 BCE. Owing to limited technology, it was common for agrarian societies to use slave labor. In the Judeo-Christian Bible, the New Testament tells that, upon finding "money changers" conducting business within Herod's temple, Jesus "overthrew the tables of the moneychangers, and the seats of them that sold doves" (Matthew 21:12–13).

In the absence of currencies, practical commodities that could provide food, such as livestock, were commonly used in exchanges. Negotiations between parties aimed at agreeing on how many cows might be exchanged for land or for coins was known and continues to be known as bartering. With exceptions such as the travels of Marco Polo and the religious Crusades, well into the early second millennium most people lived their entire lives in the hamlets, villages, and regions where they were born. This allowed the barter system to endure at the local level for centuries.

As early as the seventh century CE, the Tang dynasty in China, proficient with woodblock printing, began issuing receipts for amounts of heavy coinage; these receipts evolved into paper bills. During Roman times, the nature of local relationships and the urgent need to secure one's staples produced the concept of credit. *Credit* is a relationship of trust that allows one party to commit a transaction, with a promise to compensate another party for it at a later time. Credit furthered the commerce of the day.

This tool of economics was especially useful as the age of exploration dawned in the late 1400s, allowing adventurous individuals to secure the resources needed for their journeys—based on promises that they would have newly found riches with which to repay the amounts upon return. The Roman era coincides with biblical accounts of various events, however, and guidelines for lending with interest were explained in the religious context of the day. The book of Deuteronomy explains that if Hebrews lent money to non-Hebrews they were to charge interest (Deuteronomy 23:19–20). Although charging interest has become a staple of successful banking, the requirement to repay an amount provided on credit with interest added on top of the original sum has fueled anti-Jewish sentiments throughout history that still persist. Transactions continued to be made with coinage of precious metals into the second millennium, and as the fruits of these endeavors were reaped, new trades emerged in Europe—and guilds grew as well.

Guilds were associations of artisans and merchants who protected the secrets of their trade in order to assure their prosperity. Guilds first appeared in Europe in the 15th century, and while they were made up of independent craftsmen, they are frequently thought of as a precursor to unions. Although seafaring trade among empires and civilizations along the Mediterranean Sea had been taking place since the final centuries BCE, developments in transportation technology were the catalyst for the emergence of mercantilism in Europe by the 1600s. *Mercantilism* is the effort to create wealth on a national scale by having the state foster efforts and policies that will further its commercial interests—most notably, trade.

Because technology in Asia, Africa, and the Americas did not afford it and as national governments in the Far East looked inward rather than abroad, Western Europe alone took to the seas in the interests of exploration and commerce. As noted in *The Economist* (2013), "The best way of ensuring a country's prosperity was to make few imports and many exports, thereby generating a net inflow of foreign exchange and maximizing the country's gold stocks."

Much of this mercantilist activity was conducted by the British, the Dutch, and the French as they ventured west and claimed land in North America for their governments, while Spain and Portugal established outposts to the South. Traders from these nations also made it to Africa, where they encountered the practice of slavery and themselves began to capture, transport, and trade people from the Gold Coast of the continent to the Western Hemisphere as slaves. This workforce was largely set to work in agriculture, which ranged from tobacco and cotton in North America to sugar cane in the West Indies to rubber and dye plantations in South America.

To protect its interests as trade grew, Britain adopted the Navigation Acts of 1651 in an effort to keep other nations from trading with its colonies in North America. To further enhance its economic welfare, Great Britain ventured to China in 1793 with an overture to establish trade with the Qing government. The United Kingdom was turned away, but it pushed its point again in the mid-19th century; the result was two Opium Wars with China. Britain won both, allowing it to establish itself at several treaty ports in East Asia. By this time, the former British colonies in North America had established their independence, and the United States was also pursuing trade opportunities across the seas.

The late 18th century saw the publication of a landmark book on economics. Adam Smith's *An Inquiry into the Nature and Causes of the Wealth of Nations* suggested that individual interests, which he referred to as "the invisible hand"—better than the mercantilist practices of the day—would drive economic decisions toward improving an economic society for everyone.

In 1848, Karl Marx published his *Communist Manifesto*, in which he theorized that, owing to the inequalities of the capitalist system, political and social upheaval would soon emerge. By the midpoint of the 20th century, major nations such as the USSR and China had formed governments with an eye toward implementing Marxist ideas.

Industrial revolutions in Europe and the United States led to previously unseen growth through new technologies, such as the factory system and the forging of iron into steel. Immigration fueled by population growth also helped the U.S. economy to eclipse Britain's by the end of the 19th century.

Economic speculation and entrepreneurship led to the creation of stock exchanges in Western economies. Owning stock meant owning shares in a firm; with an eye toward growth, the firm would use the funds that were raised from the sale of those shares; the profits from the growth were shared with the stockholders. This stock speculation and growth afforded more industrialization and the creation of vast fortunes, particularly in the United States in the late 19th and early 20th centuries.

Inventions such as the combustion engine and the vacuum tube fueled the creation of automobiles, radios, and numerous other appliances that became staples of daily life in developed nations in the 20th century. Realities such as overproduction and overvalued stocks led to less demand for products and a lack of liquidity, which contributed to a stock market crash in 1929 and a worldwide depression for years afterward.

When nations on both sides of the Atlantic endeavored to generate business by erecting tariffs (taxes on imports), matters only worsened. Many economic historians submit that it took the general mobilization of World War II to fully restore economic health in the West.

The second half of the 20th century saw the communist world and the developing world lagging behind Western Europe, the United States, and some capitalist economies on the Asian Pacific Rim. As the USSR and China embraced free-market systems and as new technology and the Internet reached around the world, previously unseen levels of prosperity emerged in the West and even in some former

Communist countries. With the 21st century, globalization had truly arrived, enhancing trade worldwide.

David S. Allen

See also: Ancient Thought, or *Oeconomicus*; Banking, History of; Money, History of; *Vol. 2: Macroeconomics*: North, Douglass; *Vol. 3: Microeconomics:* Asset Bubbles; *Vol. 4: Global Economics:* Ancient Trade Routes

Further Reading

Cliometric Society. n.d. About the Cliometric Society. http://cliometrics.org/about.htm (accessed November 4, 2014).

The Economist. 2013. What was mercantilism? *The Economist*, August 23. http://www.economist.com/blogs/freeexchange/2013/08/economic-history (accessed November 4, 2014).

Feldmeth, Greg D. 2004. British colonial trade regulations 1651 to 1764. http://faculty.polytechnic.org/gfeldmeth/chartcoltrade.html (accessed November 6, 2014).

New Oxford Annotated Bible. 1965. Deuteronomy 23:19–20. Revised Standard Version, Addition 243. New York: Oxford Univ. Press.

New Oxford Annotated Bible. 1965. Matthew 21:12–13. Revised Standard Version, Addition 243. New York: Oxford Univ. Press.

UIUC Rare Books and Manuscript Library. 2012. Wealth of notions: Economists in conflict. University of Illinois at Urbana-Champagne. http://illinois.edu/emailer/newsletter/27636.html (accessed November 6, 2014).

ECONOMIC PSYCHOLOGY

Economic psychology is the study of economic behavior from a double-handed perspective: how the economy influences the feelings, thinking, and behavior of individuals and groups—and vice versa. The focus is on economic behavior, decision-making, and anomalies. Literature in the area is vast, with books and articles published in many different countries. Research areas include savings; the psychology of money; the psychology of debt; household decision-making; taxation; economic socialization; experimental economics; behavioral economics; environment, sustainability and consumption; heuristics and biases; intertemporal choice; economic and financial crises and their psychological underpinnings; risk; consumer behavior; lay economic theories; and work.

This area has been experiencing much growth, and it overlaps with behavioral economics in its focus of study and some methodologies, such as experiments, surveys, longitudinal studies, with findings routinely expressed in descriptive models. For their research on the intersection between economics and psychology, Herbert Simon and Daniel Kahneman were awarded the Nobel Prize in Economics.

One major difference between the two disciplines is that economic psychology has always been a branch of psychology, broadly holding to the same principles, approaches, and methods as traditional psychology, whereas behavioral economics is somewhat distinct from traditional economics in terms of assumptions and methodology. As a result, economic psychology's toolbox study of economic behavior and decision-making is largely housed in psychology, while behavioral economics often imports tools from psychology, neuroscience, sociology, and other disciplines in order to pursue similar objectives.

Another difference between economic psychology and behavioral economics relates to their respective treatments of rationality. Economic psychologists often avoid attributing irrationality to humans (all decisions have some rationale behind them, even if they may appear otherwise), while many contemporary behavioral economists consider anomalies to represent irrational behavior.

There is also an overlap between economic psychology and consumer psychology. However, they are different in their traditions, their principles, their breadth of scope, and especially in their goals. *Consumer psychology* investigates human responses to information and experience related to products and services, encompassing affective, cognitive and behavioral aspects. *Economic psychology*, while doing likewise, goes beyond market research; informed by both psychology and economics, it studies how economic issues impact actual economic behavior of individuals and groups. This may include such topics as work and unemployment, personal finance, inflation, and poverty. Economic psychologists are also increasingly focused on public policy, with a significant emphasis on such topics of financial education as investment, retirement, and financial planning and on issues related to consumer debt.

Economic psychologists are mostly psychologists, but these scholars also include experimental economists; finance, environment, information, and communication specialists; and public policy experts. They are usually members of the International Association for Research in Economic Psychology (IAREP), with some of them also belonging to Division 9 of the International Association of Applied Psychology (IAAP). A list of institutions that do research and provide opportunities to study at the intersection between psychology and economics is available at www.iarep.org/graduateprograms.htm.

Economic psychology is thought to have originated in the late 19th century; the expression was first used in 1881 by French jurist Gabriel Tarde (1843–1904). Around this time, American economist Thorstein Veblen (1857–1929) argued for a broader approach—to incorporate biology, sociology, history, and other disciplines in economics studies.

At first opposed vigorously by economists, economic psychology started taking root after World War II, when Hungarian-born psychologist George Katona (1901–1981), who had been living and working in the United States since before the war, published *Psychological Economics* in 1975. This remains one of the main publications in the area, along with *The Individual in the Economy* (Lea, Tarpy, and Webley 1987). For decades, it was one of the most cited publications in the main journal of the discipline, the *Journal of Economic Psychology* (Kirchler and Hölzl 2006).

Vera Rita de Mello Ferreira

See also: Behavioral Economics; International Association for Research in Economic Psychology; Rationality: Process and Neoclassical; *Vol. 3: Microeconomics:* Kahneman, Daniel; Veblen, Thorstein

Further Reading

Earl, Peter, and Simon Kemp, eds. 1999. *The Elgar companion to consumer psychology and economic psychology*. Cheltenham, UK: Edward Elgar.

Ferreira, Vera R. M. 2007. Psicologia econômica: Origens, modelos, propostas. Doctoral thesis, Pontifícia Universidade Católica de São Paulo.

Kahneman, Daniel. 2003. Maps of bounded rationality: Psychology for behavioral economics. *American Economic Review* 93: 1449–75.

Katona, George. 1975. *Psychological economics*. New York: Elsevier Science.

Kirchler, Erich, and Erik Hölzl. 2006. Twenty-five years of the *Journal of Economic Psychology* (1981–2005): A report on the development of an interdisciplinary field of research. *Journal of Economic Psychology* 27: 793–804.

Lea, Stephen E. G., Roger M. Tarpy, and Paul Webley. 1987. *The individual in the economy: A textbook of economic psychology*. Cambridge, UK: Cambridge Univ. Press.

Lewis, Alan, Paul Webley, and Alan Furnham. 1995. *The new economic mind—The social psychology of economic behaviour*. 2nd ed. London: Harvester/Wheatsheaf.

MacFadyen, Alan J., and Heather W. MacFayden, eds. 1990. *Economic psychology—Intersections in theory and application*. 2nd ed. Amsterdam: Elsevier.

Simon, Herbert A. 1979. Rational decision-making in business organizations. *American Economic Review* 69: 493–513.

Van Raaij, W. Fred. 1999. History of economic psychology. In *The Elgar companion to consumer research and economic psychology*, ed. Peter Earl and Simon Kemp. Aldershot, UK: Edward Elgar.

Webley, Paul, Carol Burgoyne, Stephen Lea, and Brian Young. 2001. *The economic psychology of everyday life*. International Series in Social Psychology. Hove, UK: Psychology Press.

ECONOMIC SCIENCE ASSOCIATION

The Economic Science Association (ESA 2013) is "a professional organization devoted to economics as an observational science, using controlled experiments to learn about economic behavior. The ESA welcomes participation by economists interested in the results of such experiments, as well as scholars in psychology, business, political science, and other related fields." It serves as a forum for economists around the world who use experimental methods to study economic phenomena under more controlled conditions than are possible in naturally occurring environments. The ESA was founded in 1986, and it became fully international in 1997.

Since its inception, the ESA has been active in promoting the usage of experimental methods in economics. In contrast to many other economic fields, which are defined by the topic of inquiry, experimental economists define themselves based on the experimental tools that they use to collect the data in the laboratory and the field. Many behavioral economists doing empirical research use experimental methods to collect data in order to test the predictions of theories, analyze the effect of public policies, test new markets and institutions, and investigate regularities and anomalies in individual and group behavior. The main advantage of experimental methods is the ability to keep "other things constant" while determining the effect of one variable of interest on another. Controlled laboratory and field experiments allow researchers to create and replicate a specific situation or a context that may not be possible in the field.

The ESA sponsors several conferences, including the International ESA Conference /World Meeting (June–July), the ESA European Conference (September), the North American ESA Conference in Tucson (November), and the Asia-Pacific ESA Conference (Winter), as well as sessions at the Southern Economic Association, the Allied Social Science Associations and other meetings.

In addition to the website, www.economicscience.org, the ESA maintains two Google Groups discussion boards: "ESA-discuss," on which the members can post their inquiries regarding various topics related to conducting experiments, and "ESA-announce," on which the members can post announcements of general interest of experimental economists.

Three members of the ESA have received the Nobel Prize in Economics: Vernon Smith, in 2002, "for having established laboratory experiments as a tool in empirical economic analysis, especially in the study of alternative market mechanisms"; Elinor Ostrom, in 2009, "for her analysis of economic governance, especially the commons"; and Al Roth, in 2012, "for the theory of stable allocations and the practice of market design" (Nobelprize.org 2012).

As of June 2013, the ESA has had 15 presidents: Vernon Smith (founding president, 1986–1987), Charlie Plott (1987–1988), Ray Battalio (1988–1989), Elizabeth Hoffman (1989–1991), Charles Holt (1991–1993), Robert Forsythe (1993–1995), Thomas Palfrey (1995–1997), James Cox (1997–1999), Andrew Schotter (1999–2001), Colin Camerer (2001–2003), Ernst Fehr (2003–2005), John Kagel (2005–2007), James Andreoni (2007–2009), Tim Cason (2009–2011), and Al Roth (2011–2013).

In 1998, the ESA started the journal *Experimental Economics*, which publishes high-quality papers that advance experimental research in economics and such related disciplines as accounting, finance, political science, and the psychology of decision-making. The journal also publishes cutting-edge theoretical and econometric work motivated by experimental data and papers focused on methodology or replication of controversial findings. *Experimental Economics* is known for its rigorous review process and the highest standard of experimental procedures. Every year the journal selects a best published paper for "Editor's Award for Experimental Economics,"

Natalia V. Czap

See also: Experimental Economics; *Vol. 2: Macroeconomics:* Ostrom, Elinor; *Vol. 3: Microeconomics:* Smith, Vernon

Further Reading

ESA (Economic Science Association). 2013. About ESA. https://www.economicscience.org/esa/index.html (accessed November 30, 2016).

Nobelprize.org. 2014. All prizes in economic sciences. http://www.nobelprize.org/nobel_prizes/economics/laureates/ (accessed November 30, 2016).

ECONOMIC SOCIOLOGY

Within economics, William Stanley Jevons conceived the concept of *economic sociology* as an integral branch of economics, alongside economic theory and other branches. In his work on the subject, he proposes that "it is only by subdivision, by recognizing a branch of Economic Sociology [and other branches], that we can rescue [economic] science from its confused state" (Jevons 1965, 20–21). Following Herbert Spencer's definition of *sociology*, Jevons understands *economic sociology* as "the Science of the Evolution of Social Relations" and the influence that social relations have on the economy, including the market. Notably, he implies that economic sociology observes and studies real-life economic processes and behaviors in their social relations and environments, thus being a socially and behaviorally realistic branch of economics. To illustrate, he suggested that economic analysis should take account of the fact that market processes and behaviors (the "influence of the future supply and demand") often "depend on the political information of the moment" (Jevons 1965, 182).

Moreover, Philip Wicksteed (1933, 784) suggests that economics "must be a handmaid of [economic] sociology" as an observation and study of the real-life economy on the ground that the market in reality "never has been left to itself" due to multiple social influences and interferences. Vilfredo Pareto (1932, 1317) suggests the concept of *economic sociology* as a realistic analysis of the social context of the economy; he proposes that the "study of many [economic] facts cannot be made without the help of sociology" and hence economics should "consider not just the economic phenomenon taken by itself, but also the whole social situation, of which the economic situation is only a phase." Pareto implies that economic sociology is a more realistic or complex discipline than pure economics, because the "social system is much more complicated" than the economic system and "there is much more complication in sociology where, to logical actions, the only [actions] considered by economics, are to be added non-logical actions, and to logical reasoning, derivations" (Pareto 1932, 1315, 1594–95).

Max Weber (1968, 68–79; 1949, 45) identifies and defines *economic sociology* as the "sociological theory of economic action" and the "sociology of economic action"—specifically, an analysis of the "various ways in which non-economic social events influence economic events." Influenced by Weber, Friedrich von Wieser (1967, 152–53) considers *economic sociology* (or "social economics") to be an investigation of the "sociological problems of economic theory" or the "social relations of the economy," thus being socially grounded and realistic. Frank Knight (1958) registers *economic sociology* or "sociological economics" within the Historical School of Economics—mentioning Werner Sombart—as well as in French sociology (Émile Durkheim), but this discipline is not limited to the two traditions. Joseph Schumpeter (1949, 60) identifies "the economic sociology of Adam Smith," characterized as the study of the "social framework of the economic course of events." Specifically, Schumpeter defines *economic sociology* as the "analysis of social institutions," namely, those "institutions and [social] forces which shape economic behavior," thus as institutionally grounded, behaviorally realistic, and interdisciplinary endeavor ("no man's land, or every man's land") (Schumpeter 1954, 9–22; 1956, 134). Further, Schumpeter incorporates economic sociology into the branches of "economic analysis," alongside economic theory and others (1954, 9–22). In particular, Kenneth Boulding (1970, 153–55) emphasizes the "economic sociology of the market" as a realistic analysis that takes account of the real-life "process of development" of markets involving "total society," which causes the "purely economic models" to be of "very limited value."

In modern economics, since John Maynard Keynes's *General Theory*, the term *economic sociology* has constituted a sociological version or proxy of social behavioral economics (Etzioni 1999). George Akerlof (2002, 411) implicitly identifies elements of economic sociology and psychology in Keynes's behavioral economics. He detects in Keynes's *General Theory* an emphasis on the role of such psychological and sociological factors as cognitive bias, reciprocity, fairness, herding, and social status, including "animal spirits" (Akerlof and Shiller 2009). In general, Akerlof (2002, 411) emphasizes that, like economic sociologists, behavioral economists, "incorporating realistic assumptions grounded in psychological and sociological observation, have produced models that comfortably account for [various] macroeconomic phenomena." Such assumptions of economic sociology relevant in behavioral economics involve "adherence to group norms"; "reference group theory"; the "sociological" version of efficiency wage theory based on gift exchange (Akerlof 2002, 415); the general theory of social norms and ideals, including "Weber's analysis of the relation between religion and savings" and Pierre Bourdieu's analysis of the "consumption of cultural goods"; the "sociology of the corporation"; and others (Akerlof 2007, 15). In particular, with respect to motivations Akerlof (2007, 29–31) emphasizes that economic sociology is a realistic discipline depicting human motivation from "close observation," just as Keynesian early and present behavioral economics is "reflective of reality" by virtue of being based on "experience and observation." In sum, in terms of empirical realism and emphasis, *economic sociology* is a sociological variant of and name for social behavioral economics.

Milan Zafirovski

See also: Animal Spirits; Behavioral Economics; Institutional Economics; Keynes, John Maynard; Schumpeter, Joseph; Wicksteed, Philip; *Vol. 2: Macroeconomics:* Weber, Max; *Vol. 3: Microeconomics:* Akerlof, George; Jevons, W. Stanley

Further Reading

Akerlof, George. 2002. Behavioral macroeconomics and macroeconomic behavior. *American Economic Review* 92: 411–33.

Akerlof, George. 2007. The missing motivation in macroeconomics. *American Economic Review* 97: 5–36.

Akerlof, George, and Robert J. Shiller. 2009. *Animal spirits*. Princeton, NJ: Princeton Univ. Press.

Boulding, Kenneth. 1970. *Economics as a science*. New York: McGraw Hill.

Etzioni, Amitai. 1999. *Essays in socio-economics*. Berlin, Germany: Springer-Verlag.

Jevons, W. Stanley. 1965. *The theory of political economy*. New York: Kelley. (Orig. pub. 1879.)

Keynes, John M. 1960. *The general theory of employment, interest and money*. London: Macmillan. (Orig. pub. 1936.)
Knight, Frank. 1958. *On the history and method of economics*. Chicago, IL: Univ. of Chicago Press.
Pareto, Vilfredo. 1932. *Traité de sociologie générale*. Paris: Payot. (Orig. pub. 1916.)
Schumpeter, Joseph. 1949. *The theory of economic development*. Cambridge, MA: Harvard Univ. Press. (Orig. pub. 1911.)
Schumpeter, Joseph. 1954. *History of economic analysis*. New York: Oxford Univ. Press.
Weber, Max. 1968 *Economy and society*. New York: Bedminster Press. (Orig. pub. 1921–22.)
Wicksteed, Philip. 1933. *The common sense of political economy*. London: Routledge and Kegan Paul. (Orig. pub. 1910.)
Wieser, Friedrich von. 1967. *Social economics*. New York: Kelley. (Orig. pub. 1914.)

ECONOMIC SYSTEMS

An *economic system* determines the way in which a country manages the production and distribution of goods and services. Every economic system functions by answering three basic questions: what to produce; how to produce; and for whom the goods and services will be distributed. The more fundamental economic question is "Who will answer these three questions?" One option is the interaction of buyers and sellers in the marketplace. A second option is a central authority or government. Third is some combination of the two.

The "what to produce" question is a matter of the allocation of resources. One decision by a society in determining the economic system is what goods and services will be produced for the marketplace. However it is defined, "what goods and services will be produced for the marketplace" suggests the allocation of an economy's land, labor, and capital—that is, the resources available for producing the goods and services. The entity (market, government, or combination) that answers the first question will determine the uses of an economy's resources.

The "how to produce" question is about efficiency. It defines the rate of innovation and change in the ratios of land, labor, or capital used to produce the goods and services. Will the economy use a horse and plow in the field or a tractor? Will manufactured goods be made by labor-intensive industries or capital-intensive industries? The answer lies in the decisions of the individuals, the government, or some combination of the two.

The "for whom" question applies to the distribution of goods and services and who should receive those goods and services. Will the goods and services of an economy be distributed to those who are willing and able to pay for them, or to a select few, or to everyone regardless of ability to pay? Answering this third question ultimately defines the distribution of goods and services in the market as private, public, or selective. Again, the answer lies in who makes the decision: individuals, the government, or a combination.

There are several ways to answer the basic economic system questions. They can be answered based on cultural or historical traditions within a culture or society. They can be answered totally in the marketplace, through the interaction of buyers and sellers. At the other extreme, they can be answered by one central authority making all the economic system decisions for the entire economy. The fourth alternative falls somewhere between market decisions and a central authority; there are numerous combinations of a mixed economy.

Traditional Economic System

In a traditional economic system, the three questions are answered by a long-standing tradition in a culture or society. This usually means one vocation or type of work is handed down from generation to generation. If one's great-grandfather was a farmer, in a traditional economic system one's grandfather and father were also farmers. One can count on being a farmer. The tradition would continue, as one's son and any future generations will also be farmers.

Traditional economic systems are generally subsistence economies, and they do not experience economic growth. Since there is no mobility in labor or resources, these economies are stagnant, and standards of living do not change from generation to generation. They are often very isolated and do not trade with others outside their traditional system. The lack of mobility also makes the future of a traditional economic system very predictable. The interests of the whole often supersede the interests of the individual. As a result, property rights are often absent or lightly regarded.

Historically, traditional economic systems were a major form of economic organization. The feudal systems of early Europe, as well as the economies of many towns and regions in the early United States, were traditional in nature. Today, traditional economic systems are confined to isolated tribes and cultures such as the aborigines in Australia.

Market Economic System

In market economies, the three economic system questions are answered by individual producers and consumers. The "allocation" component of the question of what to produce is answered by the interaction of producers and consumers in the product market. Buyers (consumers) determine what they are willing and able to consume, and it is up to the sellers (producers) to adequately provide those goods and services at both a price and a level of quality that the buyers desire. If buyers demand three-legged stools, producers have an incentive to supply three-legged stools at a price the buyers are willing and able to pay for the quality they want.

The "efficiency" question in a market economy is answered by the interaction of producers and consumers in the resource market. Businesses need land, labor, and capital (resources) to produce the goods and services that consumers desire. In a market economy, private property and property rights are paramount to the proper functioning of a market economic system. Individuals decide their level and participation in the economy through education, and individuals decide how to invest their resources in land and capital. All the resources are privately owned.

Privately owned resources are then sold to the businesses in the resource market, so the businesses can produce goods and services for the product market.

In the resource market, the producers are private individuals and the consumers are businesses. Businesses respond to the incentives of producing goods and services by using resources most efficiently. They also have incentives to innovate and invent new ways and methods of using resources more efficiently in order to be more competitive in the production of goods and services.

In a market economic system, the "for whom" question is also answered in the marketplace. In a purely market-driven economy, the question of who is going to receive the goods and services is based entirely on who are the willing and able buyers. A central authority, like a government, is not involved in any economic decisions. While historically pure market economic systems existed during certain eras, such as the late 19th century, pure market economic systems do not exist today.

Command (Planned) Economic Systems

At the other end of the range of economic systems is the economy in which the three basic economic system questions are answered by one single authority, usually the government. The government decides what will be produced, how it will be produced, and who will receive the economy's goods and services. In so doing, the government regulates prices, distribution, and allocation of the economy's resources. In a pure command economy, the resources are not privately owned; they are owned by the government. The government makes all decisions regarding the allocation of resources, including designation of labor. That is, one's job selection is determined by the government, not by the individual.

Command economies have existed throughout history. Vladimir Lenin introduced a command economy to Russia based on the writings of Karl Marx. A command economy in Russia eventually led to the Soviet Union and to the command economies of Eastern Europe. North Korea and Cuba continue to be model examples of command economies.

Mixed Economic Systems

Pure market economies and pure command economies are rare in today's global economy. Today, most economies answer the three basic economic system questions as some combination of market and command. These are known as mixed economies, and the questions of what, how, and for whom are answered by either individuals in the market or by the government. How the questions are answered also determines whether an economy's goods and services are either private goods and services or public goods and services.

In today's global economy, most economies—including the economy of the United States—are mixed economies. The major question for most mixed economies is the degree of private influence versus the degree of public influence is in play in answering the three economic questions. Economies such as Russia today have a high degree of command economy; they also include a degree of market economy decisions. Economies such as that of the United States have a high degree of market economy decisions, with the inclusion of command economy decisions. Regardless of where each economy currently is along the economic system spectrum, all economies are in a dynamic state of change. Some economies are transitioning from a primarily command economy to a more market-oriented economy, with some transitioning from a primarily market economy to a more command economy influence.

David A. Dieterle

See also: Command Economy; Democratic Socialism; Fascism; Hayek, Friedrich von; Market Capitalism; Marx, Karl; Marxism; Smith, Adam; Socialism; *Vol. 2: Macroeconomics:* Welfare State

Further Reading

Carson, Richard L., and Baerbel M. Traynor. 1998. *Comparative economic systems.* Vol. 2, *Transition and capitalist alternatives.* Armonk, NY: M. E. Sharpe.

Gardner, H. Stephen. 1998. *Comparative economic systems*. Dryden Press Series in Economics. New York: Dryden Press.

Gooru. n.d. Economic systems types. http://www.goorulearning.org/#resource-play&id=2a171ea1-431b-4847-9bfe-3821f7e4730b&pn=resource (accessed November 24, 2013).

Rosefielde, Steven. 2002. *Comparative economic systems: Culture, wealth, and power in the 21st century*. Malden, MA: Blackwell.

EKELUND, ROBERT, JR.

Born: 1940 in Galveston, Texas; Nationality: American; Professional Interests: political economy, economic theory, economic history; Major Works: *A History of Economic Theory and Method* (with Robert F. Hébert, 2007), *The Economics of Edwin Chadwick: Incentives Matter* (2012).

Robert B. Ekelund Jr. taught economics for more than 30 years at Louisiana State University, Texas A&M University, and Auburn University. He has written dozens of books and journal articles on a variety of topics in economic and political theory, such as micro- and macroeconomics, mercantilism, and even the economics of the American Civil War and the economics of religion. Through his research and knowledge, Ekelund has made a major contribution to the economic community. During his career, he also has a contributor to both the Heartland Institute and the Mises Institute. Much of the progression and development of economics over the past 40 years has come as a result of his work and collaborations.

Robert Burton Ekelund Jr. was born in Galveston, Texas, in 1940. He attended St. Mary's University in San Antonio, where he earned a bachelor's degree in business administration (a BBA) in economics and art history in 1962 and a master's degree in economics and history in 1963. After graduating from St. Mary's, Ekelund accepted a teaching position at Louisiana State University (LSU). While teaching and studying at the same time, he earned a PhD in economics and political theory from LSU in 1967.

Ekelund left LSU in 1967 after accepting a teaching position with Texas A&M University in College Station, Texas. At Texas A&M, he began his prolific writing career by coauthoring *A History of Economic Theory and Method* with colleague Robert F. Hébert in 1975. In their book, Ekelund and Hébert explained the growth and development of economic behavior from ancient Greece through the late 20th century. They used mathematical and statistical analysis and inquiry to explore how market behavior impacts modern economic theory. Comprehensive analysis and an easy-to-read writing style made *A History of Economic Theory and Method* a textbook favorite in the academic community. Ekelund and Hébert have collaborated on several major contributions to the history of economic thought.

In 1977, Ekelund accepted a position at Auburn University and moved from east Texas to east Alabama. He wrote a majority of his books and publications over the next 25 years while at Auburn. Ekelund's writings cover a wide array of topics, from micro- and macroeconomics to the specifics of economics and how the subject of economics relates to 19th-century France, to the American Civil War, and even to religion.

During his graduate studies, Ekelund developed an interest in the work of French engineer and economist Jules Dupuit. His fascination with Dupuit continued through his professional career. In 1999, Ekelund and Hébert cowrote *Origins of Modern Microeconomics: Dupuit and the Engineers*, in which they analyzed how the 19th-century French engineers used daily experiences to arrive at solutions and how that methodology can be used in addressing economic problems today. Ekelund and Hébert were commended by the economic community for their dedication to their work. Many of the sources from both before and after the French Revolution had yet to be translated, and some were not accessible. Ekelund credits Dupuit as one of the founders of formal economic theory and reasoning.

After retiring from Auburn University in 2003 as the Catherine and Edward Lowder Eminent Scholar Emeritus, Ekelund continued to write. In 2004, he and Mark Thornton coauthored *Tariffs, Blockades, and Inflation: The Economics of the Civil War.* The authors investigate the American Civil War, interpreting data from the time period and organizing it into an interesting, easy-to-read format from the standpoint of contemporary economic theory. In 2006, Ekelund teamed up with Hébert and fellow economist Robert D. Tollison to write *The Marketplace of Christianity.* The book explores Christianity as an industry filled with intense competition dating back to the Protestant Reformation of the 16th century; it offers an intriguing look into how religion relates to such economic concepts as self-interest and individual choice. The book provides interesting insights into a variety of topics, and Ekelund's writing ability brings economic concepts to life in different contexts.

Ekelund's contributions to economic thinking are far-reaching and extensive. His teachings—through his instruction and his writing on economic and political theory—are both inspired and influential from the Austrian-style economic perspective. He is renowned for both his expertise and his writing style, and his works are widely publicized and circulated throughout both the academic and economic arenas.

William S. Chappell

See also: Austrian Economic Thought; Economic History; Hayek, Friedrich von; Mises, Ludwig von; *Vol. 3: Microeconomics:* Dupuit, Jules

Further Reading

Buchanan, James M., and Robert D. Tollison, eds. 1984. *The theory of public choice–II*. Ann Arbor: Univ. of Michigan Press.

Ekelund, Robert, and Leonardo Auernheimer. 1982. *Essentials of money and banking*. Hoboken, NJ: Wiley.

Ekelund, Robert, and Robert F. Hébert. 1996. *Classics in economic thought*. New York: McGraw-Hill.

Ekelund, Robert, and Robert F. Hébert. 1999. *Secret origins of modern microeconomics: Dupuit and the engineers*. Chicago, IL: Univ. of Chicago Press.

Ekelund, Robert, and Robert F. Hébert. 2007. *A history of economic theory and method*. Long Grove, IL: Waveland Press.

Ekelund, Robert, Robert F. Hébert, and Robert D. Tollison. 2006. *The marketplace of Christianity*. Cambridge, MA: MIT Press.

Ekelund, Robert, Robert F. Hébert, Robert Tollison, Gary Anderson, and Audrey Davidson. 2003. *Sacred trust: The medieval church as an economic firm*. Oxford, UK: Oxford Univ. Press.

Ekelund, Robert, and Edward O. Price. 2012. *The economics of Edwin Chadwick: Incentives matter*. Cheltenham, UK: Edward Elgar.

Ekelund, Robert, and Robert Tollison. 1982. *Mercantilism as a rent-seeking society: Economic regulation in historical perspective*. College Station: Texas A&M Univ. Press.

Ekelund, Robert, and Robert Tollison. 1997. *Politicized economies: Monarchy, monopoly, and mercantilism*. College Station: Texas A&M Univ. Press.

Hammond, J. D. 2007. Review of *The marketplace of Christianity*. Economic History Association. http://eh.net/?s=The+Marketplace+of+Christianity (accessed February 10, 2011).

Maneschi, Andrea. 2000. Review of *Secret origins of modern microeconomics: Dupuit and the engineers*. *Journal of the History of Economic Thought* 22 (3): 389–92. http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=5796368&fulltextType=BR&fileId=S105383720000657X (accessed November 30, 2016).

Rowley, Charles K., and Friedrich Schneider, eds. 2004. *The encyclopedia of public choice*. New York: Kluwer Academic Publishers.

Surdam, D. G. 2004. Review of *Tariffs, blockades, and inflation: The economics of the civil war*. Economic History Association. http://eh.net/?s=Tariffs%2C+Blockades%2C+and+Inflation (accessed February 10, 2011).

EMOTIONS AND DECISION-MAKING

In *Theory of Moral Sentiments*, Adam Smith noted that "emotions . . . discolor our view of things, even when we are endeavoring to place ourselves in the situation of another" (Smith 2000, 221). Notwithstanding his appreciation of the impact of emotions on behavior, he concluded that these effects are disruptive and a "fatal weakness of mankind." For decades, economics held onto this view, partially because of the inability to classify, measure, and understand emotions. Today, however, research in affective sciences teaches us that emotions serve a very special purpose and can be logically linked to behaviors. Still, emotions are complex and might relate to multiple motives and evaluations. Most of the time, emotions also involve bodily reactions. Since bodily reactions are not always required for emotions, *emotions* are sometimes defined as complex reactions to external (or internal) events that will lead to changes in readiness (or "action tendencies"). Meanwhile, these changes in readiness do not necessarily imply actual actions. Different emotions can thus be defined through their associated action tendencies. Fear, for example, is associated with the tendency for the action of flight, while love is associated with the tendency for the action of approach.

The specific action tendencies associated with each emotion have most likely evolved to enable us to automate our reactions to certain situations, crucial for survival. When we analyze the impact of emotions on behavior, it is thus important to differentiate between different emotions. However, due to the large number of emotions, in many cases simplified categorizations of emotions are applied. A two-dimensional model is frequently used, since many emotions can be differentiated by the two dimensions of pleasure (good versus bad) and arousal (calm versus agitated). However, in such a representation some emotions cannot be distinguished. For example, both anger and fear are unpleasant emotions that lead to medium levels of arousal.

Emotions can also be grouped into "basic" and "higher." *Basic* emotions are emotions that are present in all humans and also in other mammals. Examples are fear, anger, and anxiety. *Higher*, moral or social emotions are emotions that are shaped and defined by culture, education, and society. Examples include envy, shame, and guilt. However, moral emotions can overlap with what other people considered to be basic emotions. Anger, for example, is a moral emotion that is also widely seen as a basic emotion.

Which decision situations will be influenced by which emotions also depends on how possible outcomes are determined. Ortony, Clore, and Collins (1988) categorize emotions according to causes and consequences. Emotions caused by our own actions (regret, anxiety) can be important for understanding individual decision-making when we're facing risk. The importance of emotions for risky decisions has been theoretically modeled and experimentally observed in economics. Anticipating regret, for example, might lead us to make choices to help ensure that we will never experience regret; we might achieve this by avoiding information about things that are happening in other parts of the world.

Emotions caused by the actions of agents can be important for game situations. For example, anger is always related to the actions of another "agent," even if this agent is an object. Anger is particularly important for reciprocity in social dilemmas. Participants often incur costs to punish norm violations by others, and this is linked to how much anger they feel. Other emotions can modulate this reaction. When we feel angry, for example, accompanying feelings of guilt and shame can inhibit the tendency to punish. This is important for situations where agents receive some penalty due to norm violation. This penalty might be considered to be "unfair" and to elicit anger, but when the anger is considered to be justified, it can lead to changes in behavior. Observing anger in others can further lead to strategic considerations; the anger can be seen as a signal that this person will not only maximize his own payoff but will also react to actions considered as unfair or unjust. In an ultimatum game, for example, expecting anger in second movers will lead first movers to propose an equal split. Honest smiles—signals of positive emotions—are another way of signaling intentions in interactions. In trust games, for example, observing honest smiles in others leads to more trusting behavior.

Astrid Hopfensitz

See also: Intuition and Decision-Making; Smith, Adam; *Vol. 3: Microeconomics:* Trust Game

Further Reading

Ben-Ze'ev, Aaron. 2000. *The subtlety of emotions*. Cambridge, MA: MIT Press.
Caplin, Andrew, and John Leahy. 2001. Psychological expected utility theory and anticipatory feelings. *Quarterly Journal of Economics* 116: 55–79.
Haidt, J. 2003. The moral emotions. In *Handbook of affective sciences*, ed. R. Davidson, K. Scherer, and H. Goldsmith, 852–70. London: Oxford Univ. Press.
Hopfensitz, Astrid, and Ernesto Reuben. 2009. The importance of emotions for the effectiveness of social punishment. *Economic Journal* 119: 1534–59.
Hopfensitz, Astrid, and Frans van Winden. 2008. Dynamic choice, independence, and emotions. *Theory and Decision* 64: 249–300.
Isen, Alice. 2001. The influence of positive affect on decision making in complex situations: Theoretical issues with practical implications. *Journal of Consumer Psychology* 11: 75–85.
Kliger, Doron, and Ori Levy. 2003. Mood-induced variation in risk preferences. *Journal of Economic Behavior and Organization* 52: 573–84.
Lazarus, Richard. 1991. *Emotion and adaptation*. London: Oxford Univ. Press.
Loomes, Graham, and Robert Sugden. 1982. Regret theory: An alternative theory of rational choice under uncertainty. *Economic Journal* 92: 805–24.
Oatley, Keith, Dacher Keitner, and Jennifer Jenkins. 1996. *Understanding emotions*. New York: Blackwell.
Ortony, Andrew, Gerald Clore, and Allan Collins. 1988. *The cognitive structure of emotions*. Cambridge, UK: Cambridge Univ. Press.
Russell, James, Maria Lewicka, and Toomas Niit. 1989. A cross-cultural study of a circumplex model of affect. *Journal of Personality and Social Psychology* 57: 848–56.
Sanfey, Alan, James Rilling, Jessica Aronson, Leigh Nystrom, and Jonathan Cohen. 2003. The neural basis of economic decision making in the ultimatum game. *Science* 300: 1755–58.
Smith, Adam. 2000. *The theory of moral sentiments*. Great Books in Philosophy. Amherst, NY: Prometheus Books. (Orig. pub. 1854.)

ENDOWMENT EFFECT

An *endowment effect* (Thaler 1980) exists if the subjective value of an item depends on whether it is owned or not. This phenomenon has frequently been found in bargaining contexts with items such as coffee mugs, pens, wine bottles, and lottery tickets. In this vein, Kahneman, Knetsch, and Thaler (1990) report experimental results showing that the average of buyers' willingness to pay for a coffee mug was only half of the average price that sellers who owned the same mug were willing to accept as minimal price for giving it up.

The standard economic explanation for this difference in valuations is based on two features of prospect theory (Kahneman and Tversky 1979)—namely, reference dependency and loss aversion. *Reference dependency* refers to the notion that the subjective value of an item depends on the current reference point of the decision-maker. From the reference point of a seller owning an item, a transaction is framed as a loss, whereas from the reference point of a buyer attempting to get an item, a transaction is perceived as a gain. Since losses are known to have a greater psychological impact compared to gains of the same magnitude, sellers should accept losing an item only for a higher price than buyers are willing to pay in order to get it.

This difference in valuation between sellers and buyers of the same good can also be observed with entrance tickets. To illustrate, Carmon and Ariely (2000) showed that people holding a ticket for a sold-out basketball game requested on average $240 to give up that ticket, in contrast to a mean price of $170 that potential buyers were willing to pay. Research has also shown that merely touching an object results in increased perceived ownership of that object. Similar effects can be achieved through the presentation of imagery encouraging touch of an object, because the valuation of an object is said to be jointly influenced by both: perceived ownership and valence of the touch experience (Peck and Shu 2009). A so-called quasi-endowment effect seems to play an important role in online auctions and explains such often-observed behavior as multiple bidding and *sniping*, or placing a last bid just seconds before the end of an auction.

Different lines of predominantly more recent research on the endowment effect offer alternative explanations with regard to *loss aversion* as the main source of the endowment effect. The choice heuristic assumes that people typically own things that they have chosen beforehand and they infer that if they have chosen something it must be more valuable compared to nonchosen alternatives (Brehm 1956). Another line of research emphasizes that chosen items are associated with the self, and people tend to value things more when they are associated with the self (Beggan and Scott 1997). Furthermore, the confounding of ownership and bargaining role in standard buyer–seller tasks investigating the endowment effect might be problematic, since people typically sell only things they own and buy only things they do not own. Experimental evidence un-confounding ownership and the bargaining role suggests that the endowment effect disappears when buyers are owners and sellers are not. Thus, ownership rather than loss aversion may cause the endowment effect in the standard buyer–seller paradigm (Morewedge, Shu, Gilbert, and Wilson 2009).

Aside from the bargaining context, endowment effects are often studied within a lottery setting, where participants are endowed with a ticket and get the possibility to trade the endowed ticket for another one. People show a strong reluctance to trade a ticket in possession in these situations. It is controversially discussed whether this phenomenon can be explained by prospect theory or newer versions of prospect theory, respectively, since this effect might follow as well from anticipated regret by the owner imagining that an exchanged ticket might win, especially if this ticket was in possession before.

Erich Kirchler
Christoph Kogler

See also: Behavioral Economics; Tversky, Amos; *Vol. 3: Microeconomics:* Kahneman, Daniel; Prospect Theory

Further Reading

Bar-Hillel, Maya, and Efret Neter. 1996. Why are people reluctant to exchange lottery tickets? *Journal of Personality and Social Psychology* 70: 17–27.

Beggan, James K., and Allison Scott. 1997. More than meets their eyes: Support of the mere ownership effect. *Journal of Consumer Psychology* 5: 285–97.

Brehm, Jack W. 1956. Post-decision changes in desirability of alternatives. *Journal of Abnormal and Social Psychology* 52: 384–89.

Carmon, Ziv, and Dan Ariely. 2000. Focusing on the foregone: How value can appear so different to buyers and sellers. *Journal of Consumer Research* 27: 360–70.

Heyman, James E., Yesim Orhun, and Dan Ariely. 2004. Auction fever: The effect of opponents and quasi-endowment on product valuations. *Journal of Interactive Marketing* 18: 7–21.

Kahneman, Daniel, and Amos Tversky. 1979. Prospect theory: An analysis of decision under risk. *Econometrica* 47: 263–91.

Kahneman, Daniel, Jack L. Knetsch, and Richard Thaler. 1990. Experimental tests of the endowment effect and the Coase theorem. *Journal of Political Economy* 98: 728–41.

Morewedge, Carey K., Lisa L. Shu, Daniel T. Gilbert, and Timothy D. Wilson. 2009. Bad riddance or good rubbish? Ownership and not loss aversion causes the endowment effect. *Journal of Experimental Social Psychology* 4: 947–51.

Peck, Joann, and Suzanne Shu. 2009. The effect of mere touch on perceived ownership. *Journal of Consumer Research* 36: 434–47.

Thaler, Richard H. 1980. Toward a positive theory of consumer choice. *Journal of Economic Behavior and Organization* 1: 39–60.

ENTREPRENEURSHIP

Entrepreneurship represents the actions of entrepreneurs in developing new products, processes, or businesses. Entrepreneurs are innovators and risk-takers. They tend to see commercial opportunities, and they then seize the initiative to transform commercial ideas into commercial enterprises. Entrepreneurs are sometimes individuals who start a new business, a process called venture initiation. Entrepreneurs might also be innovators within an existing business enterprise, such as scientists, engineers, or managers. Entrepreneurs operating within an existing business are sometimes called intrapreneurs. *Intrapreneurs* adapt or improve existing products, or they introduce new product lines to the firm. Entrepreneurship is an agent of growth and change in an economy. Because of the vital role of entrepreneurship in business activity and production, it is sometimes viewed as a factor of production, joining human resources, natural resources, and capital goods.

In recent years the role of entrepreneurship in the global economy has received additional attention by development economists and policymakers. Renewed interest in entrepreneurship was sparked by the launch of the *Global Entrepreneurship Monitor* (*GEM*), an annual publication of Babson College and the London School of Business. The *Global Entrepreneurship Monitor 2015 Global Report* measured entrepreneurial activity in 62 advanced and developing economies. One *GEM* measurement of entrepreneurship is the Total Entrepreneurial Activity (TEA) Index. The TEA Index evaluates the entrepreneurial performance of 31 *GEM* countries based on business start-ups and the competitiveness of these business ventures.

The financing of entrepreneurship in the global economy combines informal and formal mechanisms. Informal methods dominate the financing of global entrepreneurial activity. Informal financing taps the personal assets of entrepreneurs, their families, and their friends to start a business. Venture capital, also called risk capital, is money invested in new and promising businesses, mainly by venture capital firms called venture capitalists. Historically, venture capitalists were instrumental in launching some of today's technological giants, such as Microsoft, Intel, and Google.

There are different motivations and support structures for entrepreneurship in the global economy. *GEM 2003* reports that "opportunity entrepreneurship" is prevalent in richer countries, and among wealthier people. Opportunity entrepreneurship is based on personal choice, and it often utilizes the higher educational level and personal assets of individual entrepreneurs to jump-start an enterprise.

"Necessity entrepreneurship" is more common in the world's poorer regions, and among poorer people in general. Necessity entrepreneurship is based on the need for additional household income to purchase such necessities of life as food, clothing, and housing. Among the more important factors that encourage entrepreneurship in both rich nations and poor nations are personal contacts with other entrepreneurs, a younger labor force, fewer burdensome government regulations and taxes on businesses, less central planning by government, more cultural acceptance of business risk-taking, and less government support for a safety net of social programs.

Entrepreneurship has a major impact on economic growth and development in countries, regardless of their income status. First, entrepreneurship creates new firms and makes existing firms more innovative and competitive. Second, entrepreneurship creates new jobs. Third, evidence continues to mount pointing to a positive correlation between increased entrepreneurship and higher rates of economic growth over time. *GEM* research shows that necessity entrepreneurship in the world's poorer regions boosts economic growth at an even faster rate than opportunity entrepreneurship does in the wealthier nations.

Entrepreneurship has taken center stage in the realm of development economics in recent years. Since the 1990s, prominent development economists such as Hernando de Soto have stressed policies of inclusion to promote sustainable economic development in the world's poorer regions. At the heart of de Soto's message is the belief that entrepreneurial activity in countries' informal sector must be harnessed and brought into the formal economy. De Soto and other like-minded economists believe that the merger of the extralegal and legal sectors would vastly accelerate *capital formation*—the process of expanding a nation's total amount of productive capital. Private property rights for the poor, the reduction of excessive business regulations and taxes, and access to credit are key incentives for entrepreneurs to join the formal economy. Major multilateral organizations such as the World Bank and the International Monetary Fund, as well as numerous private foundations and national governments, have voiced support for reforms to bring entrepreneurs into the formal sector.

David E. O'Connor

See also: Capitalism; Capital Resources; Economic Growth; Factors of Production; Informal Economy; *Vol. 4: Global Economics:* Sustainable Economic Development

Further Reading

De Soto, Hernando. 2003. *The mystery of capital: Why capitalism triumphs in the West and fails everywhere else*. Rev. ed. New York: Basic Books.

Harper, David A. 2003. *Foundations of entrepreneurship and economic development.* New York: Routledge.

Kelly, Donna, Slavica Singer, and Mike Herrington. 2016. *Global entrepreneurship monitor: 2015/16 Global report*. Global Entrepreneurship Research Association (GERA). www.gem-2015-2016-global-report-110416-1460370041.pdf (accessed May 31, 2016).

Kuemmerle, Walter. 2004. *Case studies in international entrepreneurship: Managing and financing ventures in the global economy.* New York: McGraw Hill/Irwin.

Reynolds, Paul D., William D. Bygrave, and Erkko Autio. 2003. *GEM 2003 global report.* Babson Park, MA: Babson College and the London Business School.

Smart, Alan, and Josephine Smart. 2005. *Petty capitalists and globalization: Flexibility, entrepreneurship, and economic development.* New York: SUNY Press.

ENVIRONMENTAL ECONOMICS

Environmental economics considers the impact of human activity on the world with regard to matters such as waste and pollution, and it extends to the realm of climate change in the context of economic realities such as scarcity and development. The term *environment* emanates from the Old French and an even older English word from the 14th century that refers to a circle, with "the world that surrounds us" in mind. The biggest impact on the natural world around humans is the development of that world in the form of using its resources to enhance people's quality of life. As such, economics has impacted the environment since trees were first felled and land was cultivated for food. The environment has impacted economics via the resources that people have found useful for their purposes, be it for sustenance or for commerce.

By the 21st century, initiatives for preserving the environment (or at least harming it less) were ubiquitous. Recycling, reusing, and being green—which is to think and act in ways that accommodate, respect, and preserve the environment in its natural state—had become a priority for people worldwide.

While all of human existence has involved economic choices and efforts to raise the quality of life for various societies, the effect that doing so has had on the environment did not register as a concern until the 19th century. The Industrial Revolution in the West spawned factories all around Britain, primarily in the cities; the fouling of air, water, and public ways caused poet William Blake to call attention to the problem in his work *Jerusalem*, referring to the factories as "those dark, satanic mills." Blake's principle inspiration was the Albion Flour Mill of his youth in London. In *The Engines of Our Ingenuity*, John Lienhard explains how by the early 19th century, "the new factories were providing goods and implements by which people could live more amicable lives. The problem is, those works started obscuring nature" (Lienhard 1999). An awareness of the need to be cautious regarding the environment was most publicly raised first by naturalist John Muir, whose appreciation for all of nature led him to found the Sierra Club in 1892.

President Theodore Roosevelt later preserved large swaths of land that eventually became national parks, but industrialization and the general mobilizations of two world wars kept environmental concerns from being major political and societal priorities until the1960s. The publication of Rachel Carson's *Silent Spring* and the emerging youth culture of the decade brought environmental concerns into common public discourse, and they increasingly were seen as in conflict with economic principles that foster growth. At the start of the decade when *Silent Spring* saw print, 8.3 percent of the American workforce was involved in some aspect of agriculture, in which the pesticide DDT was commonly used (agclassroom.org).

Ten years after Carson's book came out, the U.S. government banned the domestic use of DDT, and it could be expected that removing this means of keeping pests from crops would stunt agricultural production. Conversely, farm production has continued to increase steadily on a yearly basis. A U.S. Department of Agriculture report at the end of the first decade of this millennium noted that total agricultural exports from America rose from $39,495,000,000 in 1990 to $115,809,000,000 in 2010 (U.S. Census Bureau 2012). With no control group to allow an assessment of what this growth might have been if DDT had still been in use, it is impossible to consider such a comparison. During this same period, the share of the American labor force involved in agriculture dropped from 3 percent to less than 1 percent. It is difficult to conclude that this environmentally sensitive development had a negative impact on the economics of farming or the food supply.

Another realm where economics and the environment intersect is the air we breathe. As concern grew in the new millennium over the impact of greenhouse gas emissions on the earth's climate, discourse on the matter included resistance from those interests tied to industries that contribute greenhouse gasses as externalities. Responding to news in 2014 that the Barack Obama Administration had concluded a deal with China to reduce such emissions, Senator Mitch McConnell from the coal-producing state of Kentucky announced that he was "particularly distressed with the deal [Obama] has apparently reached with the Chinese" (Drucker 2014).

Perhaps the most pedestrian and ubiquitous action taken by people every day with an eye toward protecting the environment is the recycling of various materials that two generations ago would have simply found their way to local dumps. It seems clear that in terms of economics, this shift in society's approach toward waste has resulted in considerable job creation, for machines are needed at establishments and individuals are required at the municipal level to oversee these operations.

There are those, however, who question the net environmental effect of recycling. A 2010 report in *Congressional Quarterly* noted that due to the industrial efforts involved in collecting and transporting used drink containers and paper, the environmental results of this approach "outweigh the pollution saved by recycling" (Cooper 1998). Nevertheless, the intention to act prudently in terms of the environment has led to new economic opportunities, and a market for "green" or greener products now exists—such as packaging made with recycled materials.

David S. Allen

See also: Ecological Economics; Environmental Protection Agency; Environmentalism; *Vol. 2: Macroeconomics:* Water Pollution; *Vol. 3: Microeconomics:* Tragedy of the Commons; Water Conservation; *Vol. 4: Global Economics:* Tropical Rain Forests

Further Reading

Agclassroom.org. 2014. Growing a nation: The story of American agriculture—Historical timeline. https://www.agclassroom.org/gan/timeline/farmers_land.htm (accessed November 15, 2014).

American Chemical Society. 2012. The legacy of Rachel Carson's *Silent Spring*. http://www.acs.org/content/dam/acsorg/education/whatischemistry/landmarks/rachel-carson-silent-spring/rachel-carsons-silent-spring-historical-resource.pdf (accessed November 15, 2014).

Cooper, Mary H. 1998. The economics of recycling: Is it worth it? *Congressional Quarterly* 8 (12): 265–80. http://library.cqpress.com/cqresearcher/document.php?id=cqresrre1998032700&type=hitlist&num=1 (accessed November 16, 2014).

Drucker, David. 2014. McConnell is "particularly distressed" with U.S.–China climate pact. *Washington Examiner*, November 12. http://www.washingtonexaminer.com/mcconnell-is-particularly-distressed-with-u.s.-china-climate-pact/article/2556064(accessedNovember 16, 2014).

Fores, S. W. 2013. Albion's dark Satanic mill. http://theprintshopwindow.wordpress.com/2013/11/15/albions-dark-satanic-mill/ (accessed November 16, 2014).

NRDC (National Resources Defense Council). 2015. The story of *Silent Spring*. http://www.nrdc.org/health/pesticides/hcarson.asp (accessed November 16, 2015).

ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) was created on December 2, 1970, through an executive order signed by President Richard M. Nixon. The EPA reorganized the federal government's environmental programs and agencies under one entity. The EPA was created as an independent organization with the directive to supervise and control pollution, waste, air and water quality, pesticides, hazardous waste disposal, toxic substances, and wildlife in the United States. It was believed that as the country's population grew, these issues would become increasingly important and that a regulatory agency was needed to implement policies and regulations.

Before the EPA was created, only sporadic attention was paid to the environment. President Theodore Roosevelt was a conservationist, and during his presidency he set aside lands for national parks. In 1916, President Woodrow Wilson oversaw the creation of the National Park Service. The Tennessee Valley Authority was established in 1933, authorizing the construction of dams to generate hydroelectric power. Under Franklin D. Roosevelt's New Deal, soil conservation measures were put into effect with the creation of the Civilian Conservation Corps.

Rachel Carson's 1962 book *Silent Spring* drew widespread attention to the effects that the use of pesticides were having on the environment. Carson's work helped increase public awareness of the need for environmental protection, which led presidents John F. Kennedy and Lyndon B. Johnson to include the environment as part of their legislative agendas.

President Nixon took things further and expanded the nation's environmental policy. In 1969, he established the Environmental Quality Council to oversee issues related to the environment as part of the National Environmental Policy Act (NEPA). NEPA made the government the protector of earth, land, air, and water. This act established a national environmental policy and set goals for protecting and maintaining the environment through federal agencies. In July 1970, President Nixon announced his desire to create an independent regulatory agency to oversee the implementation and enforcement of environmental policy. This agency would be called the Environmental Protection Agency, and its duties would include the following:

1. Recommending environmental policies to the president for implementation;
2. Enforcing environmental standards;
3. Researching pollution and its effects, and recommending policies to reduce pollution;
4. Working with state and local agencies as well as federal agencies to coordinate pollution policies;
5. Assisting other federal organizations that deal with environmental quality–related issues; and
6. Developing reports for the president and Congress regarding the environment.

Furthermore, the EPA sought to identify potential pollution problems by investigating factories and manufacturing facilities. The EPA pursued an examination of agricultural pesticides and their effect on the environment. The agency also wanted to locate and address pollution in cities, rural areas, oceans, and lakes.

Countries around the world are also concerned with environmental standards. Britain's Environmental Protection Act of 1990 sought to update and refine pollution controls and standards as well as implement harsher penalties for violations. In 1998, Canada sought to strengthen its Environmental Protection Act by making it more stringent as well as providing a review of the act every five years.

Today, the EPA employs over 17,000 people—from scientists to engineers. The organization has changed with the environmental issues of the time. Most recently, the EPA has focused its attention on greenhouse gases and fuel emissions standards, as it continues to be concerned with its original charge for air and water quality.

Angela M. LoPiccolo

See also: Environmental Economics; Environmentalism; New Deal; Roosevelt, Franklin D.; *Vol. 2: Macroeconomics:* Water Pollution; *Vol. 3: Microeconomics:* Air Pollution; Brownfields; Tennessee Valley Authority; Water Conservation

Further Reading

Collin, Robert W. 2006. *The Environmental Protection Agency: Cleaning up America's act*. Westport, CT: Greenwood Press.

EPA (U.S. Environmental Protection Agency). 1970. Ash Council Memo. http://www2.epa.gov/aboutepa/ash-council-memo (accessed December 15, 2015).

EPA (U.S. Environmental Protection Agency). 1970. EPA order 1110.2. http://www2.epa.gov/aboutepa/epa-order-11102 (accessed December 15, 2015).

EPA (U.S. Environmental Protection Agency). 1992. The guardian: Origins of the EPA. http://www2.epa.gov/aboutepa/guardian-origins-epa (accessed December 15, 2015).
Gibson, John. 1991. The integration of pollution control. *Journal of Law and Society* 18: 18–31.

ENVIRONMENTALISM

Since its inception, the environmental movement has had an uneasy relationship with economics. The environmentalism that arose in the 1970s relied almost exclusively on command-and-control regulations that mandated certain actions by polluters, with little attention paid to issues of economic efficiency, business incentives, or how markets are likely to evolve over time. The movement was populated largely by scientists, lawyers, and activists, many of whom believed that the U.S. capitalist system was the main driver of environmental degradation and that economics was little more than capitalism's enabler.

This skepticism, and sometimes outright hostility, toward economics stemmed from some firmly held beliefs: that the quest for economic growth by definition resulted in the exploitation of the natural world; that private entities, with their focus on profit, will always degrade the environment; and that assigning dollar values to nature was counterproductive, and was one of the main drivers of the unhealthy relationship between humans and the environment. The overarching position of the environmental community for much of its first 20 years (roughly 1970 to 1990) was that markets could not be harnessed to benefit the environment, and that instead they needed to be suppressed and reined in to promote environmental values.

This position still prevails in some environmental circles, but the profound distrust of economics has largely given way to a more balanced and realistic assessment. Environmentalists have discovered that the theory of market failure (the foundation of much of microeconomics) contains a powerful environmental message: Private markets alone will not fully account for the costs they impose on the environment and human health, nor under many routine circumstances will they promote the sustainable use of natural resources. Environmentalists can now point to classical economic theory for one of their strongest arguments in favor of government action to protect the environment.

This theory not only provides diagnostic criteria to determine when markets work effectively and when they do not; it also offers prescriptive action on how to make markets function better. For example, the rationale for greenhouse gas taxes comes directly from the economic theory of *Pigouvian taxation* (named after the English economist Arthur Pigou), which posits that polluters should be charged on a per-unit basis for the damages they impose on society. Microeconomics can also provide insight into the best stage of the production process to levy the taxes (in order to maximize their efficacy), as well as methods to redistribute the tax revenue to reduce any regressive impact and help transition to cleaner modes of production.

The primary alternative to direct emissions taxation is *emissions trading*, which allows the government to set an overall cap on total pollution while allowing firms to achieve emissions reduction by buying and selling pollution permits. “Cap and trade” was successfully implemented in the United States in 1990 for sulfur dioxide emissions (and was adopted by the European Union in 2005 for greenhouse gas emissions), with cost savings to the industry in the hundreds of millions of dollars per year, without compromising the target reductions. Environmentalists used to fret about the moral implications of giving polluters a right to pollute; now that cap and trade has a demonstrated record of success, there is growing acceptance that the method can be a powerful environmental policy mechanism.

There is also growing recognition that in places where property rights are nonexistent and natural resources are being exploited unsustainably, assigning property rights and limiting access can help reverse the damage. The principle has been applied with significant success in many ocean fisheries; it is also being put into practice to help reverse deforestation in areas where ownership is currently contested.

Sometimes, markets fail in subtle ways that have major environmental implications. For example, private entities have little incentive to provide the public with information about their toxic emissions. Consumers, therefore, make purchasing decisions with limited information about what types of production processes their purchases support. Policies that force firms to provide complete information on their toxic emissions can empower users to make better-informed purchases, and to more knowingly express their preferences for greater environmental quality.

The examples provided earlier are only a few of the ways in which environmental goals have been advanced by addressing market failures. Assigning dollar values to ecosystems has also been accepted by many environmental organizations, and these organizations now view this valuing as an essential ingredient in making sure policymakers and businesses do not overlook, and underestimate, the benefits that nature provides.

New York City decided to purchase its upland watershed because forests could provide water filtration more cheaply than a sanitation plant could. Costa Rica elected to pay private landowners for the forest ecosystem services their properties provide to the general public. These are just two real-world examples of how placing a dollar value on ecosystems led directly to increased preservation.

The ability of economic theory to advance environmental goals has helped the economics profession win over many once-skeptical environmentalists. The environmental community has come to recognize that market failures are to blame for much of our environmental degradation, along with market distortions—for example, subsidies, tax breaks, and the right to pollute without accountability. These market failures and distortions are the antithesis of healthy capitalism, and most economists oppose them.

Summing up, over the decades environmentalists have become far more sophisticated in their understanding of economics. Economic theory provides many important tools with which to analyze when markets work and when they do not, as well as ways to use that knowledge to benefit the environment. Most important, there is a growing recognition that well-functioning markets are not the enemy of the environment, but in fact may be one of its greatest allies.

Jason Scorse

See also: Ecological Economics; Environmental Economics; *Vol. 3: Microeconomics:* Asymmetric Information; Health and the Environment; Market Failures Microeconomics; *Vol. 2: Macroeconomics:* Externality; Public Goods; Taxes; *Vol. 4: Global Economics:* Subsidies; Sustainable Economic Development

Further Reading

Scorse, Jason. 2010. *What environmentalists need to know about economics*. New York: Palgrave Macmillan.

ESTATE PLANNING

Estate planning is the roadmap for distribution of one's financial and personal assets upon death. An individual creates an estate plan while living. The estate-planning strategy makes it clear and easy for the surviving family or other beneficiaries to carry out the wishes of the deceased with respect to financial and property holdings.

Understanding Estate Planning

First, let's briefly review the legal terms that are used when an estate plan is being set up. The *deceased* is the individual who has died. The *beneficiary(ies)* is the individual who is to receive the deceased person's possessions. The *will* is a document that the individual created, while still living, to describe his or her wishes upon death. The *executor* of the estate is an individual who carries out the directives of the will. *Probate* is the court process of proving the validity of a will. A *lawyer* usually draws up a will and creates an estate plan.

For individuals with few assets, estate planning is simple; usually, it involves completing a will and having the will signed, witnessed, and possibly notarized. In the simplest cases, an individual may create his own will by hand or with an online program.

Individuals with greater amounts of wealth or assets and more complex finances usually have complicated estate plans. In order to ensure that the assets are distributed the way the deceased prefers, these plans involve not only a will but also trusts.

Estate-Planning Functions

An estate plan can have narrow implications or broad ones. The estate plan lays out how assets are to be distributed upon an individual's death. Estate plans have various goals. The simplest estate plan is a will, which gives instructions for distributing the deceased's assets.

More detailed estate plans can be structured to smooth out the legal probate process. The estate plan simplifies the legal process by using trusts and other legal tools. In this way, the plan protects an individual's wealth from undue taxes and expenses. In other words, the individual's money, property, and financial assets can be maximized, while the estate tax burden on their heirs is minimized.

If minor children are involved, an estate plan usually names a guardian. If a mother and father both die and leave behind young children, the estate plan tells the court who should care for the children. This section of an estate plan is very important, because without it the courts must decide who should care for the minor children. Without a named guardian, there is no assurance that the court-appointed guardian is one whom the deceased parents' would have desired.

Another function of an estate plan is to address medical issues. A living will/advance health care directive addresses end-of-life medical treatment wishes. This document instructs medical providers and family members regarding end-of-life care. For example, if an elderly individual cannot breathe on her own, the medical directive within the estate plan might advise a doctor to remove the breathing assistance. A "Do Not Resuscitate" directive is common for the elderly as well. This means that if the individual suffers a heart attack, or if some other medical procedure stops the heart, the individual does not wish to be revived.

The durable medical power of attorney is sometimes referred to as a "health care proxy" or "health care surrogate." This document, contained within an estate plan, names an individual to make medical decisions in the event the individual is not able to make those decisions for himself.

The power of attorney is another document included in an estate plan. The power of attorney gives someone else the power to act on an individual's behalf. The power of attorney responsibilities may be limited to specific circumstances; or they may be more comprehensive and cover all decisions. For example, when an elderly person loses mental functioning, or under certain prescribed circumstances, the power of attorney document names someone to act in that person's stead. Frequently, married couples name each other in their power of attorney documents.

What Happens If Someone Dies Intestate (Without a Will)?

If a person dies without having a will, the state has laws of descent and distribution to map out who receives the deceased person's property. The chain of distribution usually begins with the spouse and/or living children; if there is not a living spouse or children, the state turns next to other family members. For the property to pass according to the deceased person's wishes, clearly it is preferable to have a will.

How Does an Estate Plan Impact Probate?

Probate is a two-part process. First, the will is submitted to the probate court in order to be proved valid. Second, the court appoints an estate administrator to collect the assets and distribute them to the designated heirs.

The probate process has disadvantages, and some individuals use estate-planning strategies in order to avoid probate. There are several reasons to attempt to avoid probate. First, the legal probate process is publicly recorded. Many individuals don't want public disclosure of the details of their estate. Further, in some states the probate process can be slow and expensive.

There are legal techniques and instruments available to avoid probate, although applying these strategies can be expensive. For example, trusts can be set up to pass assets to beneficiaries without going through probate.

How Do Trusts Fit into an Estate Plan?

A *trust* is a legal entity that "holds" assets on behalf of its beneficiaries. The trust has rules or provisions that define the document.

Estate planning uses a variety of trusts, such as testamentary trusts, living trusts (either revocable or irrevocable), and generation-skipping trusts. A lawyer can explain the advantages and disadvantages of each type of trust. In especially complicated situations, life insurance, charitable trusts, and other more sophisticated tools are used.

Although frequently considered a tool only for the wealthy, trusts are also useful in estate planning. For example, a young couple with children could create a trust for the benefit of their children, in case they die while their children are minors. This trust could describe how their assets would be handled and who would attend to the parents' affairs and the care of their minor children.

Estate planning is not a one-time activity. As individuals and families evolve, so must their estate plans. As families grow and age, their estate plans need to change.

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See also: Financial Literacy; Wills and Trusts; *Vol. 3: Microeconomics:* Disability Insurance; Life Insurance

Further Reading

Bostwick, Heleigh. 2011. 10 famous people who died without a will. http://www.legalzoom.com/legal-headlines/celebrity-lawsuits/10-famous-people-who-died (accessed January 5, 2014).

Estate Planning Council of Tompkins County. n.d. What is estate planning? http://www.estateplanningcouncil.org/planning.cfm (accessed January 5, 2014).

ETHICAL CONSUMPTION

Ethical consumption reflects our concern about the past and the future of a good, in addition to its present properties. The *past* of a good has to do with how the good was produced. Those of us who choose to be vegetarians may object to the conditions in the factory farms and the slaughterhouses. The *future* of a good has to do with the consequences of consumption. Many of us find it morally abhorrent to litter the land and pollute the air with the wastes from what we consume today.

Ethical consumption was not much of a personal or public issue until the age of industrialization. Before then, even with the domestication of animals and plants, consumption and production were largely integrated: People grew their own crops, raised their own animals, and made most things themselves. If they needed things that they did not make themselves, they bought from people they knew well, so they had a good idea of how those things were produced. There was also little waste from what people consumed, so environmental pollution was not a major issue except in densely populated areas.

Industrialization drove a wedge between consumption and production. Many of the things people bought came to be "manufactured" by people about whom the consumers knew little. Two developments helped separate consumption from production. First, increasing specialization meant that the most ethically questionable tasks could be done by specialists in ways and at locations hidden from the public view. This isolation helped people become callous or oblivious about those tasks. Second, producers used mass media and advertising to create images of the wholesome, the ethical, and the trustworthy. These developments effectively silenced consumers well into the 20th century, as this was the best information that most consumers had available to them at the time.

Still, ethical consumption is deep-seated in our psychic. We are witnessing a resurgence of it. For example, there is strong evidence that we are willing to pay more for something if we perceive that it was produced ethically, or at least we prefer to pay less for something that was produced unethically. There is also strong evidence that we attach a higher value to a good in our possession that we intend to "consume" than the same good in our possession that we intend to "sell." Behavioral economists call this "the endowment effect."

Ironically, the resurgence of ethical consumption is being propelled by the same media technology that helped producers build the public trust in their presumed ethical practices. Media technology is making it possible for consumers to network, to share ethical concerns, and to become aware of breaches of the implicit contract they have with producers. The environment-protection movement, the animal-protection movement, and the fair-labor movement all began at about the same time as the Internet. More and more consumers are asking if the paper used to make a book has with a connection to deforestation in Indonesia, if the eggs in grocery stores come from laying hens confined in wire cages, if the workers who make their shoes have no human rights, if the coffee they drink comes from beans picked by small children in Africa, and if the strawberries they're eating are grown using chemical insecticides and fertilizers.

The ethical issues driving these movements are not new. What is new is an awakening to our own foibles—in particular, our naïve assumption that the things we buy are produced in the "right" ways. Behavioral economics can help us understand how all this came about, by better modeling information asymmetries, social norms, preference formation, and the significance of such non-material concerns as ethics and morals to an individual's well-being and preference function.

Li Way Lee

See also: Behavioral Economics; Endowment Effect; Ethical Production

Further Reading

Bazerman, Max H., and Ann E. Tenbrunsel. 2011. *Blind spots: Why we fail to do what's right and what to do about it.* Princeton, NJ: Princeton Univ. Press.

Frank, Robert H. 2011. *The Darwin economy: Liberty, competition, and the common good.* Princeton, NJ: Princeton Univ. Press.

Heffernan, Margaret. 2011. *Willful blindness: Why we ignore the obvious at our peril*. New York: Walker.
Kahneman, Daniel. 2011. *Thinking, fast and slow*. New York: Farrar, Straus & Giroux.
Norwood, F. Bailey, and Jayson L. Lusk. 2011. *Compassion, by the pound: The economics of farm animal welfare*. New York: Oxford Univ. Press.
Pachirat, Timothy. 2011. *Every twelve seconds: Industrialized slaughter and the politics of sight*. Yale Agrarian Studies Series. New Haven, CT: Yale Univ. Press.
Serpell, James. 1996. *In the company of animals: A study of human–animal relationships*. Rev. ed. Cambridge, UK: Cambridge Univ. Press.
Trudel, Remi, and June Cotte. 2008. Does being ethical pay? *Wall Street Journal*, May 12. http://online.wsj.com/news/articles/SB121018735490274425#printMode (accessed November 30, 2016).

ETHICAL PRODUCTION

Ethical production has to do with the methods of making things and providing services. We consider a firm to be engaged in ethical production when the manager treats employees fairly, pays bills on time, and uses low-pollution technology. In this case, the manager takes into account the interests of workers, investors, and future generations.

Ethical production and business ethics may sound like the same thing. Both are concerned about producers' ethical behaviors. But they are very different in approach. Business ethics is about how producers should behave, while ethical production is about how producers actually behave. Therefore, business ethics deals with abstract principles of rights, obligations, social welfare, and justice. Ethical production, in contrast, uses behavioral economics to understand decision-making in the real world.

Like ethical consumption, ethical production was not much of a problem before industrialization. In agrarian societies, even with the domestication of animals and plants, production and consumption were integrated to a large extent. We mostly consumed what we ourselves produced. We took care of our immediate environment because we lived in it and because we knew we depended on it. We often treated well people who worked for us, because they were family members. We paid off our debt because the creditors were our friends and neighbors. When we wanted things that we did not make, we bought from reputable traders whom we knew personally.

During industrialization, we were confronted with goods that had much lower prices but were produced by processes about which we knew little. How we overcame that blind spot is a subject of active research. It is clear, however, that we began to think that we had entered a new era, that our earlier concerns were old-fashioned, and that we needed to let go some, if not all, of them. This moral weakening created what we now know as "negative externalities." Pollution is a prime example of negative externality. From the polluter's point of view, much of the social cost of pollution is born externally—that is, by others.

Producers do what they can to promote the public's trust in their moral character. Advertising is symptomatic. Advertising would not be necessary in a society where consumption and production were integrated. Producers also do what they can to remove ethically offensive practices from public view. Thus, smoke is collected through pipes rising high into the sky so we cannot smell it, chemical wastes are sent by underground sewers into rivers so we cannot be burned by them, and animals are killed in featureless and windowless buildings far from urban areas so we cannot see them. Finally, as producers make goods and services more complex, consumers understand them less and become more vulnerable to media advertising. Complexity is a means of concealment.

Another development in modern times that has exacerbated unethical production is the ascension of professional managers. This phenomenon, also known as "the separation of ownership and control," has contributed mightily to mass production, in both capitalistic and socialistic systems. Professional managers are fundamentally different from equity owners. Professional managers desire growth, while equity owners desire profit.

The rising dominance of professional managers has been a precipitating factor in global financial crises in recent decades. Most economists regard financial crises as a serious problem of the modern economy, and they believe that a decline in ethics among professional managers has a lot to do with it.

There are forces that have always constrained the degree to which producers can ignore ethics. First, there is strong evidence that consumers are willing to pay much less for a good that is produced by means of an unethical method. Second, according to X-efficiency and efficiency-wage theories, productivity is higher when production is ethical. When workers and investors perceive that the manager treats them ethically, workers are more productive and investors demand lower returns on investment. Revenue rises and cost declines. Thus, ethical production can be economically sustainable, while meeting the demands of ethical consumers.

Li Way Lee

See also: Behavioral Economics; Ethical Consumption

Further Reading

Akerlof, George A., and Robert J. Shiller. 2009. *Animal spirits: How human psychology drives the economy, and why it matters for global capitalism.* Princeton, NJ: Princeton Univ. Press.

Altman, Morris. 2005. Reconciling altruistic, moralistic, and ethical behavior with the rational economic agent and competitive markets. *Journal of Economic Psychology* 26: 732–57.

Berle, A. A., and G. C. Means. 1991. *The modern corporation and private property*. Reprint ed. New Brunswick, NJ: Transaction Publishers. (Orig. pub. 1932.)

Blinder, Alan S. 2013. *After the music stopped: The financial crisis, the response, and the work ahead.* New York: Penguin.

Leibenstein, Harvey. 1966. Allocative efficiency vs. x-efficiency. *American Economic Review* 56: 392–415.

Stiglitz, Joseph E. 2012. *The price of inequality: How today's divided society endangers our future*. New York: Norton.

EVOLUTIONARY ECONOMICS

Evolutionary economics is a research tradition that aims to explain dynamic socio-economic phenomena on the basis of realistic assumptions about the nature of human behaviors and institutions. This tradition goes back to the early 20th-century work of, among others, Thorstein Veblen on institutional change and Joseph Schumpeter on economic development. Modern evolutionary economics is often associated with the work of Richard Nelson and Sidney Winter, who studied innovation and economic growth by combining Schumpeter's interest in economic development with insights from the behavioral theory of the firm developed by Herbert Simon, Richard Cyert, and James March.

Modern evolutionary economics is most easily understood by contrasting it with neoclassical economics. Three distinguishing features are its behavioral assumptions; its view of organizations; and its emphasis on the dynamic, path-dependent, and historically specific nature of such economic phenomena as economic and institutional change. First, the main behavioral assumption of evolutionary economics is bounded rationality, Simon's concept to distinguish real-world human decision-makers from the hypothetical fully rational *homo economicus* of neoclassical models. Second, in contrast to the neoclassical view, in which firms are seen as unitary agents that pursue the interest of shareholders, evolutionary economics acknowledges the political dimension of organizations and considers the decisions of firms as outcomes of collective decision-making processes in which multiple interests compete and in which various forms of (coalitional) power play an important role. Third, evolutionary economics takes issue with the neoclassical tradition to capture economic phenomena in equilibrium terms. Evolutionary economics holds that the essence of theorizing about economic phenomena is not to predict outcomes under a given set of conditions at any one point in time, but to explain how economic systems are able to change themselves from within over time.

In the work of Nelson and Winter, these three characteristics result in a theory that employs a biological metaphor to model economic change. At the heart of economic change is competition between firms: a dynamic process driven by innovation and selection. Routines, understood as learned collective action patterns, are seen as the "genes" of organizations. They represent a "truce" among the stakeholders associated with the firm (they are the result of balancing conflicting interests), and they allow the members of the organization to save on cognitive resources by repeating behaviors that worked in the past. Firms compete on the basis of operating routines, and their relative profits are a feedback signal of the adaptive fit of their routines. If profits fall below aspiration levels, this will trigger innovation through higher-order "search" routines that will lead to the introduction of variations in operating routines. These variations are subjected to the selection pressures of markets. Successful variations are retained and become the new routines. In this way, successful firms adapt to changing environmental conditions through a process of variation, selection, and retention, while unsuccessful firms are selected out.

There is an ongoing debate among evolutionary economists about the specific meaning of the label "evolutionary" and the appropriate link of the field to theories of biological evolution. In this debate, the field has moved beyond Nelson and Winter's metaphorical use of biological evolution. Two approaches stand out. The first, which is relatively uncontroversial, has been labeled the "continuity hypothesis." It proceeds from the core idea of evolutionary psychology that human cognitive and social psychologies are the product of an evolutionary history of living in small-scale tribal societies. These psychologies in turn both enable and constrain the processes of cultural evolution that drive economic development. The second approach, known as "generalized Darwinism," accepts the continuity hypothesis and adds the more controversial claim that an understanding of the commonalities between biological and cultural evolution can help unravel the general logic of an evolutionary explanation, which in turn can inform better economic theories of dynamic phenomena like economic growth.

Recent work on the basis of the continuity hypothesis, either with or without also accepting generalized Darwinism, has led to a naturalistic perspective on economic behavior and institutions. This perspective links up with other behavioral work in economics (such as the work of Samuel Bowles, Ernst Fehr, Simon Gächter, Herbert Gintis, and Robert Frank) and elsewhere (evolutionary anthropology and evolutionary social psychology), and it recognizes that human behaviors ultimately must be understood in the context of gene-culture coevolutionary processes. A central theme in this work is that human behaviors are driven by both competitive and cooperative tendencies. Empirical studies of these two tendencies inform two more behavioral assumptions (in addition to bounded rationality) that deviate from neoclassical orthodoxy. The first is that, especially in cooperative situations, the majority of individuals display "bounded self-interest"; that is, rather than being purely self-regarding, many people also act on other-regarding (social) preferences. The second is that, especially in competitive situations, utility is often driven by differences among individuals: many people seem to care more about their relative payoffs than about maximizing their absolute payoffs.

Jan-Willem Stoelhorst

See also: Institutional Economics; *Vol. 3: Microeconomics:* Simon, Herbert; Veblen, Thorstein

Further Reading

Hodgson, Geoffrey M., and Thorbjørn Knudsen. 2010. *Darwin's conjecture: The search for general principles of social and economic evolution*. Chicago, IL: Univ. of Chicago Press.

Nelson, Richard R. 1995. Recent evolutionary theorizing about economic change. *Journal of Economic Literature* 33: 48–90.

Nelson, Richard R., and Stanley G. Winter. 1982. *An evolutionary theory of economic change*. Cambridge, MA: Belknap Press.

Stoelhorst, Jan-Willem, and Peter J. Richerson. 2013. A naturalistic theory of economic organization. *Journal of Economic Behavior and Organization*, 90 (Supplement): S45–56.

Witt, Ulrich. 2008. What is specific about evolutionary economics? *Journal of Evolutionary Economics* 18 (5): 547–75.

EXPERIMENTAL ECONOMICS

Experimental economics is a comparatively recent addition to the economist's toolbox. In fact, until a couple of decades ago, at a time when experimental economics was already reasonably established (Davis and Holt 1993; Friedman and Sunder 1994), standard textbooks still maintained that economics could not be an experimental science. Plott (1991) famously begged to differ, predicting that economics would in fact become an experimental science. It is hard to argue with this prediction today, given the growing number of textbooks and the growing percentage of articles in top economics journals reporting on experiments (Ellison 2013), the increasing importance of experiments in policy design, and the award of the Nobel Memorial Prize in Economic Sciences to Vernon Smith in 2002 and Al Roth in 2012. Previously, the Nobel Prize Committee had already acknowledged Reinhard Selten's experimental work (Selten 1999).

Experimental economics is the application of experimental methods to answer questions that economists ask. It seems fair to say that experimental economics started out as an undertaking mostly dedicated to testing economic theories. Today it is hard to think of any economic theory, or any economic topic for that matter, that has not been investigated with experiments. Individual decision-making, competitive and oligopolistic markets, matching markets, bargaining, auctions, political and other institutions (such as common pool resources or public good provision mechanisms), the internal dynamics of firms and other organizations, learning, and social preferences have all been studied with experimental methods. Even such macroeconomic phenomena as bubbles or bank runs are now also studied with experimental methods. Almost 20 years after its publication, the *Handbook of Experimental Economics* edited by Kagel and Roth (1995) remains an excellent read on several of these topics, while Duffy (2008) provides a substantial on macroeconomics-related experiment. Kagel and Roth's book also contains a lengthy introduction to experimental economics by Roth. (Publication information about a short version of this introduction is given in "Roth, Alvin E." under "Further Reading" at the end of this entry.) Likewise, the *Handbook of Experimental Economic Results* edited by Plott and Smith (2008) contains 115 chapters on the subject. Camerer (2003) not only reports results but also is quite careful to describe how they came about.

A distinguishing characteristic of experimental economics is its methodology (Hertwig and Ortmann 2001), which distinguishes it from other social sciences such as psychology. Experimental subjects are almost always paid on a performance basis. And the use of deception is generally not accepted. Precise scripts are considered a necessity in order to facilitate replication. Decision-making is not studied as an "as if" proposition but in laboratory representations of the problem being studied. In such representations, subjects typically are instructed to enact a particular role—such as buyer or seller or voter. These different methodological practices are not quite as innocent as they may at first appear. That's because the way one does an experiment is crucially important: different choices of particular design and implementation details can significantly affect results.

Experimental economists' methodological practices have also influenced emerging experimental efforts in finance, political science (Morton and Williams 2010), and philosophy, and they have led to fruitful reflections in other social sciences. Increasingly, experimental economists also have had to share the limelight with scholars in behavioral economics and neuroeconomics. In fact, many prominent experimental economists straddle these areas and then some.

Insights from experimental economics also inform policy design in many areas—from telecom auctions (Binmore and Klemperer 2002; Klemperer 2002); to market mechanisms that match students with schools or colleges, and interns with hospitals or high-court judges; to emissions trading schemes and various strategies to nudge people in directions that policy-makers believe improve human welfare.

Andreas Ortmann

See also: Behavioral Economics; Nobel Prize in Economics

Further Reading

Binmore, Ken, and Paul Klemperer. 2002. The biggest auction ever: The sale of the British 3G telecom licences. *Economic Journal* 112: C74–96.

Camerer, Colin. 2003. *Behavioral game theory.* Princeton, NJ: Princeton Univ. Press.

Davis, Douglas D., and Charles A. Holt. 1993. *Experimental economics.* Princeton, NJ: Princeton Univ. Press.

Duffy, John. 2008. Macroeconomics: A survey of laboratory research. http://www2.econ.iastate.edu/tesfatsi/LaboratoryMacroeconomics.JDuffy2008.pdf (accessed August 5, 2016).

Ellison, G. 2013. How does the market use citation data? The Hirsch index in economics. *American Economic Journal: Applied Economics* 5: 63–90.

Friedman, Daniel, and Shyam Sunder. 1994. *Experimental methods: A primer for economists.* Cambridge, UK: Cambridge Univ. Press.

Hertwig, Ralph, and Andreas Ortmann. 2001. Experimental practices in economics: A challenge for psychologists? *Behavioral and Brain Sciences* 24: 383–403.

Kagel, John H., and Alvin E. Roth. 1995. *Handbook of experimental economics.* Princeton, NJ: Princeton Univ. Press.

Klemperer, Paul. 2002. How (not) to run auctions: The European 3G telecom auctions. *European Economic Review* 46: 829–45.

Morton, Rebecca B., and Kenneth C. Williams. 2010. *Experimental political science and the study of causality.* New York: Cambridge Univ. Press.

Plott, Charles R. 1991. Will economics become an experimental science? *Southern Economics Journal* 57: 901–19.

Plott, Charles R., and V. L. Smith, eds. 2008. *Handbook of experimental economic results*. Vol. 1. Handbooks in Economics Series. Amsterdam: Elsevier North-Holland.

Roth, Alvin E. 1993. On the early history of experimental economics. *Journal of the History of Economic Thought* 15:184–209.

Selten, Reinhard. 1999. *Game theory and economic behaviour*. Vols. 1 and 2. Cheltenham-Northampton, UK: Edward Elgar.

F

FACTORS OF PRODUCTION

Factors of production are resources used to produce goods or services, and they are often called productive resources. The three main factors of production are natural resources, human resources, and capital goods. Some economists list entrepreneurship as a fourth factor of production. At the microeconomic level, firms use the factors of production to produce goods efficiently and profitably. At the macroeconomic level, national output, employment, and sustainable economic development are heavily dependent on the efficient use of society's productive resources. The factors of production are unevenly distributed in the global economy.

Natural resources are the gifts of nature used in production. Natural resources include minerals such as bauxite, uranium, and nickel; primary energy sources such as oil, natural gas, and coal; water bodies such as oceans, rivers, and lakes; wildlife such as animals, fish, and insects; natural vegetation such as forests and plants; and naturally occurring forces such as wind and sunlight. Natural resources provide many of the raw materials needed to produce goods and services. Some nations, such as the United States, are well-endowed with a wide variety of such natural resources as mineral deposits, navigable rivers, and arable land. Other nations may be rich in a single resource, such as oil or timber. Still others lack essential natural resources. Resource-poor Japan acquires natural resources through international trade and foreign direct investment, but poorer, land-locked countries have limited access to essential natural resources.

Human resources are people who are engaged in production. Human resources include assembly line workers, miners, and contractors in the goods-producing sector; teachers, doctors, and engineers in the services-producing sector; and farmers, loggers, and ranchers in the agricultural sector. Education, training, apprenticeships, and other investments in human resources create a skilled workforce, often referred to as human capital. Human capital development increases the productivity of labor. The advanced economies finance comprehensive public education, and they support higher education and worker training programs to create human capital. The emerging market and developing countries value human capital, but they have fewer resources to support its development. In addition, the dearth of financial incentives, uncertain property rights, and low quality of life contribute to a "brain drain" in many poorer countries. This *brain drain*, or a migration of professionals and other skilled workers from poorer nations to greener pastures in richer countries, depletes the stock of human capital in poorer regions.

Capital goods are items used to produce other products, rather than to satisfy an immediate consumption need. Capital goods include bulldozers, cement mixers, and automated assembly lines in the goods-producing sector; communications satellites, subway trains, and engineering design software in the services-producing sector; and mechanical harvesters, fishing boats, and fertilizers in the agricultural sector. Investment in new capital goods is a prerequisite for capital formation, the increase in a nation's capital stock. In the advanced economies, capital formation has sharpened their competitive edge over other emerging market and developing economies. For instance, U.S. investment in information processing equipment, such as computers and software, has improved the product quality in information technology (IT) firms.

Sophisticated IT also increased the productivity and connectivity of firms that are using this technology. Similarly, capital formation in the newly industrialized economies (NIEs)—including Chinese Taipei, the Hong Kong SAR, Singapore, and South Korea—accelerated their economic development over the past several decades. Low domestic savings, poorly developed capital markets, and capital flight slowed capital formation in many poorer nations.

Entrepreneurship is the process of transforming innovative business ideas into viable commercial enterprises. Entrepreneurs develop new products, production methods, or business ventures. Entrepreneurship is often considered a fourth factor of production, joining natural resources, human resources, and capital goods. Entrepreneurial activity involves risk-taking, as well as a visionary zeal to succeed. Entrepreneurs like Thomas A. Edison and Henry Ford helped create the modern industrial age. Similarly, Steven Jobs, cofounder of Apple Computer, and Bill Gates of Microsoft fame, helped jump-start a global information revolution.

The widely respected *Global Entrepreneurship Monitor 2003* (*GEM 2003*) makes a compelling link between entrepreneurship, business and jobs creation, and economic growth. *GEM 2003* also concluded that entrepreneurship supported economic development in all classifications of countries: low-income, middle-income, and high-income.

David E. O'Connor

See also: Command Economy; Economic Growth; Entrepreneurship; *Vol. 2: Macroeconomics:* Energy Policy; *Vol. 4: Global Economics:* Brain Drain; Development Economics; Sustainable Economic Development

Further Reading

Hartman, Laura P., Denis G. Arnold, and Richard E. Wokutch, eds. 2003. *Rising above sweatshops: Innovative approaches to global labor challenges.* Westport, CT: Praeger.

Ito, Takatoshi, and Andrew K. Rose, eds. 2004. *Growth and productivity in East Asia.* Chicago, IL: Univ. of Chicago Press.

Marquardt, Michael J. 2000. *Advances in developing human resources: Developing human resources in the global economy.* San Francisco, CA: Berrett-Koehler.

Reynolds, Paul D., William D. Bygrave, and Erkko Autio. 2003. *GEM 2003 global report.* Babson Park, MA: Babson College and the London Business School.

World Resources Institute. 2003. *World resources 2002–2004: Decisions for the earth.* Washington, DC: WRI, United Nations Development Program, United Nations Environment Program, World Bank.
Worldwatch Institute. 2004. *State of the world: 2004.* New York: Norton.

FASCISM

Fascism is a term coined by Benito Mussolini in 1919 when he organized veterans and other Italians into the Fascist Party. He took the name from the Latin word *fasces*, which means "a bundle of sticks wrapped around an ax." In ancient Rome, the fasces symbolized unity and authority. Historians still debate the real nature of Mussolini's philosophy and intent. In the 1920s and 1930s, fascism meant different things in different countries. Today, we generally use the term *fascism* to describe any centralized, authoritarian government that is not communist and whose policies put emphasis on the state over the individual. People today also use the term to describe actions of nations that are destructive to basic human rights.

Shared Characteristics of Fascism

All forms of fascism, whether past or present, share some basic features. They are all rooted in extreme nationalism. Fascists glorify action, violence, discipline, and, above all, blind loyalty to one's nation. Fascists also pursue aggressive foreign expansion and glorify warfare as a noble cause for survival. The political theory of fascism is antidemocratic. It rejects faith in reason and the democratic concepts of equality and liberty.

From the perspective of fascism, democracy leads to corruption and weakness. Fascists also believe that national goals should always be put before individual goals and class interests. Supremacy of the state is a main priority of fascism. Another common feature is a single-party dictatorship with full obedience to a single leader. Full control of the economy should be in the hands of the state, and the use of spies and terror to enforce the will of the state is common.

A further common characteristic of fascism worldwide occurs through government use of the media, which the government has control over; the government uses the media to disseminate propaganda to persuade and mobilize citizens. The use of schools and youth organizations to spread ideology to children and the strict censorship of artists and intellectuals who have dissenting opinions are also features of fascism. Finally, fascism supports a society with defined classes, not the ideal of equality for all that is found in communism.

Historical Background of Fascism

The Italian Fascist party was created in 1919, and within it, Benito Mussolini rose quickly to power. In 1922 King Victor Emmanuel III asked him to form a government as prime minister, and so he obtained a nominally legal, constitutional appointment to lead Italy.

At first, fascists held only a few cabinet posts in the new government. However, by 1925, Mussolini has assumed more power and taken the title of *Il Duce*, "The Leader." Under Mussolini's rule, rival parties were suppressed, the press was muzzled, elections were rigged, and elected officials were replaced with Fascist supporters. In theory, Italy remained a parliamentary monarchy, but in fact it was a dictatorship upheld by terror. Critics were thrown in prison, forced into exile, or murdered.

To spur economic growth in Italy and end conflicts between business owners and workers, Mussolini brought the economy under government control. Under Mussolini's economic state structure, representatives of business, labor, government, and the Fascist party controlled industry, agriculture, and trade. Mussolini's system favored the upper classes and industrial leaders. Although production increased, success came at the expense of the workers. Workers were forbidden to strike, and their wages were kept low.

In Mussolini's new system, loyalty to the state replaced conflicting individual goals. To Fascists, the glorious state was all-important, and the individual was unimportant except as a member of the state. Men, women, and children were bombarded with propaganda glorifying the state and Mussolini. Men were urged to be ruthless, selfless warriors fighting for the glory of Italy. Women were pushed out of paying jobs and called upon to "win the battle of motherhood." Those who bore more than 14 children were given a medal by Mussolini himself.

Another of Mussolini's major goals was to mold the minds of the children. Fascist youth groups toughened children and taught them to obey strict military discipline. Boys and girls marched in torchlight parades, singing patriotic hymns and chanting "Mussolini is always right." By the 1930s, a generation of young soldiers stood ready to back Mussolini's drive to expand Italian power.

In addition to Mussolini's reign in Italy, fascism spread throughout Europe in the 1920s and 1930s. Even though the types of fascism may have varied a bit, the primary fundamental characters still remained in such places as Germany under the rule of Adolf Hitler (1933–1945) and Spain under Francisco Franco (1939–1975). Even Japan fostered fascist beliefs in the uniqueness of the Japanese spirit, and from 1936 to 1945 its government taught subordination to the state and personal sacrifice.

Fascism in Spain under the dictatorship of Francisco Franco (1939–1975) was a unique example of how fascism can fluctuate in its characteristics. One of Franco's first actions as leader was to kill or imprison thousands of Loyalist Party members; this was the political party in Spain that wished to preserve the republican government. Spain, much like Italy, was ruled as a strict fascist state until after World War II. After World War II, Spain became anticommunist and aligned with the United States. Even though independent political parties and trade unions continued to be banned, by the late 1950s pressure for economic stabilization forced Spain to open its doors for massive foreign investments, thus loosening some government control. With foreign influences pouring in, social and ideological influences from the West soon followed. This gradual change of beliefs and the simultaneous economic windfall led to extraordinarily rapid economic growth and a less strict form of fascism.

The Appeal of Fascism

Given its strong restrictions on individual freedoms, the reason fascism appealed to so many Italians and Germans was its promise of a strong, stable government and an end to the political conflicts that had crippled democracy in Italy and brought economic crisis in Germany. Mussolini's image was of a strong, confident and powerful leader in a time of disorder and despair. His unmatched nationalism also was a source of rekindled national pride.

Much like Mussolini, Adolf Hitler relied on the economic crisis of Germany during the Great Depression and his powerful speaking ability to influence the German population to believe in this fascist ideology. As unemployment rose throughout Germany and a financial crisis spread due to Germany's massive World War I debt, Hitler promised to end reparations, create jobs, and defy the Treaty of Versailles. His primary focus was on creating a great, united nation that must expand for its people. He appealed to nationalism by recalling past glories, and he boasted of a master race that would dominate Europe for a thousand years.

Whether in Italy, Spain, or Germany, the nationalism and patriotism of fascism partnered with a strong, driven, influential leader who promised people he would make their nation the greatest in the world. This made the ideology of fascism very appealing to those in need and hopeful for change.

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See also: Economic History; Marx, Karl; Socialism

Further Reading

Ellis, Elisabeth Gaynor, and Anthony Esler. 2007. *World history*. New York: Pearson/Prentice Hall.

Payne, Stanley G. 1996. *A history of fascism, 1914–1945*. Madison: Univ. of Wisconsin Press.

Richman, Sheldon. 2008. Fascism. In *The concise encyclopedia of economics*. Library of Economics and Liberty. www.Econlib.org/library/Enc/Fascism.html (accessed November 30, 2016).

FEMINISM AND BEHAVIORAL ECONOMICS

Feminists and behavioral economists have common interests, and they have made long-standing research contributions in power, fairness, altruism, trust, and institutions. However, only a small existing literature explicitly draws on both feminist and behavioral approaches to economics. Part of this literature links gender with different levels of risk aversion, often in the context of research on pension fund membership and accumulations. A further part identifies future research agendas that combine insights from both feminist and behavioral approaches. Achieving a closer integration of feminist and behavioral economics will involve more than simply "adding women" to existing studies in behavioral economics. It will require critical observation and concern for behaviors and outcomes that are defined by women as relevant to their social and economic experiences.

Risk aversion as a sex-linked trait is commonly inferred from lottery experiments and pension fund studies showing statistically significant gender differences in specific decisions and behavior. The conclusions have been challenged by feminist economists, who argue that inferences are likely to reflect the researchers' own (tacit and perhaps culturally-specific) beliefs about the underlying natures of men and women. While feminist economists do not deny differences between men and women, they emphasize the need to explore a range of possible explanations for observed differences in behavior by sex, including pressure to conform to prescribed social roles or relative positions in hierarchies. Feminist economists also emphasize the harm that can be caused by the perpetuation of false stereotypes about men and women.

Behavioral approaches that emphasize the importance of social categories and prototypes in economic decision-making will be an important area of future research overlap for feminist and behavioral economists. Kahneman's work on intuition is relevant to findings and interpretations of gender and risk aversion, in addition to a range of other phenomena. He argues that the mention of a familiar social category will increase the accessibility of the traits associated with the category stereotype, many of which have a gender dimension. Kahneman also emphasizes the influence of social structures and contextual factors on decision-making. This accords with feminist perspectives that highlight the role of social institutions in shaping men and women's "preferences" and in defining their feasible behaviors. Gender prototypes influence voting patterns, the perceptions of likely success in "masculine" or "feminine" tasks, and employment selection. Reskin shows how cognitive processes cause people to constantly categorize individuals and attribute to them certain stereotypical behaviors. Thus, while our conscious self may find discrimination abhorrent, our unconscious mind may attach specific behaviors to individuals because we identify them as part of a particular group or category. As a result, we may think and ultimately act in ways that privilege some individuals and disadvantage others.

Behavioral approaches to studying motivations other than material self-interest will be a further important area of research overlap between feminist and behavioral economists. Emerging research on altruism and reciprocity may contribute to studies of women's disproportionate involvement in paid and unpaid care roles and the poor material rewards for the performance of these roles. Thus far, rational behavioral choice theory has mostly been applied to social and economic experiences that appear relevant for large numbers of men, such as the fairness of wage relativities in internal labor markets. In comparison, issues and activities that are relatively more important to women, such as the wage gaps between caring and other types of paid work, have received little attention. Given that caring situations are characterized by a relatedness between care giver and care receiver participants, by an asymmetry between these participants, by dependence on the part of care recipients in particular, and by the importance of inherent power structures, it is likely that feminist economists will use theoretical approaches other than rational behavioral choice theory to examine issues of motivation and reward for large groups of women.

Siobhan Austen
Therese Jefferson

See also: Behavioral Economics; Intuition and Decision-Making; *Vol. 3: Microeconomics:* Kahneman, Daniel

Further Reading

England, Paula. 1993. The separative self: Androcentric bias in neoclassical assumptions. In *Beyond economic man*, ed. Marianne Ferber and Julie A. Nelson, 37–53. Chicago, IL: Univ. of Chicago Press.

Harding, Sandra. 1987. Introduction: Is there a feminist method? In *Feminism and methodology*, ed. Sandra Harding, 1–14. Bloomington: Indiana Univ. Press.

Kahneman, Daniel. 2003. A perspective on judgement and choice: Mapping bounded rationality. *American Psychologist* 58: 697–720.

Nelson, Julie A. 2012. Are women really more risk averse than men? Working Paper 12-05. Global Development and Environment Institute, Tufts University. http://www.ase.tufts.edu/gdae/Pubs/wp/12-05NelsonRiskAverse.pdf (accessed November 30, 2016).

Reskin, Barbara. 2003. Rethinking employment discrimination and its remedies. In *The new economic sociology*, ed. Mauro Guillen, Randall Collins, Paula England, and Marshall Meyer, 218–44. New York: Russell Sage.

FINANCIAL LITERACY

Financial literacy—alternatively referred to as financial education or financial capability—analyzes several issues related to money management in different settings, such as savings, loans, budgets, investment, planning, and pensions.

Among the general goals of this process are understanding consumer financial decision-making; improving consumer education, awareness, and transparency of financial services; helping consumers make informed decisions about their finances and raise their financial capability; making financial matters understandable to the general public; and developing the capability of ordinary people to make risky financial decisions.

Although some countries—like the U.K., which launched the world's first comprehensive national strategy early in 2000s—have already delved into issues related to financial literacy, the issue has gained relevance and visibility mainly after the economic and financial crisis of 2008. The crisis and the efforts that governments carried out to cope with it have raised the question of whether that financial crisis could have been prevented or mitigated if people had been better informed about financial topics and, in particular, about risks.

Several challenges must be tackled by financial literacy, two of which are key. First, most people tend to believe they know more than they do about financial matters, and therefore they believe they do not need further knowledge in this domain. The focus here would be to convince this target audience that they need and would benefit from financial education, and then to design and effectively deliver that financial education. A more challenging task is to change the financial and economic behavior as a result of programs. Also of consequence is to improve the information available to individuals and improve their ability to understand this information, facilitating improvements in financial decision-making.

There has been intense debate around the efficacy of financial education programs. Some experts argue that the process ought to begin at childhood, while others claim that goals such as educating, raising awareness, and empowering large audiences are doomed to failure. To the latter group, offering technical information on finance would stop short of effectively helping people handle their money in a way that is more beneficial to themselves. Information might go as far as changing beliefs, values, attitudes and intentions—but not necessarily to changing behavior, with a great distance lying between intentions and actions.

With behavior quickly becoming the key element in the financial education agenda, economic psychology and behavioral economics have been called on to participate in this debate and in the design of programs and policies. Researchers in these disciplines, along with behavioral finance, with input from neuroeconomics, have been investigating economic behavior and decision-making for decades and have already accumulated a significant body of pertinent findings. Contrary to traditional economics, our choices and behavior are not always consistent; they can be strongly influenced by any of the following: mood, emotions, irrelevant details in the environment, the framing of information, excessive confidence and optimism, loss aversion, relatively heavy discounting of future income earlier in one's economic life cycle (hyperbolic discounting), poor or inaccurate information, and inadequate capabilities to process and understand available information. This results in errors in decision-making.

These decision-making characteristics need be recognized in the design of any financial literacy programs. Moreover, programs should be designed for each specific target audience. Testing strategies and programs with samples is ideal to further evaluate their efficacy before increasing their scale, with the researchers bearing in mind the decision-making insights from economic psychology and behavioral economics. Some scholars suggest using choice architecture and nudges, instead of expensive programs, to help people to make the choices they consider best. However, the researchers have trouble accomplishing it due to psychological and context limitations. Also recommended are improvements in the quality of the information that is made available to decision-makers.

Vera Rita de Mello Ferreira

See also: Asset Allocation; Behavioral Finance; Economic Psychology; *Vol. 3: Microeconomics:* Pension Plans

Further Reading

Altman, Morris. 2012. Implications of behavioural economics for financial literacy and public policy. *Journal of Socio-Economics* 41: 677–90.

Beshears, John, James Choi, David Laibson, Brigitte Madrian, and Brian Weller. 2008. Public policy and saving for retirement: The "autosave" features of the pension protection act of 2006. In *Better Living Through Economics*, ed. John Seigfried, 274–90. Cambridge, MA: Harvard Univ. Press.

Ferreira, Vera R., Iran Siqueira M. Lima, Laura Coutinho, and Heloisa Padilha. 2011. Financial education—Can economic psychology and behavioral economics help to

improve it? In *Improving financial education efficiency*: *OECD-Bank of Italy symposium on financial literacy*, 103–120. Paris: OECD Publishing.
Ferreira, Vera R. M. 2012. Can we be de-biased? Economic psychology and financial education. In *Teaching Personal Financial Education*, ed. Gary Jaeckel, 117–26. Centennial, CO: Foundation for Teaching Personal Financial Education.
Finanzgruppe Sparkassenstiftung für internationale Kooperation. 2007. Financial literacy—A comparative study in selected countries. http://www.sparkassenstiftung.de/uploads/media/Financial_Literacy_Study_01.pdf (accessed March 24, 2013).
Hastings, Justine S., Brigitte C. Madrian, and William L. Skimmyhorn. 2013. Financial literacy, financial education, and economic outcomes. *Annual Review of Economics* 5: 347–73.
Kahneman, Daniel. 2011. *Thinking, fast and slow*. New York: Farrar, Straus & Giroux.
Madrian, Brigitte C., David Laibson, and Choi, James. 2005. Are empowerment and education enough? Underdiversification in 401(k) plans. *Brookings Papers on Economic Activity* 2: 151–98.
Thaler, Richard, and Cass Sunstein. 2008. *Nudge—Improving decisions about health, wealth and happiness*. New Haven, CT/London: Yale Univ. Press.

FORD, HENRY

Born: July 30, 1863, in Dearborn, Michigan; Died: April 7, 1947, in Dearborn, Michigan; Nationality: American; Professional Interests: U.S. industrialist whose automobile manufacturing techniques included the assembly line, specialization, and division of labor.

Henry Ford had an innovative engineering mind even early in his career. He used this gift to perfect the assembly line and create a company that has stood the test of time. Another Ford contribution to the economy was strengthening the middle-class through higher wages. This increase in pay benefitted Ford's own company as well as others by mobilizing America.

Henry Ford was born on July 30, 1863, near Dearborn, Michigan. Raised on a successful farm, he was constantly intrigued not by the fields or horses of farm life but by watches, specifically the mechanism of a watch. When Henry was 13, he had his first exposure to a portable steam engine. The idea of a self-propelled object stuck with Ford for the rest of his life. This intense interest in machinery is what spurred him to live a life full of learning and perfecting. At age 33, he had become the chief engineer at the Illuminating Company, creating the Quadricycle. His Quadricycle was a fulfillment of his dream to build a machine that would move itself. By 1906, he started the Ford Motor Company.

Before the Ford Motor Company opened its doors, automobiles were made one at a time, which meant they were very expensive and only the wealthy could afford them. The Ford Motor Company did not invent the automobile, but it was the first to introduce an affordable car to the ordinary wage earner. The assembly line was just one factor that made Henry Ford's vehicles more accessible to a wider group of people. Ford's assembly line was a moving belt upon which a worker would complete a specific task as the body of a car came to him, resulting in increased production. The assembly line also required less-skilled workers. Thus, regardless of skill level, any person could be hired, given a specific task, and earn a decent wage with essentially no skills.

This sounded fine, but because the tasks were extremely repetitive they quickly became tiresome. Ford's solution was to create an irrefutable incentive for workers. He upped the pay to five dollars a day. This was more than double the average factory salary in 1914. People were now eager to work for Ford, despite the monotonous labor.

With an extremely efficient moving assembly line, and workers who were eager to do the job, Ford was able to produce 9,000 Model Ts a day. At the height of the Model T's production, a car was completed every 24 seconds. Ford focused on mass-producing this model, because he wanted his automobile to be affordable enough for his employees to be able to own one. He was once quoted as saying, "One's own employees ought to be one's own best customers."

This way of thinking was a huge change; with their increased wages, the working class grew. By increasing his workers' pay, in the end Ford made more money for himself: His workers could turn around and put the extra money they were making at the factory right back into the factory by purchasing their very own Tin Lizzy. The mass production of the Model T also drove the price down. In 1922, a person could purchase this vehicle for only $269 and have the same car as half of all other cars in the United States.

Henry Ford transformed the automobile and the automobile industry from a luxury good enjoyed only by the wealthy into an integral part of the American life. Ford was not the only one benefitting from his mobilization of America. Because they now had a means of easily transporting themselves longer distances, people spent more money at places they could travel to, such as restaurants or other businesses. This increase of consumer spending helped the economy further by creating a stronger tourist industry. People also needed fuel to fun their cars and roads on which to reach their destinations; the roads and gas stations needed to satisfy these needs created even more jobs.

Henry Ford left his mark on America by making it more mobile. He helped strengthen the middle class by paying livable wages that would benefit not only his company, but also the entire economy.

Henry Ford died from a stroke April 7, 1947, in Dearborn, Michigan.

David A. Dieterle

See also: Entrepreneurship; Industrial Revolution; *Vol. 3: Microeconomics:* Business Structures

Further Reading

Bryan, Ford R. 2003. The birth of Ford motor company. Henry Ford Heritage Association. http://hfha.org/the-ford-story/the-birth-of-ford-motor-company/ (accessed October 25, 2015).

Leonhardt, D. 2006. The economics of Henry Ford may be passé. *New York Times*, April 5. www.nytimes.com/2006/04/05/business/05leonhardt.html?_r=0 (accessed October 25, 2015).

Olson, Sidney. 2015. *Young Henry Ford: A picture history of the first forty years.* Detroit, MI: Wayne State Univ. Press.

Stanford, S. n.d. Henry Ford—An impact felt. Henry Ford Heritage Association. hfha.org/the-ford-story/henry-ford-an-impact-felt/ (accessed October 25, 2015).

FORECASTING AND MODELING

Forecasting is making a hypothetical claim about the future. It is a common human behavior that can be observed at every level of society. For example, a senior in high school may use job-growth statistics to determine which occupation to pursue. A firm may determine the level of production by forecasting the demand for its product. Political candidates forecast the outcome of an election based on polls and surveys. As such, forecasting varies in complexity. *Modeling* is simply a tool used to test or measure the forecast. Forecasting and modeling are important instruments that economists used to measure developments in an economy.

There are two different approaches to economic forecasting: quantitative and qualitative. However, both are used to predict or estimate events in the future. The rudimentary difference between quantitative forecasting and qualitative forecasting is the research method (the way in which data is measured) and data collection. Quantitative forecasting generates a predicted outcome based on historical, mathematical, and statistical data. For example, economists may quantify data to present the correlation between greater financial income and higher education. Qualitative forecasting generates a predicted outcome based on opinion, judgments, or expertise.

Before economists can engage in forecasting and develop an economic model, they are faced with two truisms. First, life is uncertain. Economists do not have the luxury of using a crystal ball to predict the future. Second, life is nonstationary: it changes over time. Individuals are constantly making decisions. These two points limit or constrain forecasting. As a result, economic forecasting is based on two key assumptions: representation and stability. The economic model should be an accurate characterization of the economy being measured, and the economic framework must be comparatively stable. The objective of every economic model is to have its outcome match its forecast. For an economist to make valid forecasts, the variables, math, economic models, and other collected data types used must be credible. In addition, the data must be closely measured. Otherwise, the forecast may be deemed inadequate and irrelevant.

Forecasting models are mainly generated in universities, financial institutions, government committees, and think tanks. There are a number of types of forecasting tools, including guessing, expert judgment, extrapolation, indicators, surveys, time series models, and econometrics. Additionally, economists use past relationships—such as consumer spending, household income, tax rates, interest rates, or employment—as variables. They then try to forecast how changes in some variables will affect the future course of others. A forecast tool widely used by economists is the time-series model. The *time series model* is a sequence of observations over time. Historical patterns are analyzed to forecast the future; the goal is to predict, within reason, how the sequence of observations will continue to behave. Examples of time series models are the price of a stock over successive days, a company's annual profits, and a department's quarterly sales.

Adam Vallus

See also: Economic Growth; *Vol. 2: Macroeconomics:* Macroeconomics; *Vol. 3: Microeconomics:* Microeconomics

Further Reading

Arsham, Hossein. 1994. Modeling financial time series. In Chapter 7: Modeling financial and economics time series. *Time-critical decision making for business administration.* http://home.ubalt.edu/ntsbarsh/business-stat/stat-data/forecast.htm#rmodelFinTime (accessed March 31, 2015).

Hymans, Saul H. 2015. Forecasting and econometric models. In *The concise encyclopedia of economics*, ed. David R. Henderson. Library of Economics and Liberty. http://www.econlib.org/library/Enc/ForecastingandEconometricModels.html (accessed March 31, 2015).

Joutz, Frederick L. 2006. Econometric forecasting models. Middle Atlantic Actuarial Club, 2006 Annual Meeting, Baltimore. http://www.gwu.edu/~forcpgm/present1.pdf (accessed March 31, 2015).

Kunst, Robert M. n.d. Five forecasts using econometric models. http://homepage.univie.ac.at/robert.kunst/prognos5.pdf (accessed March 31, 2015).

Stock, James H. 1999. Forecasting economic times series. http://www.eco.uc3m.es/~jgonzalo/teaching/timeseriesMA/forecastingsurvey.pdf (accessed March 31, 2015).

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GOLD RUSH BOOM AND BUST, 1848

The California Gold Rush saw a mania similar to that seen in bank panics, but it proved more deadly. The Gold Rush created a regional economic boom—featuring high inflation, acute shortages, crime, city fires, and disease—that would eventually burst with a regional bank panic.

On January 24, 1848, James Marshall discovered about 50 cents worth of gold near Coloma, California. This small nugget would eventually lead to the discovery of almost $970 million in gold. The rumors of a major gold find spread across the United States, but it was not until President James Polk announced the discovery in his inaugural speech that waves of would-be miners headed for California. Polk had hoped the gold found in California would replace the gold drained from the United States Treasury by the U.S. war with Mexico. The costs of the war had started to pull the country into recession, because banks lacked the gold reserves needed to expand credit. Polk also hoped to justify the cost of the Mexican–American War (1846–1848), which secured California for the United States, by the great gold resources mined from the new state. Some 85,000 "forty-niners" would rush to California in 1849, overwhelming cities such as San Francisco.

The Gold Rush of the late 1840s encouraged hopeful miners with their supplies to travel from the East Coast to San Francisco. Most ships took six to eight months to make the journey, but faster, more expensive clipper ships were the favorite mode of transportation. The clipper voyage took 90 days around Cape Horn, or about half the time of other vessels. At $300 (the equivalent of about $8,000 today), one-way travel for the 18,000-mile trip from the East Coast to San Francisco was not cheap. The other available transportation was by pack or wagon train, which was much cheaper but took six months. These trips cost about $200, which included the cost of a wagon and supplies. However, these trips had their own problems, such as major cholera outbreaks at wagon assembly points like St. Louis. In 1849, more than 1,500 people died of cholera in Sacramento alone.

The fastest (and most dangerous) way to travel to California was to take a ship to Panama, cross 30 miles of Panamanian jungle, and take a second ship to California. This cut 10,000 miles out of the trip around Cape Horn, but the cost was as much as $1,500, and thousands died in the jungles of Panama. Those who survived often brought disease with them to the cities of the West Coast.

As hopeful miners poured into California, prices on everyday necessities increased tenfold. Flour had to be shipped from the East Coast, where it cost $5 barrel; in California that same barrel of flour could cost as much as $50. The clipper business created an economic boom in New England and New York. Profits were so high that the investment that went into building a clipper ship was paid off in less than one year. The clipper trade in and out of California replaced the old triangular trade of the East Coast in profitability. Brandy, whiskey, and other agricultural products were shipped to China from San Francisco. Spices, coffee, and tea from the Far East were carried back to California and were welcome products for the mining camps. Clippers also brought Chinese laborers to San Francisco to help build the railroads and to provide cheap labor. Clippers also found a good business in moving the British to Australia and New Zealand and returning to California with much-needed lumber and wool.

Although some miners did strike it rich, most could barely meet their expenses because of the wild inflation in the prices of goods. Within a year, lumber went from four cents a board foot to more than a dollar. Wages for general work and construction labor soared from $1 a day to $20 a day; by comparison wages on the East Coast were around 50 cents a day. The high cost of labor fueled the use of cheaper Chinese laborers. Small building lots in San Francisco went from $30 to thousands of dollars in a few months. Rent for small rooms in large dorms went from $37 a week to $42 a week. Private mail companies charged as much as $16 a letter. A miner's pick cost $10, a simple shirt was $20, and eggs cost $10 a dozen. Miners put their underwear on ships to Hawaii, where it was cheaper to get it laundered.

The high prices in California and its gold fields spawned the rubber industry in New England, as rubberized clothing, belts, boats, pontoons, tents, and hoses were essential to the miners. The Union India Rubber Company was formed in New York with a factory in Naugatuck, Connecticut, to supply and equip thousands of forty-niners going west for gold. Clipper ships carried rubberized products to the miners of the West Coast, so ports in New York and New England became the logical locations to make rubber products. The Union India Rubber Company also established its own major retail stores in California to cater to these gold miners. Rubberized cloth for tents and blankets sold at high premiums.

Social problems soared in the main cities in California. One merchant made a fortune shipping in stray cats and selling them at $10 apiece to control rats. By 1852, merchants were selling goods at 20 times the East Coast prices. At mining camps, prices ran as high as the market would bear. Shortages of necessities were common. Saloons and gambling houses took the miners' money faster than they could mine or pan gold. New England rum sold for $20 a bottle, and a shot glass of cheap whiskey cost $1. Nativists and local politicians imposed a $20 tax on foreign and immigrant miners.

San Francisco's economy enjoyed the boom, but the city was regularly hit by major fires, and the destruction of city blocks was common. Oddly, the fires actually helped limit the deaths from cholera by destroying the breeding places for the disease. Crime was out of control, and the city lacked the police force do anything but watch. Neighborhoods formed their own vigilante groups to protect life and property. Lynchings were common.

By 1855, the great Gold Rush was over. The fields had been worked to the point that small miners could not even hope to pay their expenses. Merchants went bankrupt after becoming rich. Several banks failed. Many of the miners moved on to gold rushes in Nevada, Colorado, and Alaska. The mini boom–bust cycle would be repeated throughout the West over the next few decades. The end of the California Gold Rush brought an economic downturn in New England, as trade declined and merchants lost their most profitable business. In the emerging rubber industry, many companies went bankrupt, unable to find the needed profit margins in other markets.

Quentin R. Skrabec Jr.

See also: *Vol. 2: Macroeconomics:* Gold Standard; *Vol. 4: Global Economics:* British Panic, 1825

Further Reading

Johnson, William Weber. 1974. *The forty-niners.* Alexandria, VA: Time-Life Books.
McNeer, May. 1950. *The California gold rush.* New York: Random House.

GOLDEN RULE AND BEHAVIORAL ECONOMICS

One important finding in game theory is that rational or smart people with common knowledge and expectations of another individual's preferences will behave strategically such that a Prisoner's Dilemma outcome arises—the worst possible outcome for both individuals. In the original manifestation of this narrative, two individuals are arrested for a crime and interrogated in separated rooms. There is no communication between these two people. If no one confesses, both individuals are sent to prison for a short time, given the evidence. If both persons confess, they each receive a lengthy sentence. In one person confesses and the other does not, the silent one gets the shortest possible sentence or is released, while the other person gets the longest possible sentence. If the first person anticipates that the second person will confess, it is in the first person's interest to confess, because if the first person does not confess and the second person does, the first person will end up with the worst possible outcome. Rational strategic behavior results in the worst possible outcome given common knowledge of the other's behavior and no communication. Moreover, this Prisoner's Dilemma outcome is considered to be a stable equilibrium outcome.

This modeling can be imported into the realm of production. When groups of firm members such as workers and management are characterized by conflicting preferences, this can result in a Prisoner's Dilemma solution to the productivity problem yielding a minimal level of productivity and high level of X-inefficiency. If workers and managers maximize their efforts in a cooperative fashion, in the interest of the firm's productivity, firm productivity is maximized. This is sometimes referred to as the Golden Rule outcome. This occurs when workers and firm managers and owners treat each other as they each would want to be treated, bounded by the constraints of remaining competitive and earning normal profits. On the other hand, if workers and managers each minimize their effort inputs in a narrowly self-interested manner, hoping that the other party will maximize their effort inputs, one arrives at a Prisoner's Dilemma, with X-efficiency and productivity being minimized.

In this productivity narrative, unlike in the traditional Prisoner's Dilemma game, the different members of the firm can communicate with each other. But the Prisoner's Dilemma arises because the parties do not trust each other to maximize their effort inputs. Only joint effort maximization results in a Golden Rule productivity and X-efficient outcomes. In this narrative, economic incentives and behavioral norms and conventions determine whether a Prisoner's Dilemma outcome arises and to what extent it arises. Appropriate incentives and behavioral norms or conventions can resolve the Prisoner's Dilemma problem.

Unions, for example, can serve to enforce conventions that result in X-efficient behavior, providing workers with a trust mechanism in larger firms and providing managers with an efficient means to monitor and achieve X-efficiency among workers. Worker cooperatives have the same effect. So can norms of fairness and trust among firm members. Critical to achieving Golden Rule solutions are such incentives as higher wages and/or competitive pressures. If workers feel they are treated poorly, they will not produce X-efficiently. Also, if managers or firm owners see no benefit from increasing the level of X-efficiency—if all benefits accrue to workers—they might oppose the mechanisms that would achieve Golden Rule outcomes. It is possible for the Golden Rule option to generate the same benefits to managers and owners as the Prisoner's Dilemma option does. But even if managers and owners don't benefit from increasing X-efficiency in production, this Golden Rule can still be achieved if their preferences include improvements to the well-being of their employees or if higher wages are constraints that must be overcome, by increasing the level of X-efficiency for the firm to remain competitive. But in the absence of appropriate incentives, norms, and conventions, given the absence of trust among firm members or groups of members, a Prisoner's Dilemma is the natural consequence of strategic behavior among rational individuals.

Morris Altman

See also: Prisoner's Dilemma; *Vol. 3: Microeconomics:* Game Theory; Nash, John; Nash Equilibrium

Further Reading

Altman, Morris. 2006. What a difference an assumption makes: Effort discretion, economic theory, and public policy. In *Handbook of contemporary behavioral economics: Foundations and developments*, ed. Morris Altman, 125–64. Armonk, NY: M. E. Sharpe.

Leibenstein, Harvey. 1982. The prisoner's dilemma in the invisible hand: An analysis of intrafirm productivity. *American Economic Review* 72: 92–97.

GOMPERS, SAMUEL

Born: January 27, 1850, in London, England; Died: December 13, 1924, in San Antonio, Texas; Nationality: English, U.S. immigrant; Professional Interests: U.S. union organizer and leader, first president of American Federation of Labor (AFL).

Samuel Gompers was an English immigrant who led the labor reform movement in the late 1800s and early 1900s. He began as a cigar-making worker, and he worked his way up to being president of the American Federation of Labor. He fought and negotiated for the rights and welfare of American workers. During the First World War, Samuel Gompers was appointed to the Council of National Defense.

Samuel Gompers was born 1850 in London and raised in a Jewish family. Gompers quit school at the age of 10 and began working for his father as a cigar maker. After the family immigrated to New York City, he continued to work with his father in the cigar-making business. Finding work at a local cigar shop, he joined United Cigar Makers Local 15. In his new job, he was introduced to a group of socialist and labor reformers. Samuel Gompers was elected president of Cigar Makers' International Union Local 144 at the young age 25.

Gompers was an influential leader, and he gained the trust of many of his fellow workers. He was a leader in the creation of a new union—the Federation of Organized Trades and Labor Union (FOTLU)—which later became known as the American Federation of Labor (AFL). For his trust and leadership, Samuel Gompers was elected the AFL's first president.

As president of the AFL, Gompers continually fought to strengthen the power of the labor unions and improve the reform movement in order to increase the prestige of his fellow union members. Gompers' interests in upgrading union prestige extended beyond economic status. He wanted the AFL to have political status as well, but not at the expense of economic reform. Economic reform and member rights for the workers were always at the front and center of his platform.

Samuel Gompers continued to fight for workers' rights. One issue he worked hard for can be seen in the nationwide strike that took place on May 1, 1886. The main issue of the strike was to shorten the workday to eight hours.

Notably, not all workers were in favor of the union. While the pro-union movement continued to grow, an anti-union movement was also on the rise.

As the union continued to rise in power and prestige, Gompers retained his position as its president, serving for almost 40 years (the longest term of any AFL president).

Gompers became an adviser in the administration of President Woodrow Wilson. He was appointed to the Council of National Defense, where he played a key role in mobilizing the labor support for World War I. He was instrumental in the creation of the International Labor Organization (ILO) at the Versailles Peace Conference. Samuel Gompers was one of the most influential leaders in the early labor reform movement.

Samuel Gompers passed away on December 13, 1924, in San Antonio, Texas.

David A. Dieterle

See also: American Federation of Labor and Congress of Industrial Organization; *Vol. 2: Macroeconomics:* Labor Uprisings, 1936–1939; National Labor Unrest, 1894; *Vol. 3: Microeconomics:* Labor Economics; National Steel Strike, 1919; National Steel Strike, 1959; Unions; United Farm Workers; United Mine Workers

Further Reading

AFL-CIO. n.d. Samuel Gompers (1850–1924). www.aflcio.org/About/Our-History/Key-People-in-Labor-History/Samuel-Gompers-1850-1924 (accessed October 30, 2015).

Encyclopedia of World Biography. n.d. Samuel Gompers biography. www.notablebiographies.com/Gi-He/Gompers-Samuel.html (accessed October 30, 2015).

United States History. n.d. Samuel Gompers. www.u-s-history.com/pages/h1747.html (accessed October 30, 2015).

THE GREAT DEPRESSION AND WALL STREET CRASH, 1929

Although the stock market crash of 1929 did not cause the Great Depression that followed, it was the end of a bubble and the end of economic expansion. When the stock market crashed, its value dropped more than 50 percent. The depression that followed would bring years of unemployment and hard times. Unemployment became a way of life for as many as 25 percent of the American workforce. Gross national product dropped by 30 percent, and industrial production dropped by 40 percent. The nation's steel mills worked just two to three days per week for years. Corporate investment was negative, and capital investment was below the level of depreciation. Unemployment from 1929 to 1941 was higher than 10 percent, and underemployment was as high as 50 percent. The estimated number of homeless people in New York City alone was 15,000. The number of homeless people in the nation was estimated at more than two million. The Depression also exhibited a double dip, returning in 1937 after some improvement. The Great Depression was also a truly global depression, which prolonged the slow pace of the recovery.

The U.S. stock market had been building a speculative bubble on the back of a booming economy. The beginning of 1929 saw a nation in a boom economy with a record gross national product. Unemployment averaged a mere 3 percent. In 1929, car production was double the 1923 level. Real income per capita had reached new highs, and newspapers were filled with stories of excessive spending. Speculation was also at an all-time high. Margin leveraged accounts for stock trading were at record highs as well. To facilitate investment, the Federal Reserve, for years, had been following a strategy of easy money. Consumer credit was rising dramatically because cars and mass-produced goods were in high demand. Interest rates for stock margin accounts were moving higher, however, reaching more than 20 percent. Just as during the Mississippi bubble of 1719, many small investors rushed in at the end of the investment bubble, hoping to make millions by speculating on stocks that were selling at over 30 times earnings. Economists at the Federal Reverse were very concerned.

On September 3, 1929, the Dow Jones industrial average hit a record high of 381. The Federal Reserve had issued warnings against overspeculation and had started to tighten the money supply. Unfortunately, the New York Federal Reserve broke ranks, injecting massive amounts of cash for margin stock accounts. (This type of rogue behavior would be addressed after the Depression.) The availability of call money for margin stock accounts made big investors overconfident about the stock market's setbacks in September 1929 and pushed the bubble to the breaking point.

The stock market started to show true signs of instability in October 1929. On Black Thursday, October 24, the market moved lower on record volume with 13 million shares traded. The biggest and mostly widely traded companies lost an average of more than 10 percent, triggering the first wave of calls on margin loans. The U.S. president and major industrialists jumped in with positive public statements to try to calm the markets. Then on Black Tuesday, October 29, 1929, the market fell to 40 percent of its high a month earlier. As banks recalled loans, panic set in, and the great stock market crash entered into American legend. The Federal Reserve, business leaders, and politicians made the right moves to stop the economy from going over the cliff.

The stock market crash resulted in more than $2.2 billion being called on stock loans. Stock market losses put many people in desperate financial positions. The crash was not directly followed by a depression, but it did signal the end of a huge expansion and bubble in the economy. By the end of 1930 and into 1931, bank failures, panics, and runs started, with the now-famous lines of panicked depositors. Bank failures were 659 in 1929, 1,350 in 1930, and 2,293 in 1931. The banking problems spread in 1931, with a doubling of bank failures and mortgage bankruptcies. By 1933, 11,000 of America's 25,000 banks had failed.

The money crisis soon spread to other parts of the economy. The building of new homes dropped by 80 percent. Deflation rapidly lowered food prices and reduced grain prices, which hurt farmers. Farm prices dropped 40 percent from the 1926 high. Factories cut back to a schedule of two to three days a week, effectively cutting wages 50 percent. The government tried to pour money into the economy to create demand. Social problems started to mount, as unemployment hit 17 percent in 1931; ultimately it would peak at over 25 percent of all workers and 37 percent for non-farm workers. Even these estimated unemployment rates understated the panic, as most Americans were working short weeks. The unemployed clustered on the outer borders of major cities in boxes, tents, and shacks known as "Hoovervilles." President Hoover, who left office in 1933, was justifiably blamed for his failure to properly manage the U.S. economy. As the crisis spread across the world, countries raised tariffs to protect domestic production. Still, it was not the American tariff rates so much as a rush by all countries to protect their home markets that caused the Depression to deepen. The combination of deflation, low farm prices, and tariffs cut imports 40 percent. In 1932, as the Dow hit 95, the United States looked for a political solution with the election of Franklin Roosevelt and the progressive Democrats.

In 1933, Roosevelt imposed a bank holiday to stop panics and build new confidence in the banking system. More dramatic was the creation of the National Recovery Administration (NRA), which had sweeping powers to control wages and prices. The NRA created a national industry, similar to what Stalin implemented in Russia. From 1933 to 1934, Roosevelt tried a long array of approaches: moving off and on the gold standard, credit regulation, mortgage aid, work projects, trade laws, reduced tariffs, increased taxes, new banking regulations, and expanded credit programs. The government looked to put people to work. The NRA would be found unconstitutional in 1935, but while it was in effect it stabilized unemployment and restored some confidence. The Dow moved up from a low of 58. The Civilian Conservation Corps hired more than 250,000 young men and prevented social unrest during the worst of the Depression. In 1935, the New Deal Democrats, looking for a long-term social safety net, enacted the Social Security program. The National Labor Relations Act of 1935 allowed the unionization of the steel, rubber, and automotive industries and widespread collective bargaining. Economic improvement came, only to fall back in 1937.

The Depression changed the American psyche and economic thinking even to the present day. Despite the Depression, however, Americans remained patriotic and supported the government, whereas the poor economic conditions brought growing social unrest throughout Europe. The American family unit was key to America's weathering of the Depression. John Maynard Keynes's economic approach, which emphasized government spending and consumers, became the dominant approach to managing the economy before and during the Depression. Tariff policy would be changed after centuries of tariff protection because of the fear of trade wars.

The Depression also initiated a decade of social and economic legislation to build a safety net. Banking laws were strengthened to protect consumers, and the union movement was strengthened to help workers. Congress passed the Smoot-Hawley Tariff Act in June 1930, creating historic tariff rates at around 30 percent overall. Other countries also imposed tariffs in an effort to save domestic production, but the decline was well underway. Years later, however, many pointed to tariffs as a problem and used this theory to advance free-trade policies after World War II. An endless array of laws was implemented to address the causes and effects of the Depression, including stock market controls. Some of these have proved to be helpful, while others have been very costly to the economy. The analysis of the Great Depression and its causes and effects continues to this day. There is no question that it affected the psyche of Americans for decades.

In August 14, 1935, President Roosevelt signed the Social Security Act, which was a social insurance designed to pay retired workers age 65 or older a continuing income after retirement. Originally it was planned not to be a full retirement fund but to maintain income above poverty levels. In 1937, Social Security payroll taxes were 1 percent for the employer and 1 percent for the employee. Payroll deductions were mandated under the Federal Insurance Contribution Act (FICA). Today Social Security stands as the largest government program in the world and the single greatest expenditure in the U.S. federal budget. In 2009, more than 51 million Americans received more than $650 billion in Social Security payments.

Quentin R. Skrabec Jr.

See also: Keynes, John Maynard; New Deal; Roosevelt, Franklin D.; *Vol. 2: Macroeconomics:* Federal Reserve System; Great Recession, 2009; Gross Domestic Product; National Labor Relations Act of 1935; Social Security Act of 1935; Stock Market Crash of 1929; Panic and Global Depression, 1873; Tariff Act of 1930 (Smoot-Hawley Tariff Act); Unemployment; *Vol. 3: Microeconomics:* Subprime Mortgage Bubble and Crisis; Stock Market; *Vol. 4: Global Economics:* Tariffs

Further Reading

Galbraith, John Kenneth. 1988. *The great crash 1929*. Boston: Houghton Mifflin.

Kindleberger, Charles P. 1986. *The world in depression: 1929–1939*. Berkeley: Univ. of California Press.

Shlaes, Amity. 2007. *The forgotten man: A new history of the great depression*. New York: Harper Perennial.

GREAT MIGRATION

The Great Migration was the movement of African Americans from the South to the Midwest, West, and Northeast in the 20th century. Caused by economic and legal factors, the migration resulted in over six million African Americans leaving the South between 1916 and 1970. The shift brought many of these people from rural areas to cities, leading to overcrowding and housing shortages and to the development of an urban African American culture. The movement vastly increased racial tension as an increasing number of blacks and whites lived in close proximity to each other.

Economic conditions initiated the migration. African Americans often were uneducated and held unskilled and agricultural jobs. As mechanization of farm labor progressed, a significant number of these jobs were eliminated, forcing workers to find new occupations. Many traveled to other regions of the United States, where they found work in the industrial sectors.

While these economic conditions initiated the movement, legal factors amplified the scale of the migration. Jim Crow laws in the South were much more discriminatory than those in the North. Though prejudice and inferior treatment of African Americans were still present in the North, they were not as rampant as in the South. Many African Americans sought the less threatening North.

As the Great Migration progressed, millions of African Americans came from all across the South, generally settling in concentrated numbers in a few large cities. This change led to widespread housing shortages, amplified by the fact that most of these migrants could afford to live only in poor neighborhoods. Eventually, neighborhoods such as Harlem, which initially attracted African Americans, become centers of black culture. Harlem's renaissance of poetry, song, dance, and art allowed African American self-expression to blossom.

Another effect of the Great Migration was an increase in racial tension. About 90 percent of African Americans lived in the South before the movement, and less than 50 percent lived there afterward. This rapid increase in contact between blacks and whites led to multiple race riots, often in large cities. As the African American population in the North increased, so did the activities of the Ku Klux Klan.

In recent years, the Great Migration's effects on the concentration of African Americans in the United States have begun to reverse. Today more than 50 percent of African Americans live in the South—many of them in larger cities rather than in rural areas as was common before the Great Migration. In particular, in the late 1990s many African Americans with college degrees began moving to Southern cities.

Adam Vallus

See also: Human Capital; Human Rights and Decision-Making; Slavery and the Slave Trade; Urbanization; *Vol. 4: Global Economics:* Triangle Trade

Further Reading

Blackpast.org. The great migration (1915–1960). http://www.blackpast.org/aah/great-migration-1915-1960 (accessed March 10 2015).

Frey, William H. 2004. The new great migration: Black Americans' return to the south, 1965–2000. Brookings Institution. https://www.brookings.edu/research/the-new-great-migration-black-americans-return-to-the-south-1965-2000/ (accessed March 10, 2015).

History.com. 2010. Great migration. http://www.history.com/topics/black-history/great-migration (accessed March 10, 2015).

GREEN NATIONAL ACCOUNTING

Current interest in green national accounting has its modern roots in the 1980s, when economists Michael Ward at the Organisation for Economic Co-operation and Development (OECD), Salahi El Serafy at the World Bank, and Robert Repetto at the World Resources Institute reflected on the future prospects for a nation, such as Kuwait, living on depleting natural capital (for a nation such as Kuwait, that capital was oil). Their thinking was that when the oil or other important stock of natural capital runs out, the nation will have become relatively poor, and this prospect should somehow be registered in its current measure of well-being. Current measures of national income, such a net national product (NNP), were failing to take into account large and inevitable future declines. The current NNP was somehow too large. The thinking was that there should be a depletion charge in current NNP to indicate that the productive base of the nation was being eroded year by year, since the capital stock was being drawn down year by year. A depletion charge in NNP would indicate that traditional NNP was unrealistically large. In short, greening the measure of national product for a nation would register changes in stock sizes, particularly drawdowns, of significant natural capital in a nation's national income.

This way of thinking about national accounting is sensible, and one could ask why thinking about adjustments for the current depletion in natural capital emerged only in the 1980s. Modern national accounting was developed in the 1930s in the United States and United the Kingdom, nations that were taken to be largely industrial, with fringes of agricultural activity and smaller fringes of mineral extraction. The treatment of mineral extraction in a national accounting framework was left to be handled in something of a back-of-the-envelope fashion. The size of the mineral extraction sector in, say, NNP was measured simply by the dollar value of its annual product. The depletion-of-stocks issue was left dangling. This is appropriate, of course, when the values of depletions are small relative to current NNP, but it is not a reasonable procedure when the values of depletions are large relative to current NNP—as is the case with Kuwait, a nation that is essentially living on the earnings from its annual oil exports.

Another dimension of greening the national accounts is incorporating adjustments for externalities—such as pollution in its many forms or excess entry to a fishing ground. Since the measurement of these externalities is so difficult, procedures for carrying out the adjustments have not been standardized. We will leave this class of adjustments aside here and focus our attention on adjustments for depletion of natural capital (disinvestments in natural capital).

Measuring depletions of natural capital in the national accounts is complicated by the fact that, for example, the cost of extracting a ton of oil from one deposit generally is different than the cost of extracting a ton from another deposit. The difference between market price and extraction cost is referred to as "rent per ton." Such rents include a dollar value for scarcity rent (user cost or Hotelling rent) as well as a dollar value for quality rent (Ricardian rent). A marginal ton from a deposit with high extraction costs will typically have only scarcity rent, while another ton (intramarginal) from a better-quality deposit will have the same scarcity rent plus some quality rent. Formal analysis suggests that scarcity rent captures the value of current depletion. However, simply summing up rents for each ton plus all other tons currently extracted generally overestimates the value of depletion, the dollar value we wish to use in adjusting for currently using up natural capital. To measure current aggregate depletion of oil, we want the rent on the marginal ton multiplied by aggregate quantity extracted over the year. In addition, though current oil extraction is a depletion activity, much activity goes on each year in adding new stock to the current known stock via exploration. The addition to new reserves represents gross investment (reverse depletion, so to speak) in natural capital, and the value of these additions to stock must be entered into the current depletion value as rent multiplied by quantity, with an opposite sign. Hence, adjustments for changes in the current value of natural capital can involve entries for investment in natural capital as well as disinvestment.

The sum of dollar values of natural capital is a nation's natural wealth and is typically more difficult to estimate than annual changes in the values of components of national natural wealth. The annual changes (investments and disinvestments) often have realizations in the marketplace and can, roughly speaking, be estimated directly, whereas the estimation of the values of stocks themselves usually involves numerous guesstimates.

John M. Hartwick

See also: *Vol. 2: Macroeconomics:* Externality; *Vol. 4: Global Economics:* Organisation for Economic Co-operation and Development; Sustainable Economic Development; World Bank

Further Reading

Aronsson, Thomas, Per-Olav Johasson, and Karl-Gustaf Lofgren. 1997. *Welfare measurement, sustainability, and green national accounting*. Cheltenham, UK: Edward Elgar.

McKitrick, Ross R. 2011. *Economic analysis of environmental policy*. Toronto: Univ. of Toronto Press.

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HABITS

In ordinary parlance, *habit* can refer to repeated behavior. But scientific researchers most often treat habits as learned dispositions to behave in a particular way in response to a trigger or stimulus. Habits are formed through repetition of action or thought, and they have durable, self-sustaining qualities. Habits are the basis of both reflective and nonreflective behavior. They are economizers of scarce mental resources. If we had to deliberate fully upon everything, then our reasoning would be paralyzed by the weight of data. Habits overcome this problem.

The concept of habit was developed in particular depth by a linked group of "pragmatist" American thinkers in philosophy, psychology and economics, including William James, Thorstein Veblen, and John Dewey. A similar interpretation of habit as a disposition is found in the work of such contemporary psychologists as Wendy Wood and Ann Graybiel.

By contrast, *instincts* are biologically inherited reflexes, feelings, or dispositions that can be triggered by specific cues. Like habits, expressions of instincts can often be suppressed or diverted. The importance of socialization does not deny the necessary role of instinct. Instincts are necessary in order for socialization and habit to begin their work.

Habits are vital to all thought and behavior. Rational deliberation relies on habits. In turn, instinct is prior to habit, habit is prior to belief, and belief is prior to reason. That is the order in which they have evolved in our human ancestry over millions of years. That too is the order in which they appear in the ontogenetic development of each human individual. That too is the order in which they are arranged in a hierarchy of functional dependence, where the operation of reason depends upon belief, belief depends upon habit, and habit depends upon instinct. The lower elements are necessary but insufficient for the higher.

As Charles Darwin noted, human rational capacities are built on subconscious mechanisms inherited from our prehuman ancestors. We retain instincts and unconscious mental processes that can function apart from our conscious reasoning. As some animal species developed more complex instincts, they eventually acquired the capacity to register reinforced behaviors through the evolution of mechanisms of habituation. In turn, upon these mechanisms, humans built culture and language. Our layered mind, with its unconscious lower strata, maps our long evolution from less deliberative organisms. But when the human species evolved its capacity to reason, its dependence on instinct and habit did not decline.

Much social science takes it for granted—or by definition—that "action" is motivated exclusively by reasons based on beliefs. However, modern psychologies as well as the Darwinian evolutionary outlook undermine this proposition. Experiments show that conscious sensations are reported about half a second after neural events, and unconscious brain processes are discernible before any conscious decision to act (Libet 2004). This evidence suggests that our dispositions are triggered before our actions are rationalized: that is, we contrive reasons for actions already under way. It undermines the approach of explaining human action wholly in terms of reasons and beliefs.

But the "folk psychology" (Stich 1983) that beliefs are the source of intentions, choices, and actions still dominates social science. These "mind-first" explanations of human behavior are unable to explain adequately such phenomena as sleep, memory, learning, and mental illness, or the effects of chemicals or drugs on our perceptions or actions. Mind-first conceptions erect an unsustainable dualism or discontinuity between the mental and physical worlds, which is inconsistent with the fact of human evolution. Humans do act for reasons. But reasons and beliefs themselves are caused, and have to be explained.

A habit-based perspective implies neither stasis nor lack of choice. As Dewey explained, because of our engagement with diverse and changing contexts, we develop different habits of thought and action that sometimes come into conflict with one another. Such conflicts are opportunities for choice and change. Habit does not deny choice. On the contrary, the conflicting rigidities of different habits make choice inevitable.

Pragmatist and habit-based approaches can overcome the Cartesian dualism of body and mind, which still pervades the social sciences. Against dualism, intellect is not regarded as an independent and ungrounded causal power, but as an emergent and active property of already-engaged dispositions and unfolding actions. The reality and importance of human intentionality and creativity are reconciled with the Darwinian evolutionary legacy (Bunge 1980).

Once habit is seen as the foundation of preferences or beliefs, we can develop an enriched understanding of the interaction between individuals and institutions. Emergent institutions guide individual behavior. Individuals develop and reinforce habits consistent with that behavior, upon which revised beliefs and preferences transpire. These revised beliefs or preferences lead to further actions and form more habits, which may affect institutions, and so on. This gives us two-way mechanisms of reconstitute interaction, from individuals to institutions and back to individuals (Hodgson 2004, 2010).

The implications for social theory are profound, including a transcendence of the old debate between "bottom up" (methodological individualist) and "top down" (methodological collectivist) modes of explanation. In a fully fledged evolutionary view, causal influences have to be acknowledged in both directions. From such a perspective, we have to understand how individuals are affected by social structures, as well as how individuals constitute structures. Habit is a crucial mechanism in both cases.

Geoffrey M. Hodgson

See also: Evolutionary Economics; Intuition and Decision-Making; Moral Motivation; *Vol. 3: Microeconomics:* Veblen, Thorstein

Further Reading

Bunge, Mario A. 1980. *The mind-body problem: A psychobiological approach*. Oxford, UK: Pergamon.

Camic, Charles. 1986. The matter of habit. *American Journal of Sociology* 91:1039–87.

Darwin, Charles R. 1871. *The descent of man, and selection in relation to sex*. 2 vols. London: Murray.

Dewey, John.1922. *Human nature and conduct: An introduction to social psychology*. New York: Holt.

Graybiel, Ann M. 2008. Habits, rituals and the evaluative brain. *Annual Review of Neuroscience* 31: 359–87.

Hodgson, Geoffrey M. 2004. *The evolution of institutional economics: Agency, structure and Darwinism in American institutionalism*. London and New York: Routledge.

Hodgson, Geoffrey M. 2010. Choice, habit and evolution. *Journal of Evolutionary Economics* 20: 1–18.

James, William. 1890. *The principles of psychology*. 2 vols. New York: Holt.

Libet, Benjamin. 2004. *Mind time: The temporal factor in consciousness*. Cambridge, MA: Harvard Univ. Press.

Stich, Stephen P. 1983. *From folk psychology to cognitive science*. Cambridge, MA: MIT Press.

Veblen, Thorstein B. 1898. Why is economics not an evolutionary science? *Quarterly Journal of Economics* 12: 373–97.

Wood, Wendy, and David T. Neal. 2007. A new look at habits and the habit-goal interface. *Psychological Review* 114: 843–63.

Wood, Wendy, Jeffrey M. Quinn, and D. Kashy. 2002. Habits in everyday life: Thought, emotion, and action. *Journal of Personality and Social Psychology* 83: 1281–97.

HAMILTON, ALEXANDER

Born: January 11, 1755, in British West Indies; Died: July 12, 1804, in New York City; Nationality: American; Professional Interests: founding father of the United States of America; first U.S. Secretary of the Treasury.

Alexander Hamilton was a founding father of the United States. He lived from January 11, 1755, to July 12, 1804. He was born and raised in the British West Indies. His father was a Scottish trader; his mother, a Frenchwoman, was married to another man when Alexander was born. This man had cast her out for adultery, and Alexander's true father left them when he was an infant.

When Alexander was 11 years old, he went to work at a counting house. The owner was so impressed with his work that he sent the young Alexander to study in America. When he turned 16, Hamilton joined the King's college later known as Columbia. When he finished his studies, he joined the military and fought for the colonies in many battles along the East Coast. Proving great prowess in battle, he was promoted to the rank of lieutenant colonel in the army and attracted the attention of General George Washington.

He eventually became Washington's personal assistant and did much work for him. Bored with the menial tasks of a personal assistant, he went into battle one last time and was victorious at the Battle of Yorktown. When the war ended, he went back to being George Washington's assistant. During this time he realized some flaws in the legal system of the new nation. He believed the new government's

Articles of Confederation did more separating than unifying. After leaving his assistant job, he went on to study law and establish his own practice. Known as a Federalist, he advocated for a new constitution to replace the Articles.

Alexander Hamilton became our country's very first secretary of the Treasury. He constantly debated with Thomas Jefferson regarding the level of power that should be wielded by the Department of the Treasury. Hamilton focused on the dispersing of newly printed money and the growth of the economy. He took on the challenge of trying to get the new nation out of debt. An unexpected result was that he won the respect of the American people and of other foreign nations. He also planned out and created the first national bank in the United States in order to distribute the newly printed currency and assist the government with its financial transactions.

In New York City, on July 12, 1804, Alexander Hamilton was shot and killed in a duel with his political adversary Aaron Burr.

Collin Tipton
David A. Dieterle

See also: *Vol. 2: Macroeconomics:* Bank of the United States, Closure and Lower Tariffs, 1833; Sugar Act, Currency Act, and Stamp Act Boycotts, 1764–1765; United States Treasury; War Financing Crisis, 1776

Further Reading

Biography.com. n.d. Alexander Hamilton biography. www.biography.com/people/alexander-hamilton-9326481 (accessed December 2, 2015).

Brookhiser, Richard. 2012. Rediscovering Alexander Hamilton—Preview. Public Broadcasting Service, August 19. www.pbs.org/video/1856461310/ (accessed December 2, 2015).

U.S. Department of the Treasury. 2010. About Alexander Hamilton (1789–1795). www.treasury.gov/about/history/Pages/ahamilton.aspx (accessed December 2, 2015).

HAYEK, FRIEDRICH VON

Born: May 8, 1899, in Vienna, Austria; Died: March 23, 1992, in Freiburg, Germany; Nationality: Austrian, naturalized English citizen; Professional Interests: economic theorist, trade cycle theory, monetary theory, credit policy, Nobel Prize (1974); Major Works: *Profits, Interest and Investment* (1939), *The Pure Theory of Capital* (1941), *The Road to Serfdom* (1944), *The Constitution of Liberty* (1960).

Friedrich von Hayek was one of the most influential economists of the 20th century. He not only made many important theoretical contributions in his field; he blazed new paths in political theory, history, philosophy, and theoretical psychology as well. He accepted the Nobel Prize in Economics in 1974 for his penetrating work during the 1920s and 1930s in the area of business and trade cycle theory and the effects of monetary and credit policy. Hayek's prodigious output and legacy have helped to revived interest in and respect for Austrian and neo-Austrian economics. Hayek died in 1992.

Friedrich August von Hayek was born May 8, 1899, in Vienna, Austria, the eldest of three sons of August and Felicitas von Hayek. Not only was Hayek's father a medical doctor and later a professor of botany at the University of Vienna, but his brothers Heinz and Erich became professors as well—of anatomy and chemistry, respectively. In 1917, at the age of 19, Hayek served in an Austro-Hungarian artillery battery on the Italian front during World War I. After the war, Hayek entered the University of Vienna, receiving his doctorate in law in 1921 and a second doctorate in political economy in 1923.

At university, Hayek attended the *Privatseminars* of Ludwig von Mises; this later led to the two men developing a lifelong friendship and association. After attending New York University in 1923–1924 as a postgraduate research student, Hayek returned to Vienna and joined Mises as a legal consultant at the temporary *Abrechnungsamt*, or Office of Accounts. In 1927, they founded the Austrian Institute for Business Cycle Research in Vienna, with Hayek as its first director. In 1928, invited to a London Conference on Economic Statistics, Hayek met John Maynard Keynes for the first time. The two men would later become friends, as well as fierce intellectual critics of each other's economic positions.

In 1929, Hayek was appointed to his first academic post as a *privatdozent* in economics and statistics at the University of Vienna. That same year he wrote his first book, titled *Geldtheorie und Konjunkturtheorie*; it was published in 1933 in English as *Monetary Theory and the Trade Cycle*. Seeing a connection between business cycles and capital and monetary theory, Hayek saw the market as an unplanned, spontaneous order that coordinates the activities of all factors of production. Lionel Robbins invited Hayek to speak at the London School of Economics in 1931, leading to Hayek's publication of *Prices and Production*, which explained in greater detail his theory of *under-consumption*. Artificial increases in the money supply by central banks led Hayek to conclude that distortions between short- and long-term interest rates could create only "mal-investment." In that same year, Hayek assumed the Tooke Chair as professor of economic science at the London School of Economics, a position that he held for 19 years.

Between 1931 and 1937, Hayek was engaged in a number of anti-Keynesian critiques and essays, culminating in his 1938 work titled *Collectivist Planning: Critical Studies on the Possibilities of Socialism*. However, he never planned nor waged a full-scale refutation of Keynes's *General Theory of Employment, Interest and Money,* something he regretted later in life. In 1938 he became a naturalized British citizen. During these years his most significant works included *Profits, Interest and Investment* (1939); *The Pure Theory of Capital* (1941), which delved into the complex nature of capital as it relates to economic booms and slumps; *The Road to Serfdom* (1944); and *Individualism and Economic Order* (1948).

There was no work that took Hayek and the publishing industry more by surprise than *The Road to Serfdom*. Its unlikely success put Hayek back into the spotlight, warning his readers how the "ideal" of planning that was popular in Great Britain at the time could quickly turn into a totalitarian nightmare. Originally intended for a British audience, the *Reader's Digest Condensed* version gained him an audience in the United States and established him as the world's most celebrated classical liberal economist. In 1947, following the devastation of World War II, Hayek was anxious to revive classical liberalism in Europe. He convened the first meeting of like intellectuals at Mont Pelerin in the Swiss Alps. The organization that developed later became known as the Mont Pelerin Society.

In 1950, Hayek was appointed professor of social and moral science and member of the Committee on Social Thought at the University of Chicago. Over the next 12 years, Hayek produced some of his best and most diverse writings. These included *John Stuart Mill and Harriet Taylor: Their Friendship and Subsequent Marriage* (1951); *The Counter-Revolution of Science: Studies on the Abuse of Reason* and *The Sensory Order* (1952); *Capitalism and the Historians* (1954); and *The Constitution of Liberty* (1960), published on the 100th anniversary of the publication of John Stuart Mill's *On Liberty.* In this work, Hayek developed his view of the proper role of government, and his famous essay, "Why I Am Not a Conservative," was placed in the postscript.

In 1962, after 31 years away from his native Austria, Hayek left the University of Chicago and assumed a professorship at Freiburg University. In 1967, he published *Studies in Philosophy, Politics, and Economics*, which he dedicated to the philosopher Karl Popper. This work, unlike earlier studies, highlighted Hayek's outstanding breadth of intellectual knowledge. Although fighting ill health and irrelevance, Hayek published the first volume of his trilogy *Law, Legislation and Liberty: Rules of Order* in 1973.

In 1974, reinvigorated after being awarded, along with Swedish economist Gunnar Myrdal, the Nobel Prize, he completed the final two volumes of *Law, Legislation and Liberty,* subtitled *The Mirage of Social Justice* (1976) and *The Political Order of a Free People* (1979). By the late 1970s, as inflation ravaged the industrialized world and standard Keynesian prescriptions appeared to be ineffective, Hayek again found himself in great demand, speaking extensively about free-market solutions to audiences at packed lecture halls throughout the world. Approaching the age of 90, Hayek wrote his final book, titled *The Fatal Conceit: The Errors of Socialism* (1988). This strong critique of socialism would nearly coincide with the dissolution in 1989 of the former Soviet superstructure that was based on a collectivist foundation.

Friedrich von Hayek died on March 23, 1992, in Freiburg, Germany, at the age of 93.

Joseph A. Weglarz

See also: Austrian Economic Thought; Böhm-Bawerk, Eugen von; Capitalism; Menger, Carl; Mises, Ludwig von

Further Reading

Caldwell, Bruce. 2004. *Hayek's challenge: An intellectual biography of F.A. Hayek.* Chicago, IL: Univ. of Chicago Press.

Ebenstein, Alan. 2001. *Friedrich Hayek: A biography.* New York: St. Martin's Press.

Ebenstein, Alan. 2003. *Hayek's journey.* New York: Palgrave Macmillan.

Hayek, Friedrich von. 1939. *Profits, interest and investment and other essays on the theory of industrial fluctuations*. London: Routledge.

Hayek, Friedrich von. 1941. *The pure theory of capital.* London: Jarrold and Sons.
Hayek, Friedrich von. 1944. *The road to serfdom.* Chicago, IL: Univ. of Chicago Press.
Hayek, Friedrich von. 1960. *The constitution of liberty.* London: Routledge.
Hayek, Friedrich von. 1988. *The fatal conceit.* Chicago, IL: Univ. of Chicago Press.
Hayek, F. A. 1994. *Hayek on Hayek: An autobiographical dialogue*, ed. Stephen Kresge and Leif Wenar. Chicago, IL: Univ. of Chicago Press.

HEALTH ECONOMICS

Health economics is concerned with the study of the allocation of resources to maintain and improve the health of individuals. This often includes the study of markets for health care services and health insurance as well as the role of government intervention in these markets. Since Kenneth Arrow's seminal paper on the economics of medical care (Arrow 1963), much of the analytical effort has been devoted to the market for health care services and health insurance, and this literature has paid a lot of attention to the peculiar characteristics of health care highlighted by Arrow. Comparatively less attention has been paid to the production and maintenance of health by individuals. Much of the analysis has taken a neoclassical approach, with health modelled as a capital stock yielding consumption utility, and income (Grossman 1972). While this is a useful modelling simplification, it essentially ignores the biology of human health—and the behavioral implications that follow from it. A careful examination of these, in the way Arrow disentangled health care, is a far more fruitful way of modelling health behavior than is a blind application of constrained optimization models to yet another dimension of human behavior.

All aspects of resource allocation to health are influenced by four features of health. The first and foremost is the centrality of health to human existence. No other aspect of a person's life is more critical than preservation of life itself. Even in a modern world of relative abundance, we remain concerned about threats to survival from hunger and germs, for example, and we've developed biological and psychological mechanisms to counter these threats. At an individual level, these threats influence the way we manage our health, and at a group level they influence our social and market interactions via (1) behavioral norms related empathy, trust, and fairness; (2) nonmarket institutions, such as the Hippocratic oath taken by doctors; (3) the centrality of emergency departments in hospitals; and (4) the public and charitable funding of ambulance services and rescue squads.

A second feature that requires attention is the paucity of information on health. As managers of our own health, we know very little about the status and functioning of our own biology. All we have to go on is observable markers (such as change in appearance or pain) and periodic measurements of biomarkers. It is changes in these that alert us to deviations from normality, and these—observable, nonclinical markers in particular—may not be very reliable indicators of what is really going on inside the body. In effect, there is an informational veil on the true status and functioning of our biology. Compounding this informational problem is the fact that while our biology is similar to that of other human beings, it is still individually unique and continuously changing. If our own health is essentially a black box, there is no reason to believe that we can allocate resources to health in an individually optimized way.

Physicians and health care providers know much more about human biology and medicine, and as a result there is asymmetry of information between patients and health care providers. This is well recognized in the health economics literature, and several studies have examined the implications of this in terms of the potential for physicians inducing the (unnecessary) use of health care services. Less appreciated is the fact that even a physician does not fully observe the details of a particular patient's biology, and the physician must base diagnosis and treatment on the limited set of information provided by the patient during presentation, patient history, previous clinical information, and current diagnostic data. None of these—individually, or even together—provide a complete picture of a patient's current condition or, more disconcertingly, the etiology of the presenting condition. As a result, diagnosis is typically algorithmic and experience-based; and except for surgery, treatment is often "average" treatment, conditional on what is known about the patient's condition.

The third feature is uncertainty with respect to the occurrence and severity of ailments and the effectiveness of treatments. Arrow (1963) highlights the role of uncertainty in health care markets and its implications for health insurance. Much of this uncertainty derives from the organic nature of the human body, and the organic environment within which it operates; downturns in the body's functioning can be entirely internal and due to wear and tear, but they can also be due to interaction with an environment full of microscopic organisms. It is important to distinguish between irreducible uncertainty, which is purely due to chance, and reducible uncertainty, which derives from lack of information. While advances in biological and medical knowledge and associated changes in medical practices (hand washing, sterilization, etc.) have greatly lowered the reducible uncertainty, some element of uncertainty remains.

A final feature is agency, or control over decision-making. As noted earlier, in a patient–physician interaction, there is asymmetry of information, and the patient transfers agency to the physician—expecting the physician to act in the patient's best interest. This is not very different from the transfer of agency that occurs in various service sectors, such as a car repair, where the mechanic knows more than the car owner and can use this power to increase the purchase of services. What differentiates the health care market from other markets is the fact that the service transacted (health care) is directly, or indirectly, linked to the patient's likelihood of survival. This adds a sense of urgency, which, along with the experience of pain and emotions such as fear, can imply substantial deviations from rational decision-making. Variations in health care systems—in particular, the extent to which they attempt to minimize such conflict of interests—attest to the critical role played by agency.

These four features—survival, information, uncertainty, and agency—yield a resource allocation problem that is truly unique and unlike any other human behavior. Not only do choices have to be made on allocating resources between health and other options, but also these necessarily have to be done with incomplete information about their appropriateness, and with the knowledge that more or less information may be needed at any point in the future. This would be difficult in itself, but then people must also rely on the judgement of others, who know more, but not everything relevant to a condition, and who also have their own interests to look after, but whose decisions are directly concerned with human survival itself.

Jaikishan Desai

See also: Behavioral Economics; Institutional Economics; *Vol. 3: Microeconomics:* Arrow, Kenneth; Asymetric Information; Health and the Environment; Health Insurance

Further Reading

Arrow, Kenneth J. 1963. Uncertainty and the welfare economics of medical care. *American Economic Review* 53: 941–73.

Frank, Richard G. 2004. Behavioral economics and health economics. Working Paper 10881. NBER Working Paper Series. http://www.nber.org/papers/w10881 (accessed Novemnber 30, 2016).

Grossman, Michael. 1972. On the concept of health capital and the demand for health. *Journal of Political Economy* 80: www.treasury.gov 223–55.

Zimmerman, Frederick J. 2009. Using behavioral economics to promote physical activity. *Preventitve Medicine* 49: www.treasury.gov 289–29.

HOBBES, THOMAS

Born: April 5, 1588, in Wiltshire, England; Died: December 4, 1679, in Hardwick, England; Nationality: English; Professional Interests: political economy, social contract theory; Major Work: *Leviathan* (1651).

Thomas Hobbes is best known as a political philosopher whose views on government would influence both the monarchy in England and the democracy of the United States. His role in economics is characterized as ranging from overly minimal to being the "father of political economy." While he never wrote specifically on economics, his view of man's relationship to his country and the country's role in promoting society opened up a world of connections to economic issues. Hobbes died in 1679.

Thomas Hobbes was born on April 5, 1588, in Wiltshire, England. His father was a vicar, but it was mostly support from his uncle that enabled him to enter Oxford at age 14. He studied scholastic logic and physics, graduating with a bachelor of arts in 1607. He served as a tutor for the wealthy Cavendish family, which allowed him to travel around England and throughout Europe. His service as tutor to the Cavendish family and, later, to other well-to-do families opened up doors of opportunity for him to study and formulate his own philosophy.

Hobbes was influenced by several people while working as a tutor. He was an acquaintance of Francis Bacon, who had an influence on Hobbes's pessimistic view that knowledge meant power. Hobbes was also fascinated by the mathematical field of geometry, seeing the proofs as groundwork for his later methods of philosophy. The idea of linking geometrical proofs with natural philosophy was proposed to Hobbes by Galileo in 1636.

Hobbes began his writing on political topics during the period in English history that featured much turmoil over the role of the king and Parliament. His writings mostly favored the king and were against democracy. To explain his stance against democracy was a major purpose of his translation of Thucydides in 1628. In 1640, he published *Elements of Law, Natural and Politic,* which angered many in England because it supported the authority of the king, causing Hobbes to flee to Europe. He wrote *De Cive* in 1642 in Europe on the theme of the church–state relationship.

Hobbes's most famous work, *Leviathan,* was published in 1651 while he was in exile during the English Civil War. While almost half of *Leviathan* was about religion, it did give new insight into the idea of social contract theory and absolute government. According to Hobbes, the idea of a social contract as presented in *Leviathan* deals with the twin issues of power and death. Because men fear death, they are willing to give up power to a government in order to secure their life. In this kind of situation the leader must be absolute, but the government can take on multiple forms of structure. Therefore, a democracy run by the people and an absolute monarchy can both be examples of a social contract, so long as they provide order.

Following *Leviathan,* Hobbes continued working out his philosophical ideas through a planned trilogy that dealt with the body (*De Corpore,* published 1655), man (*De Homine,* published 1657), and a more complete explanation of his thoughts on politics (which was never published). The first work of the trilogy was met with great criticism as Hobbes unsuccessfully attempted to square the circle.

De Homine ended up being his last philosophical book published while he was alive, because of controversy surrounding a book he published in 1656: *Questions Concerning Liberty, Necessity, and Chance* dealt with religious issues over free will in man, and it led to many debates with both religious and secular scholars. His *Leviathan* was condemned in the House of Commons in 1666 and was almost condemned by the House of Lords as well. He was forbidden to publish more philosophical literature from then on.

Hobbes did not write explicitly on economics, but the potential for economic application was present in his writing. Hobbes has been credited with influencing Adam Smith and other economic philosophers such as the Physiocrats and Bernard Mandeville. He wrote eloquently about the power of human free will to accomplish its goals. His emphasis on the self-interest inherent in men led other thinkers to expand on the role self-interest plays in economics. Despite Adam Smith's emphasis on free markets and Hobbes's emphasis on the importance of the state, both would agree that the state's main role was for ensure peace and provide common defense, which would allow for something of a free-market system in Hobbes' work.

Toward the end of his life, Hobbes was relegated either to writing works that would not be published until after his death or to writing nonphilosophical works. He wrote his autobiography in Latin verse in 1672, and he produced a new translation of Homer's *Iliad* and *Odyssey* in English rhyme in 1674. He wrote a history of the English Civil War, *Behemoth,* in 1668, but it would not be published until 1682, after his death.

Thomas Hobbes died on December 4, 1679, in Hartwick, England.

Joseph Lee Hauser

See also: Law and Economics; Quesnay, François; Smith, Adam

Further Reading

Hobbes, Thomas. 1655. *De corpore*. London: Andrea Crook.

Hobbes, Thomas. 1682. *Behemoth: Or the long parliament.* London: Unwin Brothers.

Hobbes, Thomas. 1887. *Leviathan*. 3rd ed. London: George Routledge. (Orig. pub. 1651.)

Hobbes, Thomas. 1888. *The elements of law: Natural and politic*. London: Thornton. (Orig. pub. 1640.)

Hobbes, Thomas. 1972. *Man and citizen: De homine and de cive*, ed. Bernard Gert. New York: Anchor Books. (Orig. pub. 1657.)

Hobbes, Thomas. 2008. *The elements of law natural and politic. Part I: Human nature; Part II: De corpore politico: With three lives*, ed. John C. A. Gaskin. London: Oxford Univ. Press. (Orig. pub. 1640.)

Malcolm, Noel. 2002. *Aspects of Hobbes*. New York: Oxford Univ. Press.

Missner, Marshall. 2000. *On Hobbes.* Belmont, CA: Wadsworth.

Rogers, G. A., and Ryan, Alan, eds. 1991. *Perspectives on Thomas Hobbes*. New York: Oxford Univ. Press.

Taylor, Quentin. 2010. Thomas Hobbes, political economist: His changing historical fortunes. *The Independent Review* 14 (3): 415–33.

Winborne, Warner R. 2008. Modernization and modernity: Thomas Hobbes, Adam Smith, and political development. *Perspectives on Political Science* (Winter): 41–49.

HUMAN CAPITAL

Human capital is the idea that intelligence and skillfulness makes a human beneficial. *Human capital* is also the concept that people or workers are a type of asset just like other types of capital. This implies that companies and even countries can invest in people just as they invest in other types of capital.

Early Human Capital Ideas

The United States of America at the start of the 1900s first saw expressed the notion that a country's people exemplify its prosperity. Near the conclusion of the 1900s, the world acknowledged that academia is important for technology implementation as well as economic expansion. The debate on whether people can or cannot be seen as capital continues to thrive, and the focus is changing from physical aspects to human features. As research and theories continue to evolve, some questions may rear their strange heads. Perhaps businesses have overlooked or underestimated the power of human capital, and with contemporary exposure human capital may override the strength of physical capital. In addition, an important question is whether the business world and other entities can find a sound balance in implementing both physical capital and human capital within their business realms.

Researchers can trace the notion of human capital back to the 1600s. In about 1691, Sir William Petty (1623–1687) assigned a worth to workers and assessed the worth of human capital to show England's strength. Petty appraised the price of lives taken in war and other deaths. In 1853, William Farr (1807–1883) described the current worth of an individual's net future profits as profits minus living expenditures. Farr then posited that the net future profits signified prosperity just as tangible possessions do—and that the government ought to tax them in a similar manner.

In 1867, Theodore Wittstein said that law courts ought to use Farr's current worth of net future profits to decide reimbursement for requests in terms of life that has been taken away. In 1930, two businessmen who worked in insurance—Alfred Lotka (1880–1949) and Louis Dublin (1882–1969)—became interested in Wittstein's idea as a way to determine how much life insurance a person should buy. The two men's study went beyond Wittstein's current worth of net future profits; they also contemplated death statistics (Kiker, 1966).

Human Capital and the Business World

The business world placed emphasis on human capital during the 1950s and 1960s, when labor economists started to view matters in reference to labor-force quality. Businesses spent funds on training and academic education. Business leaders pondered whether the training and education would positively enhance efficiency as well as incomes. Following these pioneers of human capital, other people developed the idea of human capital in terms of economics. They did this by considering the myriad ways that people are an investment that brings forth a return. Others also acknowledged the idea, but because of sentimentalism they did not want to think of people the same way they thought of physical commodities (Berry 2007).

Throughout the decades, many people have employed Human Capital Theory to tackle matters pertaining to civic courses of action. Many of these matters are still the focus of the theory. Such matters include the influence of countries, the outcomes of migration, investments in as well as supervision of well-being, well-being investing, economic expansion, and academic procedure and investing. Human capital economics, like other sciences, is mobile and continues to progress. During any period, it is the product of what occurred beforehand (Kiker 1966). In his essay "Human Capital in a Global Age," Nick Schultz (2012) notes that economists have been striving to evaluate the importance of human capital in the current time. One particular estimate was that the whole stock of human capital in the United States of America was worth more than $700 trillion. This number was far in excess of the estimate that physical capital stock was worth $45 trillion.

In *The American*, Gary Becker and Kevin Murphy (2007) maintain that greater rates of return on capital signify higher production in the economy. This inferred statement is valid for human capital just as it is for physical capital. The primary effect of greater returns on human capital is broader inequity in terms of wages. That influence has turned out to be more subdued, and young males and females may reverse this trend over time by investing more in their human capital.

In *Who Do You Want Customers to Become?*, Michael Schrage (2012) provides a wider viewpoint. Schrage stresses how inspiring creativity signifies a special type of human capital investment that people currently do not notice. He argues that innovators' main assets may be not their workers but their consumers. What matters is investment in terms of the consumer, which involves focusing on and elevating the consumer's proficiency level. Perhaps these attributes are the solution to whether an entity is going to prosper. Schrage continues by explaining that consumers' human capital plays a vital role in a business. Increasing the human capital of consumers and clientele is as cost effective, fiscally sound, and tactically important as overseeing the human capital of employees within the firm. Innovation creates a newfangled prosperity in terms of human capital. Consumers and clients obtain new abilities as well as new communication standards, causing an increase in value.

How Important Is Human Capital?

It is regrettable that formal economic theory as well as empirical studies have undermined and belittled the importance of the consumer's human capital in innovation achievement. Fruitful innovators have indulged in quality and quantity simultaneously, and this intertwining of the two has created an upsurge in human capital stock of consumers or clients. This is proof that these innovators have found success because their innovations make their consumers or clients indispensable (Salam 2012).

Currently, people emphasize the important nature of businesses in many ways. Research demonstrates that businesses that go from above-average to superior are able to do so because of the qualities and emphasis that the businesses place on the workers themselves. This is brought about through the all-inclusive business entity that involves leadership. Fortune's *World's Most Admired Companies* is an exclusive list, because the peer groups' ranks depend on their perception of human capital as the top aspect. These companies emphasize worker aptitude, management quality, and origination and civic obligation. The focal theme is that investors and business personnel adore entities that place prominence on the human capital aspects of their entities.

To many in the United States, the importance of human capital will continue to be controversial in comparison to physical capital. One question that may persist in contemporary times is the following: If all American business entities incorporated an identical model of the amounts of all measured input—including human capital—so that equality of work was acknowledged, would this action be considered a fair practice or a socialistic state of affairs?

Scott Glenn

See also: Capitalism; Marx, Karl; Resources; Slavery and the Slave Trade; *Vol. 2: Macroeconomics:* Gross Domestic Product; Labor Force; Labor Productivity; National Labor Relations Board; National Labor Unrest, 1894; *Vol. 3: Microeconomics:* Becker, Gary; Labor Economics; Labor Market Regulation; Labor Theory of Value; Markets

Further Reading

Becker, G. S. and Murphy, K. M. 2007. The upside of income equality. *The American*, May 7. American Enterprise Institute. http://www.american.com/archive/2007/may-june-magazine-contents/the-upside-of-income-inequality (accessed January 4, 2014).

Berry, J. 2007. The origins of the human capital concept. *Business Technology & Digital Transformation Strategies/Cutter Consortium*, October 23. https://www.cutter.com/article/origins-human-capital-concept-432271 (accessed March 2, 2014).

CLO Staff. (2005). The value of human capital: What logic and intuition tell us. *Chief Learning Officer* 4 (8): 50–52. http://www.clomedia.com/2005/08/01/the-value-of-human-capital-what-logic-and-intuition-tell-us/ (accessed April 14, 2014).

Fortune.com. 2016. World's most admired companies. http://fortune.com/worlds-most-admired-companies/.

Kiker, B. F. (1966). The historical roots of the concept of human capital. *Journal of Political Economy* 74 (15): 481–99.

Langelett, G. (2002). Human capital: A summary of the 20th century research. *Journal of Education Finance* 28 (1): 1–23.

Mihelich, Max. (2002). What produced the human capital century? *New England Economic Review* 4th Quarter: 6 (accessed February 4, 2014, from EBSCOhost database).

Pace, A. (2013). Human capital solutions for the 21st century. *T+D* 67 (5): 64–66.

Salam, R. (2012). The agenda. Brief thoughts on human capital investment. *National Review Online*. http://www.nationalreview.com.

Schrage, Michael. 2012. *Who do you want your customers to become.* Brighton, MA: Harvard Business Review Press.

Schultz, N. 2012. Human capital in a global age. *Business Horizon Quarterly*, June 8. American Enterprise Institute. http://www.aei.org/article/society-and-culture/immigration/human-capital-in-a-global-age/ (accessed November 30, 2016).

HUMAN RIGHTS AND DECISION-MAKING

Human rights are rights everyone has, just by virtue of being human. Because they are rights, human rights entitle rights-holders to something. These special entitlements thus impose duties, most immediately on governments. Your human right to food obligates your government (1) to not interfere with your acquisition of food, (2) to prevent others from interfering with your acquisition of food, and (3) to provide food to you if you are unable to provide it for yourself.

Some people think of human rights as moral entitlements; legal positivists think of them as nothing if not legal entitlements. But of human rights are both. They are moral rights in the sense that they provide a normative compass, both for what is minimally good and also for what agents should and should not do.

The Universal Declaration of Human Rights (UDHR), which was adopted and proclaimed by the United Nations General Assembly (UNGA) in 1948 and now is endorsed by virtually all countries in the world, gives the fullest account of this moral framework. Human rights are also legal entitlements that can (or should) provide rights-holders with legal remedy when violations occur. While the UDHR has achieved the status of customary law, these legal entitlements find their highest expression in the International Covenant on Economic, Social and Cultural Rights (ICESCR) and the International Covenant on Civil and Political Rights (ICCPR), which entered into force in the UNGA in 1976. The ICESCR has been ratified by 160 countries, and the ICCPR by 167 countries. Together, the UDHR, ICESCR, and ICCPR are called the International Bill of Human Rights.

An increasingly dated division of human rights separates civil and political rights on one hand, and economic, social, and cultural rights on the other. *Civil rights* include nondiscrimination (the most fundamental of all human rights) and a host of rights associated with civil freedoms. *Political rights* include the right to a nationality, the right to equality before the law, and the right to vote by secret ballot in periodic elections. Economic, social, and cultural rights include rights to an adequate standard of living (including food, shelter, clothing, medical care, social services, and conditional social security), to work, to education, to freely participate in the cultural life of the community, and to a social and international order in which all of the rights and freedoms in the UDHR may be realized. Interestingly, while the UDHR includes the right to property, neither the ICESCR nor the ICCPR do.

What is the normative basis for human rights? After input from philosophers, scholars, and political leaders from around the world, the UDHR identified human *dignity*, which can be taken to mean intrinsic worth. Such worth is not contingent on having a particular skin color or nationality, or having a particular level intelligence or genitalia, or even having done the right things. Foundationalists source this kind of dignity in purposeful human action, and on the abilities of humans to form life plans and carry them out (agency/autonomy). In Kantian spirit, this is what distinguishes people from fish, trees, and rocks, and it is what entitles us all to the special protections and freedoms afforded by human rights. Whatever the justifications for human rights are, an overlapping consensus has emerged on its validity, in spite of the world's diverse views, religions, and cultures.

Of course, not everyone agrees. Some people believe that the human rights doctrine does not go far enough in ensuring social justice, or that it does not constitute a unified theory on the same level as Marxism or neoclassical economic theory. Others support some human rights but not all. While most countries of the world have ratified both covenants, the United States is the only rich Western country that has not ratified the ICESCR. Some countries are less enthusiastic about civil and political rights, citing cultural preferences for order. Developed countries often ignore the extraterritorial obligations associated with international human rights; seemingly all countries bemoan the costs. Nevertheless, human rights doctrine arguably contributed to the end of colonialism, the spread of democracy, the end of apartheid in South Africa, and the enactment of innumerable income security laws and policies throughout the world.

There are also good reasons for political decision-makers to support all human rights. First, all human rights together are necessary in order to ensure citizens minimally decent lives. Second, and often more convincingly, faithfulness to human rights provides a stamp of legitimacy to governments, which can help garner support for domestic policies and also help in international affairs: from successful negotiating loans and trade agreements, to enlisting allied assistance in times of conflict.

Lanse Minkler

See also: Human Capital; Slavery and the Slave Trade; United Nations System; *Vol. 3: Microeconomics:* Behavioral Law and Economics; *Vol. 4: Global Economics:* Developing Countries

Further Reading

Donnelly, Jack, 2003. *Universal human rights in theory and practice*. Ithaca, NY: Cornell Univ. Press.

Lauren, Paul Gordon, 1998. *The evolution of international human rights*. Philadelphia: Univ. of Pennsylvania Press.

Minkler, Lanse, ed. 2013. *The state of economic and social human rights: A global overview*. Cambridge, UK: Cambridge Univ. Press.

HUME, DAVID

Born: April 26, 1711, in Edinburgh, Scotland; Died: August 25, 1776, in Edinburgh, Scotland; Nationality: Scottish; Professional Interests: moral philosophy; Major Works: *A Treatise of Human Nature* (1739), *Essays, Moral and Political* (1741), *The History of England from the Invasion of Julius Caesar to the Revolution of 1688* (1757–62), *Dialogues Concerning Natural Religion* (1779).

David Hume is considered an Enlightenment author, but he did not believe in natural law and natural rights as John Locke, Jean Jacque Rousseau, or Adam Smith did. Hume advocated *utilitarianism*, the idea that goodness is the same as usefulness. He is remembered as an extreme skeptic. He held no belief as sacred; instead, he attempted to test every theory by observation. Hume died in 1776.

David Hume was born on April 26, 1711, in Edinburgh, Scotland. His father died when he was very young. Hume entered the University of Edinburgh at the exceptionally young age of 11. Although he started his studies intending to become a lawyer, he quickly found that he had a passion for philosophy. From an early age, Hume seems to have taken questions of morality, life after death, free will, the existence of God, and other philosophical issues very seriously; he pursued these questions in his studies and writing for the rest of his life.

Hume was a lifelong writer and philosopher. He published his first book, *Treatise of Human Nature,* when he was 28. In it, Hume challenges the notion that humans are guided by reason. Instead, he argues that people are driven by their desires, that they consistently seek to maximize their own happiness, and that a person's sense of "self" is simply a combination of sensations and choices. He draws a sharp distinction between the "is" of science and the "ought" of morality. The book was not well received at the time, to Hume's acute embarrassment, but it has since come to be recognized as one of the most important works of philosophy ever written.

His subsequent work was taken more seriously, but it also made him a notorious figure since it contained antireligious sentiment. Perceiving him to be an atheist, church leaders successfully denied his application to be a professor of moral philosophy at the University of Edinburgh and the University of Glasgow. Hume secured employment as secretary to a Scottish general, actually taking part in an attempted attack on French Canada that got sidetracked and was diverted to

France itself. He made his fortune when his eight-volume *History of England from the Invasion of Julius Caesar to the Revolution of 1688* proved to be a major success. He was able to devote the rest of his life to writing.

Hume's economic thought was dominated by utilitarianism; he believed that economic and social policies should be directed at producing the greatest possible value for the largest number of people. From this starting point, he defended private property not on the basis of natural rights (as John Locke did), but simply because of utility: Resources are scarce, and people use these resources most efficiently when they own them privately. Hume argued that if resources were unlimited, then private property would cease to be useful.

Hume pointed out flaws in the theory of mercantilism, an idea that discouraged free trade in favor of state-supported monopolies. In response to mercantilist claims that nations should seek to attract as much gold as they could through exports, he argued that this goal was impossible. He observed that if too much money was traded to one country, then prices in that country would rise due to inflation; this would cause people in that country to seek to buy imports from other countries that did not have an inflation problem, and therefore, in the long run, trade between nations would tend to balance. Furthermore, he pointed out, while trade promotes the economic development of a country, it also improves human capital—that is, the skills and knowledge of the population. It makes people more aware of the world, which in turn makes them more dynamic, imaginative, and productive. He went on to say that countries need not fear the economic development of their neighbors, as if one nation can flourish only at the expense of another. Rather, the economic growth of a trading partner makes for a more prosperous community of nations. Rich nations and poor nations have nothing to lose and everything to gain from trade. He even made the outrageous claim that trade could bring happiness and wealth to France—this was not a popular statement in 18th-century Britain! But Hume had made his point. To this day, economists still believe voluntary trade brings benefits to both sides.

David Hume, like John Locke, was a link in the chain from political liberalism to modern economic thought. He was friends with Adam Smith, and no doubt he shared with Smith his arguments against mercantilism and toward an economic philosophy driven by the decisions of individuals rather than the needs of the state. Hume's philosophy was first practical, and while this might not have won him the trust of the Church of Scotland, his writings have secured him a place among the most important of the world's philosophers.

David Hume died on August 25, 1776, in Edinburgh, Scotland.

Stephen H. Day

See also: Capitalism; Economic History; Economic Systems; Say, Jean-Baptiste; Smith, Adam; *Vol. 3: Microeconomics:* Business Cycles; Jevons, William Stanley

Further Reading

Baier, Annette C. 2011. *The pursuits of philosophy: An Introduction to the life and thought of David Hume.* Cambridge, MA: Harvard Univ. Press.

Copley, Stephen, and Andrew Edgar, eds. 2008. *Selected essays by David Hume*. Oxford World Classics. New York: Oxford Univ. Press.

Graham, Roderick. 2006. *The great infidel: A life of David Hume*. Edinburgh, Scotland: Birlinn.

Hume, David. 1739. *A treatise of human nature*. Oxford, UK: Clarendon Press.

Hume, David. 1741. *Essays, moral and political*. Edinburgh, Scotland: R. Fleming and A. Alison.

Hume, David. 1805. *The History of England from the invasion of Julius Caesar to the revolution of 1688*. 8 vols. Edinburgh, Scotland: Lackington, Allen.

Hume, David. 1998. *Dialogues concerning natural religion*. 2nd ed. Richard H. Popkin, ed. Indianapolis, IN: Hackett. (Orig. pub. 1779.)

Townsend, Dabney. 2001. *Hume's aesthetic theory: Sentiment and taste in the history of aesthetics*. Routledge Studies in Eighteenth-Century Philosophy. London: Routledge.

HURRICANE KATRINA, 2005

Hurricane Katrina is considered one of America's greatest natural disasters. It was the third-strongest hurricane to make landfall in the United States. Hurricane Katrina ranks as the costliest hurricane, resulting in $81 billion in direct property damages and more than $150 billion in total costs. Private insurance claims paid an surpassed $41 billion, and federal insurance claims for flooding exceeded $16 billion. The death toll was more than 1,800 people, and more than 700 people are still missing. The main damage to New Orleans came from the failure of its levees, which is considered the worst civil engineering disaster in American history. Floods covered nearly 80 percent of the city of New Orleans.

Eventually, New Orleans would lose 50 percent of its population. More than 770,000 people were displaced, which was the largest migration of people since the Dust Bowl of the 1930s. On the Gulf Coast of Mississippi, hundreds of prime resorts were destroyed and beaches eroded. Oil and gas production in the United States was reduced by more than 22 percent for six months, as 30 oil drilling rigs were destroyed and nine refineries were shut down.

Katrina affected more Americans than any other hurricane. The gross national product, tourism, energy supplies, shipping, and imports all declined while gas prices and government relief costs increased. Costs continued to add up as money for reconstruction and to aid survivors was paid out. The federal government's response was highly criticized. Some of this criticism arose because no other hurricane in American history had received such real-time coverage; hundreds of reporters and camera crews were embedded in New Orleans.

Hurricane Katrina developed as a strong hurricane in the Gulf of Mexico on August 26, 2005. The sheer size of this slow-moving giant attracted much media attention. Although it strengthened to a Category 5 storm in the Gulf, it hit land as a Category 3. Katrina was one of the largest hurricanes in recorded history, extending more than 103 miles from its center and affecting more than 93,000 square miles upon landfall. Its size would create a large storm surge, to which much of the damage was attributed.

On August 28, New Orleans issued its first-ever mandatory evacuation. Voluntary and mandatory evacuations were also called for in large areas of Louisiana and

Mississippi. The Superdome sports stadium was designated a refuge of last resort for those left in the city. On August 29, Katrina made landfall and dropped eight to nine inches of rain. Many news channels had around-the-clock coverage of the event by reporters based in hotels in the French Quarter. Damage seemed light as the hurricane passed, but most observers missed the initial damage to the levee protecting New Orleans from storm-surge flooding. Flooding was the cause of 700 deaths. In total, New Orleans flooding accounted for 80 percent of the fatalities.

The storm surge of more than two feet breached the levee at New Orleans and flooded the canal system. As Lake Pontchartrain overflowed, the levee ruptured, flooding the sections of New Orleans below sea level. Counties in Mississippi were also flooded. Panic and looting began quickly in the streets of New Orleans. Guards abandoned prisons, with the result that hundreds of prisoners were unaccounted for. A number of people died in health care facilities that could not be evacuated. Some New Orleans police officers deserted their posts; others were overwhelmed by the flood, violence, and looting. The Superdome sheltering 26,000 people sustained heavy damage to its roof, making living conditions difficult. In the flooded streets, bodies were found floating. After a few days, the floodwater became a toxic mix of industrial chemical spills, raw sewage, and bacteria; the cleanup was expensive and took several months.

Throughout the Gulf Coast, the damage was extensive: More than 300,000 homes were destroyed, at a cost of $67 billion. Business property damage contributed another $20 billion to the loss, and the debris that washed ashore amounted to 118 million cubic yards. Major roads and bridges were destroyed. Short-term damage included the loss of electric power to 2.5 million customers and heavy damage to more than 170 water utilities. New Orleans Energy had to file for bankruptcy. For weeks, at least 60,000 people were trapped in New Orleans without fresh water, food, and medical supplies. The floodwater restricted the ability of federal agencies to provide aid. Americans watched in horror as timely help failed to address the problem. Finally, the Coast Guard was mobilized to rescue stranded residents. In addition, 58,000 National Guardsmen were activated. It took weeks to restore order in New Orleans, which had become a lawless zone of shootings, looting, and car-jacking.

Damage to the oil-refining industry, which was heavily concentrated around New Orleans, was extensive. For six months, 20 percent of the refining capacity was lost, causing increases in gasoline prices throughout the country. Nine refineries were closed for weeks as repairs progressed. More than 30 oil platforms in the Gulf were lost. The oil spills related to Katrina approached some of America's biggest, with a total of 7.4 million gallons lost. New Orleans was also a major U.S. port for crude oil, and its operations were disrupted for months. Crude oil hit a record high of $70 a gallon. Gasoline went from $2.50 a gallon before Katrina to more than $3 a gallon. In the South, some stations were selling gasoline for more than $6 a gallon, prompting federal inquiries into price-gouging. The South also reported long lines at stations and panic buying. The job losses in the oil industry contributed to a major increase in unemployment. President George W. Bush drew from the Strategic Oil Reserve to hold gasoline prices down.

This level of destruction from a natural disaster had never been seen. Congress appropriated $62 million in aid for the victims. Private organizations raised another $5 billion. At least 700,000 people needed housing assistance. More than half of the states provided help to evacuees. Some 80,000 people went to Houston, Texas, for temporary help. The major long-term costs were in the rebuilding of the levee system in New Orleans, which continues today and has cost more than $8 billion. In Mississippi, tourism was badly hurt as casinos and beaches suffered major damage. In all, even the initial relief aid took weeks to reach recipients, the cleanup took months, and the rebuilding has stretched into years.

Quentin R. Skrabec Jr.

See also: *Vol. 2: Macroeconomics:* Federal Reserve System

Further Reading

Editors of *Time* Magazine. 2005. *Hurricane Katrina: The storm that changed America.* New York: Time.

Home, Jed. 2008. *Breach of Faith: Hurricane Katrina and the near death of a great American city.* New York: Random House.

HURRICANE SANDY, 2012

Hurricane Sandy, which had a diameter of more than 1,000 miles, was the largest Atlantic hurricane on record. It hit New Jersey and New York, just north of Atlantic City, on October 29 and ultimately affected over 24 states. Although it was only a weak Category 2 storm, it merged with a frontal storm, and newspapers gave it such nicknames as "Superstorm Sandy" and "Megastorm Sandy." Its low barometric pressure was just one of the records it set for an Atlantic storm. Its destructive damage cost $68 billion, an amount surpassed only by Hurricane Katrina. Hurricane Sandy passed through seven countries, leaving a total death toll exceeding 300; 117 of those deaths were in eight U.S. states. The low-lying areas of New York and the Jersey shore were hit with major storm damage. More than 6 million customers lost electricity in the wake of the storm. Because of the exceptional damage and the deaths caused by the storm, the World Meteorological Organization officially retired the name 'Sandy."

Sandy attracted major media coverage, as the slow-moving giant was predicted to merge with a surface low, creating a superstorm. Sandy was a hybrid of a hurricane and a winter storm. Headlines used terms like "Frankenstorm" as the merger took place a few days before Halloween. The meteorological term is the "Fujiwhara effect." On October 25, 2012, Hurricane Sandy hit Cuba and Jamaica as a Category 2 hurricane, killing 51 people. Sandy eased to a Category 1 hurricane as it approached the North American shore. As the storm approached, President Barack Obama signed an emergency declaration on October 25 to set up funds necessary for a potential disaster. The slowness of the storm allowed for extensive media coverage and reactions such as panic buying.

The reaction reached the crisis point on October 28, 2012, as New York City shut down its subway and commuter rail services. The city public schools were also closed, and the city's businesses started to shut down. Airlines on the East Coast started massive flight cancellations, running into the thousands. The New York Stock Exchange canceled its October 29 operations and remained down a second day after impact. Governors in New York and New Jersey mobilized the National Guard. Governors from the Carolinas to New England took emergency action. Similarly, Washington, D.C., shut down government operations. Amtrak closed down much of its East Coast operations.

When Sandy hit the coast on October 29, it was a Category 2 storm, but still it set several records. Its barometric pressure of 940 millibars (mbar) was the lowest ever recorded for an Atlantic hurricane. It also broke New York Harbor's surf record. The preparation for the storm's landfall had been extensive, including evacuations of residents in low coastal areas and cancellations of major events and transportation in the New York and New Jersey areas. Still, New Jersey reported 34 deaths and New York State reported 53 deaths. These two states took the brunt of the storm as the storm surge approached 15 feet.

In New Jersey, coastal cities had five feet of water in the streets. Hoboken, a city of 50,000, was flooded and had to be evacuated. Part of the boardwalk at Atlantic City was washed away. The damage in New Jersey was estimated at $30 billion. At the peak, more than 2.6 million electric customers were without power, and the neighboring Philadelphia area had more than 1.2 million without power. Gasoline shortages required rationing. The cost to state businesses also ran into the billions.

In New York, large sections of Manhattan were flooded. The New York subway system sustained the worst damage in its 108-year history. The total damage to the subway system exceeded $5 billion. More than 100,000 houses on Long Island were damaged or destroyed. Housing damage in the state of New York was estimated at $9.3 billion. As treatment plants were flooded, 10 billion gallons of raw sewage was backed up into the area's water systems. Area business came to a standstill. It was estimated that the cost to business in the state of New York exceeded $6 billion. The two-day closure of the New York Stock Exchange was the first since the Great Blizzard of 1888. Gasoline shortages caused panic buying for two weeks after the storm. The federal government had to truck gasoline into the city and set up mobile distribution centers. On November 8, the city mandated an odd–even rationing system. Estimates for the physical damage in the state of New York were estimated at more than $40 billion.

Sandy occurred in a presidential election year, which caused much debate about the costs to the public and the government's response to the storm. In addition, the idea of climate change was thrown into the mix. Still, private Americans pulled together with aid donations. After much debate, the federal government passed a $50.5 billion relief bill on January 28, 2013. To date, private insurance claims from the storm have passed $15 billion.

Quentin R. Skrabec Jr.

See also: Hurricane Katrina, 2005; *Vol. 2: Macroeconomics:* Federal Reserve System

Further Reading

New York Post, ed. *Sandy: A story of complete devastation, courage, and recovery.* New York: Triumph Books, 2013.

I

IDENTITY ECONOMICS

Identity economics is the study of economic behaviors that are shaped by social norms. Identities influence decisions, because (Akerlof and Kranton 2010, 13) "different norms for behavior are associated with different social categories."

Akerlof and Kranton (2010, 43) model the behaviors of "insiders" and "outsiders." "Insiders have an ideal of how they should or should not behave"; they "lose utility if they fail to live up to that ideal." One's identity then has a large impact on one's productivity and on a variety of other behaviors, holding many of the traditional economic variables constant. Akerlof and Kranton apply the model to the economics of organizations, education, gender, and race. The model points to policies other than standard economics.

Example 1: Akerlof and Kranton present the military as an example of an organization that casts civilians as outsiders. Rules of behavior create a culture of insiders. Short haircuts, uniforms, and oaths of office are means of creating a common identity. Officers must obey the rules of the organization and follow orders given in the chain of command. Harsh training is instrumental to creating self-image. Pride in being part of the organization and the sense of accomplishment gained from defending the nation are the rewards. Akerlof and Kranton (2010, 59) derive the result that "if employees think of themselves as insiders rather than outsiders, the pay differentials needed to induce high effort will be lower."

Example 2: With regard to the economics of education, Akerlof and Kranton (2010) analyze reforms in schools in New York City and in New Haven, Connecticut. They conclude that giving students the opportunity to choose what they wanted to study made the students feel like insiders and avoided disruption. "Life skills" curricula were introduced for non-college-bound students, and advanced placement classes and a chess club was introduced for people who wanted to be "nerds."

Example 3: About gender and work, Akerlof and Kranton (2010, 91) write that "The Supreme Court ruled in 1971 that it is illegal to treat individual women according to a group stereotype, even when on average women have attributes that make them undesirable employees." Nevertheless, studies indicate that people continue to view some jobs as appropriate for men and others for women. Akerlof and Kranton continue (2010, 92): "*Berkman v. City of New York* reinstated a woman firefighter who had been dismissed because of substandard work. The court ruled that harassment by her male co-workers made it impossible for her to perform her job adequately." Legal arguments defending Berkman were based on the Akerlof–Kranton concept of insiders and outsiders.

Charlotte D. Phelps

See also: Social Capital and Personal Capital; Social Preferences within a Population; *Vol. 3: Microeconomics:* Akerlof, George

Further Reading

Akerlof, George A., and Rachel E. Kranton. 2010. *Identity economics*. Princeton, NJ: Princeton Univ. Press.
Fliegel, Seymour.1993. *Miracle in East Harlem: The fight for choice in public education*. New York: Random House.
Lipsky, David. 2003. *Absolutely American: Four years at West Point*. Boston: Houghton Mifflin.
Shultz, Vicki. 2003. The sanitized workplace. *Yale Law Journal* 112: 2061–2193.

IDENTITY THEFT

Identity theft and *identity fraud* are terms used to refer to all types of crime in which an individual wrongfully obtains and uses another's personally identifiable information in some way that involves fraud or deception, typically for economic gain.

The terms *identity theft* and *identity fraud* are used interchangeably. *Identity fraud* is the umbrella term that refers to a number of crimes involving the use of false identification, though not necessarily using another person's identification. *Identity theft* is the specific form of identity fraud that involves using the personally identifiable information of another individual. Identity theft as a form of fraud may directly affect the life of the victim whose identity is stolen, in addition to defrauding that person as well as third parties (creditors, employers, insurance providers, etc.)

Current federal law defines *identity theft* as a federal crime in which someone "knowingly transfers, possesses, or uses, without lawful authority, a means of identification of another person with the intent to commit, or to aid or abet, or in connection with, any unlawful activity that constitutes a violation of Federal law, or that constitutes a felony under any applicable State or local law."

Identity theft is also defined by federal regulations as "fraud committed or attempted using the identifying information of another person without permission." Identity theft can therefore both facilitate and be facilitated by other crimes. For instance, identity theft may enable crimes such as bank fraud, document fraud, employment fraud, or immigration fraud. Obviously, identity theft may be furthered by crimes such as robbery or burglary.

Different Forms of Identity Theft

There are various forms of identity theft and identity fraud. *Financial* identity theft occurs when an identity thief accesses a victim's bank accounts and credit or debt account records. Individual victims are often protected under the Electronic Funds Transfer Act (EFTA), but financial institutions suffer billions of dollars in losses each year.

Medical identity theft and insurance identity theft are two types of identity theft that not only impact victims' finances, but also carry potentially life-threatening consequences. When someone receives health care using another person's insurance benefits, this may preclude the true insured from receiving much needed care in the case of an emergency. The World Health Organization has identified this as an information crime that can kill—and as one of the most difficult forms of identity theft theft to fix.

Criminal identity theft occurs when a thief uses a victim's identity during the committal of a crime and is subsequently caught and processed under the name of the victim. It becomes very difficult for such victims to eradicate their names from "the system." For example, the victim's credit record may be damaged due to the malfeasance of the criminal.

Driver's license identity theft occurs when a person's wallet or purse is lost or stolen and a thief sells the driver's license to someone who then continues to acquire other forms of identifications in the victim's name.

Social Security identity theft occurs when an individual uses someone else's Social Security Number in order to work legally. The thief may be an illegal immigrant or an American citizen who is trying to avoid detection by the authorities. The problem emerges when the victim tries to collect government benefits or file a tax return. To monitor this potential form of theft, individuals should review their annual Social Security Administration statement to ensure that only their wages are being reported to the Social Security Administration.

Child identity theft occurs when an adult, often a family member, uses a child's information to create accounts in the child's name. Child victims will not learn about this type of identity theft until they attempt to apply for student loans or other credit when they are older. Often, the information comes to light when a young adult is denied a loan request due to a bad credit history. Parents should begin monitoring their children's credit reports at age 16; this should give the parents time to repair any damage from an identity theft.

Impact of Identity Theft

According to a report prepared by the Congressional Research Service in 2010, over eight million Americans were victims of identity fraud, and the average victim incurred a direct cost of $631 as a result of the identity theft. The report found identity fraud costs to be at their highest level since 2007.

According to the Department of Justice, the total financial cost of identity theft over a two-year period covering 2009–2010 was nearly $17.3 billion, with almost 25 percent of identity theft victims suffering an actual out-of-pocket financial loss from their victimization. Almost half of the victims reported having to spend at least one full day trying to resolve the financial and credit problems associated with their identity theft, and 3 percent continued to experience problems related to the fraud more than six months after discovering it.

Victims of identity theft should immediately contact both their local police and the Federal Trade Commission to file a report. Next, they should contact all three of the major credit bureaus to report the fraud; ask to have a freeze placed on their credit report, which will warn any potential new creditors not to open a new account under their name; and ask for a copy of their credit reports. Victim should then contact the creditors and financial institutions that have been impacted by the fraud and inform them that an identity thief has taken over the account or that the account was created in their name but without their knowledge.

Identity Theft Prevention

The U.S. Department of Justice has created an education program called "SCAM," which stands for *S*tingy, *C*heck, *A*sk, and *M*aintain. Consumers should be *stingy* or cautious about whom they share personal identifying personal information with. They should regularly *check* their financial information, such as bank and credit card statements, for any unusual activity. Consumers should *ask* for a copy of their free credit report annually, which they are entitled to under the Fair and Accurate Credit Transactions (FACT) Act, and look for any accounts that are not theirs. Lastly, they should *maintain* careful financial records. All bank statements and credit card statements should be kept for a minimum of one year.

Consumers should keep all their important financial and legal papers secure, and they should shred documents that contain sensitive financial and personal information before disposing of them. It is also important for consumers to limit any personal information they carry in their purses or wallets; they should avoid keeping birth certificates and Social Security cards on their person in case of loss or theft.

Leslie E. Linfield

See also: Social Security; *Vol. 2: Macroeconomics:* Debt; *Vol. 3: Microeconomics:* Consumer Credit and Debt; Credit Cards; Credit Report; Debt and Credit Counseling; Federal Trade Commission; *Vol. 4: Global Economics:* World Health Organization

Further Reading

American Bar Association. n.d. Bankruptcy. http://www.americanbar.org/groups/public_education/resources/law_issues_for_consumers/bankruptcypros.html (accessed October 15, 2013).

Federal Trade Commission. n.d. Consumer information: Privacy, identity & online security. http://www.consumer.ftc.gov/topics/privacy-identity (accessed November 5, 2013).

Tabb, Charles Jordan. 1995. The history of the bankruptcy laws in the United States. *American Bankruptcy Institute Law Review* III (5): 5–51.

U.S. Department of Justice. 2015. Identity theft: What are identity theft and identity fraud? http://www.justice.gov/criminal/fraud/websites/idtheft.html (accessed November 5, 2013).

IMMIGRATION: GLOBAL OVERVIEW

Immigrants are individuals who move to a foreign country. They may move to settle permanently, they may intend to return home after an extended settlement, or they may be undecided about the length of time they will stay in the foreign country when they arrive.

"Push" and "pull" factors are the driving agents that motivate immigration. Push factors include civil unrest or a bleak financial outlook in the migrants' home country. Pull factors include political stability or a strong economic infrastructure in the country to which migrants have chosen to immigrate. Often, both push and pull factors encourage people to immigrate to a given country. For example, people may decide to immigrate due to there being few economic opportunities in their home country, and they may choose to enter a country with a relatively high level of political stability versus a country that is wealthy but tumultuous. A country is more likely to encourage immigration from skilled or wealthy individuals than low-skilled and poor individuals.

Economic migration, also termed labor migration, is migration in which individuals leave one country for another due to perceived economic improvements in the country to which they are migrating. In order for migrants to leave their home country, the new nation's available earnings must be relatively high and the traveling costs minimally low enough to offset the necessary expenses of immigration. In the event that the appraisal of wages in the new nation does not surpass the estimation of wages in the nation of origin, immigrants may decide not to relocate, since the length of time spent in the new country may not be sufficient to help offset the costs. As a case in point, during the mid- to late 1800s the United States experienced high levels of immigration due to a rapidly expanding economy. Generally, low-skilled individuals in developing countries can improve their wages by transferring their labor to more developed nations.

The effects of economic migration are multiple. In the short term, a migrant's country of origin may experience benefits and incur costs but in the long run may stand to net a significant loss. This is generally true of highly skilled scarce workers. On the receiving end, the migrant's country of destination may benefit from an increased pool of highly skilled and previously scarce workers.

An increase in highly skilled laborers from generally developing nations, also known as "brain drain migration," might mean decreased wages for domestic workers. One of the undesired, unintended consequences of migration due to an overabundance of certain types of labor may be housing shortages in certain neighborhoods and segregated cities.

In the United States, the impact of immigrant labor on domestic labor has been to depress the wages of comparable domestic workers. The Brookings Institution finds that the recent wave of younger and relatively unskilled immigrants from developing countries has had a greater negative impact on similarly young and unskilled U.S. domestic laborers due to increased competition (Burtless 1996). The Center for Immigration Studies arrives at similar findings (Hirschman and Mogford 2009); according to this study, those who bear the brunt of direct competition with new immigrants are native-born workers lacking a high school degree, African Americans, and a broad base of Hispanic laborers.

Francisco Ortega

See also: *Vol. 4: Global Economics:* Brain Drain

Further Reading

Brooks, Philip. 2003. *Immigration*. Chicago, IL: Capstone Classroom.

Burtless, Gary. 1996. Worsening American Income: Inequality: Is world trade to blame? Brookings Institution. www.brookings.edu/research/articles/1996/03/spring-poverty-burtless (accessed November 30, 2016).

Bush, Jeb, and Clint Bolick. 2014. *Immigration wars: Forging an American solution*. New York: Simon and Schuster.

Hirschman, Charles, and Elizabeth Mogford. 2009. Immigration and the American industrial revolution from 1880 to 1920. U.S. National Library of Medicine. www.ncbi.nlm.nih.gov/pmc/articles/PMC2760060/ (accessed November 30, 2016).

INDUSTRIAL REVOLUTION

The 18th century is remembered for some of the most significant world events in all of history. The year 1776 especially stands out: 13 little colonies declared their independence from England, and a Scottish professor published a book that changed the world of economics. But prior to those two monumental events, another era began in the 18th century and continued to the middle of the 19th century. The Industrial Revolution changed the worlds of agriculture, transportation, textiles, manufacturing, and economic policies to new and higher achievements, innovations, and inventions that would change the world forever.

An era is labeled as a revolution when the old is permanently replaced by a new way of life. The Industrial Revolution definitely accomplished that feat. Yet, as opposed to revolutions like the American Revolution, which lasted several years, the Industrial Revolution replaced the old with the new over a period of nearly 100 years. The Industrial Revolution is generally considered to have begun in 1760 and lasted to 1850. Interestingly, the Industrial Revolution surrounded the new little country, the United States, from when it won its independence from England to just before it engaged in its own worst internal war, the Civil War.

The achievements and improved standards of living reached during the Industrial Revolution were the highest. New advances in industrial organization and technologies increased productivity and efficiencies. Profits increased, and manufacturing became an industry in its own right. New agricultural methods allowed more food to be grown and supplied by fewer farmers, while other agricultural advancements gave producers more efficient ways to obtain the earth's raw materials for production. Between advances in agriculture and advances in manufacturing, an interesting serendipity was occurring with regard to labor. As advances in manufacturing necessitated the need for more labor, advances in agriculture resulted in the need for less labor. While the transition certainly occurred over time, the agricultural labor that was no longer being used was gradually finding its way to the manufacturing sector. This also brought with it the demographic move of labor from rural areas to the cities, spawning significant growth in urban areas.

Some of the more notable achievements of the Industrial Revolution in agriculture included improved land use through crop rotation to improve soil fertility. Metal replaced wood in the making of certain farm equipment, and horses replaced oxen as the main source of power for plows. These improvements, as minor as they might sound, increased crop yields. The increased crop yields also led to increased livestock sustainability and growth for meat. This was especially important during the winter in England.

As manufacturing grew, the need for additional raw materials grew accordingly. One example of improvement in access to raw materials came in the coal-mining industry. Coal mining has always been a dangerous occupation. During the Industrial Revolution, coal mining was often a family affair, involving the women and children as well as the men. In the 18th and 19th centuries, several improvements made coal mining not only less dangerous (relatively speaking) but also more productive. Using ponies (and later carts on rails) as opposed to manual labor for transporting the coal to the surface made the mining process smoother. Other improvements, including better tunnel ventilation and lighting using safety lamps, improved the coal miners' ability to mine the coal. The miners also began using gunpowder to loosen the coal from the ground. By 1829, the coal-mining industry experienced a sevenfold increase in coal production. Similar to the improvements in coal mining were the improvements in the production of iron. Abraham Darby invented a way to make smelt pig iron using coke instead of charcoal. While the method was primitive and had its faults, it was beginning to future improvements and technologies for higher-quality iron.

As manufacturing continued to grow, improve, innovate, and produce more goods for market, transportation and communications became more important for getting the goods to those markets. Initial transportation improvements during the 1770s occurred in the use of canals. However, the railroad was right behind, and canal use was short-lived. Early railroads imitated the rail systems that had been designed for coal mining. A second improvement in railroad transportation was the use of the steam engine. The growth and dominance of railroads in England lasted for nearly 100 years, spawned by the need for better transportation to get the manufactured goods to market.

An industry closely associated with the Industrial Revolution is the textile industry. Before the Industrial Revolution, the entire textiles process was accomplished in the home by mothers and daughters. At that time, the goods produced in the textile industry consisted primarily of woolen cloth, cotton, and silk. The textile industry was truly a cottage industry, with much of the process outsourced across a locality. An invention "assault" took place during the 1770s that changed this industry forever. John Kay invented a new weaver that allowed individual weavers to double their workload. Lewis Paul invented a roller spinner to make spinning more efficient. James Hargreaves's invention allowed the user to spin literally dozens of threads at one time. Richard Arkwright perfected the roller spinner using a water frame. Arkwright's device was similar to the roller spinner, but it used water, not human labor, to generate power. Arkwright started his textile factory in Cromford, England, employing 600 people—mostly women and children who were already experienced in working with a roller spinner. Arkwright later invented a machine to comb the raw material to keep up the increased production of cotton in his factory.

Universally accepted as the greatest manufacturing achievement of the Industrial Revolution were the advancements in steam power. The invention of the steam engine is credited to James Watt, but in fact he was improving upon an earlier design by Thomas Savery and Thomas Newcomen. His many enhancements to the original design significantly increased steam engine efficiency. One of his secrets was to apply gun-making skills to making his cylinders for the engine. Manufacturing and transporting goods to market took a giant step forward as the steam engine operated more efficiently. The steam engine also freed up mill owners and factory owners to move their industries to more convenient, efficient locations.

Finally, during the 18th century the population grew faster than at any time in history. The birth rate increased, and the death rate decreased. The vast increase in food supply was evident in the health and well-being of the population, as they were now eating healthier foods. Healthier eating also led to the disappearance of plagues. Higher wages were being earned in the manufacturing sector. Consumption increased in clothing and housing, both of which showed marked improvement in quality.

The Industrial Revolution gave humankind many new inventions and processes through which to improve economic growth—and as a result to achieve a better standard of living. It began as people moved to where factories were located, away from the villages and rural agricultural areas. Of course, the population growth around factories and towns brought new issues and problems. But the Industrial Revolution was just as labeled: a *revolution* that replaced the old with the new and took humanity to a point from which it would never return.

David A. Dieterle

See also: Classical Economic Thought; Smith, Adam; Urbanization; *Vol. 2: Macroeconomics:* Agrarian Economy; *Vol. 3: Microeconomics:* Productivity

Further Reading

Ashton, T. S. 1969. *The industrial revolution.* London: Oxford Univ. Press.

EncyclopediaBrittanica.com. 2016. Industrial revolution. www.britannica.com/event/Industrial-Revolution (accessed February 14, 2016).

History.com. 2009. Industrial revolution. www.history.com/topics/industrial-revolution (accessed February 14, 2016).

Montagna, Joseph A. n.d. The industrial revolution. Yale-New Haven Teachers Institute. www.yale.edu/ynhti/curriculum/units/1981/2/81.02.06.x.html.

Toynbee, A. 1957. *The industrial revolution*. Boston: Beacon Press.

INFORMAL ECONOMY

The *informal economy* consists of business activity that is not reported to the government. Many other terms are used to describe unreported business activity, including *underground economy*, *shadow economy*, *gray economy*, and *informal sector*. Just as there are competing terms for the informal economy, there are also competing definitions. To some economists, the informal economy consists of legal types of transactions that take place in an extralegal business environment. For example, unlicensed street vendors conduct legal business in many urban areas throughout the world, but for various reasons do not report business receipts or pay taxes to the government. Other economists include legal and illegal business enterprise in the informal economy. This broader definition accounts for financial and nonfinancial transactions of informal entrepreneurs, such as shopkeepers and craftsmen, and the criminal activities of drug traffickers, arms smugglers, and gambling rings.

Most informal economy business activity represents legal, if unreported productive enterprise. Business organization in the informal economy is diverse. One type of business structure is the informal *own-account enterprise*. Self-employed entrepreneurs such as street vendors, taxicab drivers, and repairmen own and operate own-account enterprises. These entrepreneurs sometimes work alone. However, these entrepreneurs often rely on paid or unpaid assistance from family members to run the business. Many of the businesses, such as street vendors, are mobile; others operate out of the entrepreneur's home. A second type of business structure is the microenterprise. A *microenterprise* typically employs several laborers on a regular basis. Employee compensation might include a wage or an in-kind benefit such as food or shelter. Auto repair shops and small-scale construction enterprises are sometimes organized as microenterprises. A third type of business structure is the established business firm that conducts a portion of its business in the *informal* economy. Production in the extralegal sector is usually a cost-cutting strategy. Low wages, tax avoidance, and the circumvention of government regulations motivate some established businesses to operate in the informal sector. In most parts of the world, people accept jobs in the informal sector to meet their subsistence needs for food, clothing, and shelter.

Informal economies operate beneath the layer of formal, reported business activity in all countries. The largest informal economies are found in the developing countries and in emerging market economies. The smallest informal economies appear in the advanced economies. A study by economists Friedrich Schneider and Dominik H. Enste, published as *The Shadow Economy: An International Survey* (2003), quantified the size of the informal sectors of 110 countries by estimating the value of unreported business activity as a percent of gross national product (GNP). Schneider and Enste concluded that the largest informal economies exist in Africa, South America, and the transition countries of Eastern and Central Europe. Smaller informal economies exist in North America, Oceania, and Western Europe. The survey also noted tremendous variation within world regions. In Asia, for example, informal sector activity accounted for more than 40 percent of GNP in the Philippines, Sri Lanka, and Thailand, but less than 15 percent of GNP in China, Singapore, and Japan. Key factors that increase informal sector business activity include high business taxes, stifling business regulations, low worker education and skills, and dire poverty. Factors that reduce informal sector business activity include high national income, universal public education, good governance and the rule of law, and property rights.

The existence of informal economies in the global economy is well-documented. The magnitude of the informal sector has stimulated serious discussion about how to improve the lives of people working in the extralegal sector. Hernando de Soto, a noted Peruvian development economist, supports the extension of private property rights for the poor as a means to harness the power of the informal sector in his homeland. The World Bank supports improvements in the delivery of basic services to the marginalized poor, regulatory reform to remove barriers to business formation, worker training programs, and expanded access to credit for start-up firms. The International Labor Organization (ILO) stresses the improvement of human capital in developing countries. In 2000, the ILO formally proposed education and training of workers and managers in the informal economy. Improved knowledge and skills were viewed as necessary to improve workers' immediate standard of living and to create new opportunities for workers in the formal economy. Grassroots initiatives, such as the Movement of Landless Rural Workers in Brazil, pressure governments to redistribute idle agricultural land and to grant property rights to the poor.

David E. O'Connor

See also: Entrepreneurship; *Vol. 4: Global Economics:* Developing Countries; De Soto, Hernando; Development Economics; International Labor Organization

Further Reading

De Soto, Hernando. 2003. *The mystery of capital: Why capitalism triumphs in the west and fails everywhere else.* New York: Basic Books.

Jhabvala, Renana, Ratna M. Sudarshan, and Jeemol Unni, eds. 2003. *Informal economy centre stage: New structures of employment.* Thousand Oaks, CA: SAGE Publications.

Lund, Francie, and Jillian Nicholson. 2004. *Chains of production, ladders of protection: Social protection for workers in the informal economy.* Washington, DC: The World Bank Publications.

Schneider, Friedrich, and Dominik H. Enste. 2003. *The shadow economy: An international survey.* New York: Cambridge Univ. Press.

Williams, Colin C. 2004. *Cash-in-hand work: The underground sector and the hidden economy of favours.* New York: Palgrave Macmillan.

INSTITUTIONAL ECONOMICS

Central to institutional economics are the concepts of evolution (in contrast to equilibrium), learning (instead of fixed preferences), and bounded rationality. Institutional approaches have always been rooted in the behavioral/cognitive sciences. John R. Commons regarded the mind as a cultural product (socially constituted). Commons's insight was not that people are bound by custom, but rather that individuals are influenced by society and simultaneously exert influence on that society by creatively challenging and adapting to the culture that it generates (and is generated by it).

Thorstein Veblen made fun of outmoded consumer theory. "The hedonistic conception of man is that of a lightning calculator of pleasures and pains who oscillates like a homogeneous globule of desire of happiness under the impulse of stimuli that shift him about the area, but leave him intact . . ." (1898, 389). The "outmoded consumer theory" Veblen refers to assumes that people constantly calculate to their advantage as an axiom underlying all human behavior. Humans can and of course do, in some settings, calculate—but not all the time or across all types of decisions. Brain capacity is limited, and some scholars, such as Gerd Gigerenzer (known for "fast and frugal" heuristics) argue that these limitations provide valuable adaptive advantage without calculation or exhaustive optimization. Attention is also limited. One of Herbert Simon's important contributions was to point out and provide formal models of how perceptive scales and attention can be governed by threshold conditions rather than continuous relationships with cues in the decision-maker's environment. Humans constitute multiple selves. Which one dominates at a given time is contextual. Preferences are not given. Rather, they evolve. Whereas neoclassical economics treats preferences as a purely intrinsic attribute analogous to personality traits in the field of psychology, institutional economists propose that preferences themselves are a social phenomenon, as individuals learn from what others are doing.

Learning is central to the evolution of preferences. When prices change and choices adapt, consumption (and investment) may not return to the old equilibrium even after prices return to their initial values. For example, when new products are substituted for old ones, people may decide they like the new ones they did not seriously consider before. It cannot be assumed that consumers or businesses have a complete inventory of all possible products and have already attached an ordinal or cardinal weighting to these products. For example, when automobile manufacturers face mandates on mileage or pollution emissions, they may develop new technologies that they never bothered to investigate before.

People are emotional, and they do not like to admit their mistakes. In some domains, however, emotions can be a source of intelligence and a performance-improving cue for guiding decisions. An example of emotions hindering performance would be when the price of assets declines and unemotional analysis suggests little hope for recovery, but the owner of those assets still refuses to sell. The owner may reason that the loss has not occurred if the asset is retained. Contemporary institutional economists have embraced the insights of Daniel Kahneman, who observed behavioral regularities such as anchoring, defaults, availability, and regression to the mean.

The performance of an economy is not the outcome of a mysterious invisible hand, but rather the rules of the game: institutional choices. "Different laws lead to different markets and thus to different prices and resource allocations" (Samuels 2011, 295).

Hard moral interpersonal choices cannot be avoided, even with two widely agreed-upon policies—namely, competitive markets and democracy. There are still many details of markets and income distribution that affect performance. Likewise, simple voting ignores such details as agenda control and boundaries of voting districts. Kenneth Arrow stated, "Empirically we can reject the idea that consensus can be found in the expressed individual wills" (1986, vii). It does not take a formal model to see that each and every citizen cannot be sovereign if citizens have conflicting interests. Rules for making rules include both constitutions and everyday rules of legislatures and corporate boards of directors and committees.

Joan Robinson suggests that "The Keynesian revolution has destroyed the soporific doctrines, and its own metaphysics is thin and easy to see through. We are left in the uncomfortable situation of having to think for ourselves" (1979, 149). The popular demand for obfuscation and avoidance of responsibility is another behavioral regularity. Erich Fromm called it the escape from freedom. Institutional economics forces us to think through the multiplicity of variables—behavioral and other—that are required to understand the workings and evolution of economies.

Alfred Allan Schmid

See also: Animal Spirits; *Vol. 3: Microeconomics:* Arrow, Kenneth; Kahneman, Daniel; Simon, Herbert; Veblen, Thorstein

Further Reading

Arrow, Kenneth. 1986. *Social choice and individual values*. New Haven, CT: Yale Univ. Press.

Berg, Nathan. 2008. Simplicity in institutional design. In *Alternative institutional structures*, ed. Sandra Batie and Nicholas Mercuro, 140–64. New York: Routledge.

Commons, John R. 1934. *Institutional economics*. New York: Macmillan.

Hodgson, Geoff, and Thorbjørn Knudsen. 2010. *Darwin's conjecture: The search for general principles of social and economic evolution*. Chicago, IL: Univ. of Chicago Press.

Kahneman, Daniel. 2011. *Thinking, fast and slow*. New York: Farrar, Straus & Giroux.

North, Douglass C. 1990. *Institutions, institutional change and economic performance*. New York: Cambridge Univ. Press.

Robinson, Joan. 1979. *Economic philosophy*. London: C. A. Watts.

Samuels, Warren. 2011. *Erasing the invisible hand*. Cambridge, UK: Cambridge Univ. Press.

Schmid, A. Allan. 2004. *Conflict and cooperation*. Cambridge, UK: Blackwell.

Simon, Herbert. 1979. Rational decision making in business organizations. *American Economic Review* 69: 493–513.

Veblen, Thorstein. 1898. Why is economics not an evolutionary science? *Quarterly Journal of Economics* 12: 373–97.

INTELLECTUAL PROPERTY RIGHTS

Rights that refer to creations of the mind or creative processes are termed as *intellectual property rights*. These consist primarily of trademarks; patents; copyrights; and related items such as trade secrets to protect inventions, books, software, music, and numerous other products.

Internationally, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) created by the World Trade Organization (WTO) came from the 1986–1994 Uruguay Rounds, multilateral discussions on international trade. This Agreement set the precedent for protecting the ideas and creations of innovators. relating those rights to the global trading environment (WTO n.d.). It allowed innovators to prevent their ideas or their products from being used without proper compensation.

The trademark is an often-used intellectual rights protection. A *trademark* is a distinctive mark, motto, device, or emblem that a manufacturer stamps, prints, or otherwise affixes to the goods it produces, to distinguish those good from those of other manufacturers (Miller 2013, 207–10). In the United States of America, trademarks can be registered with the U.S. Patent and Trademark Office, although they do not necessarily require registration to be protected. Courts generally use the rule of reason and likeness to determine whether an infringement has occurred. If another product copies a trademark to a considerable amount, the copying party can be charging. Common words cannot be trademarked, as their general use is not attributed to a specific party. A trademark is well protected if it is easily distinguishable with unique features. This can also apply to the appearance of an item, such as the old-fashioned Coca-Cola bottles. This right is commonly referred to as *trade dress*.

The copyright is another common intellectual property right. A *copyright* is an intangible right belonging to the originator of literary or artistic productions. A copyrighted item must fit a certain category, be fixed in a durable medium, and be original (Miller 2013, 219–21). To "fit a certain category" means that a production must be specifically musical, artistic, or any other specific field.

To be a "durable medium" requires the production to be in a format that can be seen, reproduced, or communicated. An infringement occurs when a substantial part of the original work is illegally reproduced. In 2009, the street artist Shepard Fairey and the Associated Press got into a legal battle over the artist's creation of the Barack Obama "Hope" poster. The poster appeared to have been an artistic reproduction of a photo taken originally by Mannie Garcia of the Associated Press. In 2010, the parties settled the civil suit amicably when Fairey agreed to acquire proper permission for future photos and the sharing of rights and reproduction of the "Hope" poster. They also agreed to share rights and work in tandem on future creative projects (Kennedy 2011). The original crux of the argument was the concept of "fair use" allowing for the use of a work for criticism, news reporting, teaching, scholarship, or research. An infringement may still occur based on the effect of the reproduction on the market for the original work (Miller 2013, 221).

For specific items of intellectual property, individuals or organizations can obtain a patent. Most patents applied for and granted are not for intellectual property. A *patent* is a granted exclusive right to make, use, and sell an invention for a period of 20 years. A *patentable item* must be an invention, discovery, or design that must be genuine, novel, useful, and not obvious in lieu of modern technology (Miller 2013, 215–18). A *patent right* is infringed upon when the product is used without the permission of the patent owner.

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See also: *Vol. 3: Microeconomics:* Trademarks and Patents; *Vol. 4: Global Economics:* World Trade Organization

Further Reading

Kennedy, Randy. 2011. Shepard Fairey and the A.P. settle legal dispute. *New York Times*, January 12. http://www.nytimes.com/2011/01/13/arts/design/13fairey.html?_r=0 (accessed June 20, 2015).

Miller, Roger L., and Frank B. Cross. 2013. *The legal environment today: Business in its ethical, regulatory, e-commerce and global setting.* 7th ed. Boston: Cengage Learning.

World Trade Organization. n.d. Intellectual property: Protection and enforcement. https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm7_e.htm (accessed June 20, 2015).

INTERNAL REVENUE SERVICE

History

In 1862, during the Civil War, Congress passed and President Abraham Lincoln signed a bill establishing the position of Commissioner of Internal Revenue. The commissioner was charged with collecting income taxes to help pay for the Union's war expenses. The income tax was repealed a decade later. In 1894, the income tax was again instituted, and a year later it was again ruled unconstitutional by the Supreme Court. The income tax did not become legal until the passing and ratification of the U.S. Constitution's 16th Amendment in 1913. The 16th Amendment made income tax a legal form of revenue collection for the federal government to authorize.

The first income tax, levied in 1913, was 1 percent on a person's net income above $3,000, and 6 percent on incomes above $500,000. The income tax was increased to 77 percent in 1918 to finance World War I, but it was dropped to 24 percent in 1929.

The federal government was also a victim of the Great Depression, and again it raised the income tax rate. Congress began payroll withholding and quarterly tax payments to raise revenue during World War II.

Over time, the Bureau of Internal Revenue had become a government agency of patronage. To move away from this, during the 1950s it was restructured and became the Internal Revenue Service, or IRS. The chief counsel and commissioner of the IRS were appointed by the president, with confirmation by the Senate. The IRS was significantly restructured again in 1998, with the Restructuring and Reform Act. The essence of this second restructuring was to create an organization focusing on its consumer needs as if it were a business in the private sector. One significant change to the IRS through the Act was the way in which it interfaced with taxpayers. In addition to modernizing itself as a federal institution, the IRS developed a system of taxpayers' rights. The new IRS was charged with assisting taxpayers with the preparation of their tax returns, helping with submission and compliance. The aim was for the agency to be more to the public than just a tax collector. For those who did not comply, the IRS was to enforce the laws and policies of the U.S. government.

The IRS Today

Headquartered in Washington, D.C., the IRS is the largest bureau of the U.S. Department of the Treasury. The IRS is responsible for assessing and collecting tax revenue for the federal government. The IRS collects not only personal income taxes but also corporate income taxes, estate taxes, gift taxes, excise taxes, and employment taxes for the Social Security Administration. The IRS today is considered by many to be one of the most efficient tax administrators in the world, processing over 220 million tax returns, based on 2004 IRS data. According to the *2012 IRS Data Book*, the IRS spends only 48 cents per $100 collected.

At the same time, many others have labeled the IRS the most mistrusted and unpopular federal agency of them all. As the federal government's tax collector, it often finds itself in the middle of, or a topic of, political debates over government funding or the roles and enforcement of IRS policies. When the IRS Restructuring and Reform Act of 1998 was passed, instituting a more comprehensive IRS philosophy, with an expansion of taxpayers' rights, it was hoped that the public's perceptions of the IRS would improve and the dealings between the IRS and the public would be less antagonistic.

IRS Enforcement

Even though the IRS depends on taxpayers to voluntarily provide information regarding their financial records and earnings, the IRS is charged with upholding the tax laws and policies of the U.S. government. To force compliance with tax laws and policies, the IRS has several options at its disposal—including audit, confiscation, criminal investigation, and prosecution. The IRS has the power to confiscate and auction a person's personal and real property, such as cars and homes. The money raised from an IRS auction of that property is used to recoup the tax liability and accrued interest created by the individual's negligence in paying taxes.

Criminal Investigation (CI) is the enforcement section of the IRS. It is the agency responsible for enforcing the Internal Revenue Code, and it is charged with investigating and prosecuting violators of the code. Special agents of the CI investigate money-laundering, tax crimes, and crimes related to the illegal sources of income, as well as Bank Secrecy Act laws. The CI is considered one of the most effective law enforcement agencies in the federal government.

Individuals can also participate in IRS enforcement through the IRS Informant Award. As a type of reward or bounty, the IRS will award up to 30 percent of the original tax owed to an individual who is a whistleblower and reports to the IRS those who have not paid their taxes.

The CI agency of the IRS is not without its critics. Complaints of power overreach are not uncommon for the agency. This criticism has escalated with the addition of CI's oversight of drug and narcotic financial investigations.

IRS and Its Critics

Reform of the IRS and reform of taxes in general are constant topics for debate, from the highest-level politicians to the friendly confines of the local pub. There are those who would like to reduce the tax collection process to a postcard-sized tax return and eliminate the IRS completely. There are also those who suggest that the IRS is not large enough, and that it should be expanded to accommodate and adequately regulate the tax policies of a growing economy that is producing greater personal and corporate wealth—and a global economy that offers newer ways to avoid taxes through technology.

In recent years, the debate has taken on a technological focus with the inclusion of the online filing process for tax returns. Critics of the IRS charge that the advent of online filing of tax returns has increased the agency's power and ability to invade the private space of individuals.

David A. Dieterle

See also: *Vol. 2: Macroeconomics:* Taxes; United States Treasury

Further Reading

ALLGOV-Everything Our Government Really Does. n.d. Internal revenue service (IRS). http://www.allgov.com/departments/department-of-the-treasury/internal-revenue-service-irs?agencyid=7262 (accessed June 3, 2014).

IRS (Internal Revenue Service). n.d. About IRS. http://www.irs.gov/uac/About-IRS (accessed August 15, 2016).

IRS (Internal Revenue Service). n.d. Brief history of the IRS. http://www.irs.gov/uac/Brief-History-of-IRS (accessed October 8, 2015).

IRS (Internal Revenue Service). n.d. Today's IRS organization. https://www.irs.gov/uac/todays-irs-organization (accessed May 12, 2016).

IRS (Internal Revenue Service). n.d. Understanding taxes: The quick and simple way to understand your taxes. http://apps.irs.gov/app/understandingTaxes/ (accessed August 15, 2016).

INTERNATIONAL ASSOCIATION FOR RESEARCH IN ECONOMIC PSYCHOLOGY

The International Association for Research in Economic Psychology (IAREP) is a scientific body that brings together economic psychologists and other researchers who investigate economic behavior and also the psychological effects of economic phenomena. Over the past decades, IAREP has been the leader in disseminating economic psychology throughout the world. Since 1976, a group of European researchers had been holding annual colloquia to discuss their findings. In 1978, they decided to create the Standing Committee of the European Group of Researchers, while keeping their regular meetings and exchanging ideas about their studies. In 1982, the organization was formally launched and took the name "IAREP."

Currently, members may be economic or social psychologists, behavioral economists, experimental economists, and other experts in fields related to the discipline, such as consumer behavior, finance, and information. One of the main purposes of the association is to be a network for international and interdisciplinary researchers, who may thus exchange ideas and mutually inspire studies on those ideas. As a result, research that originated and was developed in these meeting has been published and become available worldwide, further enhancing economic psychology.

IAREP operates in at least 30 different countries. Its representatives help disseminate the discipline locally as well as providing assistance to those who are interested in becoming members and attending the events.

IAREP and the Society for the Advancement of Behavioral Economics (SABE) had been collaborating in conferences and workshops for 20-odd years. In 2009, they established the International Confederation for the Advancement of Behavioral Economics and Economic Psychology (ICABEEP) in order to increase cooperation between the two organizations.

In 1981, IAREP founded the *Journal of Economic Psychology* (JoEP). Since then, IAREP has sponsored the journal and has been responsible for electing its editor(s). IAREP also publishes a regular newsletter for members, keeps a website (http://www.iarep.org/), and supports graduate-level summer schools in economic psychology and workshops on special topics in the area. IAREP also provides information on graduate courses related to economic psychology on its website: www.iarep.org/graduateprograms.htm.

Since 1976, IAREP has organized annual conferences, sometimes along with SABE, in different countries, covering different issues within the psychology–economics intersection. So far, these have been the dates and locations of the annual colloquia:

1976—Tilburg, the Netherlands
1977—Strasbourg, France
1978—Augsburg, Germany
1979—Stockholm, Sweden
1980—Leuven, Belgium
1981—Paris, France
1982—Edinburgh, U.K.
1983—Bologna, Italy
1984—Tilburg, the Netherlands
1985—Linz, Austria
1986—Kibbutz Shefayim, Israel
1987—Ebeltoft/Aarhus, Denmark
1988—Leuven, Belgium
1989—Kazimierz Dolny, Poland
1990—Exeter, U.K.
1991—Stockholm, Sweden
1992—Frankurt am Main, Germany
1993—Moscow, Russia
1994—Rotterdam, the Netherlands
1995—Bergen, Norway
1996—Paris, France
1997—Valencia, Spain
1998—San Francisco, U.S.
1999—Belgirate, Italy
2000—Wien (Baden), Austria
2001—Bath, U.K.
2002—Turku, Finland
2003—Christchurch, New Zealand
2004—Philadelphia, U.S.
2005—Prague, Check Republic
2006—Paris, France
2007—Ljubljana, Slovenia
2008—Rome, Italy
2009—Halifax, Canada
2010—Cologne, Germany
2011—Exeter, U.K.
2012—Wroclaw, Poland
2013—Atlanta, U.S.
2014—Paris, France
2015—Sibiu, Romania

At these conferences, IAREP also sponsors the Kahneman lecture, with a notably relevant expert invited to be the keynote speaker (Daniel Kahneman himself inaugurated the series at the IAREP's Paris conference in 2006). Since 1984, it has awarded a prize, sponsored by Elsevier (JoEP's publisher) to the best student papers presented at the conference.

IAREP is not the only association for economic psychology researchers; the Ninth Division at the International Association of Applied Psychology (IAAP) is dedicated to the same field. However, IAREP has a much broader disciplinary focus.

The history of IAREP's creation, first years, and evolution can be found in the original documents (letters, memos, and proceedings of meetings), intended to become an official archive of the organization, and currently kept at the University of Exeter, in the United Kingdom.

Vera Rita de Mello Ferreira

See also: Behavioral Economics; Economic Psychology; Experimental Economics; Society for the Advancement of Behavioral Economics

Further Reading

Ferreira, Vera R. M. 2007. Psicologia econômica: Origens, modelos, propostas. Doctoral thesis, Programa de Estudos Pós-Graduados em Psicologia Social, São Paulo.

IAREP. n.d. What is IAREP? http://www.iarep.org/ (accessed August 15, 2016).

ICABEEP. n.d. Homepage. http://iarep.org/ICABEEP.htm (accessed August 15, 2016).

Van Raaij, W. Fred. 1999. Economic psychology in Europe. In *The Elgar companion to consumer research and economic psychology*, ed. Peter E. Earl and Simon Kemp, 290–96. Cheltenham, UK: Edward Elgar.

INTUITION AND DECISION-MAKING

In its definition of *intuition*, the *Oxford English Dictionary* refers to a publication from the year 1659 in which *intuition* is part of "that Tree of Knowledge . . . which instructs not . . . by sad and costly experience, but by fair and safe intuitions." Economists would reject this, because the author mentions only the costs of experience while ignoring the benefits! Robin Hogarth, in *Educating Intuition*, lists the characteristics of intuition as speed of knowing, immediate cognition, and the absence of rational or deliberate thought. Mario Bunge (1962, 68) writes that *intuition* is "the collection of odds and ends where we place all the intellectual mechanisms which we do not know how to analyze or even name with precision, or which we are not interested in analyzing or naming." Joseph Schumpeter (1954, 41) says that *intuition*" is a "pre-analytic cognitive act that supplies the raw material for the analytical effort." Herbert Simon, 1978 winner of the Nobel Prize in Economics, thinks of intuition as an expert's skill for (unconscious) pattern recognition. Simon exemplifies this in his discussion of how chess grandmasters play intuitively (1996).

Intuition as a decision-making tool is difficult for traditional economics to comprehend, because it's inherently different from logic and analysis as a decision-making tool and because its nature escapes logical and rational analysis. Therefore, intuitive decision-making is often referred to as (unconscious) pattern recognition. Steve Sloman, in his article "Two Systems of Reasoning" (2002) distinguishes the Associative System of reasoning (intuition) from the Rule-Based system (analytical thinking). Daniel Kahneman (2011), winner of the 2002 Nobel Prize in Economics, refers to this as System 1 (intuition) and System 2 (analysis).

What about a role for intuition within behavioral economics? Intuition is considered a foundation for decision-making via heuristics—shortcuts in decision-making—because it bypasses all conscious thinking processes. But even as intuitions can and do yield accurate judgments, they can also create systematic errors in judgment.

According to Kahneman (2001) and Gary Klein (1998), intuition is at its best when we are solving (complex) problems on subjects about which we are knowledgeable and experienced, when we have a cue to help stimulate the knowledge in our subconscious, and when the environment is regular so as to be predictable. Under these conditions, we can learn about the regular aspects of the environment and develop expertise. Kahneman and Tversky refer to intuition as a "natural assessment" (1973). Both Kahneman and Tversky are psychologists, and so are less skittish about intuition. To dismiss intuition is inefficient, because it is the way the right hemisphere of our neocortex processes information.

According to Kahneman and Tversky, intuition leads to errors when the information is based on the representative heuristic. If you describe a person with the characteristics of a librarian and then ask someone if the person you described is a librarian or a salesperson, the person you are asking will tend to say a librarian. People choose "librarian" because the characteristics of the person you described are representative of a librarian, even though the essential piece of data in the conversation as a whole is that the number of salespersons vastly exceeds the number of librarians. Undergraduate students, weather forecasters, gamblers, and professional stockbrokers make errors in judgment via intuition.

Behavioral economics examines under what conditions people behave fully rationally (as defined in traditional economics) and less than fully rationally. It does not assume full rationality and ignore all of the elements that are inconsistent with this assumption. Intuitive decision-making plays an important role this behavioral economics narrative.

Roger Frantz

See also: Decision Costs; Emotions and Decision-Making; Feminism and Behavioral Economics

Further Reading

Bunge, Mario. 1962. *Intuition and science*. New York: Prentice-Hall.
DeBondt, Werner, and Richard Thaler. 2002. Do analysts overreact? In *Heuristics and biases: The psychology of intuitive judgment*, ed. Thomas Gilovich, Dale Grifin, and Daniel Kahneman, 678–85. Cambridge, UK: Cambridge Univ. Press.
Gilovich, Thomas, Dale Griffin, and Daniel Kahneman, eds. 2002. *Heuristics and biases: The psychology of intuitive judgment*. Cambridge, UK: Cambridge Univ. Press.
Hogarth, Robin. 2001. *Educating intuition*. Chicago, IL: Univ. of Chicago Press.
Kahneman, Daniel. 2011. *Thinking, fast and slow*. New York: Farrer, Straus & Giroux.

Kahneman, Daniel, and Amos Tversky. 1973. On the psychology of prediction. *Psychological Review* 80: 237–51.
Klein, Gary 1998. *Sources of power: How people make decisions.* Cambridge, MA: MIT Press.
Schumpeter, Joseph. 1954. *History of economic analysis*. New York: Oxford Univ. Press.
Simon, Herbert. 1996. *Models of my life*. Cambridge, MA: MIT Press.
Sloman, Steven. 2002. Two systems of reasoning. In *Heuristics and biases: The psychology of intuitive judgment*, ed. Thomas Gilovich, Dale Grifin, and Daniel Kahneman, 379–96. Cambridge, UK: Cambridge Univ. Press.

INVESTING

In economics, *investing* is defined as the act of purchasing goods that are not consumed today but will be used in the future to create wealth. In finance, an *investment* is a monetary asset purchased with the idea that the asset will provide income in the future or will appreciate in value and be sold at a higher price. In simple words, *investing* is how you make your money grow, or appreciate in value for long-term financial goals.

Examples of investments, in the economic sense, would include going to college to earn your degree, purchasing a computer for your business, or building a factory that will be used to produce goods. In the financial sense, investments include the purchase of bonds, stocks, or real estate property. There are many reasons to invest. Investing allows us to achieve such financial goals as buying a car, paying for college, beating inflation, and retiring comfortably.

The earlier you start investing, the more money you will accrue and the faster you will reach your financial goals. Investing garners the power of compound returns. Earning compound returns is the process of having money grow and making money on top of the original sum. For example, if you invest $2,000 a year for nine years starting at age 21 and you earn a 10 percent interest rate, when you reach age 65 your $18,000 investment will be worth around $763,000. On the other hand, if you wait until age 30 to start saving and you save $2,000 a year every year until you reach age 65, then you will have only $542,048.73, a difference of $220,000 from the amount you would have earned if you had started investing when you were 21.

Financial Market Investing Options

There are many investing options to choose from. A few are investing money in stocks, bonds, mutual funds, or real estate—or starting your own business. No matter what investment method you choose, the goal is always to put your money to work to earn additional income.

The stock market is one option for investing money. When you invest in stocks of a company, you're buying a share of that company. The value of each share depends on how profitable the company becomes. Compared with savings accounts, stocks tend to offer a higher rate of return on the initial investment. But stocks are relatively more risky, because stock is not insured by the Federal Deposit Insurance Corporation (FDIC) like a savings account is. The stock price of an individual company tends to go up and down based upon many factors, including the merits of the company, the psychological tenor of the overall stock market, and factors of supply and demand.

Buying bonds is another investing option. A *bond* is an agreement or a loan between the bond issuer (a company, municipality, or other type of entity) and the bondholder (the person buying the bond). The bondholder essentially loans out a certain amount of money to a government agency, municipality, or corporation and earns interest on the loan.

The term of a bond is given a fixed rate at the time of issue and expires on the specified maturity date. At that time, the issuer must pay the bondholder the face value of the bond. Throughout the term of the loan, the issuer also pays interest to the bondholder. The interest amount is set when the bond is issued. Bonds can vary in term length. The term can be as short as three months or as long as 30 years. Bond interest is also called a "coupon" payment. Usually, the longer the term on the bond, the higher the interest rate the bondholder receives.

Mutual funds are another type of investment. Mutual funds are created when money from many investors is pooled to create a large portfolio so everyone benefits from bigger profits. Most funds buy a variety of investments, like stocks, bonds, or other securities. Because one mutual fund can contain a variety of different investments, there is lower risk than investing in individual stocks and bonds: If one investment in a mutual fund has a poor return, another can make up for that loss.

When investing in the financial markets, investors make money when they sell a stock, bond, or mutual fund for more than they paid for it, as well as when they receive interest or dividend payments. If an investment does not increase in value, the investors may lose money when the stock, bond, or mutual fund is sold for less than the purchase price.

Real Estate Investing

Many individuals look to real estate as another investment in which to grow their funds for the future. Investors who do not want to buy an individual home or apartment building and rent that property to tenants may instead invest in real estate through a Real Estate Investment Trust (REIT). REITs are actually financial securities that combine the ownership of many real estate properties and then sell off individual slices of ownership, or shares, to individuals. REITs come in several varieties, including those that invest only in shopping centers, office buildings, or even just the mortgages of certain types of property.

For people who want to invest in actual real estate, buying, renting out, and managing the real estate investment requires a certain degree of knowledge, risk, and time. For example, if Kris wanted to buy a two-family apartment building as an investment, she would need to save up money for a down payment and then obtain a mortgage loan from a lender. Further, she would need to examine the rental income and expenses, as well as evaluate future rental income and expenses. Before purchasing the rental investment property, she would need to make sure that the amount she could charge as rent would be enough to pay for upkeep of the property, with some money left over for profit.

Barbara A. Friedberg

See also: Asset Allocation; Behavioral Finance; Capital Gains and Losses; Compound Interest; *Vol. 2: Macroeconomics:* Dividend Income; Federal Deposit Insurance Corporation; Securities and Exchange Commission; *Vol. 3: Microeconomics:* Bonds; Hedge Fund; Index Funds; Inflation Protected Investments; Margin; Mutual Funds and Exchange Trade Funds; Real Estate Investment Trust; Retirement Accounts; Risk; Risk Premium; Stock Market; Stocks; Time Value of Money

Further Reading

Hudspeth, Christian. 2013. Ask the expert: What's the best way to start investing when you're young? *Yahoo Finance,* February 21. http://finance.yahoo.com/news/ask-expert-whats-best-way-122056581.html (accessed May 11, 2014).

Smart, Scott, Lawrence Gitman, and Michael Jehnk. 2013. *Fundamentals of investing*. 12th ed. Upper Saddle River, NJ: Prentice Hall.

IRON AGE

The Iron Age is the final age in the sequence from Stone Age to Bronze Age to Iron Age. This sequence represents technological and cultural shifts in civilization. The beginning and end of the Iron Age differ depending on what geographic location is being considered. The Iron Age began in the Middle East and southeastern Europe around 1200 BCE. However, the technological advances of the Iron Age did not reach China until about 600 BCE.

The term *Iron Age* is used to explain the era in which iron replaced bronze in the production of tools and weapons. Iron is immensely more abundant than the elements that make up bronze, copper, and tin. Thus, the transition to the Iron Age was not due to the physical characteristics of iron compared to bronze, but rather to the availability of iron as a resource. The abundance of iron allowed for true mass production of weapons and tools. Given the uses of tools and weapons in society, both agriculture capabilities and warfare expanded due to the technological advancement.

Two subsections divide the Iron Age: Iron I (1200–1000 BCE) and Iron II (1000–550 BCE). Iron I represents the slow transition out of the Bronze Age into the Iron Age. The transition between the 13th and 12th centuries occurred without any significant cultural revolution, although the Bronze Age officially ended. Evidence suggests that as the Iron I era matured, the cultural transition away from bronze and toward iron began to take effect. Iron II is characterized by regional power struggles in the Middle East. Notable power shifts include the decline of Assyria and Egypt; the rise of Judah and Israel in the 10th to 9th centuries, followed by the re-establishment of power by Assyria in the 7th century; the destruction of Israel and the slow transition of Judah back to Assyrian rule; and finally the disintegration of Assyrian power yet again. The reign of Judah was short-lived, however, as the Chaldeans took over.

Armies within the Iron Age were the first to practice recruitment on a regular basis. For the first time, citizens were obligated to provide military service in times of war and peace. The Iron Age spawned the national strategy of providing a standing army based on citizen service. The Iron Age brought about a revolution in militaristic ideals. Militaries in the Iron Age increased in size, advanced logistics, and transportation, and they became more strategic and better organized. All of these improvements led to the creation of the military as an occupation. The constant increase in the size and the scope of militaries due to recruitment meant that professionals needed to be on hand to train the new citizen-soldiers and lead them into the fighting force. The weapons continued to be constructed of bronze throughout Iron Age I, although iron weapons began to appear. One example is iron knives with bone handles.

During Iron Age I, pillared houses and silos were constructed on top of the previous structures of the Bronze Age. By the time Iron II arrived, the pillared houses were the norm and the standard in domestic culture.

The Iron Age also brought about the creation of water systems—such as staircases to underground water, and large circular shafts within city walls—to provide access to underground springs. Moving away from the staircases, more-developed water systems emerged in Iron II. The staircases were shortened, and water tunnels were developed that would lead down to the underground spring. During the eighth century, tunnels were modified so that the water flowed into the cities.

While militarized citizens and agricultural advancements characterized much of the Iron Age, archeological discoveries have uncovered primitive board games, baby rattles, and slingshots.

Language and literature evolved in the Iron Age. While the Bronze Age produced the earliest alphabets, the Iron Age advanced the alphabet into written texts. Chinese and Indian literature and the Hebrew Bible were all products of the Iron Age. Poetry became popular, and language grew more complex, along with other emerging cultural dimensions of the civilizations.

One of the most notable characteristics of the Iron Age is its place in history as an era of transition. Technological advancements and the accessibility of iron spread throughout the Middle East, Asia, and Europe. While growth was specific and certain, it was slow and deliberate. Nations around the world slowly phased out bronze and introduced iron. Military advancements resulting from the use of iron allowed for the creation and destruction of new and old civilizations.

Michael Weck

See also: Cultural Economics; Economic History; Industrial Revolution

Further Reading

Boston University. n.d. Iron age (1200–550 B.C.E.). www.bu.edu/anep/Ir.html (accessed March 25, 2015).

Essential Humanities. n.d. The stone, bronze, and iron ages. www.essential-humanities.net/history-overview/stone-bronze-iron-ages/ (accessed March 25, 2015).

Gabriel, Richard A., and Karen S. Metz. 1992. Chapter 3: The military revolution—Introduction. In *A short history of war: The evolution of warfare and weapons*. Professional Readings in Military Strategy, No. 5. Strategic Studies Institute. U.S. Army War College/USAF Air War College. www.au.af.mil/au/awc/awcgate/gabrmetz/gabr0008.htm (accessed March 25, 2015).

Maps of World. n.d. Iron age. www.mapsofworld.com/world-ancient-history/iron-age-map.html (accessed March 25, 2015).

Thompson, Scott. n.d. Iron age technology. People of our everyday life. http://peopleof.oureverydaylife.com/iron-age-technology-10708.html (accessed August 16, 2016).

J

JOBS, STEVE

Born: February 24, 1955, in San Francisco, CA; Died: October 5, 2011, in Palo Alto, CA; Nationality: American; Professional Interests: inventor, technology entrepreneur and founder, chairman, and CEO of Apple Computer.

As founder of Apple Computer and inventor of the iPod, iPhone, and iPad, Steve Jobs greatly impacted the world of economics. While Jobs had a fairly normal upbringing, certain people in his life led him toward the path he created for himself. He experienced many struggles along the way, including being dismissed from the company he founded.

Jobs was born nameless on February 24, 1955, in San Francisco to Joanne Schieble, who immediately put the child up for adoption. He was adopted by Paul and Clara Jobs, and they named him Steven Paul Jobs. His adoptive father Paul taught him electronic tinkering. In school, Steve's classmates considered him to be something of a prankster.

While in high school, Jobs met an older student, Steve Wozniak, who was attending the University of California, Berkeley. Jobs looked up to Wozniak, and "Woz" impacted the path that Jobs would take. Jobs started at Reed College in Portland, Oregon, but soon dropped out. He did sneak into some creative classes, even though he was not a student.

In 1974, he was hired by Atari as a game designer. Soon he left the United States for India. When he returned to the States he turned his interests to physics. After some time he went to Wozniak, who helped him get back on at Atari. Jobs ended up making a lot of money working with Wozniak on an illegal device that emulated telephone tones, known as a "blue box." He began to believe that he could beat big companies.

Jobs and Wozniak attended a computer club that inspired them to build computers. In 1976, when Steve was 21 years old, he and Wozniak founded Apple Computer in the Jobs' family garage. They assembled the computers themselves and began selling the Apple 1. Eventually, Jobs asked Bill Gates to make a graphical user interface (GUI) for his company. A *GUI* is something that lets people communicate through graphic icons as opposed to words. Shortly after this, Jobs took his business to the Soviet Union to sell more of his Macs.

When Jobs was 30 years old, Apple CEO John Sculley phased him out from the operations of the company he had founded. Jobs responded by creating a new computer company: NeXT. He also bought George Lucas's computer graphics company, which would lead him to start Pixar with the animated motion picture *Toy Story*.

Jobs sold NeXT to Apple Computer, and as a result he rejoined the company he had founded. Not only did he rejoin Apple, but also he became CEO. According to his coworkers, when he returned he was much better at what he did. With his return, Apple released inventions like the iMac, iTunes, and iPod, which were huge technology breakthroughs. This had a massive effect on the technological economy, creating a demand for new technology.

In August 2011, Jobs resigned from Apple due to pancreatic cancer. He passed away on October 5, 2011, in Palo Alto, California.

Morgan Livingston
David A. Dieterle

See also: Capitalism; Entrepreneurship; *Vol. 3: Microeconomics:* Business Structures

Further Reading

FoxNews Tech. 2013. Here's why Apple once fired Steve Jobs. *FoxNews.com*, September 9. www.foxnews.com/tech/2013/09/09/here-why-apple-once-fired-steve-jobs.html (accessed November 30, 2016).

Time, Inc. n.d. Apple's evolution: The return of Jobs. content.time.com/time/specials/packages/article/0,28804,1873486_1873491_1873461,00.html (accessed November 30, 2016).

Vital, Anna. 2014. How Steve Jobs started—The life of Apple's founder. *Funders and Founders*, October 16. fundersandfounders.com/how-steve-jobs-started/ (accessed November 30, 2016).

K

KEYNES, JOHN MAYNARD

Born: June 5, 1883, in Cambridge, England; Died: April 21, 1946, in Firle, Sussex, England; Nationality: English; Professional Interests: macroeconomic theory; Major Works: *The Economic Consequences of the Peace* (1919), *Treatise on Probability* (1921), *Tract on Monetary Reform* (1929), *The General Theory of Employment, Interest and Money* (1936).

John Maynard Keynes, Baron Keynes of Tilton in the County of Sussex, was an English economist who impacted both political theory and modern economics. Keynesian economics promote a mixed economy, dominated by the private sector but with a large role for government and the public sector. Keynesian economics argues that at the macroeconomic level, the private sector is at times inefficient in its allocation of resources. When this occurs, the public sector needs to be actively involved in the country's fiscal and monetary policies to create stability of the business cycle. Keynes followed a legacy of successful nonconformists within his family, and he is revered as the father of macroeconomics. Keynes died in 1946.

John Maynard Keyes was born in Cambridge, England, on June 5, 1883. His father was a lecturer and the university's chief administrative official. His mother was an accomplished author, Cambridge's first woman councilor, and also its mayor. After enjoying an elite education at Eton College, Keynes completed his postsecondary studies at King's College in Cambridge and earned his degree in mathematics in 1905. He spent additional time studying under Alfred Marshall and Arthur Pigou, and he received a master of arts degree in economics.

Keynes started his career as a civil servant in London when he placed second on an examination—which cost him the job he desired at the Treasury Department. He was appointed to a position in foreign affairs at the Royal Commission on Indian Currency and Finance, a bureau that extended advice on the administration of India, one of England's dominions at the time.

Keynes accepted this foreign affairs job and learned how government departments operate. He soon developed an interest in Indian affairs and Indian currency; Keynes gained the attention of numerous government officials because he was able to apply economic theory to practical problems. His experience helped him write his first book in economics, *Indian Currency and Finance* (1913), a description of the Indian monetary system.

In 1908, Keynes returned to Cambridge to teach economics. Tired of the slow-moving departments of the Indian Office, he turned his attention to writing.

Based on his experiences in government, he composed an essay titled "Recent Economic Events in India" (1919), which was his first major article in print. In addition to being a journalist and a lecturer, Keynes was part of the acclaimed Bloomsbury Group of literary greats that included Virginia Woolf and Bertrand Russell. In 1911, Keynes was appointed editor of *The Economic Journal.* This was a prestigious honor and a significant accomplishment, especially given that he had few publications at this time.

World War I put a hefty burden on the British economy. In 1915, Keynes gladly accepted the offer of a job at the British Treasury, where he could actively participate in the war effort. Keynes served as the Treasury's chief representative at the Paris Peace Conference of 1919, since his division had done much of the work on preliminary reparations and war debts; however, its result was quite unfavorable to him. After returning to England, he resigned from the post and turned to writing a book. By the fall of 1919, Keynes had published *The Economic Consequences of the Peace,* which became an international best seller and a close foreshadowing of the immediate future. He predicted that the treaty's terms were too harsh and were aimed to cripple the people of Germany instead of punishing them. Keynes's contention was that the provisions in the treaty would hamper Germany's postwar economy, that Germany would eventually repudiate the treaty, and that a rearming of Europe would ensue. Just as Keynes had suggested, the German economy experienced hyperinflation in 1923, and only a fraction of the reparations were ever received.

After 1929, the economies of the entire world plummeted, and Keynes decided to take on the task of explaining and determining new ways to control trade cycles. This resulted in two books: *Tract on Monetary Reform* (1929) and *The General Theory of Employment, Interest and Money* (1936). Through these books, Keynes proclaimed that there needed to be both national and international programs that would lead to a cohesive monetary policy. He believed that a national budget should be used as a primary instrument in planning the national economy. Keynes asserted that policies were needed to regulate the ups and downs of the trade cycle. He firmly believed that it was the responsibility of government to regulate the levels of employment and investment. Keynes's solution to a depression or a recession is government actions designed to encourage spending and discourage saving, and a key component is that the government's central bank should lower interest rates when prices are too high and raise interest rates when prices fall.

Keynes made other important contributions to economics, one focused on the disorganization caused by World War I and the other on the deterioration in the balance of trade between Europe and the United States. He continued to help the British government, and he became an unofficial adviser to Germany. Keynes worked with Roosevelt and other writers of the New Deal, contributing directly to its implementation. By the time World War II began, Keynes was a famous and accredited expert on economics. He assumed a primary role in establishing the system envisioned at the Bretton Woods Conference, which would eventually lay foundations for the International Monetary Fund and the World Bank.

He strongly supported William Beveridge's proposal for an expansion of Britain's social services, which led to the United Kingdom's National Health Service. Keynes occupied a seat in the House of Lords as a member of the Liberal Party, and he supported equal opportunities for women in business.

John Maynard Keynes suffered several heart attacks before losing his life on April 21, 1946, in Firle, Sussex, England, due to heart failure. He was cremated, and his ashes were scattered on the Downs above Tilton.

Samantha Lohr

See also: Keynesian Economics; Marshall, Alfred; *Vol. 2: Macroeconomics:* Fiscal Policy; Galbraith, John Kenneth; Kahn, Alfred; Macroeconomics; Pigou, Arthur Cecil; Samuelson, Paul; *Vol. 3: Microeconomics:* Stigler, George; Veblen, Thorstein

Further Reading

Keynes, John Maynard. 1913. *Indian currency and finance*. London: Royal Economic Society.

Keynes, John Maynard. 1920. *The economic consequences of the peace*. New York: Harcourt, Brace & Howe.

Keynes, John Maynard. 1921. *Treatise on probability.* London: Macmillan.

Keynes, John Maynard. 1922. *A revision of the treaty.* London: Macmillan.

Keynes, John Maynard. 1926. *The end of laissez-faire*. London: Hogarth Press.

Keynes, John Maynard. 1929. *Tract on monetary reform.* London: Macmillan.

Keynes, John Maynard. 1931. *Essays in persuasion.* New York: Macmillan.

Keynes, John Maynard. 1936. *The general theory of employment, interest and money.* New York: Macmillan.

Keynes, John Maynard. 1940. *How to pay for the war.* New York: Harcourt, Brace.

Maynardkeynes.org. John Maynard Keynes. http://www.maynardkeynes.org/ (accessed March 2011).

Minsky, Hyman P. 1975. *John Maynard Keynes.* Columbia Essays on the Great Economists. New York: Columbia Univ. Press.

Skidelsky, Robert. 1980. *John Maynard Keynes: 1883–1946: Economist, philosopher, statesman.* 3 vols. New York: Macmillan.

Skidelsky, Robert. 1986. *Hopes betrayed, 1883–1920.* Vol. 1 of *John Maynard Keynes*. New York: Viking Adult.

Skidelsky, Robert. 1994. *The economist as savior, 1920–1937*. Vol. 2 of *John Maynard Keynes*. New York: Viking Adult.

Skidelsky, Robert. 2001. *Fighting for freedom, 1937–1946.* Vol. 3 of *John Maynard Keynes*. New York: Viking Adult.

Skidelsky, Robert. 2009. *Keynes: The return of the master.* New York: Public Affairs.

KEYNESIAN ECONOMICS

Keynesian economics is the economic philosophy of John Maynard Keynes (1883–1946). Keynes has been considered by many as one of the most influential persons of the 20th century, due to his ideas about government playing a more expansive role as a means of influencing an economy. The central theme of Keynesian economics is that government can serve in leveling out the peaks and troughs of a business cycle by using taxes or government spending to eliminate the extremes of the business cycle. Keynes is credited with the "invention" of what is now called fiscal policy.

Keynesian economists believe in several ideas that are at the core of Keynes's economic philosophy. The key belief is that aggregate demand (total spending by consumers) has significant impact on an economy's output and inflation, and that it is influenced by many different economic decisions. Keynesians also believe prices are "sticky" downward, do not go down as fast as they rise, and do not respond predictably to conventional (classical) economic supply and demand models. This notion was quite unconventional at the time Keynes suggested it in 1936 with the publication of *The General Theory of Employment, Interest and Money*. Keynes also believed that wages, like prices, were "sticky" downward.

Keynesians believe that the wide variations of the business cycle negatively impact an economy, and that government involvement can improve a market economy. Keynesians are most noted for their belief that active government action can be used to stabilize the business cycle, minimizing recessions and downturns while also compressing excessive growth to stabilize an economy and avoid bouts of excessive demand-pull inflation (a concept proposed by Keynes). Finally, early on, Keynesian economists were more concerned with curing unemployment than inflation.

Over the years, Keynesians have debated and often changed their views on what essentially defined Keynesian economics. Most economists today question whether government can ever have enough knowledge to act as a fine-tuning instrument of the economy. This general agreement is based on the understanding that there are three policy lags that prevent governments from being successful:

1. the recognition lag between the time a policy is needed and the time that government realizes a policy is needed,
2. the implementation lag between when a policy is needed and when the new policy takes effect, and
3. the impact lag between when a policy is passed and when it becomes effective.

Each of these lags can be several months long, meaning that the time between recognition and impact could be quite long. These lags suggest that by the time a policy's impact is felt, the economy could in fact be in a very different position. The policy could be exactly what not to do, and could exacerbate a bad economic environment. Even though there is agreement that the lags exist, Keynesians today still believe government is the correct tool to stabilize an economy.

An additional concept related to the economic vocabulary and thinking promoted by the Keynesian position is the idea of a multiplier effect of fiscal policy on an economy. According to Keynes, government spending will increase GDP (Y* to Y**). (See illustration on facing page.)

Keynesians believe government spending has a ripple effect throughout an entire economy, not just at the point of infusion. This ripple, or multiplier, effect suggests an impact on economic growth. For example, if government injects a million dollars into the economy and the economy actually grows by 2 million dollars, it is said to have a multiplier of two. The increase could be as little as 10 percent, but the Keynesian economic model suggests that any multiple increase is a reflection of a multiplier effect on an economy.

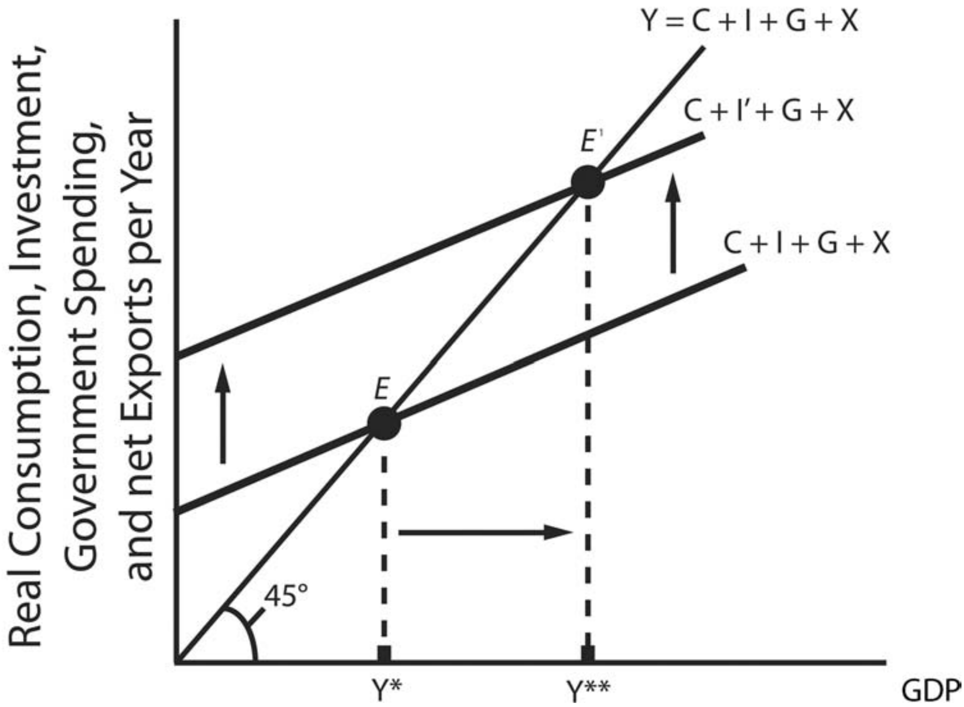

Figure 1. Keynesian government spending increases growth

Role of Monetary Policy

Another discussion between the Keynesians that has been debated over the years has been the role of monetary policy. Most, though not all, Keynesians believe that there is a role for monetary policy in stabilization, albeit a more minor role than fiscal policy. Monetarists focus on one of two metrics: the money supply or interest rates. Keynesians who hold a belief for monetary policy generally focus on interest rates as their key monetary policy metric.

Keynesians hold that low interest rates spur investment. Therefore, during times when expansionary monetary policy is the prescription, low interest rates will expand the money supply and spur investment and economic growth (GDP = C + I + G + X) (C = Consumption, I = Investment, G = Government, X = Net, Exports). History has shown this to be a valuable metric while an economy is either in a downturn or recession. Once an economy achieves full employment, however, history has shown this to be an activist position for inflation.

Keynesian theory is differentiated from other economic philosophies because of three distinct views:

1. Keynesians view unemployment as a function of aggregate demand—an economy's total demand for goods and services.
2. Keynesians advocate government being active to stabilize an economy and reduce the ultimate peaks or lows of the business cycle. This belief is the most distinguishing viewpoint of the Keynesians and the most important viewpoint for Keynesians to hold.

3. Keynesians generally believe that limiting unemployment is more important than limiting inflation, and is the key macroeconomic goal that will lead to economic growth. This view is much less universal, however, and many Keynesians today lean toward a more monetarist, low-inflation-first position, stressing low interest rates as the key monetarist goal.

Critics of Keynesian Economics

Every economic philosophy has its critics, and Keynesian economics is no exception. The criticisms of Keynesian economics were especially loud during the 1970s, when inflation and unemployment were both present in the economy. During this decade, several events were occurring in the economy that the Keynesians position could not defend. Keynesians believed that in the long run, unemployment and inflation could not occur at the same time and were therefore trade-off goals. Keynesians held the view that government stabilization policies would cure unemployment during economic contractions or halt inflation during periods of economic expansion in the short run, but did not have to be concerned about both simultaneously. A. W. H. Phillips (1914–1975) solidified this unemployment–inflation trade-off with his *Phillips curve*. Phillips showed that policies to achieve gains in reducing unemployment were met with only slight increases in inflation in the short run. In support of short-run policies over long-run policies, Keynes famously remarked, "[I]n the long run we are all dead." This position could not adequately explain the wage–price spiral and stagflation of the 1970s.

A second criticism of Keynes was the Keynesian monetarist view of focusing on interest rates instead of on the money supply as the more advantageous short-run monetary tool to control the money supply. To the critics, this view was especially flawed during the 1970s, as Arthur Burns and the Federal Reserve kept interest rates artificially low during a time of economic growth. Keynesianism's critics attribute this action as a major reason for the high inflation rates of the mid to late 1970s.

David A. Dieterle

See also: Keynes, John Maynard; New Deal; *Vol. 2: Macroeconomics:* Galbraith, John Kenneth; Gross Domestic Product; Monetary Policy; Phillips, Alban William H.; Samuelson, Paul

Further Reading

Arnon, Arie, Jimmy Weinblatt, and Warren Young, eds. 2011. *Perspectives on Keynesian economics*. Berlin: Springer-Verlag.

Blinder, Alan S. n.d. Keynesian economics. In *The concise encyclopedia of economics*, ed. David R. Henderson. Library of Economics and Liberty. http://www.econlib.org/library/Enc/KeynesianEconomics.html (accessed May 11, 2014).

Holt, Richard P. F., and Steven Pressman. 2001. *A new guide to post-Keynesian economics*. London: Routledge.

Keynes, John Maynard. 1936. *General theory of employment, interest and money*. London: Macmillan.

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LAND USE

For almost as long as there have been urban areas in civilized societies, there have been efforts to preserve certain portions of these areas as parks and green spaces to provide amenities to local residents. It is the mix of land uses in urban areas that forms many of the amenities for local residents. For this reason, over the last century or so, most cities have adopted what are commonly known as zoning ordinances to regulate the types of land use and development allowed in a given area. A prime motivation for such regulation is to restrict private decision-makers from making land-use decisions that negatively impact their neighbors. In other words, these policies have been developed to reduce the impact of externalities.

Private landowners, like the owners of any other asset, have the incentive to maximize the value of their land. One way in which they do this is by converting it to its highest private value use. The value of a parcel in different uses is determined by market conditions. Areas seeing rapid population and/or economic growth, for instance, are likely to see values for developed land outstrip values for land in agricultural or other uses. In contrast, in areas experiencing slower population growth or economic growth, there may be little demand for additional development and, thus, relatively low values for developed land versus other uses. In any case, it is true that in many situations agricultural, forest, or other undeveloped land provides public-goods benefits to nearby residents that are not reflected in market prices. Unfortunately, private landowners will not take these public-goods benefits into account when managing their land—so it usually expected that much undeveloped land that, from a social welfare perspective, should remain undeveloped will, in fact, be developed to maximize the private benefits rather than social ones.

In addition to overconversion of undeveloped land, a number of other locally undesirable land uses (LULUs) also provide private benefits while imposing costs on neighbors. These include, but are not limited to, landfills, industrial sites, communication towers, and power facilities of all types. Measurement of the value of disamenities from changes in land use and the presence of LULUs is most often done using hedonic analysis.

To solve these market failures, governments at many levels have undertaken a number of policy approaches. The most basic of these is the public acquisition and preservation of land parcels as public spaces. Such acquisition takes many forms, but in urban areas it mostly takes the form of public parks, both small and large.

Instead of acquiring the land itself, authorities may separate the development rights from the land and acquire these rights, leaving the land with its existing owners, who are now prevented from developing the land they own, although they retain all other rights. Very often, the funds needed for such acquisitions are raised through increased local property taxes—or through local bond issues, which are approved by the public through voter referenda.

A second common regulatory approach is zoning, which creates zones of parcels designated to contain similar or compatible land uses. For instance, in residential zones, development may be restricted to residential uses of particular density as well as schools, churches, and other similar uses. Similar zoning-based policies have also been used to preserve green space and prevent the spatial growth, or "sprawl," of urban areas. These are often referred to as urban growth boundaries, or greenbelts. Such policies prevent further development of parcels in a region or belt around existing urban areas. Many other communities require that a certain portion of new development be left as open space. Unfortunately, these approaches may have unintended consequences: for example, increasing property values in the centralized urban area, which, in turn, may drive development to areas beyond those areas set aside, which will increase urban sprawl, commuting, and other costs.

The policies described are based on a command-and-control approach where government regulators dictate development patterns. However, there are also more incentive-based policies that also help to reduce the damages caused by overdevelopment in a more flexible framework. One such policy is development taxes. These taxes, which work like any other Pigouvian tax, charge developers a fee that increases as the amount of land being developed increases. Properly designed, such a fee would be set at a level that is equivalent to the social damages caused by the development and could be used to compensate those harmed. It also causes developers to internalize the externalities that development imposes on others, and thus it reduces the equilibrium amount of development. Another similar approach, which is most often implemented in more rural areas, is a tradable development rights system that separates ownership of the land from the right to develop the land. A set number of development credits are issued, and then developers buy and sell these credits as development happens. Such a program minimizes the costs of restricting development while it achieves the desired level of total development in an area.

If, as many predict, population growth in urban areas continues, concerns about land use can be expected to grow, as such growth will put additional financial pressure on property owners to sell their land for development. In this context, there will continue to be a policy debate about how best to preserve undeveloped land so as to provide the associated amenities.

Martin D. Heintzelman

See also: NIMBY and LULU; *Vol. 2: Macroeconomics:* Externality; Public Goods; Taxes

Further Reading

Brueckner, J. K. 2009. Government land use interventions: An economic analysis. In *Urban Land Markets: Improving Land Management for Successful Urbanization*, ed. S. V. Lall, M. Freire, B. Yuen, R. Rajack, and J.-J. Helluin, 3–23. Dordrecht, Neth.: Springer.

Glaeser, E. L., and B. A. Ward. 2009. The causes and consequences of land use regulation: Evidence from greater Boston. *Journal of Urban Economics* 65 (3): 265–78.

Irwin, E. G., K. P. Bell, N. E. Bockstael, D. A. Newburn, M. D. Partridge, and J. Wu. 2009. The economics of urban-rural space. *Annual Review of Resource Economics* 1 (1): 435–59.

Johnston, R. J., and S. K. Swallow, eds. 2006. *Economics and contemporary land use policy: Development and conservation at the rural-urban fringe*. Washington, DC: Resources for the Future.

LAW AND ECONOMICS

Legal constructs provide order and direction for society in the modern world. Economics is commonly thought of as the realm of financial and commodity exchanges, but it is more broadly explained as human behavior and interaction based on resources, interests, and needs. The law and economics can be seen to inform each other and evolve in response to each other. There are those who believe that one realm should exert greater influence over the other. Regardless of this contention, the symbiotic impact of law and economics on each other is undeniable.

Law in a society is any system of regulations designed to dictate human conduct in the interest of consistency and justice. As early as 1792 BCE, in ancient Iraq, the need for broadly understood guidelines for behavior was such that Amorite King Hammurabi established his famous code: over 200 laws that addressed a range of contingencies from trade to murder. Over millennia, successive attempts to improve various societies by creating order and fairness have been put forth, ranging from the Magna Carta and the Mayflower Compact to the Japanese constitution of 1947. *Economics* has existed in the broadest sense since individuals first devoted time to scavenge for food instead of another endeavor. History affords no shortage of examples in which humans and nations acted in their economic interests with no regard to law and order. England's Navigation Act of 1651 can be seen as a major touchstone of the interaction of law and economics. In the interests of English merchants, Parliament decreed the following:

> For the increase of the shipping and the encouragement of the navigation of this nation . . . be it enacted by this present Parliament, and the authority thereof, that . . . no goods or commodities whatsoever of the growth, production or manufacture of Asia, Africa or America, or of any part thereof; or of any islands belonging to them, or which are described or laid down in the usual maps or cards of those places, as well of the English plantations as others, shall be imported or brought into this Commonwealth of England. (Scobell 1651)

Adam Smith

In his treatise *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776), Adam Smith laid out the rationale for the relationship between nations and interests. But consider the actions of his home nation, the United Kingdom, in the case of the Opium Wars conducted against China in the 1800s; or the 1884 Berlin Conference, in which European nations colonized Africa according to their whims; or Japan's subjugation of Korea following the Russo–Japanese War, which led to political and economic depravity at the expense of that nation. These are just a few examples of how economic interests have trumped the rule of law between nations.

On a microeconomic scale, certain entrepreneurs regularly pursue economic interests, such as dealing in narcotics, contrary to the law. Conversely, certain communities impose laws to restrict or forbid the operations of businesses at certain times, such as on Sundays or after certain hours. As the law in a centrally planned economy—for example, in a totalitarian state such as North Korea—is understood to be paramount to the government's interest, it is practical to consider the interaction of the law and economics within the frameworks of the free-market system.

As economics considers how parties act and interact regarding their interests, the consequences of pursuing these interests without regard to the rule of law have littered history, with no shortage of misery when these interests are not considered. The understanding of property rights is the most universal point of the unspoken law that impacts economic interactions. This recognition is found in most assemblages of laws from the Magna Carta in 1215 to the U.S. Constitution in 1787; the Constitution articulates that "the right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures shall not be violated" (Tindall and Shi 2007, A7).

History, not documents, illustrates how, in the absence of the law, actions based on economic interests do not bode well for the human interests of absolutely everyone concerned. Once the rule of law in a jurisdiction reflects property rights, it is common for that legal framework to impose some levy upon various forms of property, be it real property or income. The Sixteenth Amendment to the U.S. Constitution confers that right on the government: "The Congress shall have power to lay and collect taxes on incomes, from whatever source derived . . ." (Tindall and Shi 2007, A74). Disagreement over the nature and amount of taxes levied by society on its subjects perhaps even predates the Roman adage of rendering unto Caesar that which is Caesar's, and the sources of these revenues are as varied as the municipalities that collect them. In the United States, the state of New Hampshire levies no sales tax on retail purchases, nor any income tax, while the state of Colorado collected $2 million in taxes on the sale of marijuana in the first month of its legalization in 2014 (Lobosco 2014).

In Colorado, the government enacted laws to take advantage of an economic reality—namely, scarcity and demand—and the expected increase in economic activity. By its nature, this activity benefits willing and able buyers as well as sellers and complementary interests. In doing so, the state has enriched its own coffers. In other cases, the law has been used to preclude an economic benefit resulting from an earlier illegal act. The state of New York enacted the so-called Son of Sam law—after a serial killer attempted to publish an account of his acts—to prevent purveyors of crime from benefiting economically from their exploits.

In spite of these examples, the world is more rife with cases of economics impacting the law than it is with cases of law impacting economics. Whether it has been the economic benefit of legalized prostitution in Nevada or the deregulation of the American airline industry in the 1980s, societal and commercial forces that recognized the prospects at hand successfully affected change in the laws that governed these realms. Various business interests touted the benefits of the North American Free Trade Agreement (NAFTA) in the 1990s, to the point that a Democratic candidate for the American presidency endorsed it in spite of objections from a traditional base of Democratic support: namely, organized labor. Individual workers—or in the case of unions, organized workers—have also been another realm where the law and economics have intersected. Employees and their organized representatives have frequently sought relief and protection of the law for their rights, wages, and assurances regarding their working conditions. How such protections impact the commercial interests involved—that is, how a firm's owners might respond, perhaps with higher prices or outsourcing—is an issue that the law has endeavored to move into its realm. In the United States, this has been attempted through the National Labor Relations Act, seeking to move such disputes from the picket line, where shoving might ensue, to the courts. Just as self-preservation, more than peace, is the foremost priority of most nations, history and the present both suggest that the economic interests of parties often dictate their actions more than the rule of law does. It is because of this truism regarding the former that societies enact the latter.

David S. Allen

See also: Internal Revenue Service; Supreme Court; *Vol. 2: Macroeconomics:* Tax Avoidance, Tax Evasion, and the Shadow Economy; Tax Compliance; Tax Forms: U.S. Federal Tax System; Taxes; *Vol. 3: Microeconomics:* Credit Cards; Credit Cycles; Tax Deferral

Further Reading

Lobosco, Katie. 2014. Colorado gets $2 million from marijuana taxes. *CNN*, March 10. money.cnn.com/2014/03/10/news/marijuana-tax-revenue (accessed March 11, 2014).

Polinsky, Mitchell. 2007. *Handbook of law and economics*. Oxford, UK: Elsevier.

Scobell, Henry. 1651. The Navigation Act. In *Scobell's Acts of Parliament*, pt. ii, p. 176. http://www.constitution.org/eng/conpur_ap.htm (accessed March 11, 2014).

Tindall, George Brown, and David Emory Shi. 2007. *America: A narrative history*. 7th ed. Vol. 2. New York: Norton.

LENIN, VLADIMIR

Born: April 22, 1870, in Ulyanovsk, Russia; Died: January 21, 1924, in Gorki Leninskiye, Russia; Nationality: Russian; Professional Interests: Russian government leader 1917–1924; Major Works: *The State and Revolution* (1917), I*mperialism, the Highest Stage of Capitalism* (1900), *April Theses* (1917).

In 1917, imperial rule in Russia came to an end in what is known as the October Revolution, led by the Bolshevik leader Vladimir Lenin. A three-year civil war in Russia ended with the Bolsheviks victorious and taking control of the newly created Soviet Union. Once Lenin was in power, the Bolsheviks renamed themselves the Communists. Besides a new name, many additional changes came to the Soviet Union under Lenin's rule.

Vladimir Ilich Ulyanov was born April 22, 1870, in Simbirsk (later named Ulyanovsk), Russia (he would change his name to Lenin in 1901). Vladimir was the third of six children in a well-educated and close household. He loved education and reading, but his future was highly influenced by two incidents. First, the Russian government grew suspicious of public education, and his father, who was a school inspector, became the focus of a government investigation of public schools. Second, in 1887 his older brother, a university student, was executed by the government for being part of a plan to assassinate Emperor Alexander III. The same year of his brother's execution, he enrolled in Kazan University as a law student. Like other members of his family, he was a revolutionary against the government, and he was expelled during his first semester. He did eventually complete his law degree, in 1892.

Lenin became quite impacted by Karl Marx's *Das Kapital*, and in 1989 he declared himself a Marxist. After receiving his law degree, he eventually moved to St. Petersburg and began the Marxist activities that eventually led to the Russian Revolution and his rise to the leadership of the Bolsheviks.

Internally, Lenin introduced central planning, and externally he focused on building national power and prestige in the international world. In order to achieve his goals, Lenin and his political party allocated the best land, labor, and capital to the armed forces, the space program, and the production of such capital goods as farm equipment and factories.

Committees were organized to run the new communist system. Their responsibilities were to decide the quantity, the production process, and the distribution of goods and services throughout the Soviet Union.

Agricultural Changes

Once the country came under Lenin's rule, large state-owned farms and collectives were created. Private ownership of land was no longer allowed, and on the new state-run farms the state provided farmers with all the equipment, seed, and fertilizer they would receive. Farmers worked for daily wages set by economic planners. Collectives were also state-run farms, but they were leased to peasant farmers to manage and operate on their own. Although the collectives were still required to produce what the government instructed, the farmers received either a share of what they produced or a small income from the sale of the crop.

Under Lenin's new communist rule, agricultural workers were guaranteed employment and income. In return, the government established quotas of production and oversaw how the crops would be distributed. These changes in agriculture did not improve the Soviet Union's productivity. Under this system, individuals had little incentive to produce more or better crops. While Russia had been a major exporter of wheat until 1913, the Soviet Union could not keep its own people fed.

Industrial Changes

Factories within the Soviet Union were also state-owned. The primary focus of the new regime was the defense industry, the space program, and heavy industries such as chemical, steel, and heavy machinery—the commanding heights of an economy. Most resources were used to maintain and expand these industries, with consumer goods and services being the opportunity cost. By 1940, the Soviet Union was the second-largest producer of iron and steel in Europe.

Much like the agricultural sector, in the manufacturing sector jobs were guaranteed and wages were set by the government. Once a production quota was met, there was no incentive to produce more goods. Workers had very little incentive to work harder or to innovate, since they had no control over the factors of production. It was illegal for workers to start their own businesses or exhibit entrepreneurial behavior.

Consumer Changes

With the focus of Lenin's Communist Party being heavy industry, consumer goods were in short supply and of poor quality. Quantity outweighed quality, since the quota system was in place. Consumers typically had a difficult time getting goods. Shortages resulted in hours-long waits in lines to purchase goods and services. Even though government price-setting made goods affordable, the goods were rarely available. Housing shortages were also a major issue, forcing people to live in crowded, poorly constructed apartments.

The many changes that Lenin instilled in the Soviet Union did not produce the international power and prestige he hoped for. In his final years, he introduced a New Economic Policy that included small amounts of private enterprise, mostly in the agricultural sector. This massive change in policy was intended to help motivate the workers of the nation, with international power still the focus and the goal.

Unfortunately for Lenin, his rule of the Soviet Union was short-lived. He suffered a stroke in 1922 while still leading the Soviet Union. He never fully recovered from the stroke, and he continued to decline until his death on January 21, 1924, in Gorki Leninskiye, Russia.

Tracy L. Ripley

See also: Command Economy; Marx, Karl; Socialism

Further Reading

O'Sullivan, Arthur, and Steven M. Sheffrin. 2005. *Economics principles in action*. New York: Prentice Hall.
Read, Christopher. 2013. *Lenin: A revolutionary life*. New York: Routledge.
Service, Robert. 2011. *Lenin: A biography*. London: Pan Macmillan (Kindle).

LIST, FRIEDRICH

Born: August 6, 1789, in Reutlingen, Germany; Died: November 30, 1846, in Kufstein, Austria; Nationality: German; Professional Interests: political economy; Major Work: *The National System of Political Economy* (1841).

Friedrich List was a German economist who promoted a national system of development to international trade. While influenced by Adam Smith, List had significant differences with Smith and other classical political economists of the time. List's theory of national economic system focused on the nation as a whole rather than on the individual. List promoted an economic system where the efficient production of resources created wealth, not the accumulation of goods. List believed a nation must first develop its domestic agricultural and manufacturing industries, before it is capable of participating in international free trade. List died in 1846.

Georg Friedrich List was born on August 6, 1789, in Reutlingen, Germany. His father was a successful tanner, but List chose public service over joining his father in business. Starting as a civil servant at age 17, List had risen to a ministry undersecretary by 1816. The following year, he was selected to teach political economy at the University of Tubingen.

In 1818, List urged the abolishment of tariffs on trade between German states. He formed an organization of Frankfurt businessmen to promote this liberal idea. The political opposition to his ideas was very intense. It led to his resignation from his teaching post in 1819. Having been elected to the Wurttemberg Assembly in 1820, he was dismissed only two years later for his criticisms of the government. His expulsion from the Assembly forced List to leave Germany to avoid prison. After visiting France and England, he returned to Germany where he was arrested, expecting to fulfill his prison sentence. However, he could avoid prison if he left Germany, so in 1825 he left Germany for the United States.

In the United States, List located in Reading, Pennsylvania, where he became a farmer and also became the editor of a German language newspaper. Influenced by Alexander Hamilton, List began to write and promote his ideas for a national economy. In 1827, he published *Outlines of American Political Economy.* In this publication, he returned to his early ideas when in Germany. He reasoned that a young national economy such as the United States needed tariffs to protect the new enterprises responsible for the early growth of the economy and stimulate new development. With the publication of *Outlines of American Political Economy*, List crossed over from businessman and journalist to political economist. Having gained a degree of financial independence with the discovery of coal on his land, List devoted more time to promoting his ideas and structure for a national economy. He also became an American citizen.

In 1832, List returned to Germany as U.S. consul to Baden and later Leipzig. In Germany, List became passionately involved in extending Germany's railroads. Following the mixed success of his efforts with the railroads, he completed his tenure as U.S. consul and in 1837 moved to France. In 1841, he wrote what would become his classic contribution to the study of the political economy: *The National System of Political Economy.*

List's work is marked by several disagreements with Adam Smith. For one, List submitted that the wealth of a nation was more dependent on the "productive forces" that would create the wealth as opposed to the wealth of goods accumulated. List argued that Smith had put too much emphasis on material wealth (accumulation of goods) and exchange of the wealth, and not enough emphasis on the productive side of an economy (accumulation of productive resources).

List considered the productive resources more important to a national economy because they were investments in future development.

A second distinction between List and Smith has to do with their interpretations of productive labor. According to List, Smith had not done an adequate job crediting and promoting "mental labor" as a measure of wealth. This included the professions of the law, religion, the arts, science, and education. List also disagreed with Smith on the value of free trade. While Smith promoted free trade without limitation, List saw trade developing nationally and through definite stages of development.

List argued that national economies must progress through four stages of development. The first stage is when agriculture is the major domestic industry and manufactured goods are imported. In the second stage, domestic manufacturing begins to increase, although the nation continues to import foreign manufactured goods. During the third stage, domestic manufacturers are sufficiently large to provide for domestic consumption. And in the fourth stage, agricultural products and large-scale productive resources are imported and there is large-scale exporting of manufactured products. Ultimately, the main idea of List's theory is that nations must first develop their agricultural and manufacturing industries to take care of their domestic needs—as a prerequisite to participating in international trade.

Though List advocated a national economic system, he argued that too much government interaction would be more costly than beneficial. He was not for regulating all aspects of an economy, and he recognized that certain aspects of the economy needed to be worked out on their own.

List's writings on the development of a national economic system have been promoted among developing nations and have been highly influential there. His emphases on the importance of advances in transportation, education, law and order, and efficient government have created a framework for successful national development.

Friedrich List's *The National System of Political Economy* (*Das Nationale System der Politischen Okonomie)* is one of the classics of economic thought. It has been translated from its original German to English, French, Russian, Swedish, and Hungarian.

Friedrich List had little good fortune in his later days. He lost his property in the United States and his health was failing.

Friedrich List died in Kufstein, Austria, on November 30, 1846, by committing suicide.

Kathleen C. Simmons

See also: Capitalism; Economic History; Economic Systems; Say, Jean-Baptiste; Smith, Adam; *Vol. 3: Microeconomics:* Business Cycle; Jevons, William Stanley

Further Reading

Brinkmann, Carl. 1949. *Friedrich List.* Berlin: Duncker & Humblot.

Henderson, William O. 1983. *Friedrich List: Economist and visionary.* London: Frank Cass.

Hirst, Margaret E. 1909. *Life of Friedrich List and selections from his writings.* London: Smith; New York: Scribner.

List, Friedrich. 1844. The German Zollverein. *Edinburgh Review* 79: 105 et seq.
List, Friedrich. 1827. *Outlines of a new system of political economy.* Philadelphia: Lippincott.
List, Friedrich. 1928. *The national system of political economy.* London: Longmans. (Orig. pub. in German, 1841.)
Streeten, Paul. 1959. Unbalanced growth. *Oxford Economic Papers New Series* 11:167–90.

LOCKE, JOHN

Born: August 29, 1632, in Somerset, England; Died: October 28, 1704, in Essex, England; Nationality: English; Professional Interests: political philosophy; Major Works: *Two Treatises on Government* (1690), *Some Considerations of the Consequences of the Lowering of Interest, and Raising the Value of Money: In a Letter Sent to a Member of Parliament* (1696).

John Locke was a political philosopher whose most enduring contributions were the development of Empiricism (the belief that knowledge comes from experience) and the idea of popular sovereignty (the belief that a government's right to rule comes from the people). His work also affected economics more directly in his rationale for private property, his belief that human beings are motivated by self-interest, and his advice to the British government on monetary theory. Locke died in 1704.

John Locke was born on August 29, 1632, in Somerset, England. He would spend his life as a member of the intellectual middle class. He received an elite education as a result of his lawyer father's connections to a member of Parliament. Locke earned bachelor's and master's degrees in philosophy from Christ Church College at Oxford University, and later a bachelor's degree in medicine. Locke had various careers, including lecturer in Greek, lecturer in rhetoric, and personal physician to the Chancellor of the Exchequer.

In many ways, the English government saw John Locke and his ideas as a threat to the king. In 1682, Locke was forced to Holland in exile. Locke finished writing *An Essay Concerning Human Understanding* during his exile. During England's Glorious Revolution in 1688, John Locke returned to England and became a policymaker for the government of the American colonies.

It was in this role as secretary to the Council for Trade and Plantations that Locke was compelled to comment directly on economics—specifically, monetary policy. His purely economic writings do not constitute his most important contributions to economic thought. These are contained in his writings on political philosophy, which included two ideas that would become central to a modern understanding of a market economy: private property and the utility of self-interest.

Locke's approach was starkly in contrast to historical Western notions of government at the time. The classical Greeks and Romans believed that government existed primarily to promote virtue. Medieval Christians saw government as an extension of God's rule over creation. Locke and other Enlightenment thinkers based their thinking on a notion of humankind's natural rights.

He began his analysis by envisioning a "state of nature," in which civilization did not exist and human beings lived unaffected by society, culture, or government. In such a world, humans naturally possessed the rights of "life, liberty, and property." These rights were insecure, however, since people were likely to attack and enslave one another. Locke wrote that people voluntarily create governments with limited power in order to protect their natural rights. However, in doing so, they actually give up some of their rights, since the government exists to prevent people from doing whatever they please. They surrender some rights in order to protect more important rights. Lastly, and perhaps most importantly, since the government is created by the people in order to protect their rights, the government is ultimately accountable to the people for its authority—a concept known as popular sovereignty.

In this analysis, Locke assumed that private property is a person's right. This was not the general belief at the time time. Before Locke, most scholars had theorized that since the world belonged to God, people could not truly claim property as their own. To them, private ownership was regarded as a necessary evil in an imperfect world. Locke disputed this view, asserting that since people were entitled to enjoy the work of their hands, they were also entitled to possess the land that they developed by their own work; his theory could be called the "labor theory of property." For Locke, property was an indispensable measure of life and liberty.

Also implicit in his thinking was the view that people are motivated by self-interest. Locke did not emphasize duty as the classical thinkers had, or adherence to God's laws. Locke assumed that individuals make the choices that they think are most likely to improve their standard of living. The concept of individual self-interest, along with the belief in a person s right to private property, would become an important piece of the philosophical groundwork for later classical economists, most notably Adam Smith.

Lastly, in his role as a policymaker for the colonies of North and South Carolina, Locke contributed to a growing body of practical economic thought. He argued that interest rates were linked to the supply of money, so they should not be changed arbitrarily. Such laws would not work as intended, but would simply interfere with trade and act as a subsidy to borrowers. Locke also argued against a view popular in the English government that asserted that coins should be made with smaller amounts of precious metals. Locke pointed out that this would simply cause merchants to demand more coins for the same quantity of goods, since the value of money was determined in part by its scarcity. This last view makes him an early contributor to the quantity theory of money.

John Locke will be remembered among philosophers for his early contributions to the school of Empiricism and remembered among political scientists for his writings on limited government, popular sovereignty, and natural rights. His thoughts on self-interest and private property found their way into the core of late 18th-century thought, clearing the way for Adam Smith and *The Wealth of Nations*. Without Locke's work, Smith's writings might have faced a much more difficult audience.

Prior to his death, four additional editions of *An Essay Concerning Human Understanding* were published. He occupied his time responding to critiques of his work and exchanging letters with Edward Stillingfleet. The series of correspondence was later published.

John Locke died in Essex, England, on October 28, 1704.

Stephen H. Day

See also: Capitalism; Economic History; Economic Systems; Malthus, Thomas; Say, Jean-Baptiste; Smith, Adam; *Vol. 3: Microeconomics:* Business Cycle; Jevons, William Stanley

Further Reading

Locke, John. 1696. *Some considerations of the consequences of the lowering of interest, and raising the value of money: In a letter sent to a member of parliament.*

Locke, John. 1796. *An essay concerning human understanding.* Vols. I and II. London: Longman. (Orig. pub. 1689.)

Locke, John. 1986. *Two treatises on government*. Amherst, NY: Prometheus Books. (Orig. pub. 1690.)

Locke, John. 2010. *Fundamental constitutions of Carolina*. Ann Arbor, MI: EEBO Editions, ProQuest. (Orig. pub. 1670.)

Sigmund, Paul E., ed. 2005. *The selected political writings of John Locke*. Norton Critical Editions. New York: Norton.

Woolhouse, Roger. 2007. *Locke: A biography.* New York: Cambridge Univ. Press.

LONG RUN VERSUS SHORT RUN

One measure of time in economics is the use of one's productive resources (land, labor, capital) and the ability to change, reuse, or alter the way in which the productive resources are utilized. This timing for the use of the productive resources is known as the long run and short run.

Long Run

Long run is a period of time that is long enough for firms to have the ability to change, reuse, or alter all the productive resources available to them. The term *long run* does not necessarily reflect a specific time frame, so it can be difficult to define in terms of days, months, or years. Generally, the term reflects a company's ability to vary all its labor, capital, and land resources. One might think of the long run as companies having a clean sheet of paper on which to create and use the available land, labor, and capital any way they choose.

In addition, firms are able to exit and enter the market in the long run. While new firms have the ability to enter a market in response to economic profits, existing firms in a market have the ability to leave as the result of economic losses.

Short Run

The *short run*, as opposed to the long run, is the period of time in which firms do not have the ability to change, reuse, or alter all the productive resources available to them. When a firm or an industry is in the short run, at least one productive resource (land, labor, capital) cannot be changed through either a contract or an agreement such as a rental lease or a labor contract. Like *long run*, the term *short run* does not necessarily reflect a specific time frame, so again it can be difficult to define in terms of days, months, or years. Generally, the short run reflects a company's lack of mobility relative to at least one productive resource. Using the "sheet of paper" analogy, one might think of the short run as a company having a sheet of paper with something written on it, so the paper has to be used in a previously prescribed way. In addition, firms in the short run find it much more difficult to enter or exit a market.

Whitney Wellman
David A. Dieterle

See also: Factors of Production; *Vol. 3: Microeconomics:* Economic Costs and Profits

Further Reading

BusinessDictionary.com. n.d. Short run. www.businessdictionary.com/definition/short-run.html (accessed November15, 2015).
Economics Online. n.d. Principles of production: The long run. www.economicsonline.co.uk/Business_economics/Production.html (accessed November 15, 2015).
Economics Online. n.d. Principles of production: The short run. www.economicsonline.co.uk/Business_economics/Production.html (accessed November 15, 2015).
InvestorGuide.com. 2015. Long run. www.investorguide.com/definition/long-run.html (accessed November 15, 2015).
InvestorWords.com. n.d. Long run. www.investorwords.com/17668/long_run.html (accessed November 15, 2015).
InvestorWords.com. n.d. Short run. www.investorwords.com/17773/short_run.html (accessed November 15, 2015).

M

MALTHUS, THOMAS

Born: February 14, 1766, in Surrey, England; Died: December 29, 1834, in Bath, England; Nationality: English; Professional Interests: economic principles, demographics; Major Work: *Principles of Political Economy* (1820).

Thomas Malthus is considered the father of demographic economics. He was the first to study the relationship between population growth and food production. He would become a friend of David Ricardo, and they would spend much of their lives debating each other on everything from the Corn Laws to the nature of value. Malthus would be the first to use a demand schedule, in his 1820 *Principles of the Political Economy*. Malthus died in 1834.

Thomas Robert Malthus was born on February 14, 1766, in Surrey, England, the son of an English gentleman. His father was a friend of Jean-Jacques Rousseau and David Hume. After being taught by his father and a number of tutors, Malthus entered Jesus College, Cambridge, in 1784. There he was ordained as a minister in 1788 and received his master's degree in 1791. As a result of debates with his father about the ideas of William Godwin and the Marquis de Condorcet, Malthus decided to write down his own thoughts on the subject of population growth. The result was *An Essay on the Principles of Population* (1798).

In preparing this work, Malthus collected data on births, deaths, marriages, and longevity, making him one of the founders of the field of demographics. But he was working on a bigger idea. Malthus noted that population had the capacity and tendency to outstrip food production. Indeed, it is the misunderstanding of this inverse relationship between population growth and food production that most people link to his name. Critics of this relationship often point to Malthus as an example of economic predictions gone wrong, as history has shown that food production and population can both grow geometrically. But the reality is that he was writing at the dawn of the Industrial Revolution. He had no way of predicting the vast increase in productivity that would accompany the increase of capital and new technology.

But his view was larger than the simple inverse population–food production relationship. Malthus noted that despite past tendencies, humankind had not starved itself out. He attributed this to people choosing to change their behavior in the face of such economic incentives as higher food prices. The choices included choosing to marry later and to have fewer children. These choices ultimately helped to bring population back in line with food production, at which time prices would drop and create a different set of incentives. Then the new incentives would begin population growth on a track to outstrip food production again, and the cycle would repeat.

In 1804, Malthus married, which meant he had to give up his fellowship at Cambridge. In 1805, he was named professor of modern history and political economy at the East India Company College in Hailey, Hertfordshire, becoming England's first academic economist. It was also during this decade that Malthus became interested in monetary economics. Around 1810, he read a number of papers on monetary issues by an economist named David Ricardo. He began a correspondence with Ricardo, and they became friends on a number of levels. However, they would disagree on such economic issues as the Corn Laws.

In 1814, Malthus became interested and involved in the debates over the Corn Laws. Initially, he sided with the free-traders, agreeing that the cheaper prices afforded by imports would help make food more affordable. Later he would switch sides, noting that foreign countries may place an export bounty on grain in periods of drought or famine, making food supplies in England subject to foreign political maneuvering. He felt that self-sufficiency in food would be guaranteed if domestic production were encouraged—an example of the strategic industry argument for trade protection.

In 1815, Malthus was the first of four scholars to espouse a theory of rent. Unlike some of his predecessors, who saw rent as a cost of production, Malthus saw rent as a deduction from surplus, or a return on production. And while some disagreed on parts of his theory, his observation that land differed in quality and was scarce would be integrated into other theories of rent, most notably that by David Ricardo.

Malthus and Ricardo also differed in their views of value. Ricardo believed in a theory that ascribed value to a good based on the amount of labor needed to produce it—essentially, a cost-based or supply-based approach. But Malthus saw value as deriving from the amount of labor something could command, or the amount of work someone was willing to do to acquire a good or service. This view was more demand-based, and essentially it depended on the amount of utility or satisfaction consumers believed they would receive from a good.

This view manifested itself more fully when Malthus published his *Principles of Political Economy* in 1820. There, he would be the first to use the idea of a demand schedule, thus drawing a relationship between prices and the amount of goods sought—essentially, the willingness to buy at each price level. Prior to this, the relationship had been strictly one of price and the quantity sold as seen from the supply side of the transaction.

Finally, it was in his *Principles* that Malthus presented arguments against Say's Law, stating that general gluts were possible, differentiating between the equilibrium of the long run and the cyclical swings of the short run.

Malthus was elected a member of the Royal Society in 1819. He became a member of the Political Economy Club in 1821. He became a royal associate of the Royal Society of Literature in 1824. He cofounded the Statistical Society of London in 1834. And his influence, despite criticisms, was significant and long-lasting, affecting scholars and intellectuals like Charles Darwin, Karl Marx, and John Maynard Keynes.

Thomas Malthus died on December 29, 1834, in Bath, England.

Timothy P. Schilling

See also: Capitalism; Economic History; Economic Systems; Hume, David; Keynes, John Maynard; Marx, Karl; Population; Ricardo, David; Say, Jean-Baptiste; Smith, Adam; *Vol. 3: Microeconomics:* Business Cycle; Jevons, William Stanley

Further Reading

Bonar, James. 2004. *Malthus and his work.* Kila, MT: Kessinger.
Drysdale, Charles Robert. 2010. *Life and writings of Thomas R. Malthus.* Charleston, SC: Nabu Press.
Hollander, Samuel. 1997. *The economics of Thomas Robert Malthus.* Toronto, Canada: Univ. of Toronto Press.
Malthus, Thomas. 1798. *An essay on the principle of population.* London: John Murray, Albemarle-Street.
Malthus, Thomas. 1814. *Observations on the effects of the corn laws.* London: J. Johnson.
Malthus, Thomas. 1815. *An inquiry into the nature and progress of rent.* London: John Murray.
Malthus, Thomas. 1820. *Principles of political economy.* London: John Murray.
Malthus, Thomas. 1823. *The measure of value stated and illustrated.* London: John Murray.
Peterson, William. 1998. *Malthus: Founder of modern demography.* Piscataway, NJ: Transaction.

MARGINAL ANALYSIS

Economic decision-making involves marginal analysis. *Marginal analysis* means looking at what a business (or an individual) must give up when making a decision, or looking at what additional cost or benefit someone obtains from a decision.

Marginal analysis is used to allocate scarce resources in a way that will maximize the benefit of the output being produced. The term *marginal* refers to the additional, or next, unit being produced. Marginal analysis is based on changing a variable such as the quantity that is purchased, the quantity of output that is produced, or the quantity of an input that is used. Changing one of these variables makes it possible to determine whether or not one more unit of a good should be produced. Then, the marginal cost and benefit of making such a change can be examined. If the marginal benefit exceeds the marginal cost, the change should be made.

Marginal analysis focuses heavily on the effect that cost-benefit analysis has on a business (or, again, on an individual). A business might choose to analyze how the additional cost of producing another unit of a good will affect profits, as well as to determine what the break-even point is for the firm. When applying marginal analysis, the business should also examine its fixed and variable costs.

Marginal cost is a key piece of marginal analysis. When making an economic decision, a business must examine the marginal or additional cost of producing another unit of a good or service. An *increasing* marginal cost implies that each additional unit of an activity costs more than the previous unit did. This can be displayed graphically on a marginal cost curve. A *constant* marginal cost implies that each additional unit does not increase marginal cost—rather, that it stays the same.

Marginal benefit must also be examined when marginal analysis is being applied. The *marginal benefit* is the benefit gained from producing one more unit of a good or service. A *decreasing* marginal benefit means that producing one more unit results in less marginal benefit.

Businesses should apply both marginal cost analysis and marginal benefit analysis when making an economic decision. Ideally, they should choose the quantity at the point where marginal cost equals marginal benefit.

Marginal analysis can be applied in other areas of economics as well. For example, when seeking to hire an additional worker, the business should examine the *marginal product of labor*, or the cost and benefit of hiring one additional worker. Marginal analysis can also be applied in the form of *marginal utility*, or the additional satisfaction gained from consuming one more unit of a good or service. *Opportunity cost* is yet another form of marginal analysis—one in which the business looks at what must be given up, or the next best alternative, when making an economic decision.

Many economic decisions are made at the margins, which makes marginal analysis an important economic concept.

Angela M. LoPiccolo

See also: Cost-Benefit Analysis; Opportunity Cost; *Vol. 3: Microeconomics:* Marginal Utility

Further Reading

Machlup, Fritz. 1946. Marginal analysis and empirical research. *The American Economic Review* 36: 519–54.

Melody, William H. 1974. The marginal utility of marginal analysis in public policy formulation. *Journal of Economic Issues* 8: 287–300.

MARKET CAPITALISM

Capitalism is an economic system that emphasizes the private ownership of the factors of production, competition, and markets, where the interaction of buyer and seller is free and unregulated. Capitalism can also be referred to as the free enterprise system or a market economy.

Capitalism existed long before the term was used. Ancient European trade routes were utilized for years to exchange goods. In some cases, merchants became wealthy as a result of trade and the expansion of trade networks.

Capitalism can be traced back to the European system of trade called mercantilism. From the 1400s to the 1700s, European nations sought to gain money by exporting more of a particular good than they imported. The mercantilist system was nationalist in nature, and it existed for the sole benefit of the mother country. Countries also used their overseas colonies for trading purposes, with those colonies not permitted to trade freely with other nations; the mother country would extract raw materials from its colonies and then produce final goods that would be sold to the colonies.

In *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776), Adam Smith (1723–1790) attacked mercantilism and promoted the benefits of free trade. *The Wealth of Nations* emphasizes that the government should not interfere in economic affairs of individuals and businesses. Smith spoke of *laissez-faire* trade, a system in which the government should not interfere in trade and should not impose trade restrictions, such as tariffs. This idea of free trade was a new and radical economic philosophy in the 1700s. The writings of Adam Smith would later be adopted by much of the world, as the mercantilist system was abandoned and a new economic philosophy changed the world.

Critical of capitalism, Karl Marx (1818–1883) believed it gave an advantage to business owners at the expense of workers. He stated that at some point, the system of capitalism would be overthrown by the working class, or *proletariat*. His beliefs, published in books such as *The Communist Manifesto* (1848), led to the creation of the system of government known as communism. Marx believed that ultimately capitalism would be overthrown in favor of socialism and communism.

Max Weber (1864–1920) is also linked to capitalism. In his major work *The Protestant Ethic and the Spirit of Capitalism* (1930), he discusses how the Protestant work ethic contributed to the development of capitalism.

The Industrial Revolution also contributed to the growth of capitalism. As new technology was created, so were new products. For example, Britain's textile industry boomed as the result of the spinning jenny, invented in 1764, and the water frame, invented in 1768. This revolution led to the faster production of new goods, but it also led to low wages and long hours for workers. As countries industrialized, new problems and challenges developed, such as unfair competition, child labor, and a larger gap between the rich and the poor.

As a result of the Great Depression in the 1930s, economist John Maynard Keynes (1883–1946) developed a new theory of government intervention to stabilize a capitalist economy. In his book *The General Theory of Employment, Interest and Money* (1936), Keynes promoted government's increased role in society in response to the severe economic crisis.

A distinct feature of capitalism is open markets that are naturally regulated by supply and demand and the unfettered interaction of buyers and sellers. Individual choice is the basis for a capitalist economy, where consumers choose which goods and services to consume in order to satisfy their economic wants. Producers produce goods to satisfy economic wants and to make a profit. In this system, there is little government involvement, as the factors of production are privately owned and are not regulated or owned by the government.

In market capitalism, incentives play the key role. In an economy that has an environment with the appropriate incentives for producers and consumers, both gain. Market capitalism sets the appropriate incentives for individuals as producers to be successful and earn profits. Competition helps create the proper incentives for a market economy.

Market Failure

For the consumer, competition can drive down prices and lead to high-quality goods and services. Private businesses can also be created that are free from government control. Furthermore, this type of market is characterized by specialization, as businesses produce the goods and services that they are suited for or that they can produce most efficiently or at a low opportunity cost. The circular-flow model details how interactions occur in a market economy.

After the fall of communism in the Soviet Union, more countries turned to capitalist economic systems. This transition is not an easy one, and it has resulted in economic struggles for many former communist nations. Economic powerhouses such as China have mixed economies that contain some capitalist elements. Most economies today are, in fact, mixed economies and are not truly capitalist in nature.

Angela M. LoPiccolo

See also: Economic Systems; The Great Depression and Wall Street Crash, 1929; Keynes, John Maynard; Keynesian Economics; Marx, Karl; Mercantilism; Smith, Adam; *Vol. 2: Macroeconomics:* Fiscal Policy

Further Reading

Appleby, Joyce. 2010. *The relentless revolution: A history of capitalism*. New York: Norton.

Bassiry, G. R., and Marc Jones. 1993. Adam Smith and the ethics of contemporary capitalism. *Journal of Business Ethics* 12: 621–27.

Collins, Randall. 1980. Weber's last theory of capitalism: A systematization. *American Sociological Review* 46: 925–42.

Keynes, John Maynard. 1936. *The general theory of employment, interest and money*. New York: Macmillan.

Marx, Karl, and Frederick Engels. 2010. *The communist manifesto*. London: Arcturus. (Orig. pub. 1848.)

Smith, Adam. 1776. *An inquiry into the nature and causes of the wealth of nations*. London: J. J. Tourneisen and J. L. Legrand.

Weber, Maximillian. 1930. *The Protestant ethic and the spirit of capitalism*. London: Allen & Unwin.

MARSHALL, ALFRED

Born: July 26, 1842, in London, England; Died: July 13, 1924, in Cambridge, England; Nationality: English; Professional Interests: general equilibrium theory, marginal utility; Major Works: *The Economics of Industry* (with Mary Paley Marshall) (1885), *The Postulates of English Political Economy* (with Walter Bagehot) (1885), *Principles of Economics* (1890).

Alfred Marshall had far-reaching influence on the foundations of what is now called microeconomics, which ultimately led to the development of macroeconomics. Alfred Marshall introduced the supply-and-demand curves as we know them, noting that they go together like the blades of scissors, to arrive at the price point. His insights were adopted by other members of his school, students, and professionals. These included A. C. Pigou, John Maynard Keynes, Joan Robinson, Jacob Viner, Milton Friedman, and George Stigler. Ironically, John Maynard

Keynes would ultimately challenge his teacher and would change the foundations of economics. Marshall died in 1924.

Alfred Marshall was born on July 26, 1842, in London, England. He was the son of a cashier at the Bank of England who originally chose the clergy as a career for his son. Marshall's father was very intense and refused to allow young Alfred to play chess because he believed it to be a waste of time. Alfred's father also thought mathematics was irrelevant for a budding clergyman. However, Marshall excelled in mathematics, and while attending Cambridge University he was drawn to the field of economics. In 1865, at the age of 23, Marshall was elected to a fellowship at St. John's College, Cambridge, and became a lecturer in moral sciences in 1868. Violating a tenet of the fellowship by getting married, he lost the fellowship after nine years. His first major work, *The Economics of Industry*, was co-authored with his wife in 1879. He became professor of political economy at Cambridge in 1885 and remained there until his retirement in 1908.

In 1890, Marshall wrote *Principles of Economics,* which would become the dominant economics text of the era, supplanting John Stuart Mill's work. Despite his own mathematical ability and his desire to make economics more rigorous, he strove to make his work understandable to the general reader, relegating his calculations and computations to the footnotes and appendices of his work.

Alfred Marshall introduced the supply-and-demand curves as we know them, noting that they go together, like the blades of scissors, to arrive at the price point. This insight was crucial as it gave the demander (consumer) a role in determining the price. Many prior to Marshall had seen price as a function of cost alone and as set largely by the supplier (producer).

That was not the only significant idea to be derived from the supply-and-demand curves. It was Marshall who would develop the idea of consumer surplus and describe it as the "triangle" bounded by the market price and the demand curve. This measure showed the difference between the demander's willingness to buy and the market price, and it helps illustrate the surplus value or utility that consumers receive in the market. Thus it is an important part of understanding the welfare received by market transactions.

The concept of elasticity, or the responsiveness of supply or demand to change in price, is also attributable to Marshall. Marshall showed that producers have some freedom to change prices without impacting revenue. Products that demonstrate lower price elasticity of demand tend to generate lower revenues when prices are lowered and higher revenues when prices are increased. This is because of the percentage change in demand relative to the percentage change in price. Conversely, a producer with a product that has a high level of elasticity of demand may actually generate higher revenues by slightly reducing the price of the product. On the supply side, elasticity can provide insights into the producer's ability to increase production when faced with changes in demand and, in turn, price.

One further contribution of Marshall was his recognition of time and its impact on decision-making. Marshall divided time into three categories: immediate, short-term, and long-term. He believed that this division had a significant effect on decisions, particularly as they relate to elasticity, and surplus.

Thanks to these insights, Marshall became the face of what would later be called the neoclassical school of economics. Marshall and his fellow Cambridge economists would combine the classical works of Mill and Ricardo with other ideas, such as the concept of marginalism developed by William Stanley Jevons. Additionally, it would be the neoclassical school that would help professionalize the field and develop it into a separate field of study in academia. In keeping with Marshall's views on the value of mathematics, the classical school would focus on the development of intuitive arguments. However, this would often lead to generalizations that would frustrate other economists in other schools of economics, including the Austrian School.

Alfred Marshall died on July 13, 1924, in Cambridge, England.

Timothy P. Schilling

See also: Keynes, John Maynard; Mill, John Stuart; Ricardo, David; *Vol. 2: Macroeconomics:* Pigou, Arthur Cecil; Robinson, Joan; *Vol. 3: Microeconomics:* Jevons, William Stanley; Markets; Stigler, George; *Vol. 4: Global Economics:* Viner, Jacob

Further Reading

Blaug, Mark, and Paul Sturges. 1983. *Who's who in economics: A biographical dictionary of major economists, 1700–1980*. Boston: MIT Press.

Bucholz, Todd G. 1989. *New ideas from dead economists*. New York: New American Library.

Economic Theories. n.d. Alfred Marshall. In *Economic theories: History of economic theory and thought*. http://www.economictheories.org/2008/06/alfred-marshall-biography-economic.html (accessed March 10, 2012).

Groenewegen, Peter. 2007. *Alfred Marshall, economist, 1842–1924*. Hampshire, UK: Palgrave Macmillan.

Henderson, David R., ed. 2008. Alfred Marshall. In *The concise encyclopedia of economics*. The Library of Economics and Liberty. http://www.econlib.org/library/Enc/bios/Marshall.html (accessed March 10, 2012).

Marshall, Alfred. 1890. *Principles of economics*. London: Macmillan.

Marshall, Alfred. 1909. *Elements of economics of industry: Being the first volume of elements of economics*. London: Macmillan.

Marshall, Alfred. 1919. *Industry and trade*. London: Macmillan.

Marshall, Alfred. 1923. *Money, credit and commerce*. London: Macmillan.

Marshall, Alfred. 1930. *The pure theory of foreign trade: The pure theory of domestic values*. London: London School of Economics and Political Science. (Orig. pub. 1879.)

Marshall, Alfred, and Walter Bagehot. 1885. *The postulates of English political economy*. London: Longmans, Green.

Marshall, Alfred, and Mary Paley Marshall. 1885. *The economics of industry*. London: Macmillan.

MARX, KARL

Born: May 5, 1818, in Trier, Prussia (Germany); Died: March 14, 1883, in London, England; Nationality: German; Professional Interests: economic philosophy; Major Works: *The Communist Manifesto* (with Friedrich Engels) (1848), *Capital: A Critique of Political Economy* (1867).

Karl Marx used the study of economics to write harsh and systematic criticisms of capitalism, and by extension, the governments and societies that foster it. He proposed a completely new world order called communism, characterized by a stateless society and an equal distribution of resources. Marx's writings covered political philosophy, history, and economics. Marx died in 1883.

Karl Heinrich Marx was born May 5, 1818, in Trier, Prussia (present-day Germany). Karl's father, a lawyer and descendant of Jewish rabbis, had disavowed Judaism and converted to Lutheranism. Karl later rejected religion of any type, coining the famous dictum "Religion is the opiate of the masses."

Marx studied law to please his father. However, he was more interested in philosophy, transferring to the University of Berlin and changing his studies to philosophy. He earned his doctorate in 1841. Upon graduation, Marx found a job in Cologne as a journalist for the Socialist newspaper *Die Rheinische Zeitung*. Prussia—indeed, most of Europe—was not tolerant of dissident ideas, and Marx soon found himself expelled from Prussia. He spent most of the next decade moving from country to country, repeatedly exiled for his radical beliefs. In 1848, in Brussels, Belgium, Marx penned his seminal *The Communist Manifesto*. It was intended as an outline of doctrine for the small international Communist movement.

The Communist Manifesto (or in the original German, *Manifest der Kommunistische Partei)* begins with a sweeping statement that history of the existing society is a history of class struggles. Marx describes human history as characterized by conflicts between the oppressed and the oppressors of social classes. To Marx, any and every idea, institution, religion, or belief serves to support the accumulation of wealth of the dominant social class.

Marx identifies capitalism as the economic system that replaced feudalism. He credits capitalism with immense powers of production, and he describes a shrinking, globalizing world that brings industrial workers—the *proletariat*—into closer association with one another as they crowd into cities to seek jobs. However, he also notes several "contradictions" within capitalism that will eventually spell doom for the system.

Marx submits that shrinking profits force the capitalist bourgeoisie either to seek new markets for their products or to exploit their workers with increasing cruelty. Even though these techniques restore profits, the frenzy of exploitation causes overproduction followed by financial panics, recessions, and reduced profits. Eventually, the cycle begins all over again. According to Marx, capitalism also results in an increasing concentration of the proletariat into factories. This competition among workers reduces wages to the bare level of subsistence. This idea is similar to David Ricardo's iron law of wages. As workers become more like one another, they are more likely to band together to fight for a bigger share of the profits, even while resources are monopolized under fewer and fewer capitalists. The final result of this unstable equilibrium will be a revolution of the proletariat. Marx then predicts that the proletariat will overthrow the bourgeoisie and usher in a new social and political order. A brief period of socialism with the proletariat acting as the ruling class will exist, in which the government reorganizes society to achieve total equality. Once this equality is realized, the government will become irrelevant and wither away, making way for a classless state called communism.

Marx was the intellectual giant of the early Communist movement. As such, he was under constant pressure by his colleagues to write a full-length work that would show the economic necessity of the ideas enshrined in *The Communist Manifesto.*

Marx lived his years in poverty, supported mainly by his friend and co-writer, Friedrich Engels. Engels encouraged Marx to expand his work. In 1867, Marx published a more thorough analysis of capitalism, titled *Capital: A Critique of Political Economy.* He used many of the tools of economic analysis that were created by classical economists such as Adam Smith and David Ricardo. The book begins by addressing the concept of value and how commodities become valuable. For Marx, items are valuable according to the amount of labor it takes to produce them. By adding capital resources to the production process, capitalists can reduce labor to that of a simple tool from which still more value, or surplus value, is obtained. Marx's economic analysis merged the political and historical theories he described in *The Communist Manifesto.*

Soon after his death, the impact of his ideas gained such influence that he has been called the most important thinker of the second millennium. His writings inspired revolutions in Russia, China, Cuba, North Korea, Vietnam, and Cambodia. By 1950, about a third of the world lived under a political system based on Marxist thought. Perhaps more importantly, Marxian methods have been introduced into every social science discipline. Marx's work taught later social researchers to use class analysis, which in turn opened the door for others to think in terms of oppressed cross sections of society. Ironically, Marxian analysis is used least in the field of economics. Marx's ideas continue to challenge a world still coming to terms with the implications of capitalism.

Karl Marx died on March 14, 1883, in London, England.

Stephen H. Day

See also: Command Economy; Ricardo, David; Smith, Adam; Socialism; *Vol. 2: Macroeconomics:* Engels, Friedrich

Further Reading

Berlin, Isaiah. 1978. *Karl Marx: His life and environment.* Oxford, UK: Oxford Univ. Press.

Berlin, Isaiah.1995. *Karl Marx*. London: Fontana Press.

Engels, Frederick. 1869. *Karl Marx*, trans. Joan and Trevor Walmsley. Marx and Engels Internet Archive. http://www.marxists.org/archive/marx/bio/marx/eng-1869.htm (accessed March 1, 2011).

Marx, Karl. 1906. *Capital: A critique of political economy.* Vol. 1, *Capitalist production*. Chicago, IL: Charles H. Kerr. (Orig. pub. 1867.)

Marx, Karl. 1907. *Capital: A critique of political economy.* Vol. 2, *The process of circulation of capital.* Chicago, IL: Charles H. Kerr. (Orig. pub. 1885.)

Marx, Karl. 1909. *Capital: A critique of political economy.* Vol. 3, *The process of capitalist production as a whole.* Chicago, IL: Charles H. Kerr. (Orig. pub. 1894.)

Marx, Karl, and Friedrich Engels. 1848. *Manifesto of the communist party.* http://www.marxists.org/archive/marx/works/1848/communist-manifesto/index.htm (accessed December 23, 2010).

Wheen, Francis. 2008. *Marx's Das Kapital: A biography.* Books That Changed the World. New York: Grove Press.

MARXISM

Marxism is the economic and political theory and practice introduced by the German political philosophers Karl Marx (1818–1883) and Friedrich Engels (1820–1895). Marxian economics holds that actions and human institutions are economically determined and that class struggle is the basic agency of historical change. This class struggle will result in capitalism ultimately being overtaken by communism.

Karl Heinrich Marx was born on May 5, 1818, and died in March 1883. Marx is best known as a revolutionary socialist. His class struggle theory has influenced much of economic thought. Marx published *The Communist Manifesto* (1848) and *Capital*, or *Das Kapital* (1867), two key publications of the Marxist movement.

Friedrich Engels was born on November 28, 1820, and died on August 5, 1895. He was a German social scientist, philosopher, and author, and he was also known as the father of Marxist theory. He was the publisher of *The Condition of the Working Class* in England (1844). This book was written based on his personal observations and his research. After Karl Marx died, Engels continued working on *Das Kapital*, publishing two of that book's three volumes.

Marx and Engels's writings had a significant impact and influence on their fight for Marxian economics. *The Communist Manifesto* has been recognized as one of the world's most influential political manuscripts. The book was held dearly and championed by the Communist League as it laid out its purposes and program. *The Communist Manifesto* presents an analytical approach to the problems with capitalism and the resulting class struggle. The book contains Marx and Engels's theories about the nature of society and politics, in their own words. The book briefly describes their ideas about how capitalist society would soon be replaced by a classless society, or socialism, then advancing to communism. It does not offer a prediction of communism's potential future forms.

In *Das Kapital*, Marx submits that the true worth and value of an economy is based on the value of its labor. Labor, therefore, is the definitive source of a company's profit. Marx further claims that the value of the labor exceeds a company's profit, leading to the surplus value of labor or exploitation of the laborer. As a result, Marx argues, capitalism's excessive surplus value of labor leads to capitalists abusing the laborer. This abuse of the laborer will lead to an uprising of the laborer over the capitalist in a revolution that he and Engels describe in *The Communist Manifesto*.

According to Marxian economic theory, social relations form the basis of society, including the forces and relations of production. The components of the production process can be understood as the employer–employee working relationship and conditions, the division of labor, and the property relations that people enter into to produce the necessities of life.

These relations make an impact on society's other relationships and ideas, which translate into a societal superstructure. The superstructure of a society includes culture, institutions, political power structures, roles, and rituals. Along with the location, also known as a state, the economic system creates the base. Forces that people apply in the process of production (materials, resources, tools, and techniques, and the human body and brain) are defined by this concept, including management and engineering functions. In addition, human knowledge can be defined as a productive force.

Bernard P. Kanjoma

See also: Command Economy; Democratic Socialism; Economic Systems; Fascism; Lenin, Vladimir; Marx, Karl; Stalin, Joseph; *Vol. 2: Macroeconomics:* Welfare State

Further Reading

Marx, Karl, and Frederick Engels. 1848. Manifesto of the communist party. https://www.marxists.org/archive/marx/works/download/pdf/Manifesto.pdf (accessed November 30, 2016).

Marxists Internet Archive. n.d. Beginners guide to marxism. https://www.marxists.org/subject/students/index.htm (accessed November 30, 2016).

Sowell, Thomas. 1985. *Marxism: Philosophy and economics*. New York: Allen & Unwin.

Woods, Alan. 2013. The ideas of Karl Marx. In *In defence of marxism*. http://www.marxist.com/karl-marx-130-years.htm (accessed November 30, 2016).

MENGER, CARL

Born: February 28, 1840, in Austrian Galicia, now in Poland; Died: February 26, 1921, in Vienna, Austria; Nationality: Austrian; Professional Interests: macroeconomics, microeconomics, political economy, marginal utility; Major Works: *Principles of Economics* (1871), *Investigations into the Method of the Social Sciences with Special Reference to Economics* (1883), *The Theory of Capital* (1888), *The Origin of Money* (1892).

Carl Menger is considered the father of the Austrian School of economics. While a reporter in Austria, Menger observed inconsistencies in the classical theories of price and value. Further pursuing a study of political economy, he worked out a system of thought that reconstructed the classical theory; he published his ideas in a book titled *Principles of Economics*. Menger created the foundation for what would become the Austrian School of economics. Over his lifetime, he made significant contributions to the study of economics in his explanation of the origin of money. Menger died in 1921.

Carl Menger was born on February 28, 1840, in Austrian Galicia, which is now part of Poland. He was born into an old Austrian family that had been ennobled, but he dropped the title of “von” from his name. He had two brothers: Anton was an eminent Socialist author and fellow professor in the law faculty of the University of Vienna, and Max was a lawyer and Liberal deputy in the Austrian Parliament. Menger studied economics at the University of Prague and the University of Vienna from 1859 to 1863, receiving his doctorate of law from the University of Krakow in 1867.

Menger began his career as a newspaper journalist in 1876, reporting and analyzing market events. He worked at the *Lemberger Zeitung* in Lwów, Ukraine, and then at the *Weiner Zeitung* in Vienna. During this time, Menger observed a contrast between the theory of price determination in classical economics, on the one hand, and what market participants believed was truly the determinant of pricing in real-world markets, on the other. In 1870, Menger was given a civil service appointment in the press department of the *Ministerratspraesidium* (Austrian government cabinet), followed by an appointment as a *privatdozent* (unpaid professor) on the faculty of law and political science at the University of Vienna. He was promoted to the position of professor *extraordinarius* in 1873.

Between 1876 and 1879, he served as a tutor to Crown Prince Rudolph von Hapsburg. In 1879, Menger was appointed to the chair of political economy in Vienna's law faculty, where he served as professor *ordinarius*. During his professorship, he published *Investigations into the Method of the Social Sciences with Special Reference to Economics* (1883); this book and several articles and pamphlets he had written were widely criticized by German economists. Also during this time, he served on a commission charged with reforming the Austrian monetary system. He resigned his post in 1903.

During his time as a reporter, Menger observed incongruencies in the classical theories of price and value. In response, he pursued a study of political economy and worked out a system of thought that would reconstruct classical theory. He published his theories as *Principles of Economics,* thereby creating the Austrian School of economics. Classical theorists had shown that price and production are determined by the universal law of supply and demand, determined by the interaction of all participants in an economy. However, the classical view recognizes the decisions and calculations of only those producers who are motivated by profit. This creates a price theory in which only supply is explained as a determinant of monetary calculation by profit-motivated businessmen.

What classical theory does not consider are the nonmonetary values and preferences of the consumer, whom Menger insisted is the beginning and end of all economic activity. To Menger, the classical theory views consumer demand for goods treated as a given. Therefore, prices are pushed toward equilibrium by the costs of production. Derived values of resources are also unexplained. This inconsistency creates a "paradox of value."

Classical economics could not explain why life-sustaining products are priced very low compared to non-necessity items. Menger resolved this by developing a comprehensive theory of the pricing process that places human action at the center. He used the law of marginal utility to refute the classical theory that price is determined by the cost of production, asserting instead that it is a result of satisfying consumers' wants.

Another important contribution Menger made to the study of economics is his explanation of the origin of money. From 1889 to 1893, he published seven essays on the topics of monetary theory and currency reform. In these he explained that although generally accepted mediums of exchange have been used in all ancient civilizations, the exact method and standard with which money was established is unrecorded. Menger rejected theories asserting that individuals or government leaders instituted this medium, instead suggesting that it emerged spontaneously through the self-interested actions of individuals.

Menger addressed the issue of salability in a barter economy. Different items have different levels of salability based on the availability of buyers wishing to purchase the item. With market experience, items develop a standard value or true economic price in relation to other commonly traded goods. Goods that are most saleable are traded more often, because buyers recognize these goods as something that can be exchanged more readily for what they desire. Eventually, Menger claimed, certain goods become universally accepted in exchange by sellers of all other goods, thereby becoming a medium of exchange, or money.

The work of Carl Menger influenced further development of economic theory in pricing, monetary policy, currency, and marginal utility by Eugen von Böhm-Bawerk, Friedrich von Wieser, Ludwig von Mises, and Friedrich von Hayek. Menger did not continue to publish after he resigned his professorship in 1903.

Carl Menger died in Vienna, Austria, on February 26, 1921.

Heather Isom

See also: Austrian Economic Thought; Böhm-Bawerk, Eugen von; Capitalism; Hayek, Friedrich von; Mises, Ludwig von

Further Reading

Caldwell, Bruce J., ed. 1990. *Carl Menger and his legacy to economics*. Durham, NC: Duke Univ. Press.

Hayek, F. A. 1992. Carl Menger (1840–1921). In *The collected works of F. A. Hayek*. Vol. 4, *The fortunes of liberalism: Essays on Austrian economics and the ideal of freedom,* ed. Peter G. Klein, 61–96. Chicago, IL: Univ. of Chicago Press.

Henderson, David R., ed. n.d. Carl Menger. In *The concise encyclopedia of economics*. Library of Economics and Liberty. http://www.econlib.org/library/Enc/bios/Menger.html (accessed August 31, 2012).

Hicks, John, and Wilhelm Weber. 1973. *Carl Menger and the Austrian school of economics*. Oxford, UK: Clarendon Press.

Menger, Carl. 1976. *Principles of economics*. Trans. James Dingwall and Bert F. Hoselitz. Arlington, VA: Institute for Humane Studies. (Orig. pub. 1871.)

Menger, Carl. 1892. *The origin of money*. Charlotte, NC: Committee for Monetary Research and Education.

Menger, Carl. 1985. *Investigations into the method of the social sciences with special reference to economics*. Ed. Louis Schneider and trans. Francis J. Nock. New York: New York Univ. Press.

Mises, Ludwig von. 1969. *The historical setting of the Austrian school of economics*. New Rochelle, NY: Arlington House.

MERCANTILISM

Mercantilism refers to an economic system, preferred in Europe between the 16th and 18th centuries, in which governments regulate their nations' economies through commercial trade. The practice was heavily used, especially in British colonies.

The governments in mercantilist economies sought to regulate their nations' economies by controlling trade. They believed that their economic strength was dependent on maximizing exports and minimizing imports through the heavy use of tariffs. Maximizing exports was at the heart of mercantilism because gold was believed to be the key to economic strength: If one country had more gold than another, that richer country was seen as stronger. Taking full advantage of exports guaranteed that gold would always be coming into the nation, and limiting the amount of imports through high tariffs ensured that the gold in the nation would not leave its boundaries.

Known as the bullion system, accumulating gold was necessary for a nation to be strong. Some nations, such as England, passed specific laws, such as the Navigation Acts, seeking to maximize their gold stores by restricting other nations from trading with England and its colonies. Passed in 1651, the Navigation Acts were intended to restrict trade from the Americas. In all, four Navigation Acts were passed, and these acts declared that only English ships could carry cargo between ports; that certain goods, like tobacco and furs, could not be shipped to foreign nations; that Parliament would pay bounties to Americans who produced raw goods, while at the same time raising protectionist tariffs on the same goods produced in other nations; and finally, that Americans could not compete with English manufacturers in large-scale manufacturing. The Navigation Acts ensured that any bullion available in the colonies remained with the British, and only the British.

Also, during the Napoleonic Wars, the French wore down their opponents by not allowing them to export goods and by allowing only imported goods. Forcing those countries to use up their gold by making them purchase foreign goods was seen as a far worse fate than allowing a country to starve.

Mercantilism, though, could benefit a nation for only so long. In his classic book *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776), the economist and theorist Adam Smith (1723–1790) argued that mercantilism was not the best way for nations to maintain their power and add wealth. Smith made three important arguments against mercantilism:

1. He stated that trade benefits all nations involved.
2. He argued that when nations specialize in the production of goods and services, it improves growth and efficiency.
3. He declared that although mercantilist policies benefited both the government and the commercial class, few others in the nation would see any gains from the practice. Through trade, all people in a nation could see an economic benefit.

For example, although the British used a mercantilist system, they could not adhere only to domestic production of goods and services to maintain their wealth. A black market for imported goods began, and the government could do little to stop it. Also, with the production gains from the Industrial Revolution, maintaining an export-only nation was deemed to not be profitable. Soon, Great Britain eliminated mercantilist policies and adopted a free-trade stance, with many other nations following suit.

Later, in the 20th century, British economist John Maynard Keynes (1883–1946) argued that the way to increase national wealth was for a nation to maintain a positive balance of trade, which caused increased demand. Anyone asking for protective tariffs on imports was considered a mercantilist.

After World War I, several nations passed protectionist policies to support their industries. For example, the United States saw the passage of the Tariff Act of 1930, also known as the Smoot-Hawley Tariff or Hawley-Smoot Tariff. The Tariff Act was passed to protect products in the United States by imposing massive tariffs on imported goods. At first, the policy seemed promising, as employment and production by various industries increased. However, many other nations retaliated against the Tariff Act of 1930 by placing huge tariffs on imported goods themselves. The global economy, which was in a recession by this time, began to take an even-deeper downward turn as import and export levels fell across the world, leading to lessening of each nation's gross domestic product (GDP). Many economists feel that the Tariff Act worsened the global recession, fueling the Great Depression.

After the end of World War II and the economic chaos that followed, a series of agreements were passed to stop mercantilist policies from taking effect again. The General Agreement on Tariffs and Trade (GATT) was passed in 1947 to guarantee a reduction in tariffs and trade barriers across the world. Furthermore, organizations such as the World Trade Organization (WTO) and the General Agreement on Trade in Services (GATS) were entered into in order to enforce international trade rules.

Arguably, some mercantilist policies and ideas still exist today. Some economists and politicians consider any country whose trade policies are heavily weighted toward exports with minimal imports to be the "new mercantilists" of today's modern global economy.

Ekaterini Chrisopoulos-Vergos

See also: Keynes, John Maynard; Market Capitalism; Smith, Adam; *Vol. 2: Macroeconomics:* Gross Domestic Product; Tariff Act of 1930 (Smoot-Hawley Tariff Act); *Vol. 4: Global Economics:* World Trade Organization

Further Reading

Free Exchange. 2013. What was mercantilism? *The Economist*, August 23. http://www.economist.com/blogs/freeexchange/2013/08/economic-history (accessed October 7, 2013).

LaHaye, L. n.d. Mercantilism. *The concise encyclopedia of economics*. http://www.econlib.org/library/Enc/Mercantilism.html (accessed October 7, 2013).

Smith, Adam. 1776. *An inquiry into the nature and causes of the wealth of nations*. London: J. J. Tourneisen and J. L. Legrand.

SparkNotes. n.d. The colonial economy: Mercantilism. http://www.sparknotes.com/testprep/books/sat2/history/chapter5section4.rhtml (accessed October 7, 2013).

MILL, JOHN STUART

Born: May 20, 1806, in London, England; Died: May 8, 1873 in Avignon, France; Nationality: English; Professional Interests: economic history, utility theory; Major Works: *Principles of Political Economy with Some of Their Applications to Social Philosophy* (1848), *On Liberty* (1859), *The Subjection of Women* (1869), *Autobiography* (1873).

John Stuart Mill was an influential 19th-century British philosopher. Mill's father, James Mill, and Jeremy Bentham influenced Mill's interpretation of utilitarianism, which emphasized personal action toward the greatest possible happiness. Mill also greatly contributed to the advancement of economic thought. In 1848 he authored *Principles of Political Economy*, which became the leading economics textbook for the next 40 years. Mill died in 1873.

John Stuart Mill was born on May 20, 1806, in London, England. James Mill, his father and author of the *History of British India* (1818), had a profound influence over him. Mill spent his childhood at home under the strict guidance of his father, who served as his tutor. He learned Greek at age 3 and Latin at age 8. He read all nine books of Herodotus, Homer's *Iliad,* and Plato's six dialogues, in addition to an impressive array of others in their original language. He studied logic, math, and the basics of economic theory, including works by Adam Smith and David Ricardo. Mill accompanied his father on daily walks, where he was expected to provide a daily account of his learning. Mill's father used the Socratic method to question the younger Mill's learning and understanding of particular writings and concepts. He was also held responsible for teaching his younger brothers and sisters, which he later admitted that he disliked but that allowed him to learn more thoroughly and lastingly. In addition to his father, family friends David Ricardo and Jeremy Bentham served to influence and educate Mill. In the spring of 1820, Mill studied with Bentham's brother, Sir Samuel Bentham, for one year in France, where he became a fluent speaker of French as well as a student of French thought and history.

His father's ambition was to mold a remarkable intellect to carry on his views of utilitarianism. Mill suffered the unhappy consequences of this imbalance of a life focused on study without emotional outlets. Fortunately, Mill eventually found recovery from his depression through reading the poetry of William Wordsworth.

In 1828, at age 17, Mill joined the East India Company to become an assistant examiner. He eventually headed the British company's relations with the Indian States and ultimately became chief of the examiner's office in 1856. Mill worked for the company for 38 years. Mill also contributed to two newspapers, the *Traveler* and the *Morning Chronicle,* both edited by friends of his father. He took part in regular discussions at his family home, in a newly formed reading society in English historian George Grote's home, and in the London Debating Society. This contact and discourse with others helped Mill develop his own ideas and theories, apart from his father's sphere of influence.

Mill's philosophy—influenced by John Locke, George Berkeley, David Hume, and Jeremy Bentham—takes a positive view of the world and assumes that people contribute to the progress of knowledge, individual freedom, and well-being. Mill believed strongly in freedom of speech; he considered it a necessity for achieving development as a whole person. Mill believed that as long as individuals did not harm other individuals, they ought to be free to do what they wished. Mill denounced slavery, promoted women's rights, and valued the environment.

In 1848 Mill wrote *Principles of Political Economy*, which became the leading economics textbook for the next 40 years. In it, he defends free markets with limited government intervention on utilitarian grounds. Believing that progressive taxes were unfair to those who worked hard, he instead advocated the use of a flat tax. He continued to advance the ideas of Ricardo and Smith in his writings on economies of scale, opportunity cost, and comparative advantage. His defense of free markets was not entirely consistent, in that he also believed in trade protectionism and regulation of work hours for laborers.

Mill married Mrs. Harriet Hardy Taylor in 1851. He had been introduced to her in 1830 while she was in a previous marriage. Mill credits Taylor with having a significant influence on his own intellectual and moral growth. She helped Mill develop his expansive concept of the human good, conceived in utilitarian terms, in contrast to the more traditional ethic espoused by his father.

Mill retired from the India Company and became a member of Parliament from 1865 to 1868. He called for women's suffrage and other voting reforms, although he believed that the more-educated voters should receive more votes as they had a better understanding of the world around them. He will continue to be remembered for his lasting influence on the world of economics and philosophy.

John Stuart Mill died on May 8, 1873, in Avignon, France.

Kathryn Lloyd Gustafson

See also: Capitalism; Economic History; Economic Systems; Hume, David; Locke, John; Ricardo, David; Say, Jean-Baptiste; Smith, Adam; *Vol. 3: Microeconomics:* Bentham, Jeremy; Business Cycle

Further Reading

Henderson, David R., ed. 2008. John Stuart Mill. In *The concise encyclopedia of economics.* Library of Economics and Liberty. http://www.econlib.org/library/Enc/bios/Mill.html (accessed October 30, 2012).

Heydt, Colin. n.d. John Stuart Mill (1806–1873). In *Internet encyclopedia of philosophy.* http://www.iep.utm.edu/milljs/ (accessed February 14, 2012).

Mill, John Stuart. 1848. *Principles of political economy, with some of their applications to social philosophy.* 2 vols. London: John W. Parker.

Mill, John Stuart. 1859. *On liberty.* London: J. W. Parker.

Mill, John Stuart. 1869. *The subjection of women.* London: Longmans, Green, Reader and Dyer.

Mill, John Stuart. 1873. *Autobiography.* http://www.utilitarianism.com/millauto/ (accessed February 14, 2012).

Utilitarian.net. n.d. John Stuart Mill. http://www.utilitarian.net/jsmill/ (accessed February 14, 2012).

Wilson, Fred. 2007. John Stuart Mill. *Stanford encyclopedia of philosophy*. http://plato.stanford.edu/entries/mill/ (accessed February 14, 2012).

MISES, LUDWIG VON

Born: September 29, 1881, in Lemberg, Austro-Hungarian Empire; Died: October 10, 1973, in New York City; Nationality: American, naturalized U.S. citizen; Professional Interests: trade cycle theory, monetary policy, credit policy analyst, economic epistemology; Major Works: *Theorie des Geldes und der Umlaufsmittel* (1912) translated as *The Theory of Money and Credit* (1934), *Die Gemeinwirtshaft* (1922) translated as *Socialism* (1936), *Nationalokonomie* (1940), *Human Action: A Treatise on Economics* (1949), *Theory and History* (1957).

Ludwig von Mises was one of the most influential Austrian economists of the 20th century. Not only was he a driving force and influence behind many contemporary Austrian-born economists, including Friedrich August von Hayek, Gottfried Haberler, Alfred Schutz, and Fritz Machlup. He also made important contributions in the areas of epistemology, history, political philosophy, trade cycle theory, and the economic effects of monetary and fiscal policy. Mises's output and influence laid the groundwork for a significant revival in Austrian and neo-Austrian economics. Mises died in 1973.

Ludwig von Mises was born on September 29, 1881, in the city of Lemberg, a part of the Austro-Hungarian Empire, to Arthur von Mises and Adele Landau. Mises attended the *Akademische Gymnasium* in Vienna from 1892 to 1900, studying the classics, classical languages, and the liberal arts. After a one-year military obligation with an artillery regiment near Vienna, Mises returned to his studies in 1903 and the initial phase of his academic studies at the University of Vienna. It was in this year that he attended the lectures of Friedrich von Wieser and read *The Principles of Economics* by Carl Menger, the acknowledged founder of the Austrian School. He was also greatly influenced by the lectures (1905) and guidance of Finance Minister Eugen von Böhm-Bawerk, a second-generation Austrian economist who wrote *Capital and Interest,* a two-volume treatise on economics and the history of economic thought. Mises would attend Böhm-Bawerk's seminar until 1913. After obtaining a doctor of laws degree in 1906, and with the assistance of Böhm-Bawerk, Mises began work on a monetary treatise that was published in 1912 under the title *Theorie des Geldes und der Unlaufsmittel,* translated in 1934 as *The Theory of Money and Credit.*

This path-breaking work on monetary theory, which integrated the theory of money and banking into the framework of Menger's theory of value and price, brought Mises significant recognition. Money was no longer seen as a *numeraire*, or "measure of value," or as a historical accident, but rather as a natural commodity that has an integrative effect on the economic system. Unable to obtain a full professorship at an Austrian university, Mises taught as a *privatdozent*, an unsalaried position, at the University of Vienna in 1913 and was given the title of associate professor in 1918. After a short stint as a lawyer in Vienna, he obtained a full-time position in 1909 at the Austrian Chamber of Commerce as a *konzipist*, or "analyst," remaining there for the next 25 years. It was at this post that Mises conducted his famous *Privatseminar*, which met regularly in his *Kammer* office throughout the 1920s.

During World War I, Mises saw action as a first lieutenant at the Eastern Front, but he was called back to Vienna in 1917 after sustaining injuries and contracting typhoid fever. For the remainder of the war he worked in the economics division of the Department of War in Vienna. From 1918 to 1920, he was director of the *Abrechnungsamt,* an office designed to reconcile various settlement questions arising from the Treaty of St. Germain. It was in this capacity that he first met and hired his lifelong friend and colleague, the Nobel Prize–winning economist Friedrich August von Hayek, as an assistant.

His reflections on the political situation in Europe after the war prompted him to write *Nation, Staat und Wirtschaft* (1919), later translated as *Nation, State and*

Economy (1983). The book contained an in-depth analysis of the various causes of the war, personal reminiscences, and observations about the economic challenges and political pressures facing a post–World War I Austria. It was followed in 1922 by another pathbreaking work, *Die Gemeinwirtschaft*, translated in 1936 as *Socialism: An Economic and Sociological Analysis*. Mises not only laid out a cogent argument for the impossibility of Socialist economic calculation, but also he now became a leading critic of all forms of socialism.

In 1926, Mises was instrumental in establishing the *Osterreiches Konjunkturforschungsinstitut*, the Austrian Institute for Business Cycle Research, with Hayek as one of its major contributors. A successful private association from its inception, it became an important intellectual outlet for Austrian economic research on business-cycle theory, predicting with great accuracy the banking crisis in Austria in 1931. In addition, his 1927 work *Liberalismus*, translated as *The Free and Prosperous Commonwealth* in 1962, signaled to his contemporaries his adherence to and advocacy of the free-market economy. In 1934, Mises joined the faculty of the Graduate Institute of International Studies in Geneva, Switzerland, as a professor of international economic relations.

In 1940, forced to leave his post because of the Nazi threat, Mises sought refuge in the United States, settling in New York City and obtaining U.S. citizenship in 1946. Unable to find a salaried teaching position at an American university, Mises accepted and held the position of visiting professor at the Graduate School of Business Administration at New York University from 1945 to 1969. Sponsored largely by the William Volker Fund, Mises was able to reinstitute his seminars, continue his writing and research, and attract a new generation of students and scholars as he had earlier in Vienna.

Mises's most important work was *Human Action: A Treatise on Economics* (1949). This comprehensive treatise of economics grew out of his earlier work, *Nationalokonomie* (1940), and firmly established him as the primary spokesman for classical liberal thought in the United States. This work would later become a cornerstone document in the revival of the Austrian School, especially in the works of Murray N. Rothbard. During this period, Mises also published *Bureaucracy* (1944), *Omnipotent Government* (1944), *Planning for Freedom and Other Essays and Addresses* (1952), and *The Anti-capitalist Mentality* (1956). In his last two significant works, *Theory and History* (1957) and *The Ultimate Foundation of Economic Science* (1962), Mises presented the epistemological case for capitalism.

Mises was the recipient of the William Volker Fund Distinguished Service Award (1956), the Austrian Medal of Honor (1962), an honorary doctorate from New York University (1963), and an honorary doctorate in political science from the University of Freiburg (1964); he was also a distinguished fellow of the American Economic Association (1969).

Ludwig von Mises died on October 10, 1973, in New York City at the age of 92.

Joseph A. Weglarz

See also: Austrian Economic Thought; Böhm-Bawerk, Eugen von; Capitalism; Hayek, Friedrich von; Menger, Carl; Schumpeter, Joseph

Further Reading

Butler, Eamonn. 1988. *Ludwig von Mises: Fountainhead of the modern microeconomics revolution.* Aldershot, UK: Gower.

Greaves, Bettina Bien. 1969. *The works of Ludwig von Mises.* Irvington-on-Hudson, NY: Foundation for Economic Education.

Hayek, Friedrich von, ed. 1971. *Toward liberty: Essays in honor of Ludwig von Mises on the occasion of his 90th birthday.* Menlo Park, CA: Institute for Humane Studies.

Hülsmann, Jorg Guido. 2007. *Mises: The last knight of liberalism.* Auburn, AL: Ludwig von Mises Institute.

Kirzner, Israel M. 2001. *Ludwig von Mises.* Wilmington, DE: ISI Books.

Mises, Ludwig von. 1927. *Liberalism: In the classic tradition.* 3rd ed. Trans. Ralph Raico. San Francisco, CA: Cobden Press.

Mises, Ludwig von. 1929. *A critique of interventionism.* Stuttgart, Ger.: Gustav Fischer Verlag.

Mises, Ludwig von. 1934. *The theory of money and credit.* London: Jonathan Cape.

Mises, Ludwig von. 1936. *Socialism: An economic and sociological analysis.* London: Jonathan Cape.

Mises, Ludwig von. 1947. *Planned chaos.* Auburn, AL: Ludwig von Mises Institute.

Mises, Ludwig von. 1949. *Human action: A treatise on economics.* New Haven, CT: Yale Univ. Press.

Mises, Ludwig von. 1957. *Theory and history*. New Haven, CT: Yale Univ. Press.

Mises, Ludwig von. 1962. *The ultimate foundation of economic science.* New York: Van Nostrand.

Mises, Ludwig von. 1969. *The historical setting of the Austrian school of economics.* New Rochelle, NY: Arlington House.

Mises, Ludwig von. 1978. *On the manipulation of money and credit: Three treatises on trade-cycle theory.* Trans. Bettina Bien Greaves and ed. Percy L. Greaves Jr. New York: Free Market Books.

Moss, Laurence S. 1974. *The economics of Ludwig von Mises: Towards a critical appraisal.* Kansas City, MO: Sheed and Ward, Institute for Humane Studies Series in Economic Theory.

Sennholz, Mary, ed. 1956. *On freedom and free enterprise: Essays in honor of Ludwig von Mises.* Princeton, NJ: Van Nostrand.

MONEY, HISTORY OF

Most people would refer to money as the coins and bills in their wallet or the paycheck they receive at their job.

The coins and paper that are used as money in the United States today were not always used as currency. In the past, societies used a wide range of objects as currency. Cattle, salt, furs, precious stones, gold, and silver have all served as currency at various times in various places. Even teeth, rice, shells, and olive oil have been used as currency in some nations. Although all of these items were used successfully in the past, none of them would function very well in our economies today. Each of these items lacks at least one of the six common characteristics that economies use to judge how well an item serves as currency. These six characteristics are durability, portability, divisibility, uniformity, limited supply, and acceptability.

Durability

Objects used as money must withstand the physical wear and tear that comes with being used over and over again. If money wears out or is destroyed too easily, it cannot be trusted to serve as a store of value. Unlike salt, rice, or olive oil, coins last for many years. Also, when paper bills wear out, the United States government can easily replace them with new bills.

Portability

Currency needs to be easy to transfer from one person to another. People must be able to carry it as they go about their daily business; therefore it must be lightweight and small. Paper money and coins are very portable, which is why they are used as the primary means of currency throughout the world.

Divisibility

For money to be useful, it must be easily divided into smaller denominations or units of value. When money is divisible, people have to use only as much of it as necessary for any exchange. Most currencies around the world are available in various denominations, such as 10-cent coins, 50-cent coins, $1 bills, $10 bills, and so on.

Uniformity

Any two units of money must be exactly the same in terms of what they will buy. In other words, people must be able to count and measure money accurately. A $1 bill in the United States must always buy $1 worth of goods or services in order for the currency to work accurately.

Limited Supply

Just like any other item's supply creates its value, currency must also be in limited supply in order to have value. If leaves were used as currency and your nation was filled with trees, the currency would be too abundant to have any value. Therefore, in the United States as well as in most other nations, the government controls the supply of money in circulation.

In the United States, the Federal Reserve System acts as the nation's central bank and controls the money supply. The Federal Reserve is able to monitor, distribute, and limit the amount of money available at all times. This system helps to limit the supply of money in circulation, which in turns helps to maintain the value of the currency.

Acceptability

Finally, everyone in an economy must be able to exchange the objects that serve as the money (dollars and coins) for goods and services in a society. When one person uses a certain currency, the receiver of that currency must be able to reuse it in subsequent transactions—throughout the entire society.

In the United States, people expect that other people will continue to accept the government-issued paper and coins in exchange for purchases of goods and services. The use of the money issued and accepted throughout a nation makes an economy flow more easily and with a common currency language.

The earliest forms of representative money in the United States were receipts issued by goldsmiths for gold and silver deposits. Gold and silver were not easily portable, so merchants would deposit their gold or silver with a goldsmith and in return would receive a paper receipt showing how much gold or silver they owned. Eventually, merchants began to accept the paper receipts instead of the gold itself, which allowed the paper receipts to become the earliest form of paper currency.

Two of the earliest forms of paper currency issued by the United States government were "Continentals" and gold/silver certificates. *Continentals* were issued during the American Revolution by the Second Continental Congress to finance the war against Great Britain. Few people were able to redeem them, however, because the federal government had no power to collect taxes. Therefore, the federal government had no currency to exchange for the Continentals.

The *gold/silver certificates* issued by the United States government were backed by gold or silver. The holder of a certificate could redeem the paper currency at a local bank for the actual commodity of gold or silver. The problem with this type of currency was that the federal government had to keep vast amounts of gold and silver stockpiled in order to convert the certificates into the actual commodity. By the 1930s the government had stopped converting paper money into gold and silver, and by 1971 the United States did away with the gold standard altogether.

Fiat money is the final source of value for money. This type of currency has value because the issuer of the money, typically the government of a nation, has ordered that this is an acceptable means to pay debts. Most developed nations of the world have fiat money that is issued and regulated by a central bank.

Tracy L. Ripley

See also: Central Bank; *Vol. 2: Macroeconomics:* Federal Reserve System; Inflation

Further Reading

Davies, Glyn. 2002. *History of money*. Cardiff, UK: Univ. of Wales Press.

Ferguson, Niall. 2008. *The ascent of money: A financial history of the world*. New York: Penguin Press.

Hurst, James Willard. 2001. *A legal history of money in the United States, 1774–1970*. Frederick, MD: Beard Books.

O'Sullivan, Arthur, and Steven M. Sheffrin. 2007. *Economics principles in action*. New York: Pearson/Prentice Hall.

MONT PELERIN: A CRISIS IN ECONOMIC THOUGHT AND ACADEMIA, 1947

Postwar globalization was a silent crisis that led to decades of long economic decline and de-industrialization in the United States. Unlike most economic revolutions, this went unnoticed at the time except in the halls of academia; yet the effects of its ultimate devastation of American industry and jobs would be far greater in the United States than the Great Depression and America's wars. The roots of this crisis and American de-industrialization go back to April 1947 in Switzerland. The exact location was the luxurious Hotel du Parc at Mont Pelerin, overlooking Lake Geneva. There the free-market economist Friedrich von Hayek assembled a group who would lead a revolution in economics—ousting the economics of John Maynard Keynes and ushering in free-trade economics and the de-industrialization of the United States. This crisis and battle would first play out in the economic schools of America's great universities. By the 1970s, the new economic approach would be embraced by the United States and both of its political parties.

The radical economic views of the Mont Pelerin Society in 1947 promised a world free of major wars. World economists believed the Great Depression had led to two problems: (1) the shutdown of trade, which crippled countries such as Great Britain and the United States; and (2) the rise of fascism in Germany and Italy. The Mont Pelerin Society saw free trade as a basis for world peace, and they believed achieving this would require a major change in world outlook. That change would have to go beyond simple economic philosophy; it would mean that industrial growth would be redistributed from the United States to ensure world peace. Free trade would require world unity, and the United Nations would be part of that vision. World overview organizations would have to be formed to monitor trade disagreements. The General Agreement on Tariffs and Trade (GATT) and the International Monetary Fund (IMF) would evolve from the work of the Mont Pelerin economists. Today, they are known as the World Trade Organization and the World Bank, respectively

Senior economist John Maynard Keynes would be discredited somewhat by the Great Depression and the world war that followed. Keynesian economists dominated the universities in the 1940s, so even the apparent failures of Keynes's theory would not soon result in a new approach. Hayek was the rising star of anti-Keynesian economics, and with him came the idea of free trade as a tool for world peace and a defense against Marxism and socialism. The Mont Pelerin view of free trade would soon become dominant in all the various schools of economics, would come to dominate economic thought, and would be supported internationally by the United Nations and the World Trade Organization.

It would be the economist Milton Friedman, who had reluctantly attended the Mont Pelerin Conference in 1947, who would change America's philosophy. Friedman had changed his beliefs before. He had gone from a being a socialist in the 1930s to a Keynesian New Dealer by the end of the 1940s. He then believed in government intervention to control the economy. In 1950, when Friedrich von Hayek joined Freidman at the University of Chicago, the new economic philosophy espoused by Hayek started to take root. After years of study at the University of Chicago, Friedman slowly converted to the free trade and international capitalism of the Mont Pelerin Society. The University of Chicago became the center of Mont Pelerinism in the United States, followed by Harvard and other universities. Princeton's Nobel laureate economist, Alan Blinder, declared: "By about 1980, it was hard to find an American macroeconomist under the age of forty who professed to be a Keynesian" (Wapshott 2012, 268). At major universities, the only people who would sit at the lunch table with the Keynesians were visiting creationists.

These universities would become the training ground for presidential economic advisers from John F. Kennedy on, and these advisers would help shift the nation to open trade after 100 years of protecting American industry.

Labor unions had held the economic advisers of presidents in check into the 1990s. One of the great American triumphs of the Mont Pelerin Society, the North American Free Trade Agreement (NAFTA), would be the end of American industrial dominance. In 1993, NAFTA represented a final political victory of Mont Pelerin Society economics as the Democratic Party fully embraced free trade. The Republicans had embraced free trade under President Reagan. President Bush and President Clinton would both agree on NAFTA. The United States had no political party to challenge free trade. In fairness, every American president has questioned the hardships of open trade on American labor, but there is no creditable opposing economic theory for government.

Quentin R. Skrabec Jr.

See also: The Great Depression and Wall Street Crash, 1929; Hayek, Friedrich von; Keynes, John Maynard; Marx, Karl; New Deal; Reagan, Ronald; *Vol. 2: Macroeconomics:* Friedman, Milton; Rapid Deindustrialization, 1975; *Vol. 3: Microeconomics:* Auto Import Challenge, 1965; Labor Market Regulation; *Vol. 4: Global Economics:* General Agreement on Tariffs and Trade; North American Free Trade Agreement; World Trade Organization

Further Reading

MacArthur, John R. 2001. *The selling of "free trade": NAFTA, Washington, and the subversion of American democracy.* Berkeley: Univ. of California Press.

Wapshott, Nicholas. 2012. *Keynes Hayek: The clash that defined modern economics.* New York: Norton.

MORAL MOTIVATION

Morality means "doing the right thing." It entails notions of justice that can trump our preferences or interests. Moral judgments are by their nature inescapable, and they would apply to all in the same circumstances. They are buttressed by emotional feelings and reasoned argument. Consequently, morality differs fundamentally from matters of mere convenience, preference, convention, or conformism.

Societies and economies cannot function without moral bonds and rules. Matters of economic and social policy required a deep understanding of human motivation. If all motivation is treated as stemming from individual "preferences," approaches to policy are more easily diverted into the narrower channels of material or pecuniary incentives, neglecting moral motivations and appeals to ethical values.

Much of the theoretical work by economists that attempts to explain cooperation in the real world conflates issues of morality with altruism or cooperation under the description of "social" or "other-regarding" preferences, such as in the work of Bowles, Gintis, Camerer, Fehr, and Fischbacher. The assumption of "other-regarding" preferences contrasts with the previously prominent idea that economic humans were entirely selfish. But people with "other-regarding" preferences are still maximizing *their own* utility, and they may be regarded as selfish too.

In his philosophical account of the *Evolution of Morality*, Richard Joyce (2006) argues on the basis of considerations in the philosophical literature that morality has most or all of the following characteristics:

1. Moral judgments express attitudes (such as approval or contempt) and also express beliefs.
2. The emotion of guilt is an important mechanism for regulating moral conduct.
3. Moral judgments transcend the interests or ends of those concerned.
4. Moral judgments imply notions of desert and justice.
5. Moral judgments are inescapable.
6. Moral judgments transcend human conventions.
7. Moral judgments govern interpersonal relations and counter self-regarding individualism.

These characteristics do not establish a valid morality; they instead help us to identify what is a moral judgment, whether acceptable or otherwise. Like Darwin, Joyce emphasizes the role of the emotions as well as deliberation. Point 1 in the list above establishes that a moral judgment must involve both beliefs and sentiments, and is not reducible to either alone. If an action is impelled purely by emotion and sentiment, then it cannot amount to moral motivation. Deliberations and beliefs are also vital, but they are themselves insufficient because they must be backed by sentiments or emotions: acting morally is more than calculated conformity to moral rules.

Joyce's points 3–7 reveal the limitations of typical utilitarian approaches. Moral judgments are not simply expressions of an individual's interests, preferences, sentiments, or beliefs. They are also claims to universality in their context, which would apply irrespective of the interests, preferences, sentiments or beliefs of those to whom they are supposed to apply. Humans are capable of considering moral rules, and understanding that their observance is more than a matter of personal whim or satisfaction. This dimension is missing in much of economics. Moral values are either ignored or subsumed under matters of utility or preference.

It is a commonplace observation that what may be a moral rule for one culture may not be so for another. But this does not mean that moral rules are reducible to conventions. The cultural specificity of some moral judgments does not mean that one person's morality is as good as any other.

In Charles Darwin's account (1871), morality results from a combination of emotional impulses and thoughtful deliberation. He argues that although primitive moral feelings have evolved for millions of years, humans alone have a developed sense of morality. For Darwin, morality emerged in humans upon a long-evolved foundation of instinct and impulse. Frans De Waal (2006) argues that primates express moral feelings.

Studies show a number of common features of moralities across cultures, notwithstanding important cultural variations. All cultures regard many acts of harm against others as immoral and invest many acts of reciprocity and fairness with moral virtue. All cultures have moral rules concerning required behaviors specific to particular social positions, roles, or ranks. Moral codes restraining individual selfishness are also commonplace. As well as sustaining enormous cultural diversity, genetic and cultural coevolution has ensured that some specific types of prosocial moral rule have endured.

Darwin proposed that groups with individuals that devote themselves to the interests of their group will have an advantage in the struggle for survival. Among humans, binding sentiments of sympathy and solidarity are strengthened by a moral code. On the basis of existing evidence, the genetic foundations of altruistic and moral feelings seem more likely to have evolved first through mechanisms of kin altruism and then through reciprocal altruism. Genes play a role, but also indispensable is culture, particularly through the inculcation of behavioral norms in children by parents (Palmer and Steadman 1997).

Through our genes we inherit the capacity to quickly respond to social dilemmas by developing emotions. These emotions not only dispose us to make choices; they also help us to form rapid judgments concerning what is morally right or wrong. Moral judgments help us justify our actions to others and exhort others to approve or imitate. Our genes do not tell us what is moral or immoral. We try to learn that through engagement in a social culture.

The foundations of our moral capacity have evolved over the millions of years that we have been a social species. But in the last hundred thousand years or so, the full development of human moral capacities has been highly dependent on particular cultural settings, allowing for multiple and contrasting moral systems on the basis of a shared instinctive bedrock. In sum, morality depends on language, communication of abstract concepts, discussion and reflection upon them, and the derivation of general moral principles. The implications of a moral dimension to human motivation are profound, with implications for understanding and the design of incentives and policy, taking us behind a focus on pecuniary incentives alone.

Geoffrey M. Hodgson

See also: Culture and Behavioral Economics; Moral Sentiments and Adam Smith; Smith, Adam

Further Reading

Bok, Sissela. 1978. *Lying: Moral choice in public and private life*. New York: Pantheon.

Bowles, Samuel, and Herbert Gintis. 2011. *A cooperative species: Human reciprocity and its Evolution*. Princeton, NJ: Princeton Univ. Press.

Brown, Donald E. 1991. *Human universals*. New York: McGraw-Hill.

Camerer, Colin F., and Ernst Fehr. 2006. When does "economic man" dominate social behavior? *Science* 311: 47–52.

Darwin, Charles R. 1871. *The Descent of Man, and Selection in Relation to Sex*. 2 vols. London: Murray; New York: Hill.

De Waal, Frans B. M. 2006. *Primates and philosophers: How morality evolved*. Princeton, NJ: Princeton Univ. Press.

Fehr, Ernst, and Colin F. Camerer. 2007. Social neuroeconomics: The neural circuitry of social preferences. *Trends in Cognitive Science* 11: 419–27.

Fehr, Ernst, and Urs Fischbacher. 2002. Why do social preferences matter—The impact of non-selfish motives on competition, cooperation and incentives. *Economic Journal* 112: C1–33.

Haidt, Jonathan, and Craig Joseph. 2004. Intuitive ethics: How innately prepared intuitions generate culturally variable virtues. *Daedalus* 133: 55–66.

Haidt, Jonathan, and Craig Joseph. 2008. The moral mind: How five sets of innate intuitions guide the development of many culture-specific virtues, and perhaps even modules. In *The innate mind*, Vol. 3: *Foundations and the future*, ed. Peter Carruthers, S. Laurence, and S. Stich, 367–92. New York: Oxford Univ. Press.

Hodgson, Geoffrey M. 2013. *From pleasure machines to moral communities: An evolutionary economics without homo economicus*. Chicago, IL: Univ. of Chicago Press.

Joyce, Richard. 2006. *The evolution of morality*. Cambridge, MA: MIT Press.

Nichols, Shaun. 2004. *Sentimental rules: On the natural foundations of moral judgment*. Oxford and New York: Oxford Univ. Press.

Palmer, C., and L. Steadman. 1997. Human kinship as a descendant-leaving strategy: A solution to an evolutionary puzzle. *Journal of Social and Evolutionary Systems* 20 (1): 39–52.

Schwartz, Shalom H. 1994. Are there universal aspects in the structure and contents of human values? *Journal of Social Issues* 50: 19–45.

MORAL SENTIMENTS AND ADAM SMITH

Adam Smith's writings spanned a wide range of topics—from the evolution of ideas in physics (*The History of Astronomy*), to causes and effects of effective communication (*Rhetoric and Belle Lettres*), to virtue and morality (*Theory of Moral Philosophy*), to, of course, economics (*Wealth of Nations*). Smith's idea about moral sentiments was that simple feelings could indicate right from wrong. Smith's emphasis on simple feelings was part of his reaction against the practice of casuistry and the use of revelation for settling disputes. *Casuistry*, or "case-based reasoning," became the object of criticism for creating moral rules out of "whole cloth." For every conceivable set of circumstances people could find themselves in, casuistry could derive from these reasoned moral rules. As opposed to the contrivances and deliberations of the casuists, Smith favored simple feelings.

A second reason for Smith's interest in moral sentiments was his consideration of how members of a commercial "society of strangers" could develop social bonds and live a virtuous life. He saw a solution in an individual suppressing the ego and entering into the feelings of another. This was easiest in small groups in the private sector in which people use their reason, meaning a warm feeling guiding their behavior toward virtuous behavior.

Smith, who is often held up as the spokesperson for greed and rapaciousness, begins his 1759 book *The Theory of Moral Sentiments* (*TMS*) with this statement: "How selfish so ever a man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it, except the pleasure of seeing it . . . As we have no immediate experience of what other men feel, we can form no idea of the manner in which they are affected, but by conceiving what we ourselves should feel in the like situation" (Smith 1969, 1).

What are the attributes of the moral sentiments that allow us to put ourselves in another person's "shoes"? In *TMS* Smith speaks of two central characteristics: sympathy and the impartial spectator. *Sympathy* is the ability to place oneself in another's shoes. According to Jacob Viner (1972), sympathy consists of "subrational feelings," almost instinctive to humans and central in human psychology and choice. Sympathy with another, a correspondence of our sentiments with those of another, is a major source of pleasure (utility).

Smith calls the second attribute the impartial spectator (IS). The IS is the objective part of us, our moral sense. When you use the IS you "divide yourself" into two persons: the examiner and the examined, the judge and the one being judged. Through the IS we can gain needed insight and clarity, because if we're left to the devices of "the selfish and original passions of human nature" (Smith 1969, 233), we will always overexaggerate our pain and rejoice excessively about our joy. Doing so is the "fatal weakness of mankind, is the source of half the disorders of human life" (Smith 1969, 263). For Smith, sympathy and the IS were two parts of one phenomenon. In *TMS* Smith refers to these two facets as the "sympathetic feelings of the impartial and well informed spectator" (Smith 1969, 466).

Smith's economics treatise, *The Wealth of Nations* (WN), does not explicitly deal with moral sentiments. It is a book about the effects of self-interest and competition on the economy (and society). However, consider these two reasons for believing that *WN* and *TMS* are connected with each other: The idea of the "invisible hand" appears in both *TMS* and *WN*. In *TMS*, Smith (1969, 275) writes that "by acting according to the dictates of our moral faculties, we necessarily pursue the most effectual means for promoting the happiness of mankind, and . . . cooperate with the Deity. . . ." In *TMS* Smith also says that the "sympathetic feelings of the impartial spectator" are in our self-interest. In *TMS* Smith observes that being considered worthy of praise or honor is a stronger motivation for human action than is accumulating wealth. Further, in striving for sympathy we create enough wealth to feed even the poor. Receiving sympathy—being praiseworthy—stems from others believing you, and hence from you being persuasive. Why do individuals trade instead of taking things by force? For Smith, the desire to be considered worthy of admiration and approval—sympathy—makes force unacceptable; sympathy requires mutually beneficial (exchange) trade.

Roger Frantz

See also: Moral Motivation; Smith, Adam; *Vol. 4: Global Economics:* Viner, Jacob

Further Reading

Mair, Douglas. 1990. *The Scottish contribution to modern economic thought*. Aberdeen, UK: Aberdeen Univ. Press.

Otteson, James. 2002. *Adam Smith's marketplace of life*. Cambridge, UK: Cambridge Univ. Press.

Rothschild, Emma. 2001. *Economic sentiments*. Cambridge, MA: Harvard Univ. Press.

Smith, Adam. 1937. *The wealth of nations.* New York: Modern Library. (Orig. pub. 1776.)

Smith, Adam. 1969. *The theory of moral sentiments*. Indianapolis, IN: Liberty Classics. (Orig. pub. 1759.)

Smith, Adam. 1980. *Essays on philosophical subjects*. Oxford, UK: Clarendon Press. (Orig. pub. 1795.)

Smith, Adam. 1983. *Lectures on rhetoric and belle lettres*. Oxford, UK: Clarendon Press. (Orig. pub. 1762.)
Viner, Jacob. 1966. Adam Smith and laissez-faire. In *Adam Smith, 1776–1926*, ed. John Maurice Clark, Paul Douglas, Jacob Hollander, et al. New York: Augustus M. Kelley.
Viner, Jacob. 1972. *The role of providence in the social order: An essay in intellectual history*, 116–25. Princeton, NJ: Princeton Univ. Press.

MUN, THOMAS

Born: June 17, 1571, in London, England; Died: July 21, 1641, in London, England; Nationality: English; Professional Interests: merchant, mercantilist; Major Work: *A Discourse of Trade from England unto the East Indies* (1621).

Thomas Mun, one of the first mercantilists, is known for his emphasis on the importance of the balance of trade for economic prosperity. As a proponent of the balance-of-trade theory, Mun believed that a healthy nation will sell a greater value of goods to foreigners than it consumes of foreign goods. Mun believed that gold was a stable measure of wealth, and that government should regulate trade to produce an excess of exports over imports in order to gain more gold for the country. In response to the economic depression that had began in 1620, in 1622 Mun was selected as a member of the great commission of trade to make recommendations concerning economic policy. Mun died in 1641.

Thomas Mun was born on June 17, 1571, in London, England. He was the third son of an important London family. At a young age, he lost his father and his mother remarried. His stepfather was a director of the newly formed East India Company, where Mun later began his career in business by engaging in Mediterranean trade, primarily in Italy and the Levant (the area encompassing Turkey, Syria, and Lebanon). He later settled in London, having amassed a large fortune. He is reported to have had commercial dealings with Grand Duke Ferdinand I of Tuscany. Nothing specific is known of his education.

Mun rose to public prominence in England during the economic depression of 1620. As the director of the East India Company, Mun was called on to defend the company's practice of exporting large amounts of silver while there was a silver shortage in the country. Many people in the country blamed the East India Company for the crisis, because the company financed its trade by exporting £30,000 in bullion on each voyage.

In large part, Mun penned his first work in 1621 in defense of the East India Company's practices, and it may have been made in self-interest as well. In *A Discourse of Trade from England unto the East Indies,* Mun argued that as long as England s total exports exceeded its total imports in the process of visible trade, the export of bullion was not harmful. In his argument, he pointed out that East Indian goods, when re-exported, earned more silver than had originally been exported to pay for them.

As one of the members of the commission of trade set up in 1622 to make recommendations concerning economic policy, Mun successfully opposed the advocates of two different policies, each based on a distinct theoretical analysis of the mechanism of foreign trade. Out of this opposition, Mun composed his second book, *England's Treasure by Foreign Trade,* which he completed between 1626 and 1628 but was not printed until 1664 by his son. The book was considered to be a direct repudiation of the arguments of Gérard de Malynes, who believed that excessive export was intrinsic to a healthy foreign exchange and advocated exchange rate controls with a fixed exchange rate as presented in *The Maintenance of Free Trade* (Malynes 1622).

In his second book, considered a classic of English mercantilism, Mun emphatically and formally defined the doctrine of the *balance of trade*. Mun asserted that foreign trade is governed by the demand for commodities, that the flow of goods rules the exchange rate, and that silver itself is merely another commodity. He was among the first to recognize the exportation of services as valuable trade, and he made early statements strongly in support of capitalism.

Mun asserted that trade was the only way to increase England's treasure (i.e., its national wealth). He suggested several courses of action in pursuit of this end: frugal consumption in order to increase the amount of goods available for export, increased utilization of land and other domestic natural resources to reduce import requirements, and lowering of export duties on goods produced domestically from foreign materials.

His recognition of the principle of elasticity of demand may be his most notable contribution to economic theory. Understanding that goods with inelastic demand command higher prices in the marketplace, Mun advocated exporting goods with inelastic demand to generate greater profits from international trade.

As a mercantilist, Mun believed that government should regulate trade to produce an excess of exports over imports in order to gain more gold. His position depended on the idea that the nation's holding of gold was the main measure of its wealth. Mun's view was later challenged by economists such as Adam Smith, who showed that trade is self-regulating and that governments that seek to hoard gold or other hard currencies will make their countries worse off.

Mun's works on the theory of the balance of trade deeply influenced subsequent economic thought and were published in several editions. Laissez-faire economists such as John R. McCulloch, who saw Mun as a tentative exponent of freedom of trade, commended his practical liberalism.

Mun died on July 21, 1641, in London, England, at the age of 70.

Ninee Shoua Yang

See also: Capitalism; Economic History; Economic Systems; Quesnay, François; Smith, Adam; *Vol. 2: Macroeconomics:* North, Douglass; *Vol. 3: Microeconomics:* Business Cycle; Elasticity

Further Reading

Gould, J. D. 1955. The date of England's treasure by forraign trade. *Journal of Economic History* 15: 160–61.

Gould, J. D. 1955. The trade crisis of the early 1620's and English economic thought. *Journal of Economic History* 15: 121–33.

Hardy, Alfred L. 1894. Thomas Mun. In *Dictionary of national biography, 1183–86*. London: Smith, Elder & Co.

Hinton, R. W. K. 1955. The mercantile system in the time of Thomas Mun. *Economic History Review, Second Series* VII: 277–90.

Malynes, Gérard de. 1622. *The maintenance of free trade*. London: Sheffard.

Mayer, David A. 2010. *The everything economics book: From theory to practice, your complete guide to understanding economics today*, 66–69. Avon, MA: Adams Media.

Misselden, Edward. 1622. *Free trade: Or, the meanes to make trade florish.* London: Waterson.

Mun, Thomas. 1621. *A discourse of trade from England unto the East-Indies*. Farnborough, UK: Gregg International Publishers.

Mun, Thomas. 1664. *England's treasure by forraign trade.* Oxford, UK: Blackwell.

Spiegel, Henry William. 1992. *The growth of economic thought.* Durham, NC: Duke Univ. Press.

Supple, Barry E. 1959. *Commercial crisis and change in England, 1600–1642: A study in the instability of a mercantile economy.* Cambridge, UK: Cambridge Univ. Press.

Viner, Jacob. 1937. *Studies in the theory of international trade.* New York: Harper.

Oxford Reference. n.d. Short run. www.oxfordreference.com/search?q=short+run&searchBtn=Search&isQuickSearch=true (accessed November 30, 2015).

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NATIONAL ASSOCIATION OF SECURITIES DEALERS AUTOMATED QUOTATION

The National Association of Securities Dealers Automated Quotation (NASDAQ) is an American stock exchange. It is the second largest securities exchange in the world—just behind the New York Stock Exchange (NYSE). However, it is the largest *electronic* market for stocks, and it handles more trades than any another other market in America.

The NYSE, as the largest and oldest stock exchange in the United States, handles the largest and most financially sound stock transactions, known as blue chips, for elite U.S. and international companies. The NASDAQ differs from the NYSE in the type of stock invested and how trade takes place.

The NASDAQ building is located in New York City at 43rd Street and Broadway in Times Square. A corner of the building enshrines a tower displaying financial news and advertisements, called the NASDAQ MarketSite. The NASDAQ was founded on February 4, 1971, and trading began on February 8, 1971. NASDAQ uses the U.S. dollar as its type of currency. The trading session of the NASDAQ is based on Eastern Standard Time, with early, regular, and after-market trading hours. Early trading begins at 4 a.m. and ends at 9:30 a.m.; regular trading hours begin at 9:30 a.m. and end at 4 p.m.; after-market trading begins at 4 p.m. and ends at 8 p.m.

Many major stock exchanges like the NYSE are auction markets that are conducted on the trading floor. The NASDAQ does not have a traditional trading floor. The inception and advancements of computer technology have made electronic trading available. NASDAQ was created to provide a more efficient way to trade stock. Unlike the NYSE, the NASDAQ uses telecommunications networks to relate up-to-date information for any trade and transaction; it was the first stock exchange to incorporate computer technology. Stocks are directly traded in an over-the-counter (OTC) market. That is, investors buy directly from a broker or dealer via telephone or the Internet.

The NYSE is considered the most prestigious stock exchange, and it attracts the more-well-established corporations globally. However, the mystique of the NASDAQ has been its use of technology. As a result, technology-based companies and other growing companies are drawn to sell their stocks on the NASDAQ. Such prominent companies include Google, Apple, Microsoft, Amazon, and Cisco. The NASDAQ has enlisted over 2,900 companies, has a current market capitalization of $8.5 trillion, and is growing. It should be noted that investing in the NASDAQ is considered to be riskier and more volatile than investing in the NYSE.

Because monitoring every single security trade would be too challenging, indices have been created to measure the performance of stock; these indices are based on a selective group of corporate stocks that represent the common stock market. The NASDAQ is measured using three indices: NASDAQ-100, NASDAQ Composite, and NASDAQ Biotechnology. The NASDAQ-100 (abbreviated NDX) is an index made up of the 107 nonfinancial securities issued by the top 100 nonfinancial corporations. The NASDAQ Composite (abbreviated IXIC) is another stock market index. While the NASDAQ-100 and Composite are often thought to be one and the same, there is a difference between them: The Composite lists and tracks *all* the available companies, whereas the NASDAQ-100 lists and tracks the 100 *leading* companies. In summary, the NASDAQ-100 is a subset of the NASDAQ Composite. Finally, the third index, the NASDAQ Biotechnology (abbreviated NBI), includes biotechnology and pharmaceuticals companies.

Most indices are based on market capitalization, a tool to measure a company's size. Investors use market cap to determine the potential risk and return of a stock. The NASDAQ market capitalization is divided into three categories, or tiers: small, mid, and large. Each category is determined by distinct and strict requirements and degrees of market capitalization. The smallest market cap and least restrictive tier is the NASDAQ Capital Market (often referred as "small cap"). The NASDAQ Global Market (or "mid cap") consists of stocks with greater restrictive requirements and larger market capitalization than the NASDAQ Capital Market. The most selective market capitalization category is the NASDAQ Global Select Market. To qualify for this "large cap" category, a company must meet the strictest financial requirements. Each year, a company's stock is reviewed within each tier. If a company's stocks meets or exceeds its current market cap requirements, then it may be promoted to a larger market capitalization tier. If a company's stock does not perform up to the market cap requirements, then it can be demoted to a smaller market capitalization tier.

Adam Vallus

See also: New York Stock Exchange; *Vol. 2: Macroeconomics:* Securities and Exchange Commission; *Vol. 3: Microeconomics:* Markets; Mutual Funds and Exchange Traded Funds; Random Walk; Stocks

Further Reading

Bloomberg Business. n.d. NASDAQ composite index. http://www.bloomberg.com/quote/CCMP:IND (accessed April 7, 2015).

NASDAQ. n.d. NASDAQ market site. http://business.nasdaq.com/discover/Nasdaq-at-Times-Square/index.html (accessed April 7, 2015).

NASDAQ. n.d. Nasdaq 100. http://www.nasdaq.com/markets/indices/nasdaq-100.aspx#ixzz3Rvt41E2N (accessed April 7, 2015).

NASDAQ. n.d. NASDAQ trading schedule. http://www.nasdaq.com/about/trading-schedule.aspx (accessed April 7, 2015).

Skousen, Mark. 2014. *Economic logic*. Revised 4th ed. Washington, DC: Capital Press.

Terrell, Ellen. 2012. History of the American and NASDAQ stock exchanges: Selected references. Library of Congress Business References Services. http://www.loc.gov/rr/business/amex/amex.html (accessed April 7, 2015).

U.S. Securities and Exchange Commission. n.d. Nasdaq. http://www.sec.gov/answers/nasdaq.htm (accessed April 7, 2015).

U.S. Securities and Exchange Commission. n.d. Trade execution: What every investor should know. http://www.sec.gov/investor/pubs/tradexec.htm (accessed April 7, 2015).

NATURAL RESOURCES ECONOMICS

Economics is the continual conflict between our desire for unlimited goods and services and our efficient use of the limited resources available to us to produce those goods and services. Natural resources are one of those limited resources.

A *natural resource* is an element or commodity that exists naturally, undisturbed by humans. Clearly, humans have always used natural resources to subsist (one markedly inventive use of natural resources has been hydropower, which is first evident in ancient Greek poetry that mentions waterwheels). Beyond the basic uses of lumber for shelter and transportation, European quests for gold and the extraction of rubber and dyes from sites in Latin America had residual effects beyond the economic enrichment of the exploiting and exploited nations.

The Spanish and Portuguese colonization of much of the Southern Hemisphere was the result of these incentives and discoveries. But as industrialization is understood to be a turning point in the economic history of the world, one reason the Industrial Revolution of the 18th century began in England was widespread use and innovation involving coal. As land is one of the factors of production, coal's abundance allowed the other two factors, capital and labor, to help make England the vanguard of industrial growth 300 years ago. In the emerging American colonies during the same era, natural resources moved from providing subsistence to being economic assets, as timber and iron were the second and third leading exports from the unformed United States in the mid-1700s (PennState 2014).

The discovery of oil in Titusville, Pennsylvania, in 1846 changed the economic and political mechanization of nations forever, as did the European jostling for resources on the African continent in the same century. The extraction of precious metals from South Africa and Zimbabwe created diamond consortiums in northern Europe and the Rhodes Scholar program at Oxford University, but it is the energy demands of the developed world that have played the biggest role in human interaction with natural resources since the widespread proliferation of the internal combustion engine and the population booms that followed two world wars in the 20th century. The transition of the People's Republic of China to a controlled state-capitalism economy since the 1980s is inextricably linked to that nation's use of natural resources on a scale previously not seen.

According to the OICA, an international trade organization of automobile manufacturers, between 2005 and 2013 the number of new automobiles registered on the world's roads increased by 20 million. This demand for new automobiles extended to a higher derived demand for tires, outstripping the natural rubber supply. Synthetic rubber became the primary building block of these tires, but also made from petroleum. As the world's population eclipses nine billion by 2050, the economic impact of the derived demand for petroleum for the production of tires will continue, even though synthetic rubber is being used instead of natural rubber.

As evidence of this, in 2012 the American energy company Exxon Mobil, the world's largest oil producer, entered into an agreement with Russia to invest $500 billion in oil and gas exploration in the Kara Sea. Cambridge University scientist Stephen Emmott notes this development in his 2013 book *Ten Billion*, adding that it was made possible by climate change as the Kara Sea is no longer ice-locked (Emmott 2013, 87).

Coal is another natural resource being tapped as never before to meet the world's increasing energy demands. As growth in China has made it the world's second largest economy, the nation has fueled this growth with coal. Fatalities in coal mines annually number in the thousands, but in spite of this China's demand for the resource continues to increase. Emmott notes that in one year alone (2011 to 2012) U.S. coal exports to China doubled (Emmott 2013, 90).

Widely perceived as a cleaner and potentially more plentiful resource, natural gas is increasingly playing a larger role annually in meeting the world's demand for energy.

The most essential natural resource in terms of human survival is water. Globally, the peoples most in need of it are the least economically capable of accessing it. According to the United Nation's 2012 report on Millennium Development Goals,

> The eleven per cent of the global population—783 million people—remains without access to an improved source of drinking water and, at the current pace, 605 million people will still lack coverage in 2015. (United Nations 2012)

For those enterprises that are able to meet the market's demand for water, which predominantly are willing and able consumers in developed nations, economics mirror those of the energy sector.

Governments and industry are learning to address demand for this resource, as evidenced by construction of the largest desalination plant in the Western Hemisphere in California. By early 2014, the Carlsbad Desalination Project was one-quarter completed; when finished, it is expected to bring 50,000,000 gallons of fresh water daily from the Pacific Ocean to 3.1 million area residents (Roach 2014).

Although a decade-long drought in the western United States was the catalyst for this undertaking, the essential nature of water suggests that this project will be pursued elsewhere in the future. As access to seawater and technology are prerequisites to such projects, the economic benefits of converting this resource to a more usable form can be expected to fall to those whose geographic locations and state-of-the-art technologies make using the oceans this way possible.

Globalization and the continually evolving world of technology have continued to create new markets for the world's natural resources. Phosphorus, tin, and rubber are now employed in ways that entrepreneurs could not have imagined a century earlier. The nation of Chile continues to benefit from being the world's largest copper exporter, attracting $30 billion in foreign investment into 2012 and boasting an economic growth rate in excess of 5 percent (Craze and Quiroga 2013).

David S. Allen

See also: Environmental Economics; Environmental Protection Agency; Nuclear Energy: Safety and Waste; Recycling; Resources; *Vol. 2: Macroeconomics:* Energy Policy; Trans-Alaskan Pipeline; *Vol. 3: Microeconomics:* Air Pollution; Alternative Energy; Corporate Average Fuel Economy; Renewable Energy; *Vol. 4: Global Economics:* Arctic Circle Natural Resources; Canada's Economy: Oil, Gas, and Tar Sands; China: General Economy; International Trade and the Environment; Globalization

Further Reading

Craze, Matt, and Javiera Quiroga. 2013. In Chile's copper boom, miners spread the wealth. *Businessweek*, September 5. www.businessweek.com/articles/2013-09-05/in-chiles-copper-boom-miners-spread-the-wealth (accessed March 1, 2014).

Emmott, Stephen. 2013. *Ten Billion*. New York: Vintage Books.

PennState. n.d. Building community: Medieval technology and American history. Project of Penn State University for National Endowment for the Humanities. www.engr.psu.edu/mtah/articles/ (accessed March 1, 2014).

Roach, John. 2014. Parched California pours mega-millions into desalination tech. *NBC News*, February 17. www.nbcnews.com/storyline/california-drought/parched-california-pours-mega-millions-desalination-tech-n28066 (accessed March 1, 2014).

Strom, Stephanie. 2013. Bottled water sales rising as soda ebbs. *New York Times,* October 25. www.nytimes.com/2013/10/26/business/bottled-water-sales-rising-as-soda-ebbs.html (accessed March 1, 2014).

United Nations. 2012. The millennium development goals report 2012. www.un.org/millenniumgoals/pdf/MDG%20Report%202012.pdf, 52 (accessed March 1, 2014).

U.S. Energy Information Agency (EIA). 2011. Today in energy. www.eia.gov/todayinenergy/detail.cfm?id=2090 (accessed March 1, 2014).

NEW CLASSICAL ECONOMIC THOUGHT

The new classical economic thought originated in the early 1970s. During the 1980s, mainstream economic theory rejected Keynesianism and returned to its classical market roots, with its emphasis on market freedom and a limited role for the state. Despite differences of emphasis, neoclassical theory tended to agree that development is best left to the markets. In particular, new classical economists believe that in order to develop, countries must liberate their markets, encourage entrepreneurship (risk-taking), privatize state-owned industries, and reform labor markets.

Opponents of this theory—such as Paul Krugman (b. 1953), another Nobel prize–winning economist—agree that the neoclassical attacks on Keynesian economics, specifically their inconsistency with rational behavior, gained traction as a result of the stagflation of the 1970s. In the words of Paul Krugman, "New classical macro was and still is many things—an ideological bludgeon against liberals, a showcase for fancy math, a haven for people who want some kind of intellectual purity in a messy world" (Krugman 2014). Two fundamental tenets of new classical macroeconomics have emerged: (1) Individuals are viewed as optimizers who choose the best options available. Firms maximize profits, and people maximize their utility. (2) As prices adjust, the incentives for individuals change; thereby, their choices change as well, leading to a new alignment of quantities supplied and demanded. Both the International Monetary Fund (IMF) and the World Bank were quick to adopt this new classical perspective.

One of the leaders of the new classical theory was Robert Lucas (b. 1937), who received the Nobel Prize in Economics in 1995. Lucas points out that in standard microeconomics, economists assume that people are rational. He extends that assumption to macroeconomics: assuming that people would come to know the model of the economy that policymakers use. Most economic decisions are forward-looking. To know whether today is a day for work or for leisure, we need to decide whether tomorrow will be more or less productive than today; in other words, we must have an expectation of what will happen in the future. Lucas specified one reason why econometric models were poor predictors, and his argument became known as the "Lucas critique" of econometric models. He argued that individuals' actions depend upon expected policies; therefore, the structure of the model will change as a policy is used. But if the underlying structure of the model changes, the appropriate policy will change, and the model will no longer be appropriate

The new classicals adopted John Muth's (1930–2005) "rational-expectations hypothesis." Muth argued that an economic model in which people's expectations differ from the outcomes predicted by the model itself is poorly formulated. If the predictions of the model were correct—and therefore people's expectations were wrong—then people could use the model to correct their own expectations. The new classicals appeal to Abraham Lincoln's well-known adage: "You can fool some of the people all of the time, and all of the people some of the time, but you cannot fool all of the people all of the time." New classicals send policymakers this warning: Policies that depend on the assumption that the public systematically misunderstands its own interest are likely to fail.

Three new classical approaches have emerged: (1) the free-market approach, where market forces alone are sufficient to generate maximum welfare; (2) the public-choice approach, where the extreme new classical model emphasizes government is "bad" and leads to corruption and the gradual confiscation of private property; and (3) the market-friendly approach, which suggests that while markets work, they sometimes fail to generate maximum welfare—in which case, government needs to play an important role in compensating for three main market failures: missing markets, imperfect knowledge, and the correcting the effects of negative or positive externalities.

Dale Johnson

See also: Classical Economics; Keynes, John Maynard; Theory of Public Choice; *Vol. 2: Macroeconomics:* Lucas, Robert, Jr.; *Vol. 3: Microeconomics:* Markets; *Vol. 4: Global Economics:* International Monetary Fund; Krugman, Paul; World Bank

Further Reading

Colander, D. 2002. The death of neoclassical economics. Middlebury College Economics Discussion Paper No. 02-37.

Hoover, K. D. 2008. New classical macroeconomics. In *The concise encyclopedia of economics*, ed. David R. Henderson. Library of Economics and Liberty. http://www.econlib.org/library/Enc/NewClassicalMacroeconomics.html (accessed February 28, 2015).

Krugman, P. 2014. The new classical clique. *New York Times*, September 26. http://krugman.blogs.nytimes.com/2014/09/26/the-new-classical-clique/?_r=0 (accessed February 28, 2015).

Robert E. Lucas Jr. 1937–. n.d. In *The concise encyclopedia of economics*, ed. David R. Henderson. Library of Economics and Liberty. http://www.econlib.org/library/Enc/bios/Lucas.html (accessed February 28, 2015).

Zera. n.d. The rise of new classical economics. In *New classical economic theory*. http://www.economictheories.org/2008/08/new-classical-economics-theory.html (accessed February 28, 2015).

NEW DEAL

In 1932, the U.S. economy was mired in the depths of the Great Depression. The unemployment rate had leapt to about 25 percent, and production had collapsed. In the presidential election of 1932, voters turned to the charismatic candidate Franklin D. Roosevelt, who promised "a new deal for the American people."

The "New Deal" was the name given to a broad array of government programs intended to combat the Great Depression. The New Deal represented a move away from a philosophy of a small government with a limited role in the economy, and a shift toward confidence in direct action by a large, powerful federal government in keeping with the new economic philosophy of John Maynard Keynes. New Deal programs created the framework for the contemporary American welfare state, and they provided a rallying point for those who saw a larger federal government as a force for the protection of liberty and prosperity.

The New Deal began immediately upon the inauguration of Roosevelt as president in March 1933, and with the seating of many new congressional representatives who were sympathetic to the president's ideas. This first phase of the New Deal lasted until 1935. Most of the programs can be put into one of three categories: relief, recovery, or reform. Relief programs attempted to provide jobs so that people could meet immediate needs; recovery programs were intended to help damaged sectors of the economy get moving in the right direction again; and reform programs were an attempt to prevent future crises. Significantly, the New Deal abolished the gold standard, meaning that people could no longer demand payment of contracts in gold rather than paper money. This was one of the New Deal's many efforts to shore up the banking system, which had been devastated by panics.

The new laws, loans, and public spending poured money into the economy and caused substantial budget deficits. But production increased, and the unemployment rate dropped—although it remained above 20 percent. Importantly, the New Deal legislation was broadly popular. But it was not popular with everyone.

Conservatives were troubled by the unprecedented and unrelenting expansion of government power. Others, of the opposite political persuasion, thought that the New Deal had not gone far enough to redistribute wealth, and they offered Roosevelt a bruising political challenge from the left. Roosevelt dealt with these threats by giving up on winning conservative support and moving to adopt policies that increased government intervention still further—therefore winning more liberal backing, and short-circuiting some truly radical strains of thought from the left.

This shift marked what has been called the Second New Deal, which lasted from 1935 to 1938. Roosevelt launched a verbal assault on the "entrenched greed" of the "money classes," and he followed this rhetoric with ambitious and populist government programs, like increased taxes on the wealthy. The Second New Deal included the Works Progress Administration (WPA), in which the federal government directly hired several million unemployed Americans for tasks ranging from raking leaves to building airports, and the Social Security Act, which provided welfare payments to vulnerable people and guaranteed pensions for retirees. Roosevelt won the 1936 election by a landslide.

Nevertheless, Roosevelt's policies continued to encounter difficulties, in both the political and the economic realms. Starting in 1935, the Supreme Court had declared several aspects of New Deal legislation unconstitutional. Congress had proceeded by amending and moderating these laws in order to pass the scrutiny of the Court. But the New Deal reforms were always in danger of being struck down by wary justices. Roosevelt decided to alter this situation by simply changing the makeup of the Supreme Court, adding more justices of his own choosing in order to gain favorable rulings. In this, he made a political miscalculation—Congress did not support him, and he alienated much of the Democrat voting base, therefore slowing the pace and scope of the Second New Deal. To make matters worse, late 1937 brought a sudden and sharp recession-within-a-depression, and the unemployment rate, which had sunk to 14 percent, shot back up to 20 percent. Dismayed voters elected a more conservative Congress in 1938.

By 1939, Roosevelt had to be content to simply maintain the New Deal programs that he and the Congress had already implemented. By this time, a new crisis was looming: World War II. But New Deal programs stayed in place even as the nation whirred to life in preparation for global war.

The economic impact of the New Deal is not entirely obvious. Though the economy certainly turned around and began to recover with the onset of the New Deal, after six years the unemployment rate still stood at 17 percent. Some economists claim that the New Deal did not spend enough money to boost the economy. Others claim that it spent too much, and that the money was wasted. It is likely that some programs were harmful to the economy and others were helpful. The Agricultural Adjustment Act of 1936, which paid farmers to produce fewer crops, probably falls into the former category. But most economists agree that the abolition of the gold standard aided recovery by expanding the money supply and halting bank runs, therefore allowing the economy to begin its long, slow recovery.

The political legacy of the New Deal is clearer. Its popularity created a new political coalition that solidified the identity of the Democratic Party. It laid the foundation of the U.S. welfare state and instituted programs and government agencies that still exist—most notably, Social Security. The New Deal greatly increased the size and scope of the federal government in American life, reflecting a growing belief that a powerful national government could, in fact, be an agent in securing people's economic well-being.

Stephen H. Day

See also: The Great Depression and Wall Street Crash, 1929; Keynes, John Maynard; Keynesian Economics; Roosevelt, Franklin D.; Supreme Court; *Vol. 2: Macroeconomics:* Entitlements; Social Security Act of 1935; Works Project Administration; *Vol. 3: Microeconomics:* Tennessee Valley Authority

Further Reading

Kennedy, David. 1999. *Freedom from fear*. New York: Oxford Univ. Press.

Leuchtenburg, Anthony. 2009. *Franklin D. Roosevelt and the new deal: 1932–1940*. New York: Harper Perennial.

PBS (Public Broadcasting Service). n.d. The great plow up—The economics of the dust bowl. In *The dust bowl: Lesson plans*. http://www.pbs.org/kenburns/dustbowl/educators/lesson-plans/#deal (accessed November 30, 2016).

PBS (Public Broadcasting Service). n.d. Lesson Plan #1: The role of government and the new deal. In *The American experience*. http://www.pbs.org/wgbh/americanexperience/features/teachers-resources/1930s-teachers-resource/ (accessed November 30, 2016).

Rauchway, Eric. 2008. *The great depression and the new deal: A very short introduction*. New York: Oxford Univ. Press.

NEW INSTITUTIONAL ECONOMIC THOUGHT

New institutional economics (NIE) combines economics, law, organization theory, political science, sociology, and anthropology, attempting to understand the institutions of social, political, and commercial life. Its goal is to explain what institutions are, how they arise, what purposes they serve, how they change, and in which ways (if any) they should be reformed. The new institutional economic thought has elements of neoclassical economic theory; but it differs by keeping and building on the central notion of scarcity and competition as the basis of choice underlying microeconomics but removing the assumption of rationality of choice. The phrase "the new institutional economics" was coined by Oliver Williamson (b. 1932) and differentiated the "old institutional economics," which was antitheoretical (without a theory to bind together their collection of facts, it was very difficult to pass on). NIE is explained in terms of the goals, plans, and actions of individuals. It accounts for social phenomena like corporate culture and organizational memory.

The need for institutions exists because of the network externalities. The neoclassical efficient market is obtained only if it is least costly to transact. Overcoming these externalities requires the creation of institutions, with structure and rules of enforcement altering the payoffs and inducing cooperative solutions. Institutional plans or policies provide securities to deal with the externalities, including environmental as well as social issues that accompany the economic model. It is accepted that free-market members will react to a given model established by an institution once it is known, and the individuals and organizations with bargaining power as a result of the institutional framework have a crucial stake in perpetuating the system and the current model. Successful institutional policy requires an understanding of the dynamics of economic change in order that policies have the desired outcomes.

Karl Marx long ago pointed out that the tension between the organizational needs of technology and the existing property rights was a fundamental source of conflict and change. Marx's error was that he thought it was capitalism that was incompatible with the new technology, when in fact the flexibility of the political and economic institutions of market economies has enabled them to adjust in order to realize the productivity achieved in the second economic revolution. Ironically, it has been the inflexibility and rigidities of centrally planned economies that have led to their demise (North n.d.).

While it is difficult to prescribe the correct medicine to improve the performance of different economies, Douglass North (1920–2015), a co-recipient of the Nobel Prize in 1993, has identified three characteristics of institutions that provide guidance:

1. Institutions should consist of a set of formal rules, informal norms, and the enforcement measures that apply to specific economies characteristics.
2. Policies will shape economic performance, since they define and enforce the economic rules of the game. Therefore, the heart of development policy must be the creation of polities that will create and enforce efficient property rights.
3. The key to continuing good economic performance is a flexible institutional matrix that will adjust in the context of evolving technological and demographic changes as well as shocks to the system. As such, the guide to policy should be adaptive rather than allocative, an allocative policy being a static concept with a given set of institutions.

Dale Johnson

See also: Economic History; Economic Psychology; Economic Sociology; Marx, Karl; Law and Economics; *Vol. 2: Macroeconomics:* Externality; North, Douglass; *Vol. 3: Microeconomics:* Markets; Microeconomics

Further Reading

Bates, R. H., I. Sened, and S. Galiani. 2014. The new institutionalism: The work of Douglass North. In *Institutions, economic growth, and property rights: The legacy of Douglass North*. Cambridge, UK: Cambridge Univ. Press. http://scholar.harvard.edu/rbates/publications/new-institutionalism-work-douglas-north (accessed March 31, 2015).

Hodgson, G. M. 1998. The approach of institutional. *Journal of Economic Literature* March: 166–92.

NEW KEYNESIAN ECONOMIC THOUGHT

New Keynesian economics is a school of thought focused on macroeconomic theory, although its supporters do not necessarily share a single view about economic policy. At the widest level, new Keynesian economics suggests that recessions are withdrawals from the normal efficient functioning of markets. The elements of new Keynesian economics—such as coordination failures, staggered prices, and efficiency wages—represent significant deviations from the traditions of classical economics. This provides the intellectual basis for economists' usual justification of *laissez-faire*. New Keynesian economics theories hold that recessions are caused by some economy-wide market failure, and thus new Keynesian economics provides a rationale for government intervention in the economy, such as monetary or fiscal policy that moves in the opposite direction of the overall economic cycle.

New Keynesian economic thought found its beginnings in the late 1970s in the writings of economists who dissented from the new classical revolution. Robert Lucas is often regarded as the central figure in new classical economics. He became famous for incorporating the theory of rational expectations into macroeconomic models. The primary disagreement between new classical and new Keynesian economists is over how quickly wages and prices adjust. The label "new Keynesian" describes those economists who in the 1980s responded to the new classical critique with adjustments to the original Keynesian tenets.

The key separation between new classical and new Keynesian economists was that precept wages and prices are flexible. New classical thought believes prices "clear" markets by adjusting quickly to supply and demand forces. Conversely, new Keynesian economists advocate models with "sticky" wages and prices. New Keynesian explanations of sticky prices often emphasize that not everyone in the economy sets prices at the same time. Instead, the adjustment of prices is staggered throughout the economy. Staggering complicates the setting of prices, because firms care about their prices relative to those charged by other firms, including their competitors. Staggering can make the overall level of prices adjust slowly, even when individual prices change frequently.

Additionally, some new Keynesian economists suggest that recessions result from a failure of coordination. Market coordination occurs in both the labor market and the product market. When contracts are negotiated, the labor union negotiators worry about what other union leaders will do during their negotiations. In the product market, businesses are always attentive to the prices that other businesses set for the same, similar, complementary, or supplementary products.

New Keynesians also created new ways looking at unemployment. According to standard economic theory, unemployment is a self-correcting problem. Classical economic theory suggests that a labor surplus leads to a decrease in prevailing wages. As wages decline, unemployment declines—as employers are willing to hire additional workers at the lower wage rates. New Keynesians do not agree that lower wages lead to lower unemployment. New Keynesians theorize that higher wages, what they call "efficiency wages," lead to increased productivity. New Keynesians go further to suggest that higher wages are a reason why a business does not decrease wages when there is a labor surplus. New Keynesians claim that the lower wages that businesses could pay in response to the labor surplus do not occur because the businesses fear a resulting decrease in worker productive with a consequent decrease in profits. This is one reason Keynes referred to wages as "sticky wages."

Lauren Major

See also: Keynesian Economics; Keynes, John Maynard; *Vol. 2: Macroeconomics:* Macroeconomics; Lucas, Robert, Jr.; Unemployment *Vol. 3: Microeconomics:* Efficient Wage Hypothesis

Further Reading

Ball, Laurence, N. Gregory Mankiw, and David Romer. 1988. The new Keynesian economics and the output-inflation trade-off. Brookings Papers on Economic Activity 1988, no. 1. Brookings Institution. https://www.brookings.edu/wp-content/uploads/1988/01/1988a_bpea_ball_mankiw_romer_akerlof_rose_yellen.pdf (accessed November 30, 2016).

Chugh, Sanjay K. 2014. New Keynesian economics. Chapter 12. skchugh.com/images/Chapter12.pdf (accessed November 30, 2016).

Mankiw, N. Gregory. 2008. New Keynesian economics. In *The concise encyclopedia of economics*, ed. David R. Henderson. Library of Economics and Liberty. www.econlib.org/library/Enc/NewKeynesianEconomics.html (accessed November 30, 2016).

NEW YORK STOCK EXCHANGE

The New York Stock Exchange (NYSE) is the largest stock exchange in the Unites States, based on the size of the companies listed on the exchange. The NYSE is used for setting policy, listing securities, supervising the members' activities and the transfer of member seats, and finding and evaluating new applicants. The NYSE has a unique history, plays a major role in the U.S. economy, and has many pros and some cons.

The NYSE originated with the signing of the Buttonwood Agreement. Just a few years later, the first stock was introduced when Alexander Hamilton founded the first Bank of the United States. Originally, only five securities were traded in New York City. The Bank of New York was the first security listed. Later, more banks and insurance company stocks were added to the list of securities.

In March of 1792, 24 merchants and stockbrokers from New York met secretly at Corre's Hotel to find ways to organize the securities business. On May 17, 1792, the 24 men signed the Buttonwood Agreement. The document was given this name because the group's traditional meeting place was under a buttonwood tree at 68 Wall Street in New York City. The men agreed that they would trade only with each other; further, they would set commissions for themselves and not participate in auctions. As time went on, the number of people gathering under the tree grew too large, so they moved the meeting to the Tontine Coffee House. This was to be the nation's securities marketplace, the New York Stock Exchange.

The purpose of the NYSE can be related to many different operations. It is used by and for the economy, business, government, individual investors, and as an economic indicator. The economy needs the NYSE, because the NYSE has a great focus on economic efficiency, and thus it promotes transferring money from low-yield investments into potentially high-yield investments. What encourages this transfer and continuous flow of money is the chance to enlarge the returns coming from the values invested in securities in the NYSE. As a result, the money from investors gives the companies in the NYSE the opportunities and resources to help build their growth, which helps build economic activity.

The NYSE helps business by promoting a corporate level of governance and by raising money. For example, when a company sells a stock, it is released to the public, making that company partly owned by the stockholder. The shareholders are held personally responsible for the leadership of the public company, because they decide what actions the company needs to undertake and how it works. This promotes the improvement of management, because shareholders want to keep the money they have invested. In exchange for the purchase of a stock, the company receives money that it can use toward expanding.

Government's ties to the NYSE are similar to those of business. All types of government—local, state, and federal—need money for the upkeep of services and projects. Government bonds are sold to investors, so that taxes do not have to be raised. The money from bonds is given back to the government agency to use for the services and projects, similar to company stocks. The NYSE handles the buying and selling of government bonds so that governments can meet their expectations and requirements.

Investors—whether they are companies, individuals, hedge funds, or wealthy citizens—clearly are vital to funding. Individual investors are able to participate in the NYSE because of the continuous demand for money to fund services and projects. The brokers, and others who are highly educated in the workings of the NYSE, do the actual trading, but all investors have a place in the NYSE market.

Because the NYSE is the largest stock exchange in the world, the companies it lists do business both globally and internationally. The New York Stock Exchange Composite index is home to all activity of the U.S. and global stocks that are a part of the NYSE. The NYSE Composite gives an estimate of economy fulfillment, investor expectations, and market state depending on the activity of the NYSE.

The stock market has many positive and negative attributes. Achieving success with a stock requires investors to understand the possibility of a decline in value; when investors know a business and the factors that change an economy, they can better determine the best time to sell or buy a stock. A negative aspect of the stock market would be the roller-coaster ups and downs in value or prices, called *volatility*. This changeability can alarm some investors, making them invest in safer alternatives. The time-consumption of investing is also a negative. Investors must complete diligent research before determining which funds to buy. However, online trading accounts give investors a great amount of research for the funds. Time is also needed to check and change the stock that investors have invested in. The positives aspects are the abundance of choices, liquidity, and much more. Companies and stock investments can create portfolios to meet specific standards.

The large amount of funds allows investors to have a range of different options. Any time investors want to sell a stock, they can simply trade it. This is known as *liquidity*, and it gives comfort to those who want their money back from a stock.

The NYSE is a globally known market. It has a unique history, and it plays an important role in the U.S. economy. Regardless of the pros and cons of investing in stock, the NYSE provides with many opportunities that people should use to their advantage.

Francine Staudacher
David A. Dieterle

See also: Buffett, Warren; National Association of the Securities Dealers Automated Quotation; Investing; Standard and Poor's 500; *Vol. 2: Macroeconomics:* Financial Reform Act of 2010 (Dodd-Frank Act); Stock Market Crash of 1929; Stock Market Crash of 1987; *Vol. 3: Microeconomics:* Bubbles; Bursting of the Dot-Com Technology Bubble; Mutual Funds and Exchange Traded Funds; Options; Pension Plans; Risk; Stock Market; Stocks; *Vol. 4: Global Economics:* New Trade Theory; *Primary Document:* Financial Reform Act of 2010 (Dodd-Frank Act)

Further Reading

Investopedia. n.d. New York stock exchange—NYSE. www.investopedia.com/terms/n/nyse.asp?layout=orig (accessed October 31, 2015).

NYSE. n.d. The world's leading markets. www.nyse.com/trade (accessed October 31, 2015).

U.S. Library of Congress. 2012. History of the New York stock exchange. www.loc.gov/rr/business/hottopic/stock_market.html (accessed October 31, 2015).

NIMBY AND LULU

The Not in My Backyard (NIMBY) syndrome arises when a facility exhibits a locally undesirable land use (LULU) that lowers property values and diminishes residents' well-being around the land use facility. The NIMBY syndrome occurs when individuals agree that a facility is a good idea for society as long as it is not in their backyard. Examples of local negative externalities that create the NIMBY syndrome include airports that exhibit noise externalities to the local community, landfills that exhibit both smell and safety externalities to the local community, prisons and halfway houses that exhibit safety externalities to the local community. and wind farms that exhibit viewshed externalities to local residents. Sometimes, the negative externality manifests primarily in increased risk to health. such as from a nuclear power plant or a hazardous waste disposal facility. One of the major NIMBY issues in the United States is where to locate high-level nuclear power plants and their waste.

Many times, it is efficient for the LULU to be built because the aggregate gains to society as a whole are greater than the cost borne by the local community. The nature of the political process, however, finds that LULUs are often difficult to site because the vocal nature of the small groups affected by the local negative externality. Often in the political process, a loud vocal minority—one that is more likely to be politically active due to the high individual costs—finds that their preferences influence political decisions more than a majority that receives only small benefits individually and that is less politically active. The efficiency problem occurs when politicians act on the minority preferences even when the benefits are larger than the costs in the aggregate.

To address the problem of inefficiency and to encourage the placement of a LULU, those that receive the benefits could compensate the neighborhood around the site for bearing the external cost. When choosing a location for a NIMBY, politicians' concern for remaining in office makes the status quo the default, due to a reluctance to infringe upon the perceived property rights. When individuals perceive that the status quo defines the property rights, then the willingness to accept becomes the appropriate measure of compensation. If an appropriate compensation can be measured, LULUs can be located and a Pareto improvement in well-being can occur. Many political mechanisms have been suggested to site LULUs—from potential locations bidding on receiving offers of tax breaks for accepting LULUs, to citizens voting in referendums to accept the facilities in their communities. Others, however, suggest that the strategic importance of compensation to solve the NIMBY syndrome is difficult if the local community perceives the compensation as a bribe. When compensation is perceived as a bribe, local residents may become less trustful of governments and policymakers, which suggests that the solution to the NIMBY syndrome includes both compensation and moral considerations. Public input into the locating decision therefore plays a major role in addition to compensation.

Another problem surrounding LULUs and the NIMBY syndrome is environmental justice concerns. Many times, LULUs are located in poor and minority communities, not for efficiency reasons but because these populations have few economic alternatives. In addition, environmental justice concerns suggest that poor communities are targeted for LULUs because residents may not be fully aware of the risks involved—due to these communities likely not having access to experts who could provide accurate information about benefits and costs. Environmental justice further suggests that a combination of this lack of awareness coupled with low-income residents' lack of political and economic power makes poor communities a frequent target for environmentally hazardous activities. Environmental justice concerns suggest that when poor communities are chosen as a site for a LULU for efficiency reasons the process should be transparent, the company and government must be fully accountable to the community for the potential hazards of the LULU, and the process should have full community participation. Environmental justice suggests that the equity concerns are as important, if not more so, when deciding upon a location for a LULU. In this case, compensation for accepting a facility in a neighborhood could not only address the efficiency criterion but also address equity concerns for accepting LULUs in one's backyard.

Peter A. Groothuis

See also: Environmental Economics; Nuclear Energy: Safety and Waste; Theory of Public Choice; *Vol. 2: Macroeconomics:* Externality; Property Rights; Public Goods; *Vol. 3: Microeconomics:* Hazardous Waste

Further Reading

Frey, Bruno S., Felix Oberholzer-Gee, and Reiner Eichenberge. 1996. The old lady visits your backyard: A tale of morals and markets. *Journal of Political Economy* 104 (6): 1297–1313.

Inhaber, Herbert. 1992. Of LULU's, NIMBY's, and NIMTOO's. *Public Interest* 107 (Spring): 52–64.

Kunreuther, Howard, Paul Kleindofer, and Peter J. Knez. 1987. A compensation mechanism for siting noxious facilities: Theory and experimental design. *Journal of Environmental Economics and Management* 14 (4): 371–83.

O'Hare, Micheal. 1977. Not on my block you don't: Facility siting and the strategic importance of compensation. *Public Policy* 25 (4): 407–58.

NOBEL PRIZE IN ECONOMICS

The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel was first awarded in 1969. During 46 ceremonies between 1969 and 2014, 75 people received the Nobel Prize in Economics. This prize got its name in 1968, not only from Alfred Nobel but also from the central bank of Sweden during the bank's 300th anniversary. The award is granted by the Royal Swedish Academy of Sciences and follows the same principles that all of the Nobel Prizes have followed since 1901. The Nobel Prize in Economics has been awarded 23 times to a single winner, 17 times to two recipients simultaneously, and 6 times to three awardees at once.

While the most commonly awarded field is macroeconomics, these prizes have been given to laureates in more than 30 different areas. Examples include development economics, economic growth, financial economics, game theory, international economics, public finance, and theory of market institution.

The monetary prize given to laureates is the product of Alfred Nobel's estate, which was converted to a fund and invested in "safe securities." The earnings from this portfolio are distributed annually. In 2014, recipients were awarded a prize amount of 8 million Swedish kroner (SEK), or approximately 1 million U.S. dollars.

The Economic Sciences Prize Committee sends confidential forms to persons who are qualified and knowledgeable enough in the field to produce a valid nomination. Nominators are considered qualified if they meet such criteria as being Swedish and foreign members of the Royal Swedish Academy of Sciences, previous winners of the Nobel Prize, permanent professors in relevant subjects, and other invitees.

The Royal Swedish Academy of Sciences is responsible for selecting laureates who have been recommended by the Economic Sciences Prize Committee. Candidates cannot nominate themselves; they are eligible as long as a qualified person nominates them and they receive an invitation from the committee. Nomination forms are sent out in September, and February is the deadline for submission. From March until May, there is consultation with experts, from June to August the judges write their report, and in September the committee submits its recommendations. In October the Economics laureates are chosen, and the ceremony follows in December. Nomination to the prize is by invitation only, and the names of nominees and other information is not revealed until 50 years after the award is given for a particular year.

The average age of all Economic Sciences Nobel Prize recipients between 1969 and 2014 is 67 years of age. The youngest winner, Kenneth J. Arrow, was 51 years old when he was awarded the prize; Leonid Hurwicz was 90 years old when he received his Nobel Prize, and he remains the eldest of all prize winners across the board. So far, only one female, Elinor Ostrom, has been awarded the Nobel Prize in Economic Sciences; she received the prize in 2009.

The University of Chicago has the largest number of Nobel Prizes in Economic Sciences awarded to individuals who were associated with the university at some point in their career—as students, faculty, or researchers. Perhaps the most notable individuals associated with this institution are Paul A. Samuelson, Friedrich August von Hayek, Milton Friedman, Ronald H. Coase, Gary S. Becker, and Robert E. Lucas Jr.

The Nobel Prize awards encourage innovation, exceptional research and discovery, as well as superior acts of humanitarianism. The Nobel Prize in Economic Sciences is not technically a Nobel Prize, but one that was adopted by Sweden's Central Bank. It has been awarded by the Royal Swedish Academy of Sciences following the same principles that the Nobel Prize has adhered to since 1901.

A record of all recipients of the Nobel Prize in Economic Sciences and their corresponding area of research and accomplishments is presented in "Nobel Laureates in Economics" in this book's Appendix.

The Nobel Prize has been awarded to a number of recipients in various disciplines since 1901. The Nobel Prize is awarded in memory of Alfred Nobel, who established the foundations of the award in his will and left adequate funding for prizes. Between 1901 and 2014, the Nobel Prize has awarded laureates for their achievements in physics, chemistry, medicine and literature, and for work in peace.

Amber Thomas

See also: Economic History; Economic Psychology; Economic Sociology; Experimental Economics; Hayek, Friedrich von; Institutional Economics; Welfare Economics; *Vol. 2: Macroeconomics:* Friedman, Milton; General Equilibrium Analysis; Lucas, Robert, Jr.; Macroeconomics; Ostrom, Elinor; Public Finance; Samuelson, Paul A.; *Vol. 3: Microeconomics:* Arrow, Kenneth; Becker, Gary; Coase, Ronald; Game Theory; Labor Economics; Microeconomics; *Vol. 4: Global Economics:* Development Economics; International Economics

Further Reading

Nobelprize.org. n.d. All prizes in economic sciences. www.nobelprize.org/nobel_prizes/economic-sciences/laureates/ (accessed December 10, 2015).

Nobelprize.org. n.d. Economic sciences laureates: Fields. www.nobelprize.org/nobel_prizes/economic-sciences/fields.html (accessed December 10, 2015).

Nobelprize.org. n.d. Explore the nobel prize talks podcast. www.nobelprize.org/podcast/index.html (accessed December 10, 2015).

Nobelprize.org. n.d. Facts on the prize in economic sciences. www.nobelprize.org/nobel_prizes/facts/economic-sciences/index.html (accessed December 10, 2015).

Nobelprize.org. n.d. The Sveriges Riksbank prize in economic sciences in memory of Alfred Nobel 1969–2007. www.nobelprize.org/nobel_prizes/economic-sciences/articles/lindbeck/index.html (accessed December 10, 2015).
University of Chicago. n.d. About: Nobel laureates. www.uchicago.edu/about/accolades/22/accessed December 10, 2015).

NON-GOVERNMENTAL ORGANIZATION

A *non-governmental organization* (NGO) is a special interest group that conducts research, disseminates information, and advocates for change at the national and international levels. In recent years, NGOs have also been services providers, sometimes in partnership with multilateral organizations such as the World Bank and the United Nations. Most NGOs maintain branches in, and solicit membership from, more than one country. An international non-governmental organization (INGO) is a NGO with cross-border affiliations. INGOs often promote activist agendas in areas that transcend nationality, such as human rights, global poverty, and the environment. NGOs represent an important element within civil society. *Civil society* is a catchall term used to describe the volunteerism of individuals who work for the common good. Civil society organizations (CSOs) are groups, including NGOs, that promote positive economic, social, and political change. NGOs are organized along democratic lines to express the collective will of members. The London-based Center for Civil Society and Center for the Study of Global Governance estimate that nearly 50,000 NGOs operated in the local and global arenas during the early 2000s (Anheier, Kaldor, and Glasius 2004).

At the national and international levels, NGOs give a voice to marginalized, distressed, and powerless groups of people in the global economy. In recent years, NGO voices have become more powerful for a variety of reasons. First, NGOs benefited from new information and communications technologies (ICTs), such as the Internet, email, and the World Wide Web (WWW). ICTs have boosted cross-border communications and facilitated organization-building by NGOs. Second, NGOs benefited from democratization. The rise of democratic political systems in Eastern and Central Europe and elsewhere expanded freedom of expression, including the freedom to dissent. Third, NGOs benefited from policies of inclusion by multilateral organizations, including the World Bank, the International Monetary Fund (IMF), the World Trade Organization (WTO), and the specialized agencies and programs of the United Nations system. Inclusion increased the visibility of NGOs and legitimized their role as change agents. Kofi Annan, secretary-general of the United Nations, called NGOs "indispensable partners" in global decision-making. Fourth, NGOs benefited from more generous flows of financial resources since the 1970s. Individuals, foundations, transnational corporations (TNCs), and multilateral organizations supplied billions of dollars to NGOs during the early 2000s. Fourth, NGOs showed a record of accomplishment. NGOs linked people with essential services, many of them financed by governments, multilateral organizations, and other agencies. NGOs also advocated for change through mass protests. NGO demonstrations at the WTO's ministerial meeting in Seattle, Washington, in 1999, and at other global forums in subsequent years, were expressions of this newfound power.

Typically, NGOs are organized around a common cause, which is outlined in the group's mission statement. Today, many NGOs are devoted to protecting human rights, preserving peace, reducing poverty and hunger, preventing environmental degradation, promoting good governance, and furthering a host of other causes related to economic and human development. Among the world's largest NGOs are Amnesty International and Human Rights Watch, which advocate for human rights; CIVICUS and Transparency International, which promote good governance; Friends of the Earth and the Nature Conservancy, which support environmentalism; Oxfam International and Save the Children, which promote poverty reduction and food aid; and Eurodad and ActionAid, which deal with issues related to sustainable economic development. Increasingly, governments, multilateral organizations, and TNCs solicit NGO advice to form policies.

David E. O'Connor

See also: United Nations System; *Vol. 3: Microeconomics:* Corporate Social Responsibility; *Vol. 4: Global Economics:* International Charities; Sustainable Economic Development; Transnational Corporations; World Trade Organization

Further Reading

Anheier, Helmut K., Mary H. Kaldor, and Marlies Glasius, eds. 2004. *Global civil society 2004/5.* Thousand Oaks, CA: SAGE Publications.

Boli, John, and George M. Thomas, eds. 1999. *Constructing world order: International nongovernmental organizations since 1875.* Stanford, CA: Stanford Univ. Press.

Fowler, Alan. 2001. *The virtuous spiral: A guide to sustainability for NGOs in international development.* Washington, DC: Earthscan.

Lewis, David. 2001. *Management of non-governmental development organizations: An introduction.* New York: Routledge.

Lindenberg, Marc, and Coralie Bryant. 2001. *Going global: Transforming relief and development NGOs.* West Hartford, CT: Kumarian Press.

NUCLEAR ENERGY, SAFETY, AND WASTE

Nuclear energy is the use of fission to create heat. *Fission* is the process of splitting a heavy nucleus into a number of light nuclei with the liberation of a large amount of energy. The heat produced from fission is used to boil water, which is then used to create steam. The steam goes into a turbine to generate electricity. Chain reactions are controlled by neutron absorbers, which are called control rods. Less waste is produced in fission than in other ways of creating energy, because fission doesn't create greenhouse gases like coal or natural gas do.

Nuclear energy is used in 31 countries worldwide, making up 12 percent of the energy produced globally. The United States has 99 active nuclear power plants, which generate close to 20 percent of the power used here. In contrast, France's nuclear energy accounts for about 75 percent of its total electricity.

Nuclear energy creates low-carbon electricity, which means it does not generate carbon dioxide. It is also one of the most affordable forms of energy in the United States. Further, nuclear energy is fuel-efficient: One pellet of nuclear energy is equal to 1 ton of coal, 194 gallons of oil, or 17,000 cubic feet of natural gas. This type of energy is clean and carbon-free. It also has economic benefits and creates jobs. People working in the field of nuclear energy are likely to be paid better than other workers. Lastly, many Americans favor the use of nuclear energy.

Nuclear energy is used on ships and submarines, primarily to generate electricity for people to use. Nuclear propulsion is also used to drive the ships; the system is powered by water, heat, and steam to produce energy to power the ship's propellers.

The federal government controls the safety regulations for nuclear power. Both the Department of Energy (DOE) and the Nuclear Regulatory Commission (NRC) mandate safety standards. In addition to governmental regulations, the industry self-regulates through the Institute of Nuclear Power Operatives (INPO) and the Electric Power Research Institute (EPRI). Both government and private industry are dedicated to the safe nuclear generation of electricity for the United States. In addition to government and industrial organizations, local utilities make public their operational experiences (OE) in order to share successes and concerns regarding the maintenance of the operating plants that generate electricity.

The generation of power through fission results in a waste product of a concentrated ash of radioactive material that requires regulated, controlled handling. The waste from fission is significantly smaller than the greenhouse gases generated by the burning of fossil fuels. The waste from fission is more controlled, through the historical records of the medical, industrial, and governmental experience in sequestering the waste. Despite nuclear power generation being a proven technology that is affordable and stable, with no greenhouse gas emissions, the waste is still an obstacle to the technology being widely accepted in the United States.

Nuclear power generates hundreds of thousands of highly skilled jobs in engineering, operations, and maintenance throughout the globe. As an example, the economic impact of nuclear power in Illinois is estimated at $8.9 billion annually, supporting 28,000 jobs along with $290,000 million in Illinois taxes and nearly $1.1 billion in federal tax revenue each year (NEI Nuclear Notes 2014).

Both the opponents and the proponents of nuclear energy will continue their missions to enlighten the general public to their views. Opponents highlight the hazardous wastes and the potential for more events like the Fukushima nuclear disaster in Japan in 2011. Proponents continue to claim nuclear power's benefits and potential for a cleaner environment. What is certain is that the economic benefits and costs of nuclear power will continue to be discussed in policy debates regarding the electric power generation for a cleaner future environment.

Gracie Snyder
David A. Dieterle

See also: Environmental Protection Agency; Factors of Production; Resources; *Vol. 3: Microeconomics:* Air Pollution; Alternative Energy; Clean Air Act; Commodities

Further Reading

CASEnergy Coalition. n.d. Top ten facts about nuclear energy. casenergy.org/nuclear-basics/top-ten-facts/ (accessed October 31, 2015).

Dilthey, M. n.d. What is nuclear energy used for? www.ehow.com/about_4588547_what-nuclear-energy-used.html (accessed October 31, 2015).

EDF Energy. n.d. The history of nuclear safety regulations. www.edfenergy.com/energyfuture/key-info/safety/history-of-safety-regulations (accessed October 31, 2015).

NEI Nuclear Notes. 2014. The economic value of nuclear energy in Illinois. Neinuclearnotes.blogspot.com/2014/10/the-economic-value-of-nuclear-energy-in.html (accessed October 31, 2015).

Nuclear Street. 2015. IAEA report shores up industry arguments on CO_2 emissions ahead of Paris conference. nuclearstreet.com/nuclear_power_industry_news/b/nuclear_power_news/archive/2015/10/20/iaea-report-shores-up-industry-arguments-on-co2-impact-ahead-of-paris-conference-102002.aspx#.VjLYK-9dHoo (accessed October 31, 2015).

wnn:world nuclear news. 2009. US nuclear utilities beat emissions goals. *World Nuclear News*, July 24. http://www.world-nuclear-news.org/EE-US_nuclear_utilities_exceed_emission_goals-2407094.html (accessed October 31, 2015).

wnn:world nuclear news. 2015. Radiation imaging in operating reactors. *World Nuclear News*, October 16. www.world-nuclear-news.org/RS-Radiation-imaging-in-operating-reactors-1610155.html (accessed October 31, 2015).

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OPPORTUNITY COST

Opportunity cost is the next best alternative of any decision and is at the core of economics. *Economics* is the study of how a society satisfies its needs and wants by making choices with limited or scarce resources. The next best choice is the opportunity cost of any decision. For any economic decision, it is always best or most efficient to select the option or choice with the lowest opportunity cost. Critical thinking such as this will also yield the decision with the largest benefit of all the choices. While there are always multiple alternatives or trade-offs to any decision, it is only the next best option that is the opportunity cost. Additionally, opportunity cost can vary from person to person depending on how each person values each alternative. The most effective way to understand the concept of opportunity cost is by example.

One of the classic examples is the cost of going to college. When asked about the costs of college, most students will reply that the costs of college are tuition and books. While these are some of the costs of college, they are only the explicit costs or the costs the student pays directly. The implicit costs or opportunity costs of going to college are the wages that were never earned because of attending classes or the activities the students would be enjoying during their free time. The true costs of attending college are the explicit and implicit costs. If faced with the decision of going to college or joining the labor force immediately after high school, every student needs to fully examine the explicit and opportunity (implicit) cost of each decision. Many highly skilled collegiate athletes are often faced with the decision of staying in college to finish their degrees or becoming professional athletes. If the wages earned as a professional athlete are more than the satisfaction of completing the college degree and more than the potential future earnings of that college degree, the student should drop out of college immediately and become a professional athlete. On the other hand, if the wages earned as a professional athlete are less than the satisfaction of completing the college degree and less than the potential future earnings of that degree, the student should stay in college.

In rural societies and less developed countries, many people are self-sufficient—performing many essential tasks for themselves, such as growing food for subsistence, constructing their own homes, preparing their own meals, and even repairing basic household items. The primary reason why people who live in these types societies are often self-sufficient is because the opportunity cost of performing these essential tasks are very small. They have few alternatives that produce a better outcome than performing these essential tasks themselves.

The concept of opportunity cost is embedded in the production possibilities frontier model and the theory of comparative advantage. In the production possibilities frontier model, the opportunity cost of producing an additional unit of "x" is the loss of some "y" production. In a global economy, the *theory of comparative advantage* states that a country will produce the goods and services for which it has the lowest opportunity cost of production compared with another country, and it will trade for the goods and services that it has a relatively high opportunity cost in producing.

Individuals behave in the same manner in the pursuit of their own self-interest. The economic concept of comparative advantage is a clear example of measuring one's opportunity costs in today's modern specialized society. Very few people grow their own food, construct their own homes, repair household items, or even prepare their own meals, due to the increased opportunity costs of performing these tasks. People have alternatives that produce greater outcomes than can be obtained by people performing these essential tasks themselves. This explains why some highly skilled people often hire other people to perform many of these essential tasks for them. For example, a highly skilled brain surgeon would need to be paid a much greater amount to mow lawns compared to a highly skilled high school graduate, due to the opportunity costs of their time.

Xavier Whitacre

See also: Decision Costs; Emotions and Decision-Making; Prisoner's Dilemma; Production Possibilities Curve; *Vol. 2: Macroeconomics:* Macroeconomics; *Vol. 3: Microeconomics:* Microeconomics; Priming and Financial Decisions

Further Reading

Frank, Robert. 2009. *The economic naturalist's field guide*. New York: Basic Books.

Henderson, David. 2008. Opportunity cost. In *The concise encyclopedia of economics*. Library of Economics and Liberty. http://www.econlib.org/library/Enc/OpportunityCost.html (accessed February 18, 2014).

Mannan, Muhammad Abdul. 1980. *Scarcity, choice and opportunity cost: Its dimensions in Islamic Economics*. London: Muslim Institute for Research and Planning.

Wheelan, Charles. 2002. *Naked economics*. New York: Norton.

P

PATERNALISM

Paternalism refers to the benevolent intervention of a social planner to improve the welfare of people against their will and consent, thus curtailing the beneficiaries' liberties. At the heart of a paternalistic intervention thus lies a trade-off between welfare and liberty (and/or autonomy).

In economics, there is widespread opposition to paternalism and strong support for the opposite—namely, antipaternalism (or synonymously, consumer sovereignty). Individuals are typically held to know best about their preferences and interests (or at least to know better than any benevolent social planner), and hence individual preferences are to be respected and not interfered with. The only legitimate interferences in this paradigm concern cases of market failure—and paternalism is permissible only in fringe cases, such as for minors or mentally incompetent persons.

Some behavioral economists challenge this idea of individuals being the best judge of their interests—which Buchanan (1991) also calls *epistemic privilege*—by providing evidence on the fallibility of human decision-making. Many individuals are prone to make errors, are subject to a number of systematic biases, and rely on decision heuristics that may or may not work in certain decision environments. It is thus no longer *a priori* clear that individuals are always the best judges of their own interests, thus weakening the case for antipaternalism. Some behavioral economists, such as Thaler and Sunstein, even argue that antipaternalism becomes "incoherent" and paternalism becomes "inevitable" because policies and rules are bound to frame individuals' decisions so that influencing people's choices cannot be avoided. But the assumption here is that experts aren't prone to the same biases and errors that typical individuals are.

Behavioral economics has thus led to the development of a new species of so-called "soft" or "light" paternalism, which tries to avoid restricting individuals' liberties. The best-known example of soft paternalism is libertarian paternalism, where, for example, Thaler and Sunstein argue, the "emphasis . . . is not on blocking choices, but on strategies that move people in welfare-promoting directions while also allowing freedom of choice." Individuals are "nudged" toward welfare-improving behaviors through subtle cues such as default rules (but not hard coercion). The twist of libertarian paternalism is that freedom of choice is left intact and fallible individuals are prodded into better behavior, but the individuals can reverse these "nudges" if they wish to with no or small costs.

Libertarian paternalism is controversially debated (Rebonato 2012; Binder 2014). It is uncontroversial that the insights of behavioral economics prompt a revision of the idea of epistemic privilege, and social planners need to be aware of the fact that in some choice environments, it is impossible to implement a policy without influencing individuals through the framing of options. However, claims of the inevitability of paternalism are exaggerated, and behavioral economists should be careful not to throw out the baby of consumer sovereignty with the bathwater of rational choice. Even with bounded rationality, not all choices are welfare-reducing. Nonrational choice can very well be adaptive and welfare-enhancing, as the literature on ecological rationality demonstrates (see, e.g., Berg et al. 2011). Moreover, many imperfections in human behavior are still not well understood, and hence they provide only shaky foundations for public policy. It is also not clear whether social planners do not suffer from similar cognitive limitations when implementing paternalistic policies, so that "dumb" behavior would then be replaced by "dumb" interventions (Rizzo and Whitman 2009).

Finally, libertarian paternalism may still violate individuals' liberties. For example, while nominal freedom of choice is left intact, default rules can be set in ways that individuals with limited cognitive capacities won't even be aware of, hence voiding their freedom of opting out. Despite nominal freedom of choice, in these situations individuals thus enjoy no real freedom of choice. Moreover, equating liberty with freedom of choice is quite controversial. Other definitions of *liberty* and *autonomy* are conceivable, and interventions that the individual is not aware of are prone to violate individuals' autonomy. This prompts concerns of soft paternalistic policies being manipulative. In this respect, soft paternalism might be more insidious than overt hard paternalism, where individuals at least are perfectly aware of being curtailed in their liberties (Binder 2014).

Martin Binder

See also: Behavioral Economics; *Vol. 3: Microeconomics:* Sunstein, Cass; Thaler, Richard

Further Reading

Berg, Nathan, Catherine Eckel, and Cathleen Johnson. 2011. Inconsistency pays? Time-inconsistent subjects and EU violators earn more. MPRA Paper 26589, University Library of Munich, Germany.

Binder, M. 2014. Should evolutionary economics embrace libertarian paternalism? *Journal of Evolutionary Economics* 24 (3): 515–39.

Buchanan, James M. 1991. The foundations for normative individualism. In *The economics and the ethics of constitutional order*, ed. James Buchanan, 221–29. Ann Arbor, MI: Univ. of Michigan Press.

Conlisk, John. 1996. Why bounded rationality? *Journal of Economic Literature* 34: 669–700.

Dworkin, Gerald. 2010. Paternalism. *Stanford encyclopedia of philosophy*. http://plato.stanford.edu/entries/paternalism (accessed November 30, 2016).

Gigerenzer, Gerd, and Peter M. Todd. 1999. *Simple heuristics that make us smart*. New York: Oxford Univ. Press.

Kahneman, Daniel. 2003. Maps of bounded rationality: Psychology for behavioral economics. *American Economic Review* 93: 1449–75.

Rabin, Matt. 1998. Psychology and economics. *Journal of Economic Literature* 36: 11–46.

Rebonato, Riccardo. 2012. *Taking liberties: A critical examination of libertarian paternalism*. Basingstoke, UK: Palgrave/Macmillan.
Rizzo, Mario J., and Douglas Glen Whitman. 2009. The knowledge problem of new paternalism. *BYU Law Review* 4: 905–968.
Sunstein, Cass R., and Richard H. Thaler. 2003. Libertarian paternalism is not an oxymoron. *University of Chicago Law Review* 70: 1159–1202.
Thaler, Richard H., and Cass R. Sunstein. 2003. Libertarian paternalism. *American Economic Review* 93: 175–79.
Thaler, Richard H., and Cass R. Sunstein. 2008. *Nudge—Improving decisions about health, wealth and happiness*. London: Penguin.

PATH DEPENDENCY

A key finding of path dependence is a property of "lock-in" by historical events. Small chance events then have durable consequences in the long run. Arthur (1989) and David (1985) address increasing returns in technology by using a model of path dependence. In a world of increasing returns to scale, initial and trivial circumstances can have important and irreversible influences on the ultimate market allocation of resources. An inefficient outcome can persist. The form of path dependence conflicts with conventional economics, where efficient outcomes are attained. Liebowitz and Margolis (1994) claim that where there is a feasible improvement to be gained from moving onto a better path, economic agents are willing to pay to bring that improvement about.

Social interactions often lead to patterns of what are called "positive feedbacks." Generalized increasing returns due to institutional complementarities appear to be a source of multiple equilibria (Bowles 2004). According to Leibenstein (1966), individuals supply different amounts of effort, where effort is a multidimensional variable, under different circumstances. The difference between maximal effectiveness of utilization and actual utilization is considered as the *degree of X-inefficiency*. Altman (2000) introduces effort discretion into the path-dependency modeling. Given effort discretion, incentives need not exist in order for agents to adopt superior economic regimes. The introduction of effort variability allows for the existence of suboptimal equilibrium in the long run. The existence of high- and low-productivity regimes might be a product of history. Furthermore, in Teraji (2007), effort depends on the prevailing norm within an organization. The process by which norms evolve through socialization exhibits generalized increasing returns. In a world where effort levels depend on norms, the path-dependent low-effort equilibrium can exist.

As Denzau and North (1994) point out, individuals with common cultural backgrounds will share reasonably convergent mental models. Agents who belong to the same cultural group are exposed to the same external representation of knowledge, which produces shared mental models. Culturally shared mental models expedite the process by which people learn directly from experiences; these models also facilitate communication between people. In a way, human actions are imprinted by their history. Path dependence includes features such as sustained persistency and lock-in. North (1990) applies increasing-returns arguments to institutions more broadly. Generally speaking, *institutions* are understood to be systems of established and prevalent social rules that structure social interactions. Established institutions generate powerful inducements that reinforce their own stability. Path dependence in the evolution of belief systems results from a "common cultural heritage," which "provides a means of reducing the divergent mental models that people in a society possess and constitutes the means for the intergenerational transfer of unifying perceptions" (North 2005 27). Cognition may have more subjective aspects, while culture enables individuals to develop mental models that they share intersubjectively. Because culture reflects habituation, which one acquires in one's group, culture is slow to change. Some individuals are resistant to altering their belief systems, and hence the resulting behavior. *Belief systems* are the ideas and thoughts common to individuals that govern social interaction and can contribute to path-dependent outcomes and equilibrium.

Shinji Teraji

See also: Culture and Behavioral Economics; Evolutionary Economics; Institutional Economics; *Vol. 2: Macroeconomics:* North, Douglass; *Vol. 4: Global Economics:* Developing Countries

Further Reading

Altman, Morris. 2000. A behavioral model of path dependency: The economics of profitable inefficiency and market failure. *Journal of Socio-Economics* 29: 127–45.
Arthur, W. Brian. 1989. Competing technologies, increasing returns, and lock-in by historical events. *Economic Journal* 99: 116–31.
Bowles, Samuel. 2004. *Microeconomics: Behavior, institutions, and evolution*. Princeton, NJ: Princeton Univ. Press.
David, Paul A. 1985. Clio and the Economics of QWERTY. *American Economic Review* 75: 332–37.
Denzau, Arthur T., and Douglass C. North. 1994. Shared mental models: Ideologies and institutions. *Kyklos* 47: 3–31.
Leibenstein, Harvey. 1966. Allocative efficiency vs. X-efficiency. *American Economic Review* 56: 392–415.
Liebowitz, Stanley J., and Stephen E. Margolis. 1994. Network externalities: An uncommon tragedy. *Journal of Economic Perspectives* 33: 133–50.
North, Douglass C. 1990. *Institutions, institutional change and economic performance*. Cambridge, UK: Cambridge Univ. Press.
North, Douglass C. 2005. *Understanding the process of economic change*. Princeton, NJ: Princeton Univ. Press.
Teraji, Shinji. 2007. Morale and the evolution of norms. *Journal of Socio-Economics* 37: 157–66.

PAYMENTS FOR ENVIRONMENTAL SERVICES

Payments for Environmental Services (PES) is a mechanism by which landowners are compensated for the environmental benefits generated by their land management practices. There are five key criteria to describe the principle of PES: (1) a voluntary transaction in which (2) a well-defined environmental service (or a land use likely to secure that service) (3) is bought by a (minimum of one) buyer (4) from a (minimum of one) provider (5) if and only if the provider continuously secures the provision of the service (conditionality).

These criteria cover a wide variety of programs. Examples of environmental services include watershed protection, carbon sequestration, and biodiversity conservation. The buyer of the services may be a national government, using PES as an environmental policy instrument. Alternatively, the buyer may be a private company or a domestic or foreign conservation organization, aiming to provide incentives for others to provide certain environmental services.

Given this wide variety of potential programs, Engel et al. (2008) provide three necessary conditions for the design of a genuine PES scheme: (1) the relationship between the type of land use being promoted and the provision of the ecosystem service must be clear; (2) stakeholders must have the possibility to terminate the contractual relationship (it is a voluntary transaction); and (3) a monitoring system must accompany the intervention, in order to ensure that the provision of services is taking place (additionality and conditionality of payments).

PES is one of a set of policy options for obtaining environmental services. PES programs are increasingly being used in preference to regulatory measures such as protected areas, particularly in developing countries, because of their win–win potential; that is, they can provide benefits of both environmental protection and poverty alleviation.

PES is close in spirit to the Coase theorem, in which it is argued that socially suboptimal situations (e.g., too little provision of environmental services) can be resolved through voluntary market-like transactions, provided that transaction costs are low and property rights are clearly defined and enforced. In other words, it is possible that individuals, communities, and even supranational entities may be able to negotiate toward efficient provision of environmental goods and services. The creation of markets for trading environmental services thus becomes a potential solution for market failures that lead to the undersupply of these types of services.

Conservation approaches such as PES can be much more effective than indirect approaches with respect to achieving environmental objectives. Some researchers assert that, in contrast to decades of what have been referred to as policies for conservation by distraction (e.g., community development programs, or integrated conservation and development projects) that have only indirect effects on conservation, direct payments such as PES schemes are likely (1) to be institutionally simpler; (2) to be more cost-effective in delivering benefits to buyers; (3) to be more effective in generating economic growth among suppliers by improving cash flow, diversifying income sources, and reducing income variance; and (4) to provide new sources of finance for conservation.

One of the earliest PES programs was the Conservation Reserve Program (CRP), introduced in 1985 by the U.S. federal government. Under the CRP, eligible agricultural producers receive payments for land retirement and approved conservation practices. Landowners apply for enrollment by bidding to undertake certain activities in return for a specified payment. Offers for contracts are ranked using the Environmental Benefits Index (EBI), which is based on expected benefits to water quality, soil erosion, air quality, and wildlife habitat, as well as the cost of the contract. The highest-ranking contracts are then selected to participate.

Research on the impacts of the CRP suggests that it has reduced soil erosion, a key environmental indicator, and that benefit–cost targeting using the EBI is a cost-effective way to achieve the desired environmental outcomes. There are some concerns that the 10- to 15-year contracts for land retirement are not sufficient for the full benefits to be observed. However, many farmers re-enroll their land at the end of their contract, and the majority of those who do not enroll are still not expected to bring land back into production.

A newer program, on a scale similar to the CRP, is the Sloping Land Conversion Program. This was introduced in China in 1999, with the dual objectives of soil conservation and poverty reduction. Farm households receive payment in the form of cash, grain, and seedlings, in return for converting cropland to forest or grassland. The intention is to convert around 15 million hectares of land. Contracts last between two and eight years, depending on the type of vegetation planted, and all households within each of two broad geographical regions receive the same subsidy level.

Although the program is voluntary in principle, studies have shown that participation is not always voluntary in practice. However, for those who do participate, evidence suggests that the program tends to raise incomes, as the subsidy payment exceeds the opportunity cost of the retired land on average. It is still early to identify the impacts on soil protection, but while the majority of land entered into the program is steeply sloping, there is some mis-enrollment of low-slope land. This suggests that targeting could be improved.

The Costa Rican Pagos por Servicios Ambientales (PSA) was established as a PES program in 1996. This program grew out of an existing institutional structure of payments for reforestation and forest management, but it contains several notable features: (1) most payments are for conservation of existing mature tropical forest with no harvesting allowed, (2) payments are justified and targeted to produce ecosystem services rather than to support the timber industry per se, and (3) funds come from both earmarked taxes and international donations.

Studies of participation in the PSA program have consistently found that participants differ from nonparticipants in important farm-level characteristics that directly affect land use; that the PSA program significantly increased participating farm forest cover in a microlevel analysis; and that the payments had a positive and significant impact on forest gain at the national level, with reductions in net deforestation. However, research does not conclude that PES contracting has reduced gross deforestation.

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See also: Biodiversity; Ecological Economics; *Vol. 2: Macroeconomics:* Conservation Reserve Program; Property Rights; Public Goods; *Vol. 3: Microeconomics:* Coase, Ronald; Coase Theorem

Further Reading

Arriagada, R., P. Ferraro, E. Sills, S. K. Pattanayak, and S. Cordero. 2012. Do payments for environmental services reduce deforestation? A farm level evaluation from Costa Rica. *Land Economics* 88 (2): 382–99.

Engel, S., S. Pagiola, and S. Wunder. 2008. Designing payments for environmental services in theory and practice: An overview of the issues. *Ecological Economics* 65 (4): 663–74.

Ferraro, P. J., and A. Kiss. 2002. Direct payments for biodiversity conservation. *Science* 298:1718–19.

Roberts, Michael J., and Ruben N. Lubowski. 2007. Enduring impacts of land retirement policies: Evidence from the conservation reserve program. *Land Economics* 83 (4): 516–38.

Xu, Jintao, Ran Tao, Zhigang Xu, and Michael T. Bennett. 2010. China's sloping land conversion program: Does expansion equal success? *Land Economics* 86 (2): 219–44.

PEACE CORPS OF THE UNITED STATES

The Peace Corps of the United States is an independent agency within the executive branch of the U.S. government. President John F. Kennedy established the Peace Corps by signing Executive Order 10924 on March 1, 1961. Initially, the Peace Corps was a pilot program. On September 22, 1961, Congress gave its stamp of approval by passing the Peace Corps Act, solidifying the Peace Corps' status as an agency of the federal government. The Peace Corps' mission was to advance the cause of peace and to improve the quality of life for people in the developing world. The Peace Corps was also designed as a cultural bridge between American volunteers and the international community.

Since the Peace Corp began in 1961, over 220,000 Peace Corps volunteers are serving or have served the world promoting peace. Peace Corp volunteers have lived and worked in more than 140 countries. In 2016 alone, more than 7,000 Peace Corps volunteers are working in 63 countries. Volunteers serve in these general regions: Africa (45 percent of all volunteers), Latin America (22 percent), Eastern Europe/Central Asia (10 percent), Asia (12 percent), the Caribbean (4 percent), and North Africa/Middle East and Pacific Islands (4 percent each). The Peace Corps sends volunteers only to countries that request assistance.

The operation of the Peace Corps is the responsibility of a director and deputy director, each of whom is appointed by the president of the United States and confirmed by the U.S. Senate. The Senate Foreign Relations Committee and the House Committee on International Relations also monitor Peace Corps activities and programs.

The Peace Corps has maintained a commitment to peace, human progress, and international understanding, yet its priorities have evolved over time. In recent years, the Peace Corps has increased the flow of resources to rural development, mainly to improve agricultural practices in some of the world's poorest regions. The Peace Corps also extends emergency assistance to people in distress; for example, the Peace Corps created a Crisis Corps to aid relief efforts in Thailand after the massive tsunami of December 2004 ravaged that country's coastal regions. The

Crisis Corps was composed of former Peace Corps volunteers, many of whom served in Thailand in the past.

The Peace Corps responds to new challenges as well. For example, HIV/AIDS education and prevention is a top priority on the Peace Corps agenda. The Peace Corps identified the HIV/AIDS crisis as the most serious humanitarian challenge of the modern age. Today, all Peace Corps volunteers working in Africa are trained in HIV/AIDS prevention, education, and care. The Peace Corps supports human capital development. For example, the Peace Corps provides information technology (IT) education programs throughout the developing world to bridge the digital divide. Volunteers teach such computer literacy skills as word processing, Internet use, and Web page design. Instruction also highlights applications of IT technologies, such as distance learning in education and e-commerce in business. In 2015, the Peace Corps volunteers' primary work areas included education (37 percent of all volunteers), health and HIV/ AIDS (24 percent), environment (10 percent), agriculture (6 percent), youth (10 percent), and community economic development (9 percent). The Peace Corps' poverty-reduction efforts complement the work of multilateral development organizations, and they are consistent with the United Nations' Millennium Development Goals (MDGs).

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See also: *Vol. 2: Macroeconomics:* Ostrom, Elinor; *Vol. 4: Global Economics:* Developing Countries; Foreign Aid; Millennium Development Goals; Sustainable Economic Development

Further Reading

Banerjee, Dillon. 2000. *So you want to join the Peace Corps: What to know before you go.* Berkeley, CA: Ten Speed Press.

Collins, Joseph, Stefano Dezerega, and Zahara Heckscher. 2002. *How to live your dream of volunteering overseas.* New York: Penguin Books.

Erdman, Sarah. 2003. *Nine hills to Nambonkaha: Two years in the heart of an African village.* New York: Henry Holt.

Peace Corps. September 2015. Fast Facts. www.peacecorps.gov/about/fastfacts/ (accessed May 31, 2016).

Rice, Gerald T. 1985. *The bold experiment: JFK's Peace Corps.* Notre Dame, IN: Univ. of Notre Dame Press.

Vandegrift, Tom. 2003. *24 new moons.* Seattle, WA: Infinity Publishing.

PEACE ECONOMICS

A distinctive area of economics, peace economics focuses on the economic effects of peace. That is to say, peace economics does not necessarily require an absence of conflict; rather, it develops economic systems from peaceful activity as a mitigating force. Peace economics serves to reduce the negative effects of violence and conflict. It also measures conflict in order to understand conflict's economic implications, and it develops systems to overcome these constructs. A large part of peace economics is uncovering the cost and consequences of war on macro and micro economic levels. In doing so, peace economics identifies how firms, organizations, corporations, local governments, and individuals are affected.

One of the most poignant examples of peace economics comes from the Paris Peace Conference in the wake of World War I. In his 1919 book *The Economic Consequences of the Peace*, John Maynard Keynes explained the danger of marginalizing the Axis powers after their defeat. He explained that specific postwar reparations policies served to disillusion Central Europe (specifically Germany), and therefore could provide fertile ground for another global war. In this case, the warning was not heeded, and the impossible impoverished conditions of Germany and other nations greatly influenced World War II. Therefore, the Paris Peace Conference and the world of Keynes is a representation of a different method of economic thought, one that takes into account the ramifications of conflict before, during and after.

The methodology and application of peace economics is a multifaceted representation of multiple economic theories—specifically, rational choice theory, normative economics, and positive economics. *Rational choice theory* assumes that individuals act rationally and that these individual behaviors make up an aggregate social behavior norm. By extension, peace economics develops the needs and behaviors of individuals to mitigate conflict based on the reasoning that societies are disadvantaged by the presence of conflict. *Normative economics* is more ethics-driven, focusing on how society should be. In contrast, *positive economics* is concerned with the reality of outcomes, or the way things are. Peace economics synthesizes all of these approaches to develop a systems-thinking method of understanding social, political, and economic issues surrounding conflict.

Given the frequently changing global environment, peace economics proves consistently relevant. Walter Isard, founder of the Peace Research Society (now known as the Peace Science Society International), asserts that the need for continued interdisciplinary research and development in the field (also called Peace Science) is evidenced by the continued existence of international conflicts.

Further studies of the field of peace economics include such topics as space or land economics. Within peace economics, this branch of theory is specifically concerned with the political and social implications of controlling space or territory. Therefore, the subsequent economic and social results can be vital in determining causes of conflict. In modern times, peace economics is highly influential within the topic of defense, with varying opinions on appropriate methods of application. Peace economics is complex and diverse, with a myriad of methods and uses, but the underlying principle is to understand conflict in order to promote peace and an absence of violence.

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See also: Decision Costs; Keynes, John Maynard; Rationality: Process and Neoclassical

Further Reading

Brauer, Jurgen, and Dunne, J. 2012. *Peace economics: A macroeconomic primer for violence-afflicted states*. Washington, DC: United States Institute of Peace Press.

Caruso, Raul, ed. 2014. *Peace economics, peace science, and public policy.* www.degruyter.com/view/j/peps (accessed November 30, 2016).

Henderson, David R., ed. 2008. John Maynard Keynes. In *The concise encyclopedia of economics.* Library of Economics and Liberty. www.econlib.org/library/Enc/bios/Keynes.html (accessed September 3, 2015).

Keynes John Maynard. 1995. *The economic consequences of the peace*. New York: Penguin Classics. (Orig. pub. 1919.)

Institute for Economics & Peace. n.d. *Global peace index.* http://www.visionofhumanity.org/#/page/indexes/global-peace-index (accessed September 3, 2015).

McGuire, Martin C. 1990. Review of *Arms races, arms control, and conflict analysis: Contributions from peace science and peace economics* by Walter Isard and Christine Smith. *Journal of Economic Literature* 28 (3): 1208–09. http://www.jstor.org/stable/2727122?Search=yes&resultItemClick=true&searchText=peace&searchText=economics&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3Dpeace%2Beconomics%26amp%3Bprq%3Dpeace%2Beconomicsa%26amp%3Bgroup%3Dnone%26amp%3Bfc%3Doff%26amp%3Bacc%3Don%26amp%3Bhp%3D25%26amp%3Bwc%3Don%26amp%3Bso%3Drel&seq=1#page_scan_tab_contents (accessed September 3, 2015).

Roskin, Michael G. 2014. Political science. *Encyclopaedia britannica.* www.britannica.com/topic/political-science#ref848651 (accessed September 3, 2015).

POPULATION

Population refers to the number of people living within a region, such as a city, a country, or the world. In 2015, for example, the population of the United States was 320 million people, while the population of the world stood at 7.2 billion people. Economists, demographers, and others study population to better understand how population affects economic and human development.

Two important global population trends are readily observable. First, the world's total population will continue to grow well into the 21st century. Historically, it wasn't until 1850 that the world's population hit its first billion people. In 2000, 6 billion people inhabited the planet. By 2050 the world's population will jump to nearly 9 billion people. The rapid population growth over the past 150 years was due mainly to progressively lower mortality rates and a higher life expectancy for people in many world regions. Access to modern medicine and health care facilities, improved nutrition, knowledge about hygiene and sanitation, and better communications and transportation networks contributed to lower mortality rates and a longer life span for people in most countries. While death rates fell, fertility rates among women remained relatively high, however, especially in the developing world. The world's population will climb by nearly 3 billion people between 2000 and 2050.

The second global population trend illustrates the divergent paths of more-developed and less-developed countries. The population outlook for the more-developed countries over the next 50 years is one of stability. In 1950, 32 percent of the global population lived in the more-developed countries in Europe and North America, and in Japan, Australia, and New Zealand. The remaining 68 percent of the world's people lived in the less-developed regions of Africa, Asia, and the Pacific, and Latin America and the Caribbean. The population gap between richer and poorer countries widened by 2000, when the percentage of people living in more-developed countries shrank to 20 percent, compared with 80 percent in the less-developed countries.

By 2050, just 14 percent of the world's people will reside in the more-developed countries, and 86 percent will live in less-developed countries. According to the United Nations, 99 percent of the world's population growth will occur in the less-developed regions. In addition, population growth in the 50 least-developed countries (LDCs) will roughly triple from 2000 to 2050, rising to 1.7 billion people. In contrast, the populations of many developed countries will decline by the mid-21st century. The population of the United States will continue to climb, however, topping 400 million by 2050. In the United States, a relatively high fertility rate, and immigration, will account for most of the country's population boom. A comparison of the world's largest countries from 1950 to 2050 illustrates the population shift toward the less-developed countries.

Rapid population growth is a major challenge to sustainable economic development, especially in the world's poorest regions. Population pressures perpetuate the vicious cycle of poverty, which plagues billions of people in the developing world. Rising populations in low-income developing countries strain fragile ecosystems as larger numbers of people compete for dwindling supplies of fresh water, arable land, and energy resources. In addition, resources devoted to people's rudimentary survival needs, such as food, clothing, and shelter, weaken national savings and investment in new capital goods, research and development, and technology. Prospects for breaking the cycle of poverty are further dimmed by an underdeveloped and overburdened social infrastructure, which cannot support a quality educational system, health care, and other social services.

In 1994, the United Nations convened the International Conference on Population and Development (ICPD) to address population issues. The ICPD, which was held in Cairo, recognized the link between population growth and the vicious cycle of poverty in the developing world. The ICPD adopted a 20-year Program of Action, which created a global blueprint for reducing the population growth rate and advancing social and human development. The UN General Assembly strengthened the blueprint five years later (ICPD + 5). First, the blueprint called for educational reform to equalize opportunities between male and female children. Second, the blueprint proposed legal reforms to protect women's rights in employment, property ownership, and inheritance. Expanded protections against gender-based violence were also included. Third, the blueprint stressed women's reproductive rights, including the right to choose the number and spacing of children. Fourth, the blueprint proposed expanded family planning services to reduce unwanted or mistimed pregnancies. Family planning services require skilled medical personnel, adequate health care facilities, family counselors, and access to contraceptives.

Ten years after the ICPD Program of Action was approved, the United Nations Population Fund (UNFPA) issued a progress report on the state of human population in the world. The UNFPA identified promising developments in integrating population policies with countries' development plans, expanding reproductive health programs and women's rights initiatives, strengthening HIV/AIDS education programs, and improving access to family planning services. Significant challenges remained, however. Topping the list were relatively high fertility rates and maternal mortality rates in many of the world's LDCs; the spread of the HIV/AIDS epidemic in Africa, the Caribbean, and other world regions; and gaps in program coverage for traditionally marginalized peoples such as the rural poor, urban slum-dwellers, and refugees. The United Nations Department of Economic and Social Affairs predicted the global population will plateau at roughly 9 billion people by the mid-21st century.

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See also: Malthus, Thomas; Poverty; *Vol. 4: Global Economics:* Developing Countries; Least Developed Countries; Sustainable Economic Development

Further Reading

Population Reference Bureau. 2004. *2004 World population data sheet*. http://www.prb.org/Publications/Datasheets/2004/2004WorldPopulationDataSheet.aspx (accessed September 14, 2016).

United Nations. 2004. *Review and appraisal of the progress made in achieving the goals and objectives of the programme of action of the international conference on population and development: The 2004 report*. New York: United Nations. http://www.un.org/esa/population/publications/reviewappraisal/English.pdf (accessed September 14, 2016).

United Nations Department of Economic and Social Affairs, Population Division. 2004. *World population to 2300*. New York: United Nations. http://www.un.org/en/development/desa/population/ (accessed September 14, 2016).

United Nations Population Fund. 2004. *UNFPA state of world population 2004*. New York: United Nations. http://www.unfpa.org/publications/state-world-population-2004 (accessed September 14, 2016).

The World Bank. 2005. *Improving health, nutrition and population outcomes in sub-Saharan Africa: The role of the World Bank*. Washington, DC: The World Bank.

PORTFOLIO MANAGEMENT

Portfolio management has these essential basics: defining or identifying investment objectives, identifying resources and limitations, constructing an investment portfolio, and monitoring and revising the portfolio.

The first step in investing is perhaps the most important. Most people think of investment as only part of retirement planning. In fact, purchasing a house, saving for children's college, making bequests, and saving for emergencies are all part of the investment goals. The sooner these objectives are identified, the easier it will be to achieve them.

The earning power of individuals usually follows a pattern known in economics as the *income life cycle*. In general, in the early stages of life, we tend to earn less and at the same time accumulate debts. As we gain education and experience over time, our earning power improves as well. This is generally the period when we start to pay off the debts we accumulated in the first phase of our life. In the third phase of the income life cycle, as we get closer to retirement, the increases in earning power eventually diminish and either stabilize or decline. The accumulation of excess income that is available for investments usually occurs during phases two and three. While earning power and the ability to set aside excess income are easiest in the latter part of phase two and most of phrase three, the best time to start investment planning is at the latter part of phase one. Due to the effect of compounding, a small amount invested early in phase one will have a significantly higher return than a large amount invested in phase two or phase three. Failure to set investment goals early in life can have significant costs.

Thus, when we're setting investment objectives, the impact of the time value of money must be taken into consideration. It might be worthwhile to delay some major purchases/spending. Sometimes, it is even worthwhile to take out a loan and not reduce the amount being put into investment; one example of this is to purchase a house by taking out a mortgage. The idea that all debt is bad is naïve. Debt that is for consumption purposes is bad. But debt that could improve future income or decrease cost is good; college tuition loans (up to a certain point) and mortgages are examples of good debt.

It is also important to set investment objectives that are realistic and practical. One cannot expect a rate of return higher than market average without being willing to take on additional risks. An investment advisor or portfolio manager should be able to help identify a class of assets that meets a person's desirable level of risk and return. Think of it like this: A member of a board of trustees for an endowment fund or trust will need to have an investment policy that guides the portfolio manager on how to invest the fund. The portfolio manager can serve in an advisory role in setting the investment policy, but the main responsibility on this task lies with the board.

Common investment objectives include growth of income, stability of principal, income, and capital appreciation. Some of these objectives are mutually exclusive. For example, stability of principal and appreciation of capital are mutually exclusive. The role of cash and liquid assets in an individual's spending needs throughout the economic life cycle is also an important factor to consider in setting objectives.

Portfolio Construction and Management

Once the investment objectives and resources are identified, the next step is to construct a portfolio that will achieve those objectives. It is not enough to realize that it is important to invest early. It is also important to identify the asset class that will give the best return for a given level of risk. The historic average return for stocks is about 11 percent to 15 percent, depending on the market capitalization of the stocks. The average return for corporate bonds is about 7 percent, and the average for U.S. Treasuries is about 5 percent. Other asset classes typically have returns of 5 percent or lower on average. Given these figures, to achieve more than 10 percent return, stocks will be the only option. So, if the investment process is delayed, achieving investment goals may not be possible if contributions are not greatly increased. Investments in the leveraged asset class (options and futures, for examples) are typically more speculative and carry more risk. They are not ideal for most investors.

There are a few special investment strategies that result in a higher level of return. Value investing and contrarian investing strategies both outperform the broad market index by about 2 percent return annually. But if more investors are participating in these strategies, the return will decline accordingly.

Most individuals will likely never use the services of an investment professional. Most people have their retirement savings account through their work, and most assume that their employer will arrange to have this work done. This is one of the biggest investment mistakes people make, and often they never find out until it is too late. Most companies use a mutual fund company or the wealth management division of a major bank to manage their employees' 401(k) plan. These management companies have no fiduciary duty to the plan holders. Typically, it is the company's Human Resources department that decides, with advice from a management company, what the default investment options are. The initial options can range from ultrasafe assets such as U.S. Treasuries, or even money market funds, to equity index funds. The most common default today is either a balanced fund or a life cycle fund. A life cycle fund will reset the asset mix automatically throughout an individual's life cycle. As an individual gets closer to retirement, the fund's mix will move more toward bonds and less toward equities.

This passive investment strategy will meet the needs of most individuals who have no time for or little knowledge about the various investment options. But the management company has no responsibility to put an individual's investment fund into the company's best-performing funds within a certain asset class. So, the typical life cycle fund often performs below the market average of a portfolio with a similar asset mix. Therefore, it is very important that individuals pay attention to the asset allocation policies for any life cycle fund; perhaps people can pick their own sets of funds, ones that will match similar risk characteristics and achieve better returns.

For individual investors who have more time and/or knowledge, actively engaging in adjustment in asset allocation may yield a better return in the long run. However, anticipatory changes to asset allocation (known as tactical strategy) can work only if the timing is right most of the time. It is very difficult for even for the most seasoned portfolio manager. Thus, passive strategies with limited changes in anticipation of direction of the market might be preferable to active strategies. It has been shown that over the long run, dollar cost averaging (consistent monthly, quarterly, or annual contributions) yields a better outcome than market timing strategies.

While a passive strategy is preferable to active strategies for portfolio management, the strategy must be reviewed when major events occur in an individual's life cycle. Major changes in financial condition (getting a higher-paying job, being laid off, etc.) or in beneficiaries (through marriage, divorce, having kids, etc.) should trigger a revision in one's investment portfolio.

Lee H. Chan

See also: Asset Allocation; Behavioral Finance; Capital Gains and Losses; Compound Interest; Financial Literacy; Opportunity Cost; *Vol. 2: Macroeconomics:* Dividend Income; *Vol. 3: Microeconomics:* Bonds; Mutual Index Funds; Saving versus Investment; Stock Market; Stocks

Further Reading

Strong, Robert A. 2009. *Portfolio construction, management, and protection*. 5th ed. Mason, OH: South-Western College Pub.

POVERTY

Poverty is a human condition in which people lack the material goods necessary for a minimal standard of living. Essential material goods include food, clothing, and shelter. The most common measurement of poverty is level of income or consumption. In 2015, the World Bank introduced the income standard of $1.90 per person per day to distinguish the poor from the nonpoor in the developing world. The $1.90 per person per day poverty line is measured in purchasing power parity (PPP) prices to reflect different costs of living in different countries. Over time, the $1.90 per person per day standard has become the world's most universally accepted poverty line, or poverty threshold. According to the World Bank, in 2012, 896 million people in the global economy lived on less than $2 per day.

Extreme poverty refers to people who fall beneath the World Bank's $1.90 per day poverty line. The poverty rate, also called poverty incidence, is the percentage of a country's total population that lives in extreme poverty. Since the poorest nations set poverty lines, there will also be people in the world who live in extreme poverty regardless of the poverty line set. In some of the world's poorest countries, more than half the entire population lives in extreme poverty. According to the World Bank, extreme poverty was projected to drop by about one-half, or 600 million people, between 1990 and 2015, and the number of people living in extreme poverty was expected decline in all regions except sub-Saharan Africa.

Many countries in the developing and developed world have established their own measurements of poverty. In developing countries, the national poverty line typically falls between $1 and $2 per person per day. The World Bank's poverty threshold is $1.90 per day. In the United States the U.S. Census Bureau uses a household's money income, size, and composition to distinguish the poor from the nonpoor. In 2014, a household consisting of two people was poor if its money income dipped below $15,934; a household of four was poor if its income fell below $24,230; and a household of nine or more persons was poor if its income fell below $49,021.

As was the case with developing countries, the income or consumption level that separates the poor from the nonpoor is called the poverty line, or poverty threshold. In the United States the government calculates the poverty line by multiplying a typical household's annual food budget times three. Thus, the poverty line inches upward each year, as price levels rise. In 2014, about 47 million people were considered poor, and the poverty rate, which measures the percentage of Americans living in poverty, was 14.8 percent.

Glaring disparities in income and consumption exist between nations and within nations. In 2011, 43 percent of the population in sub-Saharan Africa lived under the $1.90 per day threshold. In contrast, the number in Europe and Central Asia is only 2.1 percent. Disparities in income and consumption also exist within countries. The level of inequality is based on the amount of income or consumption by the richest and poorest 20 percent of the population in each country.

Income inequality and consumption inequality are less severe in the advanced economies than in many developing countries. In the United States, for example, the richest 20 percent of the population has about eight times the income of the poorest 20 percent. The income inequality in Norway, Sweden, Japan, and Finland is less than half that of the United States. There are many reasons for the income disparity between the different economic classes in the U.S. economy. Income distribution is influenced by the compensation that workers receive in labor markets, as well as income derived from interest payments, dividends, capital gains, rents, entrepreneurial profits, and a variety of public transfer payments. The U.S. Census Bureau reported a widening income gap between America's richest and poorest citizens over the past quarter century. Stricter regulations on public assistance for the poor, stagnant or declining real wages for many middle-class wage earners, and higher incomes for the highly educated and well-connected professional classes helped account for the growing income gap.

Income and consumption are the most widely used measures of poverty. Some economists view monetary measures as narrow and inadequate, however. These economists favor the inclusion of a broader spectrum of factors related to the human condition. Broader measures of poverty not only include people's income, but also daily calorie intake, level of educational attainment, personal health and security, and degree of inclusion in the economic and political mainstream. Some experts suggest that a broader, multidimensional approach to defining poverty enables the government to identify and address specific problems of the poor.

The Millennium Development Goals (MDGs), which were approved by the United Nations in 2000, solidified the world's commitment to poverty reduction. The MDGs' first goal, to "eradicate extreme poverty and hunger," is the centerpiece of global efforts to establish a more just and secure global economy. The World Bank, the International Monetary Fund, regional development banks, specialized agencies and programs of the United Nations system, and other major institutions in the global economy have hopped onto the poverty-reduction bandwagon.

David E. O'Connor

See also: Peace Corps of the United States; United States Census Bureau; *Vol. 2: Macroeconomics:* Gross National Income; *Vol. 4: Global Economics:* Developing

Countries; Foreign Aid; International Monetary Fund; Least Developed Countries; Millennium Development Goals; Sachs, Jeffrey; World Bank

Further Reading

Cline, William R. 2004. *Trade policy and global poverty.* Washington, DC: Institute for International Economics.

Kerbo, Harold R. 2005. *World poverty: The roots of global inequality and the modern world system.* New York: McGraw-Hill.

Milanovic, Branko. 2005. *Worlds apart: Measuring international and global inequality.* Princeton, NJ: Princeton Univ. Press.

ODI (Overseas Development Institute). 2015. The definition of extreme poverty has just changed—Here's what you need to know. www.odi.org/comment/9934-extreme-poverty-definition-world-bank-sustainable-development-goals (accessed May 31, 2016).

Prahalad, C. K. 2004. *The fortune at the bottom of the pyramid: Eradicating poverty through profits.* Philadelphia: Wharton School Publishing.

Smith, Stephen C. 2005. *Ending global poverty: A guide to what works.* New York: Palgrave/Macmillan.

U.S. Census Bureau. n.d. How the Census Bureau measures poverty. www.census.gov/hhes/www/poverty/about/overview/measure.html (accessed May 31, 2016).

World Bank. 2016. n.d. Overview. www.worldbank.org/en/topic/poverty/overview (accessed May 31, 2016).

PRE-CLASSICAL ECONOMIC THOUGHT

The study of economics did not begin with Adam Smith and *The Wealth of Nations*. It is not clear when the study of economics originated, but it certainly dates back to St. Augustine, Thomas Aquinas, Aristotle, and other ancient philosophers and great thinkers. The early thoughts and ideas about economics did not come from economists. Even Adam Smith was not an economist, but a teacher of moral philosophy at the University of Glasgow. Economics was not recognized as its own discipline until the 19th century.

Modern economics focuses on the efficient and effective allocation of resources. This was not true of pre-Classical thought. As moral philosophers, religious leaders, and secular thinkers and writers, these men were more focused on what we would consider noneconomic outcomes, like integrity, honesty, and quality of life.

The earliest thoughts of economics go back to the second and third centuries BCE. The works of Plato and his pupil Aristotle (fourth and third centuries BCE) contain ideas about property rights and wealth creation. There are writings of Aristotle that include such topics as personal finance, markets, and voluntary exchange—and ideas on what motivated human economic behavior.

As the Greek era ended and the Roman era began, new avenues of economic thinking emerged. Economic topics are a constant in both the Old Testament and the New Testament of the Bible. Early Jewish law claimed that property rights were fundamental and to be protected. Two of the Ten Commandments relate directly to property rights. Jewish thought condoned wealth creation, seeing it as virtue. Roman law is responsible for the development of the contract. The Muslim historiographer Ibn Khaldun first wrote about the division of labor in the 14th century, several hundred years before Adam Smith.

The writings of the Scholastics (13th and 14th centuries) focused on four themes: property, usury, money, and honesty in an economic exchange. The writings of Thomas Aquinas made economic references, including honesty, noting that price-gouging and raising prices are theft and immoral. He wrote that businesses had a moral obligation to avoid raising prices, even if demand warranted the increase. Most writings on topics that today would be considered economics generally involved money, usury, agriculture, or taxes.

From the 16th century to the early 19th century, an economic system and economic thought enveloped Europe. Mercantilism as an economic philosophy on national wealth and power superseded individual wealth. National wealth was obtained by countries exporting as much as they could in exchange for gold or other precious metals. One part of a nation's game plan was to institute high tariffs. High tariffs accomplished two goals: First, they provided the national treasury with additional income, and second, they discouraged imports. This kept nations from having to use their gold to pay for imports. The Age of Mercantilism is also known for the myriad of explorers and adventurers who travelled to new lands searching for gold and other precious metals for the national treasury and the kings and queens of their homeland. Mercantilism was the backdrop that led Adam Smith to write *An Inquiry into the Nature and Causes of the Wealth of Nations*, in 1776.

The Mercantilist movement and philosophy began to end with the growth of an antimercantilist economic movement coming from France. The Physiocrats countered the mercantilists by their philosophy that the source of wealth was agriculture, not piles of gold and other precious metals. The Physiocrats borrowed from medicine and the discovery of a blood circulation system in the human body. They fashioned their analogy of the economy on the human circulatory system. In the early 18th century, the Physiocrats produced the first circular flow of economic activity, known as the Tableau Economique (1759).

With the publication of *An Inquiry into the Nature and Causes of a Wealth of Nations* in 1776, the era of pre-classical economic thought began to end. By the close of the 18th century, a new era, the modern era, of economic thought had begun.

David A. Dieterle

See also: Classical Economic Thought; Mercantilism; Quesnay, François; Smith, Adam; *Tableau Economique*; *Vol. 2: Macroeconomics:* Physiocrats; Property Rights; *Vol. 4: Global Economics:* Polo, Marco

Further Reading

Landreth, Harry, and David C. Holander. 2012. *History of economic thought*. 4th ed. Boston: Houghton Mifflin.

Lowry, S. Todd, ed. 1987. *Pre-classical economic thought: From the Greeks to the Scottish enlightenment*. Boston: Kluwer Academic Publishers.

Samuels, Warren J., Jeff E. Biddle, and John B. Davis, eds. 2003. *A companion to the history of economic thought*. Malden, MA: Blackwell.

PRISONER'S DILEMMA

The two-person game Prisoner's Dilemma (PD) and its *n*-player analogue Social Dilemma (also called the Tragedy of the Commons) are the basis for using game theory (the formal analysis of conflict and cooperation) to study coordination failures. Prisoner's Dilemma and Social Dilemma are *noncooperative* games (games in which there is no external authority, such as a legal system, to enforce agreements among players) in which the unique equilibrium yields an outcome that is not *Pareto-efficient* (that is, some other combination of strategies would produce an outcome in which some player, and perhaps every player, was strictly better off, and no player was worse off). The payoff matrix for Prisoner's Dilemma was formulated, and the first PD experiment (100-round repeated) conducted, by RAND Corporation researchers Merrill Flood and Melvin Dresher in January 1950, with the name Prisoner's Dilemma and the accompanying story provided shortly afterwards by Princeton mathematician and RAND consultant Albert Tucker in a May 1950 lecture on game theory to Stanford's Psychology Department (Flood 1958 used the name "Hangman's Paradox," quoted from a letter from John Nash). The game was not published until 1958, in a condensed version of Flood's 1952 RAND Research Memorandum.

According to a letter from Tucker to Dresher (Poundstone 1992, 117–18), in Tucker's lecture two prisoners are interrogated separately about a crime they are accused of having committed together. Using more convenient payoffs in place of Tucker's, each prisoner is told that if he confesses and the other does not, the one who confesses (turns state's evidence) will be set free and the other one will be sentenced to three years in prison. If neither confesses, they will both be sentenced to one year in prison on a lesser charge. But if both confess to the more serious charge, each will be sentenced to two years to prison. So the payoffs to (Player A, Player B) are as follows:

Table 1. Prisoner's Dilemma

	Player B	
	Confess	**Deny**
Confess	2, 2	0, 3
	Player A	
Deny	3, 0	1, 1

The strategic combination (Confess, Confess), which leads to each prisoner being sentenced to two years in prison, is not only the unique Nash equilibrium: No player can improve his or her payoff by being the only player to change his or her strategy, so each wishes to confess given that the other one confesses. It is also a dominant strategy equilibrium: Each player will choose to confess, regardless of what the other player does, provided they chose independently, even though (Confess, Confess) makes each of them strictly worse off than (Deny, Deny) would do. If player B chooses to Deny, player A prefers to Confess, because 0 (zero) years in prison is better than 1 year. If B chooses to Confess, A prefers to Confess, because 2 years in prison is better than 3. B faces the same incentives, so both Confess and each is sentenced to 2 years in prison, even though adhering to an unenforceable prior agreement to (Deny, Deny) would have limited their prison time to one year each.

The RAND Corporation, a consulting firm whose only client at the time was the U.S. Air Force, was not interested in puzzles of criminology. Prisoner's Dilemma could be read as describing the Cold War, with the United States and the Soviet Union each deciding whether to launch a nuclear strike on the other. The implication that each had a dominant strategy to launch a first strike, regardless of whether the other was going to or not, was most disturbing both to military strategists and to such peace researchers as Anatol Rapoport. John Nash predicted that the outcome would be the same in a finitely repeated PD, however many the repetitions, because the last round would be a one-shot game in which the unique dominant strategy equilibrium would be (Confess, Confess), regardless of what happened in prior rounds. If the outcome of the last round of play was determined, then the next-to-last round would also be a one-shot PD with unique dominant strategies (Confess, Confess), and by backward induction so would all the other rounds. Flood and Dresher tested Nash's prediction with a 100-round PD game played by the UCLA economist and the RAND mathematician John Williams. Instead of Nash's prediction of (Confess, Confess) 100 times, Williams chose cooperate (Deny) 78 times and Alchian chose it 68 times, with mutual cooperation (what would be Deny, Deny in Tucker's subsequent story) being achieved 60 times and the Nash prediction of mutual defection occurring only 14 times. Alchian began by defecting (Confess), as Nash predicted, but gradually responded to Williams's strategy of rewarding cooperation and punishing defection. Nash denounced the two players as irrational, but over the whole game they achieved higher payoffs than Nash's prediction would have yielded. Later experiments, such as those surveyed by Rapoport and Chammah with Orwant and many later experiments, consistently found more cooperation in one-shot or finitely repeated PD games than predicted by Nash's theory of independent maximization of individual payoffs.

One way of explaining such cooperation is altruism, whereby each player derives some utility from the other player's payoff. This amounts to redefining the payoffs in utility terms, so that defecting is no longer a dominant strategy and the payoff matrix is no longer that of Prisoner's Dilemma. Alternatively, the players may engage in some form of precommitment, forcing them to keep their promises to cooperate, in which case the game is no longer a noncooperative game. Robert Axelrod conducted a repeated PD tournament in which, instead of the number of rounds of play being fixed and known in advance, there was a small probability (about one-third of 1 percent) of any round being randomly chosen as the last round, so that at any point the tournament was expected to continue for another 200 rounds. Backward induction was then impossible, since there was no known last round from which to solve back to the beginning of the tournament. "Tit for Tat," the strategy submitted by Anatol Rapoport of cooperating until the other player defected and then doing whatever the other player had done on the previous round, achieved the highest payoffs when each submitted strategy was played against each of the other strategies. Although an Axelrod tournament will end in finite time with probability one, the fact that the ending is probabilistic makes it equivalent to an infinitely repeated PD. For the case of infinite repetition, where retaliation or reward on future rounds is always possible, the "folk theorem"—that almost any sequence of outcomes can be supported by a subgame perfect Nash equilibrium—provided that there is neither too high a probability of the game ending on any given round or too high a discounting of future payoffs. (The folk theorem was so named by Robert Aumann because game theorists and economists felt that they had always known it, even though no one could remember its origin.) Kreps argued that cooperation can be rational even in finitely repeated PD games of known length, provided that there is incomplete information, which allows for investment in developing a reputation for rewarding cooperation and punishing defection.

Prisoner's Dilemma and its *n*- player version (Social Dilemma or Tragedy of the Commons) are invoked to explain a wide range of coordination failures, including global climate change, tariffs, investment in research and development, spending on advertising campaigns, and crime deterrence. Some game-theoretic New Keynesian economists use this analysis to understand the macroeconomic coordination failure of equilibrium at low employment, where if firms jointly hired more workers, the newly employed workers would spend their wages in such a way as to justify the firms having hired them. PD has proved widely applicable in understanding coordination failures, while experimental and empirical evidence consistently indicates that, while cooperation is far from complete or universal, there is more cooperation than the Nash prediction of no cooperation at all in Prisoner's Dilemma games.

Robert W. Dimand

See also: New Keynesian Economic Thought; *Vol. 2: Macroeconomics:* Alchian, Armen; *Vol. 3: Microeconomics:* Nash, John; Nash Equilibrium

Further Reading

Axelrod, Robert. 1984. *The evolution of cooperation*, New York: Basic Books.

Cooper, Russell W. 1999. *Coordination games*. Cambridge, UK: Cambridge Univ. Press.

Dimand, Robert W. 2005. Experimental economic games: The early years. In *The experiment in the history of economics*, ed. Philippe Fontaine and Robert Leonard, 5–24. London and New York: Routledge.

Eaton, B. Curtis. 2004. Presidential address: The elementary economics of social dilemmas. *Canadian Journal of Economics* 37: 805–29.

Flood, Merrill. 1952. Some experimental games. RAND Corporation Research Memorandum RM-789. http://www.rand.org/content/dam/rand/pubs/research_memoranda/2008/RM789-1.pdf (accessed September 30, 2016).

Flood, Merrill. 1958. Some experimental games. *Management Science* 5: 5–26.

Kreps, David, Paul Milgrom, John Roberts, and Robert Wilson. 1982. Rational cooperation in the finitely repeated prisoner's dilemma. *Journal of Economic Theory* 27: 245–52.

Nash, John F., Jr. 1951. Non-cooperative games. *Annals of Mathematics* 54: 286–95.

Poundstone, William. 1992. *Prisoner's dilemma: John von Neumann, game theory, and the puzzle of the bomb*. New York: Doubleday.
Rapoport, Anatol, and Albert M. Chammah, with Carol J. Orwant. 1965. *Prisoner's dilemma: A study in conflict and cooperation.* Ann Arbor, MI: Univ. of Michigan Press.

PRIVATE PROPERTY

The origins of private property may lie deeply, perhaps genetically, ingrained in human nature. The first hominids that found a useful rock or stick, or crafted a tool, or settled in a place, almost certainly asserted ownership, and then had to defend it. As societies formed, rules were adopted to protect citizens' rights and possessions. As people(s) began to trade, possession inherently acknowledged ownership.

In 350 BCE, Plato and Aristotle argued over whether property should be owned privately or collectively (by the state). More than 2,000 years later, the debate continued, as capitalism, fundamentally dependent on private property rights, waged ideological war with socialism and communism, which espoused collective ownership of the means of production, for the economic future of the world. It is also worth noting that, in the fairly recent past, the world was torn over whether property could even include human beings!

While public property is owned by the state (government), economists recognize *private property* as that which assumes ownership or the exclusive right over a productive resource by entities other than the government, including not only material things but also the product of one's labor, such as original ideas, symbols, methods, and writings. These rights can generally be traded or transferred through legal contracts.

Free-market (capitalist) advocates such as Milton Friedman (1912–2006) and Friedrich von Hayek (1899–1992) believed that private property, and the exclusive right to profit from it, is absolutely essential for the efficient allocation of resources to achieve the greatest economic benefits to society. When individuals are allowed to directly own productive resources and to employ the resources to create things of value for others, the potential to earn profits will serve as a very powerful incentive to protect, maintain, and even improve upon those assets. Those resources will then be employed in innovative and productive ways to generate profit for the owners by serving others, producing useful new goods or services, and solving problems in an economy. Conversely, when property is owned collectively, or when individuals cannot earn personal profit from employing the resources productively, there is no direct or enduring incentive for them to do so. Then, resources tend to be underutilized, poorly maintained, or even abused.

In every society, there is common property such as streets, parks, and waterways; natural resources; and intangible things like (clean) air and even peace and quiet. What if one person's right over property or use of it infringes on the rights, or diminishes the well-being, of others—perhaps the whole of society? Think of a factory polluting the surrounding air or water. Those outside the direct market who must bear costs associated with others' consumption or production of a good are said to suffer negative externalities. Likewise, those who receive benefits enjoy positive externalities. When the public good is served, government may actually seize private property (after fairly compensating the owners) for such purposes as constructing dams, bridges, parks, and so on, through the process of eminent domain. Even nations with developed legal systems and effective enforcement mechanisms struggle with issues and conflicts where property rights are not clearly defined.

When there are no clearly established private property rights, productive assets tend to be overutilized, depleted, or even destroyed by users who gain direct personal benefit from using the common resource before others do, but who do not share in the cost of maintaining it. The "tragedy of the commons" is exemplified by the plight of the Atlantic cod-fishing industry in the 1980s, as fishermen competed vigorously to catch clearly depleting stocks of cod before other fishermen took them. This rule of capture, asserting clear private ownership only upon capture of the common good, led to more and more overfishing as the price of cod rose, reflecting its dramatically escalating scarcity. Despite recognition that continued fishing would diminish the fish population below levels necessary to effectively reproduce and sustain a stable population, thus destroying the entire industry and thus their own livelihood, individual fishermen were perversely incentivized (through higher prices and the rule of capture) to actually increase fishing until the fish stocks went commercially extinct.

Market failure occurs whenever resources are not efficiently allocated toward their most productive uses. This is not to say that alternative solutions are apparent. But establishing and enforcing clear property rights, especially for common resources, continues to pose significant challenges to all economic systems to this day.

Steven J. Eschrich

See also: Hayek, Friedrich von; Mises, Ludwig von; *Vol. 2: Macroeconomics:* Externality; Friedman, Milton; Property Rights; Public Goods; *Vol. 4: Global Economics:* De Soto, Hernando

Further Reading

Friedman, Thomas. 2009. (No) Drill, Baby, Drill. *New York Times*, April 12. http://www.nytimes.com/2009/04/12/opinion/12friedman.html?_r=0 (accessed May 11, 2013).

Lai, Lawrence W. C. 2011. *The ideas of Ronald H. Coase: Market failure and planning by contract for sustainable development*. New York: Routledge.

Mises, Ludwig von. 1998. *Human action: A treatise on economics*. Auburn, AL: Ludwig von Mises Institute.

Ostrom, Elinor. 1990. *Governing the commons: The evolution of institutions for collective action*. Cambridge, UK: Cambridge Univ. Press.

PRIVATIZATION

Privatization is the process of converting state-owned assets, production facilities, or service-delivery systems to the private sector. Since the 1980s, many countries in the global economy have privatized government assets and enterprises. Privatization accompanied the global shift toward market-oriented economies over the past quarter century. The transfer of goods-producing and services-producing enterprises from the public to the private sector was designed to increase production efficiency, improve product quality, create domestic and foreign investment opportunities, and stimulate entrepreneurial activity. Privatization also addressed structural reforms in national economies. Privatization helped reduce bloated government bureaucracies, dismantle ineffective state planning agencies, and end expensive subsidy programs. Further, privatization generates a one-time revenue windfall for governments.

Governments privatize companies and other assets in a variety of ways. The most common privatization approach is the issuance of shares of stock in the enterprise. The issue of new stocks is called an initial public offering (IPO). Shares of stock are sold to individuals, workers, financial institutions, local businesses, transnational corporations (TNCs), and other investors. Often, the government holds some of the shares in the privatized enterprise. Another approach to privatization is the issuance of "vouchers." Vouchers dominated the early years of Russia's privatization from 1992 to 1994. Under the voucher system the government issued vouchers to the Russian people. Vouchers gave citizens the right to buy small enterprises or buy shares of newly privatized corporations at public auction. Russia's privatization has gone through additional phases since the mid-1990s. Some privatization occurs through simple asset sales. The purchase of government assets by TNCs illustrates this type of asset transfer. Privatization, broadly interpreted, also occurs when the government retains ownership in an enterprise but hires a private firm to manage the facility. Management contracts are common in larger facilities such as airports and convention centers.

Privatization swept through the global economy during the 1980s, 1990s, and early 2000s. Governments in Latin America and the Caribbean launched extensive privatization initiatives earlier than most world regions. From the mid-1980s to the early 2000s, governments privatized key services such as banking and telecommunications, and features of the economic infrastructure such as water and transportation systems. In Europe, the United Kingdom was in the vanguard of privatization. From 1979 to 1990, Conservative British Prime Minister Margaret Thatcher aggressively privatized key industries, including telecommunications, coal, and some railway operations. France, under the leadership of Prime Minister Jacques Chirac, carried the privatization torch to the European mainland. Between 1990 and 2001, the 15 European Union (EU) countries privatized more than half a trillion dollars worth of government assets.

Since the early 1990s, privatization has been a centerpiece in the epic shift from communism to capitalism for 27 transition economies in Eastern and Central Europe and Central Asia. The pace of privatization has varied significantly, however. Most transition economies successfully privatized small- and medium-sized enterprises (SMEs). SMEs include retail stores, construction firms, and personal and professional services. The privatization of large state-owned enterprises (SOEs), such as mines and heavy industries, was less successful. The European Bank for Reconstruction and Development (EBRD) provides development loans and privatization assistance to transition economies. EBRD reported significant progress in most countries' privatization. EBRD gave most transition economies high marks for their privatization efforts. In terms of small-scale privatization, 19 transition countries, including Russia, earned a "market economy" designation. Just 9 transition countries earned market economy status for the more difficult privatization of large SOEs. Reforms in 8 transition countries were insufficient to meet the market economy standard in either privatization category.

Privatization has sparked controversy around the world. In Latin America, for example, price hikes resulting from the privatization of key services, such as water supplies and transportation, created a storm of protest. The 2000 privatization of the water supply in Cochabamba, Bolivia, was reversed after mass demonstrations and strikes destabilized the country's third largest city. People throughout Latin American also blamed privatization for rising unemployment and the widening income gap between the rich and poor. People resented the highly favorable terms extended to foreign TNCs by national governments. Discontent with privatization also stems from the process of transferring ownership or control to private interests. Russia's voucher system, for example, was criticized for giving unfair advantages to the traditional power elite. In some countries, privatized firms have been reacquired by the government to ensure a reliable supply of a product at a reasonable price.

David E. O'Connor

See also: Communism; Democratic Socialism; Economic Systems; *Vol. 4: Global Economics:* European Bank for Reconstruction and Development; Foreign Direct Investment; Transnational Corporations

Further Reading

Finger, Matthias, Oran R. Young, and Ernst U. Von Weizsacker, eds. 2005. *Limits to privatization: When a solution becomes a problem.* Washington, DC: Earthscan.

Hoffman, David E. 2004. *The oligarchs: Wealth and power in the new Russia.* New York: Public Affairs Books.

Kessides, Ioannis. 2004. *Reforming infrastructure: Privatization, regulation, and competition.* Washington, DC: World Bank Publications.

MacArov, David. 2003. *What the market does to people: Privatization, globalization and poverty.* Atlanta, GA: Clarity Press.

Megginson, William L. 2005. *The financial economics of privatization.* New York: Oxford Univ. Press.

PRODUCTION POSSIBILITIES CURVE

The production possibilities curve (PPC) or production possibilities frontier (PPF) is a simple theoretical economic model demonstrating the efficiency, growth, opportunity cost, and societal trade-offs of production choices for a two-goods economy.

The model is constructed with a single quadrant graph and just two goods, with the vertical axis labeled as one good and the horizontal axis with the other good. The model is based on a few basic assumptions: (1) fixed point in time, (2) resources are finite, and (3) technology is fixed.

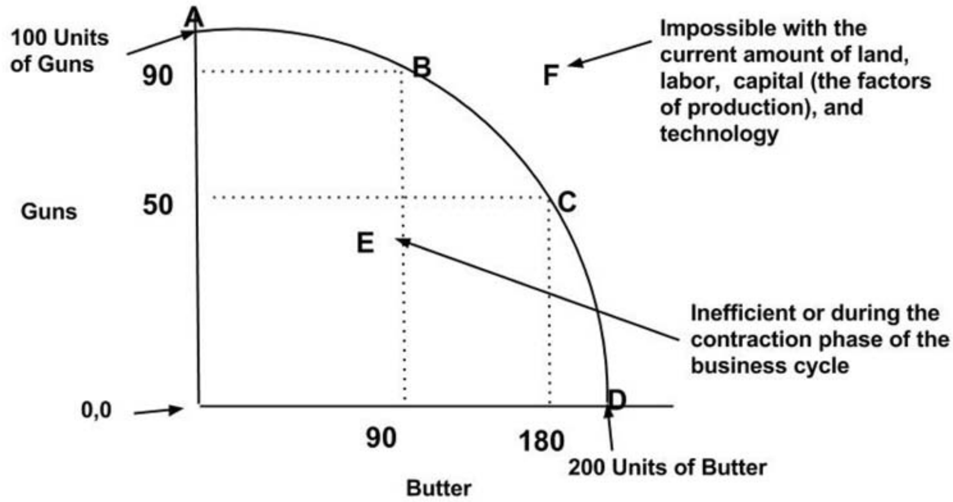

Figure 1. Three conditions of an economy: Inefficient, Efficient, Impossible

The classic example of a production possibilities curve is the "guns and butter" economy. In this two-goods economy, "guns" is a metaphor for government/public sector spending and "butter" is a metaphor for household/business/private sector spending. A society facing this type of production possibilities must make decisions on the level of government spending versus private spending by households and businesses.

Any point that is on the production possibilities curve represents total efficiency or a maximum use of the factors of production and technology. It is up to society to determine at which point to produce; all the production possibilities curve does is demonstrate efficiency. Any point that is below the production possibilities frontier is inefficient and represents the contraction phase of the business cycle of unemployment that is larger than the natural rate of unemployment. In the "Production Possibilities Curve" illustration, point E is inefficient. Any point that is beyond the production possibilities frontier is impossible with the current amount of resources and technology. In the illustration above, point F is impossible. The only way that point F can be obtained is with an increase in the factors of production or technology. However, the production possibilities curve does not have to shift equally for both military goods and consumer goods. Economic growth is demonstrated with an outward or rightward shift of the production possibilities curve.

Opportunity cost can also be demonstrated with the production possibilities model. In the illustration, when this economic system is producing at point A, it is producing 100 units of military goods and no consumer goods. When it moves production to point B, it is producing 90 units of military goods and 90 units of consumer goods. The opportunity cost of producing the first 90 units of consumer goods is only 10 units of military goods (simply subtract the number of military goods produced at point B from point A). When it moves production from point B to point C, it is producing 50 units of military goods and 180 units of consumer goods. The opportunity cost of producing the next 90 units of consumer goods is 40 units of military goods. This large increase in opportunity cost in producing the second 90 units of consumer goods is termed the "law of increasing cost," and it is why the production possibilities curve has a bowed-out or convex shape. In the illustration above, the production possibilities curve is bowed out because not all of this economic system's resources are best used to make military goods; for example, there may be fertile land that could be used to grow wheat. As this economic system moves from point A to point B, it gives up only the resources that are best used at making consumer goods—such as the fertile land, which yields a large increase in consumer goods at a very minimal opportunity cost of military goods production. As this economic system moves from point B to point C, it begins to give up resources that are best at making military goods to make the additional consumer goods, which is why the opportunity costs has increased.

The production possibilities frontier is represented in two other important economic models. The long-run aggregate supply curve in the aggregate supply and demand model represents the production possibilities frontier. Any point to the left of the aggregate supply curve is a point beneath the production possibilities frontier, and when the aggregate supply curve shifts to the right or increases, the production possibilities frontier shifts to the right or increases.

The production possibilities curve for the United States and the world has greatly increased over the last 200 years. A few of the inventions and events that have increased the production possibilities are electricity, immigration, automobiles, trains, phones, computers, the assembly line, new manufacturing processes, and, most importantly, education. Any decrease in physical or human capital could result in a decrease in the production possibilities frontier. Natural disasters, war, and territorial disputes between countries often result in the stagnation or loss of physical and human capital.

As the United States and the world community continue to increase their physical and human capital, the production possibilities of a global economy will continue to increase.

Xavier Whitacre

See also: Opportunity Cost; Theory of Public Choice; Quesnay, François; *Vol. 2: Macroeconomics:* Aggregate Demand and Supply; Physiocrats; Public Goods; *Vol. 3: Microeconomics:* Markets

Further Reading

Frank, Robert. 2009. *The economic naturalist's field guide*. New York: Basic Books.

Henderson, David. Opportunity cost. In *The concise encyclopedia of economics*. Library of Economics and Liberty. www.econlib.org/library/Enc/OpportunityCost.html (accessed February 17, 2014).

Morton, John S., and Jean B. Goodman. 2003. *Advanced placement economics: Teacher resource manual,* 335–40. New York: Council for Economic Education.

Wheelan, Charles. 2002. *Naked economics*. New York: Norton.

PROGRESSIVE ERA

The 30 years in between 1890 and 1920 were copious with business expansion, breakthroughs in technology and science, economic productivity, and increases in the standard of living throughout the United States. During this time, writers and journalists, known as muckrakers, aimed to bring to light the problems that society faced. These problems included the need to end government corruption, improve working conditions and environments, and make society more secure. This period of history became known as the Progressive Era.

A period full of ingenuity, new methods, and innovation was exactly what transpired. Progressive political reformers fought to provide the public with direct control over the American government. One of the reforms they sought involved a direct primary preliminary election, allowing every member of each party to be a part of the nomination. This was deliberately aimed at limiting the influence of "political machines." Also, the idea of a *referendum*, enabling people to pass legislation that a state legislature is either unwilling or unable to pass, and a *recall*, the action of granting voters the power to remove elected officials through petitioning and voting, helped to transform America's politics. Not only that, but legislators became concerned with the welfare of their citizens. This brought up the idea of *workers' compensation*, a form of insurance payments to a worker or a worker's family due to the worker's job-related disability or death.

Along with political reforms came moral reforms. One reform that changed America was the event in which the Supreme Court ruled that "separate but equal" facilities were legal under the Fourteenth Amendment. Segregation of African Americans had been a moral issue for many Americans, and this event was a moral revolution for the country. Women's suffrage was another moral reform that occurred during the Progressive Era. Elizabeth Cady Stanton ascended to national prominence and leadership when she organized the first women's rights convention. Women were seeking access to a higher level of education and occupations, the right to divorce, and, above all, the right to vote. The Nineteenth Amendment to the U.S. Constitution was approved in 1920, granting women the right to vote.

However, moral and political reforms weren't the only revolutions occurring. Business and social reforms were also shaping America. Industries such as the automobile industry began to boom. The invention of the automobile created many jobs and sent labor industries into high demand. Business began to boom, and industrialization caused the population to increase; at the same time, working conditions became hazardous during this era of labor and prosperity.

Whether it was the election of Theodore Roosevelt or the idea of Prohibition, the Progressive Era was a period in which America boomed with new ideas and revolution. This era helped to shape the United States into the country it is today.

Wynter Mortz
David A. Dieterle

See also: Moral Motivation; Prohibition; Supreme Court; Welfare Economics; *Vol. 3: Microeconomics:* Productivity

Further Reading

Eleanor Roosevelt Papers Project. 2007. The progressive era. Washington, DC: George Washington University. www.gwu.edu/~erpapers/teachinger/glossary/progressive-era.cfm (accessed February 12, 2016).

Library of Congress. n.d. Progressive era to new era. www.loc.gov/teachers/classroommaterials/presentationsandactivities/presentations/timeline/progress/ (accessed February 12, 2016).

Mintz, S., and S. McNeil. n.d. Digital history overview of the progressive era. Digital history. www.digitalhistory.uh.edu/era.cfm?eraid=11 (accessed February 12, 2016).

PROHIBITION

Prohibition—the banning of the manufacture, sale, and transportation of alcoholic beverages—became national policy in the United States with the ratification of the Eighteenth Amendment in 1919. The act, however, did not outlaw the consumption of alcohol. Congress passed the Volstead Act, also known as the National Prohibition Act, in 1920 in order to further define the parameters of the amendment, as well as to give the national and state governments the tools necessary to carry out the law. The act also created a special agency inside the U.S. Treasury Department, known as the Prohibition Bureau, to enforce it. Many wealthy Americans and private businesses were able to purchase and store large supplies of alcoholic beverages before the law went into effect.

The movement actually originated at local levels before the American Revolution, but it began to receive more national attention during the 1800s. The average American in the early 1800s consumed almost seven gallons of pure alcohol a year (Burns and Novick 2011), more than three times what Americans drink today. Alcohol abuse challenged the stability of many families during this time, especially when the limited legal rights and financial dependence of women are considered. Reaching for the same tools as were used by abolitionists and Protestant Church reformers, supporters of prohibition first urged moderation and then later full prohibition via legislation. Temperance activist Neal Dow led Maine to become the first of many states to pass Prohibition laws during the mid-1800s. This created momentum for the creation of a national Prohibition law. Groups such as the American Temperance Society and the Woman's Christian Temperance Union (WCTU), the latter led by Francis Willard, argued that alcoholic beverages were the cause of many of the social ills of the time. Alcohol was blamed for contributing to such immoral behavior as gambling, domestic violence, and prostitution. Business interests also supported the movement, because they felt it would improve productivity and reduce absenteeism. The Anti-Saloon League, founded in 1893, worked to create political support for Prohibition under the leadership of Wayne B. Wheeler. The Anti-Saloon League quickly became an incredibly successful lobbying group, drawing diverse groups of Americans from all walks of life, including Republicans, Democrats, suffragists, and Populists, to create a constitutional amendment supporting Prohibition.

The movement gained further momentum during the Progressive Era, when many middle-class reformers saw the prohibition of alcoholic beverages as a means to improve the moral behavior and economic condition of the urban poor and working classes. World War I became the final impetus for the passage of a constitutional amendment banning the production, sale, and transportation of alcohol. Anti-German sentiments gave force to the Progressive arguments that poor, urban areas inhabited by immigrants were hotbeds of immorality and disloyalty. The powerful Anti-Saloon League helped to promote the idea that beer and brewers were viewed as a German plot to sap America's will to fight the war.

In 1913, the federal government ratified the Sixteenth Amendment, making income tax a major form of revenue for the federal government. Consequently, the government was no longer dependent on liquor taxes as a major revenue source. This left a clear road for the Eighteenth Amendment to pass through both houses of Congress and achieve state ratification in just 13 months.

Prohibition was an unpopular law from the start, creating black markets and a significant underground economy. Many Americans made liquor at home, and others visited underground bars known as "speakeasies," which were numerous in most large cities across the United States. Loopholes in the law allowed people to obtain alcohol through unconventional, black market, and nonmarket economic means. Farmers, physicians, pharmacists, and even religious leaders could all use exceptions to the law to obtain and distribute alcohol to the greater public. "Bootlegging" was a term used to describe the illegal production, sale, and distribution of alcohol during Prohibition. Bootleggers also smuggled alcohol into the United States from Canada, the Caribbean, and Europe.

Bootlegging, black market, and underground economic activity led to a rise in organized crime and corruption in the United States. Organized crime had existed throughout U.S. history, but it grew to unprecedented levels during Prohibition, as the illegal distribution and sale of alcohol became quite lucrative. Gangsters such as Al Capone built criminal empires with the money they made from black market operations, bootlegging alcohol, and speakeasies. Al Capone was able to monopolize Chicago's illegal activity by murdering his competition and anyone else who stood in his way. At the height of his operations, Capone had built a multimillion-dollar empire from his black market operations. Capone was never convicted of murder, but he was found guilty of tax evasion and sentenced to 11 years in the famous Alcatraz Federal Penitentiary.

Problems enforcing the amendment were apparent from the start. Federal, state, and local governments were in charge of policing an action that many, if not most, Americans felt was a natural part of society. Complicating matters was the issue of resources allotted to the Prohibition Bureau. Only 1,500 federal agents were assigned to the bureau, which made it impossible to patrol the nation's thousands of miles of coastline and international borders, much less find and shut down illegal stills and underground bars. Al Capone alone employed 1,000 men to protect his liquor trade.

Supporters believed that prohibition it would stimulate local economies. They believed people would purchase household goods and luxury items like soft drinks, movies, or real estate as they looked for other forms of recreation. The reality was the closing of many entertainment industries and restaurants due to slow sales without alcohol. Many people also lost jobs within and related to the brewing, distilling, and saloon industry.

The movement to end prohibition began shortly after the act became national policy. It quickly became apparent that the costs of enforcing the Eighteenth Amendment far exceeded the benefits.

The Great Depression furthered the cause of ending prohibition. Those who wanted to repeal the Eighteenth Amendment argued that many jobs could be created by allowing the sale and manufacture of alcohol, which would also increase government revenues through excise taxes. Opponents successfully used these arguments and others to fight for the passage and ratification of the Twenty-First Amendment in 1933, which repealed the Eighteenth Amendment. Several states went on to pass their own statewide prohibition laws, which were not fully repealed until 1966.

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Kathryn Lloyd Gustafson

See also: The Great Depression and Wall Street Crash, 1929; Market Capitalism; *Vol. 2: Macroeconomics:* United States Treasury

Further Reading

Burns, Ken, and Lynn Novick. 2011. Prohibition. PBS (Public Broadcasting Service). http://www.pbs.org/kenburns/prohibition/ (accessed June 3, 2014).

Hampson, Rick. 2010. Dry America's not-so-sober reality: It's shrinking fast. *USA Today*, June 30. http://usatoday30.usatoday.com/news/nation/2010-06-30-dry-counties_N.htm (accessed June 3, 2014).

Hanson, David J. 2013. Repeal of prohibition. http://www2.potsdam.edu/hansondj/Controversies/1131637220.html#.Upo4KsuA2M9 (accessed June 3, 2014).

History.com. 2009. Al Capone. http://www.history.com/topics/al-capone (accessed June 3, 2014).

History.com. 2009. Prohibition. http://www.history.com/topics/prohibition (accessed June 3, 2014).

History.com. 2010. 18th and 21st Amendments. http://www.history.com/topics/18th-and-21st-amendments (accessed June 3, 2014).

History.com. 2010. This day in history: December 5, 1933—Prohibition ends. http://www.history.com/this-day-in-history/prohibition-ends (accessed June 3, 2014).

Hoyt, Alia. 2008. How prohibition worked. How Stuff Works, January 8. http://history.howstuffworks.com/historical-events/prohibition.htm (accessed June 3, 2014).

Minson, Douglas C. 2012. The joy of drinking: Prohibition, legislating morality, and celebrating repeal day. The Imaginative Conservative, December 6. http://www.theimaginativeconservative.org/2012/12/celebrating-repeal-day-prohibition.html (accessed June 3, 2014).

Okrent, Daniel. 2010. Wayne B. Wheeler: The man who turned off the taps. Smithsonian.com, May. http://www.smithsonianmag.com/history-archaeology/Wayne-B-Wheeler-The-Man-Who-Turned-Off-the-Taps.html (accessed June 3, 2014).

Q

QUESNAY, FRANÇOIS

Born: June 4, 1694, in the village of Méré, France; Died: December 16, 1774, in Versailles, France; Nationality: French; Professional Interests: Physiocrat; Major Work: *The Tableau Oeconomical: An Attempt towards Ascertaining and Exhibiting the Source, Progress, and Employment of Riches* (1758).

François Quesnay is considered the founder of the economic philosophy called the Physiocratic system, and the leader of economic thinkers during the Enlightenment called Physiocrats. The Physiocrats assumed that society was subject to natural laws. They believed that an economy's force came from the economy's agriculture. The Physiocrats put forth the propositions that led to the basic elements of capitalism. They promoted deregulation and reduced taxes. Quesnay and the Physiocrats are also credited with deriving the term *laissez-faire*. Quesnay was elected to the Academy of Sciences and earned the nickname "modern Socrates." Quesnay died in 1774.

François Quesnay was born on June 4, 1694, in Méré, France. Méré is located outside Versailles. Quesnay grew up in a lower-middle-class home. He father was a country lawyer and did not earn much money. It appears that Quesnay was a slow learner growing up, not learning to read until he was 12 years old. Even though he was orphaned at 13, his desire to read and learn led him to study and become self-educated in medicine. When he was 24 he began a medical practice in the village of Mantes, France.

Quesnay's skills quickly developed a solid reputation, and eventually he was providing medical services to local aristocrats. Quesnay wrote many articles on surgery, which increased his medical reputation. Through his writings, he elevated surgery into a medical science. In 1749, Quesnay became the personal physician of King Louis XV's mistress, Madame de Pompadour, and eventually he became a resident of Versailles.

In 1756, at the age of 60, Quesnay developed an interest in economics. Based on his rural background, he wrote several articles on farming for the *Encyclopedia* of Diderot. Quesnay based his writings on the works of Richard Cantillon, Marchal de Vauban, and Pierre de Boisguilbert.

In 1766, Quesnay wrote what became his most famous work, *Tableau Économique*, which depicted the income flows between the different economic sectors. This work and the income flows concept became the founding document of the Physiocratic thinkers.

In *Tableau Économique,* attempting to understand and explain the causes of economic growth, Quesnay detailed a circular-flow diagram of the economy. The diagram illustrated what was produced by producers and how consumers spent money. In the *Tableau*, he defined "sterile classes" as both the producers and also the consumers of everything they produced. According to Quesnay, production and consumption were equal, so there was no surplus production to carry over to the next economic period.

Quesnay emphasized the role of the agricultural sector. The wealth of a nation, Quesnay argued, lies in the size of its net product. According to Quesnay, only the agricultural sector could produce a surplus that could then be used for economic growth the following year. He concluded that both industry and manufacturing were "sterile." Quesnay used the term *sterile* to mean that these economic sectors were unproductive relative to future economic growth.

Quesnay constructed the "Table" to fit his belief of the economy, not the reverse. As a result, the Table contains inconsistencies so that it would illustrate the story that best suited his thinking, which was that industry and manufacturing were zero-surplus economic sectors.

Quesnay's thesis that manufacturing was a "sterile" economic sector for economic growth has not held up over time. However, he was proved correct in his criticism of mercantilism. Quesnay was very critical of the mercantilist doctrines of Louis XV's finance minister, Jean-Baptiste Colbert. Quesnay asserted that the French government used mercantilist policies to protect French manufacturers from foreign competition, increasing the prices of manufactured goods. Quesnay believed that the French court supported manufacturing and industry more than it did agriculture.

As a product of the Enlightenment, Quesnay promoted eliminating many of the medieval rules that governed the production of agricultural products. This, according to Quesnay, would permit the economy to find what he called its own "natural state." Quesnay defined the *natural state of the economy* as the balance in the circular flow between income of the economic sectors and the net product. Drawing on his medical background, Quesnay compared the circular flow to the circulation of human blood and the human body's ability to maintain a stable, continuous condition.

Quesnay and the Physiocrats advocated freer trade for French companies with major tax reform and deregulation leading to a freer French economy. Quesnay's attacks on the mercantilist French economic system and his advocating for his tax and regulation reforms were ultimately found to be more acceptable than his economic theories on economic "sterility" of the manufacturing industry.

Quesnay and the Physiocrats promoted private property, property rights, and the merits of free choice for the individual, finding them to be at the heart of any economic system. In addition, however, a central authority (i.e., government) must assert itself to protect those rights. Quesnay credits John Locke for many of his views on private property and liberty.

Quesnay's works were the foundation on which Adam Smith wrote *An Inquiry into the Nature and Causes of the Wealth of Nations,* culminating the fight against the mercantilist economic systems.

François Quesnay died on December 16, 1774, in Versailles at the age of 80.

David A. Dieterle

See also: Smith, Adam; Cantillon, Richard; Capitalism; Economic History; Economic Systems; *Vol. 3: Microeconomics:* Business Cycles

Further Reading

Blaug, Mark. 1991. *François Quesnay (1694–1774)*. London: Edward Elgar.

Hishiyama, Izumi. 1960. The tableau economique of Quesnay: Its analysis, reconstruction, and application. *Kyoto University Economic Review* 30 (1): 1–46.

Quesnay, François. 1766. *The tableau oeconomical: An attempt towards ascertaining and exhibiting the source, progress, and employment of riches.* London: Printed for W. Owen.

Sauvy, Alfred, ed. 1958. *François Quesnay et les physiocrates.* 2 vols. Paris: Institute National d'Études Demographiques.

Vaggi, Gianni, and John Eatwell. 1987. *The economics of François Quesnay.* Durham, NC: Duke Univ. Press.

R

RATIONAL EXPECTATIONS

The economic philosophy of rational expectations was first introduced in the 1960s. The theory is credited to Indiana University economist John Muth. But the idea behind rational expectations and predicting the expectations of decisions goes back to the writings of John Maynard Keynes as well as others. The idea behind rational expectations is that people have certain expectations regarding the outcomes of their decisions. Both producers and consumers make decisions based what they expect will happen when they make a certain decision. Keynes used this idea as he described it as a basis of economic activity.

To define *rational expectations* is to claim that the outcomes of decisions do not vary from a person's expectation of the decision's outcome. Economists of rational expectations believe in the inherent economic assumption that people make decisions rationally to maximize the returns of the decision. In short, people are rational decision-makers. The rational expectations philosophy is based on thinking about and making predictions about the future in order to determine decisions in the present.

In recent history, the rational expectations philosophy has been used in financial markets to determine equity prices and efficient markets. It is the foundation of the efficient markets theory, used to determine prices in equity markets. Rational expectations have also been a basis for studying hyperinflation, different theories of consumption, and certain macroeconomic stabilization policies. An early application of rational expectations was to determine asset prices. Economists who implement the rational expectation philosophy to present decision-making have the incentive of predicting the future to expect a particular future result.

As mentioned, rational expectations was used early on by John Maynard Keynes. Keynes theorized a positive relationship between personal consumption and personal income. Another famous economist of his era, Nobel laureate Milton Friedman, confronted Keynes's theory successfully with his own "permanent income theory" of consumption. Friedman used as his background the earlier work of another Nobel laureate, Irving Fisher, on the relationship between personal consumption and personal income, both current and future. Friedman's submission was that people consume from their permanent income without using their wealth, which included a prediction of future income.

Economists have used rational expectations theory to think differently about such macroeconomic stabilization policies as fiscal policy and the use of taxes. Keynes first suggested tax cuts as a way to stimulate an economy by boosting consumption. This idea has been challenged, however, by Friedman's permanent income model. The permanent income model suggests that the increased consumption caused by tax cuts is less than was previously predicted by Keynes.

Rational expectations theory has been implemented in determining ideal monetary policy. Again following up on the earlier work of Milton Friedman, the theory of rational expectations has been used to clarify both monetary and fiscal policies. Rational expectations challenges the idea that lawmakers are able to successfully influence an economy with inaccurate future predictions. Nobel laureate Robert Lucas demonstrated that if rational expectations are not likely, then errors exist, and government cannot accurately change or correct those errors.

David A. Dieterle

See also: Keynes, John Maynard; Wealth versus Income; *Vol. 2: Macroeconomics:* Fiscal Policy; Fisher, Irving; Friedman, Milton; Lucas, Robert, Jr.; Macroeconomics; Monetary Policy; Taxes

Further Reading

Fischer, Stanley, ed. 1980. *Rational expectations and economic policy.* Chicago, IL: Univ. of Chicago Press.

Investopedia. n.d. Theory of rational expectations. www.investopedia.com/terms/r/rationaltheoryofexpectations.asp (accessed February 28, 2016).

Muth, John A. 1961. Rational expectations and the theory of price movements. *Econometrica* 29 (6): 315–35.

Sargent, Thomas J. 1986. *Rational expectations and inflation.* New York: Harper and Row.

Sargent, Thomas J. 2008. Rational expectations. In *The concise encyclopedia of economics*, ed. David R. Henderson. Library of Economics and Liberty. www.econlib.org/library/Enc/RationalExpectations.html (accessed February 28, 2016).

Sheffrin, Steven M. 1996. *Rational expectations*. 2nd ed. Cambridge, UK: Cambridge Univ. Press.

RATIONALITY: PROCESS AND NEOCLASSICAL

A key assumption in the analysis of decision-making in social sciences is rationality. In general, individuals are said to behave rationally if they are able to assess their possible choices and the consequences of those choices, and act accordingly. However, the assumption of rationality is treated in different ways in different social sciences. In economics, it has traditionally been assumed that rational individuals make decisions with an accurate perception of the environment and with unlimited computational capability. Thus, they always reach the best possible decision given their goals and the constraints that they face in that environment. In other social sciences, such as psychology, sociology, or philosophy, the knowledge of and computational abilities of rational individuals are considered to have limitations, which affect the way those individuals make decisions. Thus, interest focuses on theories that take into account not only the decisions made but also the strategies that are used in the process of reasoning and the (subjective) perception that individuals have of the decision problem. This difference has led to the appearance of new fields of economics, such as behavioral economics, which seek to explain individuals' behavior with more realistic assumptions, including ingredients from the other social sciences.

Rationality—or *substantive rationality*, to use the term coined by Herbert Simon—is the basic assumption of neoclassical economics. This school of thought began in the mid-19th century, mainly following the theories developed by such authors as W. S. Jevons, C. Menger, and L. Walras, and it still has significant influence in current economic theory. According to neoclassical economics, economic agents are rational if in taking their decisions they know the alternatives and the consequences of choosing each alternative, they can rank those consequences according to their preferences, and they choose the alternative that provides them with the best consequence. For instance, rational consumers choose the bundle of consumption that maximizes their utility (level of satisfaction), taking into account their budget constraint. Substantive rationality has been also assumed in more complex decision-making problems. For instance, L. J. Savage (1954), considering this notion of rationality, introduced the subjective expected utility theory to explain decisions made by agents under conditions of uncertainty. J. Von Neumann and O. Morgenstern (1944) also adopted it as an assumption in game theory in order to model decision-making problems by rational agents when they interact with other rational agents. In all these models, the assumption of rationality enables a solution to be found by using optimization theory.

A primary criticism leveled against substantive rationality is that it only focuses on what decisions are made (solutions of the optimization problem) and not on how they are made (decision-making process). Some economic theorists, such as the late Nobel laureate Milton Friedman (1953), defend this assumption by arguing that the sole objective of economic theory is to predict the behavior of individuals: Even if economic agents do not choose by solving a maximization or minimization problem, substantive rationality is a valuable assumption since agents behave "as if" they solve an optimization problem.

However, criticism of substantive rationality has continued, and the criticism has been reinforced by advances made in computation theory from the middle of the 20th century onward, which have shown that optimal solutions may not be obtained, even using powerful computers. Moreover, prediction is not the same thing as determining causation or cause and effect relationships. It is important to know not only what choice is made by individuals, with their cognitive limitations, but also what decision processes led to that choice: cause and effect becomes critically important here. As a result, the concept of procedural reality, imported from cognitive psychology and introduced by Herbert Simon (1976), has emerged as an alternative.

Individuals are considered to be rational when they behave according to an adequate process of reasoning, taking into account the knowledge available and their means of computation. Under this assumption there are (computationally efficient) procedures that can find "good" solutions to decision problems when the best solution cannot be computed. Closely related to procedural rationality is the assumption of bounded rationality, where purposeful individuals do the best they can, given all the constraints they face.

Elena Molis

See also: Behavioral Economics; Economic Psychology; Ecological Economics; *Vol. 3: Microeconomics:* Simon, Herbert

Further Reading

Friedman, Milton. 1953. The methodology of positive economics. In *Essays in positive economics*, 3–43. Chicago, IL: Univ. of Chicago Press.

Laville, Frederik. 2000. Foundations of procedural rationality: Cognitive limits and decision processes. *Economics and Philosophy* 16: 117–38.

March, James G. 1978. Bounded rationality, ambiguity, and the engineering of choice. *Bell Journal of Economics* 9: 587–608.

Savage, Leonard J. 1954. *The foundations of statistics*. Hoboken, NJ: John Wiley & Sons.

Simon, Herbert A. 1976. From substantive to procedural rationality. In *Method and appraisal in economics*, ed. Spiro J. Latsis, 129–48. Cambridge, UK: Cambridge Univ. Press.

Simon, Herbert A. 1978. Rationality as a process and a product of thought. *American Economic Review* 70: 1–16.

Simon, Herbert A. 1986. Rationality in psychology and economics. *Journal of Business* 59: 209–24.

Von Neumann, J., and O. Morgenstern. 1944. *Theory of games and economic behavior*. Hoboken, NJ: John Wiley & Sons.

REAGAN, RONALD

Born: February 6, 1911, in Tampico, Illinois; Died: June 5, 2004, in Los Angeles, California; Nationality: American; Professional Interests: 40th President of the United States (1981–1989); Major Works: *Where's the Rest of Me?* (1965), *The Creative Society* (1968), *Abortion and the Conscience of the Nation* (1984), *Speaking My Mind* (1989), *An American Life* (1990).

Ronald Wilson Reagan was born in Tampico, Illinois, on February 6, 1911, to John Edward Reagan and Nellie Wilson Reagan. The family lived in a series of small towns, finally settling in Dixon, Illinois, in 1920 when Reagan's father John opened a shoe store. Reagan attended Dixon High School, where he was an avid athlete, student body president, and actor in a number of school plays. In 1928, he graduated from Dixon High School and enrolled in Eureka College in Illinois on an athletic scholarship. He played football, ran track, and was captain of the swim team. He also served as student council president and acted in several school productions. Reagan graduated from Eureka College in 1932 with majors in economics and sociology. His first job was as a radio sports announcer at radio station WOC in Davenport, Iowa. In 1937, Reagan signed a seven-year contract with Warner Brothers Studios. Over the next three decades, he appeared in over 50 films, including *Knute Rockne, All American* (1940) and *Kings Row* (1942). During World War II, after being disqualified from army combat because of his poor eyesight, Reagan spent his time in the military making training films, leaving the army as a captain.

From 1947 to 1952, Reagan served as president of the Screen Actors Guild. In 1954, he became host of the weekly television drama series *The General Electric Theater*. Part of his job as host was to tour the United States as a public relations representative for General Electric. During this time, his political views shifted from liberal to conservative. He began to lead pro-business discussions, and he spoke out against excessive government regulation; these would become the central themes of his future political career.

Reagan stepped into the political spotlight in 1964, when he gave a televised speech for Republican presidential candidate Barry Goldwater. In 1966, Ronald Reagan was elected governor of California, defeating Democratic incumbent Edmund Brown Sr. by almost 1 million votes. He was elected for a second term in 1970. In 1968 and 1976, Reagan made unsuccessful bids for the Republican nomination for U.S. president; in 1980, he finally succeeded. He defeated Democratic incumbent President Jimmy Carter, becoming at 69 the oldest person to be elected president of the United States.

On March 30, 1981, Reagan was leaving the Washington Hilton Hotel with several of his advisers when they heard shots. Quick-thinking Secret Service agents pushed Reagan into his limousine, before discovering that Reagan had been shot. The bullet pierced Reagan's lung and narrowly missed his heart. Within several weeks of the shooting, President Reagan was back at work.

Reagan's domestic agenda included advanced policies that reduced social programs and restrictions on businesses. As presidential nominee, Reagan was a proponent of a fairly new economic theory: supply-side economics. Tax cuts were the key tool of supply-side economics, as popularized by economist Arthur Laffer (b. 1940). Reagan used supply-side tax cuts to stimulate the U.S. economy. He increased military spending, instigated reductions in certain social programs, and implemented measures to deregulate business. Even though the nation's economy was starting to recover from a severe recession by 1983, Reagan's critics complained that he had increased the deficit and hurt the middle class. In 1981, Reagan also made history by appointing Sandra Day O'Connor as the first woman justice on the U.S. Supreme Court.

President Reagan was reelected in November 1984, soundly defeating Democratic challenger Walter Mondale. Reagan carried 49 of the 50 states and received 525 of 538 electoral votes, the largest number ever won by an American presidential candidate. Reagan's second term was tarnished by the Iran–Contra affair, a complex "arms-for hostages" deal with Iran. Reagan authorized the sale of arms to Iran in exchange for the release of U.S. hostages being held in Lebanon. The money gained from the sale was then illegally diverted to anticommunist insurgencies in Central America. The Reagan administration initially denied it, but later announced that it had been a mistake.

Though Reagan faced many foreign affairs conflicts, his most pressing was the Cold War. Reagan started massively building up U.S. weapons and troops. He also implemented the "Reagan Doctrine," which provided aid to anticommunist movements in Africa, Asia, and Latin America. In 1983, Reagan planned the Strategic Defense Initiative, aimed at developing space-based weapons to protect the United States from attacks by Soviet nuclear missiles. In the Middle East, Reagan sent 800 U.S. marines to Lebanon as part of an international peacekeeping force in June 1982. One year later, in October 1983, suicide bombers attacked U.S. barracks in Beirut, killing 241 Americans. That same month, Reagan ordered U.S. forces to invade the Caribbean island of Grenada after Marxist rebels overthrew its government. In addition to problems in Lebanon and Grenada, Reagan's administration had to deal with the ongoing combative relationship between the United States and Libyan leader Muammar al-Gaddafi. In 1987, the United States and the Soviet Union signed a historic agreement to eliminate intermediate-range nuclear missiles. Also in 1987, Reagan spoke at Germany's Berlin Wall (which was a symbol of communism) and famously challenged Soviet leader Mikhail Gorbachev to tear it down. The people of Germany ended up tearing the wall down in 1989, ending Soviet domination of East Germany and leading to the creation of a reunified Germany.

After leaving the White House in January 1989, Reagan returned to his home in Los Angeles, California. In 1991, the Ronald Reagan Presidential Library and Museum opened in Simi Valley, California. In 1994, Reagan revealed that he had Alzheimer's disease.

Ronald Reagan died on June 5, 2004, in Los Angeles, California. He was later buried on the grounds of his presidential library in California.

Shima Sadaghiyani

See also: Market Capitalism; Thatcher, Margaret; Supreme Court; *Vol. 2: Macroeconomics:* Laffer, Arthur; Laffer Curve; Supply-Side Economics

Further Reading

Biography.com. n.d. Ronald Reagan: Biography. http://www.biography.com/people/ronald-reagan-9453198 (accessed May 21, 2013).

Morris, Edmund. 1999. *Dutch: A memoir of Ronald Reagan*. New York: Random House.

Noonan, Peggy. 2001. *When character was king: A story of Ronald Reagan*. New York: Random House.

Reagan, Ronald. 1990. *An American life: The autobiography*. New York: Simon & Schuster.

Ronald Wilson Reagan, 1911–2004. n.d. http://www.ronaldreagan.com/ (accessed May 21, 2013).

REASONS

As a result of conscious deliberation, reasons justify beliefs and motivate action. Conscious deliberation enables individuals to recognize, assess, and evaluate propositions about the world, including personal preferences; conscious deliberation is what distinguishes reasons from behavior that results from instinct or nonreflection. Reasons can be desire-based or non-desire-based, the latter of which further distinguishes reasons from traditional economic theory.

Consider two different reasons a person might use for giving to charity: (1) to maximize one's own welfare and (2) because it is the right thing to do. The first reason, which is desire-based, is largely consistent with standard economic theory, except perhaps that standard economic theory provides little scope to assess and evaluate the worthiness of personal preferences. In case 1, people examine their preferences and alternatives and they decide that the donation leads to their highest personal welfare. Thus, they have justified their personal welfare as the highest objective. Since that objective can be achieved by a state of affairs in which people contribute, they are motivated to do so and the beneficiaries are the lucky targets of their preferences.

Suppose people employ the second, non-desire-based, reason. Now they may justify giving because to do so comports with a moral principle that is true, or that they judge to be true. For instance, they may believe in the truth of a proposition like "Any feasible human survival need dominates any other person's desires after some high level of fulfillment." If people did contribute based on such a reason, it was the truth of the proposition that motivated action, not their own welfare. While this kind of individual reasoning is foreign to most economists, it has a long history—from Aristotle's use of practical reason, to psychologist Lawrence Kohlberg's pioneering studies of moral judgment. Reasons of this sort can explain behaviors that have puzzled economists, including some kinds of giving and self-sacrifice, adherence to agreements, and truth-telling instead of expected "cheap talk."

Of course, human motivation is complex. Even if an individual did employ non-desire-based reasoning, when it came time to act such reasons could still be defeated because of other overriding reasons or because of a weak will. Nevertheless, both kinds of reasons could be added to the rich tapestry of motivations—along with habit, norms, emotion and neurological processes—in order to better explain real human behavior.

Lanse Minkler

See also: Behavioral Economics; Ethical Production; *Vol. 3: Microeconomics:* Broken Windows; Ethical Consumption

Further Reading

Colby, Anne, and Lawrence Kohlberg. 1987. *The measurement of moral judgment*. Vol. 1. Cambridge, UK: Cambridge Univ. Press.

Minkler, Lanse. 2008. *Integrity and agreement: Economics when principles also matter*. Ann Arbor: Univ. of Michigan Press.

Nagel, Thomas. 1978. *The possibility of altruism*. Princeton, NJ: Princeton Univ. Press.

Robertson, John, and Michael Stocker. 1992. Externalism and internalism. In *Encyclopedia of ethics*, ed. Lawrence Becker and Charlotte Becker, 517–19. New York: Garland Publishing.

RECYCLING

Recycling is the transformation of materials that would otherwise be waste into useful and valuable resources. It represents one part of a waste management plan with the objectives to reduce materials that are discarded, reuse discarded products with little reprocessing, and recover energy from discarded products through incineration. The environmental appeal of recycling is that it has the potential to reduce the quantity of virgin materials required for production, as well as reducing the amount of environmental contaminants. The economic appeal is that recycling can lead to lower production costs when inputs made from recyclable materials cost less than virgin inputs.

Recycling gained momentum in the United States in the 1960s and 1970s through federal legislation designed to manage waste disposal practices nationally. This legislation culminated in the 1976 Resource Conservation and Recovery Act (RCRA). One of the goals of the act was to conserve natural resources and energy through recycling. In 1988, the Environmental Protection Agency (EPA) raised the national goal for waste reduction and recycling from 10 percent to 25 percent. In 2002 the goal was further increased to 35 percent. In 2009, the EPA transitioned from a recycling goal to a program called Sustainable Materials Management, designed to minimize products' environmental impacts over their entire life cycle.

Awareness of recycling increased in the public conscious in 1987 when the Mobro 4000 barge searched up and down the East Coast looking for a place to dump its contents of waste. The barge had failed to secure a permit for waste disposal before setting sail from New York, and therefore it was not allowed to unload its contents. This incident raised public awareness of landfill capacity and efforts to reduce capacity constraints, possibly through recycling. In response to RCRA, many low-quality city dumps closed. Larger and more technologically advanced landfills took their place. As of 2009, there were 1,908 landfills in the United States, down from 7,924 in 1988. During that same period, the number of curbside recycling programs increased dramatically, from 1,000 in 1988 to 9,000 in 2009, and the recycling rate increased from 10 percent in 1981 to 34 percent in 2009. As of 2012, the EPA estimates that landfill capacity is not constrained at a national level, though there are locations with regional constraints.

Curbside recycling is one of many programs that supply recyclable materials to markets. Others include deposit–refund systems, in which consumers pay a deposit fee when they purchase a product and receive a refund when they return the product for recycling. Several states have laws that require this type of deposit–refund system for beverage containers and certain automotive parts, like car batteries. Another program that provides a supply of recyclable materials is a disposal ban on specific materials. Used motor oil, for example, cannot be disposed of with traditional waste in most states. Drop-off recycling centers, in which recyclers take their materials to a central location for processing, also contribute to the supply of recyclable materials.

The derived demand for recyclable materials comes from several sources. Firms demand recyclable materials when the cost of using recyclable materials as inputs is lower than using virgin material. Firms may also demand recyclable materials if their customers demand products with recycled content. Governments also can impact the demand for recyclable materials, through policies mandating the percent of recycled content in products and through policies that require government agencies to buy products with recycled content. The interaction of the supply and demand of recyclable materials determines their price in the marketplace. For some recyclable materials, such as aluminum, the price is relatively high, a reflection of the high energy savings of producing new aluminum cans from recycled material rather than from virgin material. For other recyclable materials, such as glass, the relative price is low, partly due to small energy savings from the use of recyclable glass compared to virgin materials for new glass products.

Beyond its contribution to the supply of recyclable materials, curbside recycling presents an opportunity to investigate the economics of recycling. An economist would say that recycling is beneficial to society as a whole if the marginal benefits of recycling are greater than or equal to the marginal costs of recycling. The socially optimal level of recycling is the level at which the marginal benefits exactly equal the marginal costs. The socially optimal level is said to make society as well off as possible with respect to recycling. Making such a determination requires the measurement of both benefits and costs for recycling programs. In the case of curbside recycling, the benefits could include a reduction in the amount paid for trash collection, a reduction in the use of landfills, the preservation of natural resources, and a feeling of satisfaction for those who participate in recycling efforts. The costs of curbside recycling include individuals' effort to store and deliver recyclable materials, and the expenditures to run and maintain a program for recycling collection and processing.

Studies attempting to measure the benefits and costs find that the cost of curbside recycling programs varies from city to city. Costs have been estimated to be as high as $5.79 (2012 dollars) per household per month to as low as $1.84. The cost variation arises because of such differences in program characteristics as the collection frequency and the amount of materials collected. The benefits to recycling also vary from location to location, ranging from $1.59 to $5.81 per household per month.

In some places, the benefits exceed the costs and it is socially optimal to curbside recycle. In other places, the costs exceed the benefits and it is not socially optimal to recycle. If society is interested in using its scarce resources to maximize society's well-being, then it is important to consider the implementation of recycling on a location-by-location basis and employ it only where marginal benefits are greater than marginal costs. Additionally, it is important to note that if some groups in society desire a recycling rate that is higher than the socially optimum rate, then the increased recycling would come at the expense of other members in society.

The economics of recycling are intriguing. The promise of recycling is to save resources; however, the very act of recycling uses scarce resources. If society increases recycling rates with current technology, the marginal costs of recycling will increase while the marginal benefits will decrease. The future of recycling, then, depends on society's ability to lower costs faster for recycling than for production using virgin materials.

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See also: Cost-Benefit Analysis; Ecological Economics; Environmental Economics; Environmentalism; Theory of Public Choice; Resources; *Vol. 2: Macroeconomics:* Public Goods; *Vol. 3: Microeconomics:* Derived Demand; Renewable Energy

Further Reading

Aadland, David, and Arthur J. Caplan. 2006. Curbside recycling: Waste resource or waste of resources? *Journal of Policy Analysis and Management* 25 (4): 855–74.

U.S. Environmental Protection Agency. 2010. *Municipal solid waste in the United States: 2009 Facts and figures*. Office of Solid Waste, EPA 530-R-10-012. https://nepis.epa.gov/Exe/ZyNET.exe/P100A0NX.txt?ZyActionD=ZyDocument&Client=EPA&Index=2006%20Thru%202010&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C06THRU10%5CTXT%5C00000024%5CP100A0NX.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1 (accessed November 30, 2016).

U.S. Environmental Protection Agency. 2014. *Municipal solid waste generation, recycling, and disposal in the United States: Facts and figures for 2012*. Office of Solid Waste, EPA. https://nepis.epa.gov/Exe/ZyNET.exe/P100MUY0.txt?ZyActionD=ZyDocument&Client=EPA&Index=2011%20Thru%202015%7CPrior%20to%201976%7CHardcopy%20Publications&Docs=&Query=Municipal%20solid%20waste%20United%20States%20%202012%20Facts%20figures%20%20&Time=&EndTime=&SearchMethod=2&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C11THRU15%5CTXT%5C00000016%5CP100MUY0.txt&User=anonymous&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=15&FuzzyDegree=0&ImageQuality=r85g16/r85g16/x150y150g16/i500&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1 (accessed November 30, 2016).

REGULATION AND OVERSIGHT OF FINANCIAL INSTITUTIONS

The regulation and oversight of financial institutions is handled by multiple government oversight organizations. Since the entire financial system can be extremely complicated, each of these organizations regulates a specific part of the financial system and is responsible for overseeing the financial institutions that are affected. The regulating organizations are responsible for following the laws and rules to protect investors and maintain order in the financial market. Financial institutions include commercial banks, credit unions, trust companies, mortgage loan companies, insurance companies, pension funds, investment banks, underwriters, and brokerage firms. These financial institutions have numerous organizations that regulate them—for example, the Federal Reserve Board, the Federal Deposit Insurance Corporation (FDIC), the Office of the Comptroller of the Currency (OCC), the National Credit Union Administration (NCUA), and the U.S. Securities and Exchange Commission (SEC).

The Federal Reserve Board is the central bank of the United States and was created by Congress to provide a more stable monetary system. The Federal Reserve's primary function is to conduct the nation's monetary policy by attempting to influence money and credit conditions in the economy to achieve the goals of maximum employment, stable prices, and moderate long-term interest rates. The Federal Reserve is also responsible for regulating banks that report to the Federal Reserve. The Federal Reserve sets capital requirements for banks and serves as a lender of last resort for banks that are having difficulty meeting their capital requirements.

The Federal Deposit Insurance Corporation (FDIC) is the government authority that is responsible for preserving and promoting public confidence in the U.S. financial system by insuring deposits, identifying risks, monitoring risks, and addressing risks when necessary. The FDIC insures deposits for up to $250,000 for each customer, per insured bank. The FDIC insures only deposits at the banks; it does not insure securities, mutual funds, or other market investments that a bank may offer. The FDIC is responsible for supervising banks for operational safety and soundness. The FDIC examines banks to ensure that they are in compliance with regulatory laws and rules. The FDIC is also responsible for responding when a financial institution becomes insolvent and is failing. The FDIC will immediately assume control of the institution to prevent panic in the marketplace and to protect depositors at a failing institution.

The Office of the Comptroller of the Currency (OCC) is an independent bureau of the U.S. Department of the Treasury; it is responsible for chartering, regulating, and supervising all national banks. The OCC ensures that banks operate safely and soundly and are complying with applicable laws and regulations. Examiners will analyze loan and investment portfolios, funds management, capital, earnings, liquidity, and sensitivity to market risk in order to determine the financial stability of a financial institution. Examiners will also review internal controls within a bank to ensure that the bank is complying with laws and regulations. The OCC is the regulatory agency that approves or denies new charters, branches, and other corporate changes that would alter the structure of the financial institution. If the financial institution is found to not be following the rules and regulations that were set forth, the OCC is allowed to take supervisory actions against the bank—including cease and desist orders, fines, and even removal of bank officers.

The National Credit Union Administration (NCUA) is the independent federal agency that regulates and supervises federal credit unions. *Credit unions* are member-owned, not-for-profit, cooperative financial institutions. The NCUA operates the National Credit Union Share Insurance Fund (NCUSIF), which insures the deposits of credit union, much as the FDIC does. The NCUSIF insures member's accounts up to $250,000 per member. The NCUSIF also protects Individual Retirement Accounts (IRAs) and KEOGH retirement accounts up to $250,000 dollars per member. The NCUA is responsible for monitoring the credit unions in the five regions of the United States for compliance with laws and regulations to ensure that each credit union is financially sound and is fair to its members.

The U.S. Securities and Exchange Commission (SEC) is the regulatory authority that seeks to protect investors, maintain fair and efficient markets, and facilitate capital formation. The SEC requires public companies that are selling securities to investors to disclose information to the public that will allow potential investors to have a clear financial picture of the company. This information is regulated and is required for every public company, so that investors may compare two companies and be able to make an informed decision. The SEC also oversees financial institutions, such as investment banks, underwriters, and brokerage firms, that operate heavily in the securities markets. The SEC requires that the individuals and companies operating in these types of financial institutions follow laws and regulations that are particular to the securities market. For companies and financial institutions that do not follow the laws and regulations, the SEC can take actions such as sanctions, fines, or even criminal proceedings if it is deemed necessary.

Kimberly Cousino

See also: Banking; *Vol. 2: Macroeconomics:* Federal Deposit Insurance Corporation; Federal Reserve System; Financial Intermediation; Securities and Exchange Commission; *Vol. 3: Microeconomics:* Credit Unions

Further Reading

Board of Governors of the Federal Reserve System. 2014. What is the purpose of the Federal Reserve System? http://www.federalreserve.gov/faqs/about_12594.htm (accessed April 12, 2015).
Federal Deposit Insurance Corporation. 2014. Who is the FDIC? https://www.fdic.gov/about/learn/symbol/ (accessed April 12, 2015).
National Credit Union Administration. 2015. About NCUA. http://www.ncua.gov/Pages/default.aspx (accessed April 12, 2015).
Office of the Comptroller of the Currency. n.d. About the OCC. http://www.occ.gov/about/what-we-do/mission/index-about.html (accessed April 12, 2015).
U.S. Securities and Exchange Commission. 2013. What we do. http://www.sec.gov/about/whatwedo.shtml#.VI30AyvF_Ec (accessed April 12, 2015).

RELATIVE THINKING

Relative thinking is a "bias" in decision-making according to which people consider not only absolute price differences but also relative price differences—even in situations where, according to conventional economics, relative price differences should be irrelevant. That is, when comparing two prices for the same good in two stores, or between prices of different goods, if people are affected by the percentage price difference (although from a conventional economic perspective it is unimportant), we say that they are exhibiting relative thinking.

Most recently, Azar (2011a) discusses the concept of "relative thinking." Thaler, in his classic 1980 study, mentions that people exert more effort to save $5 on a $25 radio than on a $500 TV. Also, Tversky and Kahneman (1981) find that when a calculator's price is $15 and a jacket's price was $125, 68 percent of the subjects would drive 20 minutes to save $5 on the calculator. However, when the prices were reversed—the calculator was $125 and the jacket was $15—only 29 percent were willing to drive 20 minutes to save $5. This means that people were heavily influenced by the percentage that could be saved, which was either 33.3 percent ($5/$15) or 4 percent ($5/$125). From a classical economic perspective, however, the decisions in the two cases should be identical, because what should matter is only the comparison between 20 minutes and $5 savings. But, obviously, relative savings matters as well.

Later studies replicated the results of Tversky and Kahneman with some modifications, usually showing the robustness of this behavior, but sometimes finding special cases when relative thinking behavior does not exist. Mowen and Mowen (1986), for example, find that the effect holds whether the subjects are students or business managers. Darke and Freedman (1993) found in one experiment that percentage savings did not affect the effort to save money, but in a second experiment with a higher range of percentages that could be saved, the percentage discount did have an impact on consumer choice. Frisch (1993) showed that the effect of the relative discount holds also when only a single calculator is being purchased rather than a bundle of two goods. Ranyard and Abdel-Nabi (1993) varied the price of the jacket and obtained results consistent with those of Tversky and Kahneman. Azar conducted an experiment with five goods and nine prices, finding the exact price where the subject is indifferent between the more expensive store on one hand and the less expensive store on the other hand—although the less expensive store requires 20 minutes travel time. His results suggest that the discount people require for the effort of going to the remote store is roughly proportional to the square root of the good's price. Azar (2011b) also found that people exhibit relative thinking when they consider differentiated goods or services that differ in price and quality. Sometimes subjects are affected only by relative price differences ('full relative thinking') and sometimes also by absolute price differences ('partial relative thinking'). This result was obtained in four different consumption categories and the comparison between them allows one to analyze what factors seem to strengthen the relative thinking behavior.

Ofer H. Azar

See also: Behavioral Economics; Market Capitalism; Tversky, Amos; *Vol. 3: Microeconomics:* Kahneman, Daniel; Markets; Thaler, Richard; Tipping

Further Reading

Azar, Ofer H. 2007. Relative thinking theory. *Journal of Socio-Economics* 36: 1–14.

Azar, Ofer H. 2008. The effect of relative thinking on firm strategy and market outcomes: A location differentiation model with endogenous transportation costs. *Journal of Economic Psychology* 29: 684–97.

Azar, Ofer H. 2011a. Do consumers make too much effort to save on cheap items and too little to save on expensive items? Experimental results and implications for business strategy. *American Behavioral Scientist* 55: 1077–98.

Azar, Ofer H. 2011b. Relative thinking in consumer choice between differentiated goods and services and its implications for business strategy. *Judgment and Decision Making* 6: 176-85.

Darke, Peter R., and Jonathan L. Freedman. 1993. Deciding whether to seek a bargain: Effects of both amount and percentage off. *Journal of Applied Psychology* 78: 960–65.

Frisch, Deborah. 1993. Reasons for framing effects. *Organizational Behavior and Human Decision Processes* 54: 399–429.
Mowen, Maryanne M., and John C. Mowen. 1986. An empirical examination of the biasing effects of framing on business decisions. *Decision Sciences* 17: 596–602.
Ranyard, Rob, and Deborah Abdel-Nabi. 1993. Mental accounting and the process of multiattribute choice. *Acta Psychologica* 84: 161–77.
Thaler, Richard. 1980. Toward a positive theory of consumer choice. *Journal of Economic Behavior and Organization* 1: 39-60.
Tversky, Amos, and Daniel Kahneman. 1981. The framing of decisions and the psychology of choice. *Science* 211: 453–58.

RELIGION AND DECISION-MAKING

The impact of religion on decision-making and economic behavior generally has been an important concern of behavioral as well as conventional economics. While not explicitly analyzing how religion affects decision-making and other behavior, Hume (1983, 6) implies such effects by historically observing "religious fanaticism" and "madness with religious ecstasies" in England during the Reformation. Such economic and related behavioral effects of religion are implied in his observation that the "wretched" and "wild" fanaticism of Puritanism was "destructive of taste and science" and by implication of technological and economic progress, as of "all law and order," with "human learning despised; freedom of inquiry detested; cant and hypocrisy alone encouraged" (Hume 1983, 101). Also, Smith (1976, 647) describes past religion as a "mixture of absurdity, imposture, or fanaticism" and implies that it has corresponding effects on economic and other behavior, specifically observing that the "sect called Independents [was] a sect no doubt of very wild enthusiasts" acting in the context of the "two principal parties of sects among the followers of the Reformation [i.e.] the Lutheran and Calvinistic sects." Like Hume and despite his Puritan background and Presbyterian sympathy, Smith (1977, 181) expresses his preference for a "gentleman, and not a puritan" as a type or instance of decision-maker and socioeconomic agent, because of the Puritans' "severity of manners [plus] cant, cunning, hypocrisy, and low manners" and the corresponding effects of such "unsocial passions" and "moral sentiments" on economic and all human behavior.

J. S. Mill explicitly suggests that religion—especially its "ascetic" type, like Calvinism—adversely impacts autonomous decision-making and economic activity in general. He registers that Calvinism denies and eliminates freedom of choice in decision-making and economic life in that it stipulates that "the one great offence of man is Self-will. All the good of which humanity is capable, is comprised in Obedience. You have no choice; thus you must do, and no otherwise" (Mill 1991, 58). He also notes that Calvinism negates and suppresses the human ability, faculty, and will for decision-making and economic activity in observing that "to one holding this theory of life, crushing out any of the human faculties, capacities, and susceptibilities, is no evil: man needs no capacity, but that of surrendering himself to the will of God: and if he uses any of his faculties for any other purpose but to do that supposed will more effectually, he is better without them," resulting in an "abnegated" decision-maker and "human nature" (Mill 1991, 58). Evoking Hume, Pareto (2000, 35) uses the image and metaphor of the "cage for the insane" to depict religion or theology and by implication its equivalent influence on decision-making and other economic behavior. In particular, Pareto (1932, 1433) observes that, contrary to the conventional wisdom, the Protestant Reformation was effectively a religious revolution directed against economic and social progress, innovation, and change, just as it "halted" the artistic, liberal, and humanistic Renaissance in Northern Europe. Generally, in Pareto's framework the type of decision-maker and economic agent guided by "religious sentiments" and thus irrational forces ("residues") is what Schumpeter (1991, 336) calls *homo religiousus* versus *homo economicus* as the perfectly rational opposite.

In contrast to Mill, Weber (1976) argues that religion such as Calvinism and other "ascetic Protestantism" enhances rational decision-making, specifically wealth accumulation and saving and investment against consumption, and continuous economic activity in that it has historically promoted the emergence and development of (the spirit of) modern capitalism in the Western world. This argument has become known as the Weber Thesis of the "Protestant Ethic" and capitalism in historical and behavioral economics as well as economic sociology and history (and theology). For instance, Akerlof (2007, 15) notes "Weber's analysis of the relation between religion and savings" and comments that "Weber describes Calvinists as aspiring to be 'worldly ascetics'." He concludes, "Economic acquisition is no longer subordinated to man as the means for satisfaction of his material needs." Here the purpose of saving is to live up to an ideal. The Calvinists are thrifty because they think they should *not* be consuming.

Within contemporary behavioral as well as historical economics, most analyses of the impact of religion on economic decision-making and behavior use or mention Weber's analysis of the effect of Calvinism on capitalism as the point of departure and reference. One stream of such analyses explicitly or implicitly adopts and supports Weber's analysis. Another strand of analyses of religion and economic behavior disconfirms or modifies Weber's analysis. In sum, the status of Weber's analysis is unsettled, and so the problem of the exact effect of religion—in particular, Protestantism—on decision-making and economic behavior remains largely unresolved in behavioral and historical economics.

Milan Zafirovski

See also: Culture and Behavioral Economics; Emotions and Decision-Making; Hume, David; Institutional Economics; Mill, John Stuart; Moral Sentiments and Adam Smith; Smith, Adam; *Vol. 2: Macroeconomics:* Weber, Max; *Vol. 3: Microeconomics:* Akerlof, George; Walras, Leon

Further Reading

Acemoglu, Daron, Simon Johnson, James Robinson, and Pierre Yared. 2005. The rise of Europe: Atlantic trade, institutional change, and economic growth. *American Economic Review* 95: 546–79.

Akerlof, George. 2007. The missing motivation in macroeconomics. *American Economic Review* 97: 5–36.
Ekland, Robert, Robert Hébert, and Robert Tollison. 2002. An economic analysis of the Protestant Reformation. *Journal of Political Economy* 110: 646–71.
Guiso Luigi, Paola Sapienza, and Luigi Zingales. 2006. Does culture affect economic outcomes? *Journal of Economic Perspectives* 20: 23–48.
Hume, David. 1983. *The history of England from the invasion of Julius Caesar to the revolution in 1688*. Indianapolis, IN: Liberty Fund. (Orig. pub. 1778.)
Landes, David. 1998. *The wealth and poverty of nations*. New York: Norton.
McCleary, Rachel, and Robert Barro. 2006. Religion and economy. *Journal of Economic Perspectives* 20: 49–72.
Mill, John S. 1991. *On liberty*. Oxford, UK: Oxford Univ. Press. (Orig. pub. 1859.)
Pareto, Vilfredo. 1932. *Traité de sociologie generale*. Paris: Payot. (Orig. pub. 1916.)
Pareto, Vilfredo. 2000. *The rise and fall of elites*. New Brunswick, NJ: Transaction Publishers. (Orig. pub. 1901.)
Robertson, H. M. 1933. *Aspects of the rise of economic individualism*. Cambridge, UK: Cambridge Univ. Press.
Schumpeter, Joseph. 1991. *The economics and sociology of capitalism*, ed. Richard Swedberg. Princeton, NJ: Princeton Univ. Press.
Smith, Adam. 1976. *An inquiry into the nature and causes of the wealth of nations*. Oxford, UK: Clarendon Press. (Orig. pub.1776.)
Smith, Adam. 1977. *The theory of moral sentiments*. Oxford, UK: Clarendon Press. (Orig. pub. 1759.)
Sombart, Werner. 2001. *The Jews and modern capitalism*. Kitchener, Canada: Batoche Books. (Orig. pub. 1911.)
Tawney, Richard. 1962. *Religion and the rise of capitalism*. New York: Harcourt, Brace. (Orig. pub. 1926.)

RESOURCES

Resources are described as any factor required in the production of goods or services. These inputs generate value and collect returns. The most basic resources are seen as land, labor, and capital. Entrepreneurship is also categorized as an economic resource. These are the factors of production. The category of resources can be spread even further to include information, management, energy, and time. Each of these performs a specific function for production in every economic system.

Land is a natural resource that is abundant in the economies around the world. This is not only the physical land itself, but also any resources obtained from the land. This can include lumber, oil, coal, and gas. Some may say that land is an infinite resource to be used for production. Others argue that it is finite and can and will eventually run out as populations and economies continue to grow. The production of agriculture is the major use for land. Agriculture uses 51 percent of the land in the United States, worth $2.38 trillion.

Labor is a human input known as the effort put in to make a good or service. Employees are a consolidated form of labor. Employees are able-bodied people who are able to work in an economy—this includes the workers at a factory assembling cars, the employee who cooks and serves meals at a restaurant, and the janitor who cleans a high school.

There are two definitions of *capital* in terms of resources. The first definition sees capital as the monetary value of money used as a purchasing power. This money can be used to pay for the toher two resources: land and labor. Capital flows through an economy in this way as individuals or businesses purchase goods and resources. Capital is also the physical equipment a company owns. This can include tools, buildings, vehicles, and other comparable components. To stay in business, companies must have a constant flow of capital. To attain more capital, companies can apply for bank loans or search for investors.

Some economists consider *entrepreneurship* to be the fourth factor of production. Like capital, entrepreneurship also can be defined in different ways in terms of an economy. Some economists say that entrepreneurship is responsible for increasing the productivity of businesses. Others recognize that an entrepreneur brings together the other three factors of production to create a good or service. The entrepreneur also accepts the risks involved in production and is responsible for organizing and allocating the land, labor, and capital.

From product to product or from service to service, the way these four resources are allocated and needed is very different. For example, a farm would need much more labor and land than a small-pet groomer. The goal in an economy is to use these resources in the most efficient way possible. Improper use could lead to devastation—for a single firm or the economy as a whole. As economies continue to advance, the need for these resources will continue to grow.

Alais Murillo
David A. Dieterle

See also: Capital Resources; Entrepreneurship; Human Capital; Land Use; *Vol. 3: Microeconomics:* Derived Demand; Economic Rent; Labor Economics

Further Reading

Borchers, A. 2015. Land use, land value & tenure. United States Department of Agriculture Economic Research Service. www.ers.usda.gov/topics/farm-economy/land-use,-land-value-tenure.aspx (accessed February 3, 2016).

BusinessDictionary.com. n.d. Resource. www.businessdictionary.com/definition/resource.html (accessed February 3, 2016).

Vitez, Osmond. n.d. Economic definition of the four factors of production. Chron: Small business. smallbusiness.chron.com/economic-definition-four-factors-production-3941.html (accessed February 3, 2016).

RICARDO, DAVID

Born: April 18, 1772, in London; Died: September 11, 1823, in Gloucestershire, England; Nationality: English; Professional Interests: classical school, monetary economics, economic rent, theory of value, comparative advantage; Major Works: *An Essay on the Influence of a Low Price of Corn on the Profits of Stock Showing the Inexpediency of Restrictions on Importation; with Remarks on Mr. Malthus's Two Last Publications* (1815), *On the Principles of Political Economy and Taxation* (1817).

David Ricardo was a British economist, considered one of the classical economists. After reading Adam Smith, Ricardo began writing on the benefits of converting currency to gold. Ricardo was an early proponent of the idea that an economy's money supply and price level (inflation) are positive-related. While he was an early writer on the concept of economic rent, David Ricardo is probably most famous for his expansion of Adam Smith's idea of absolute advantage, with his introduction of comparative advantage and expanding on Smith's benefits of trade. Ricardo died in 1823.

David Ricardo was born in April 18, 1772, in London. His father was a Jewish stockbroker who had originally come from Holland. After attending school in London and Amsterdam, Ricardo joined his father's brokerage firm. Ricardo then formed his own stock firm and became very successful. In 1814, at age 41, he retired from business, worth more than $40 million in today's dollars. At his death in 1823, his estate was worth what today would be more than $100 million.

Ricardo became interested in economics in his early 20s after reading the works of Adam Smith. He would often discuss his ideas with his friend James Mill, who encouraged him to write. Ricardo began by writing articles and tracts about currency issues. In this area, Ricardo was a bullionist, arguing for the convertibility of currency to gold. He held that notes were not convertible, because they had been over-issued and inflation had resulted. In that respect, he was an early proponent of the *quantity theory of money*, which proposes a positive relationship between an economy's money supply and the price level (inflation).

Ricardo also dismissed the idea that surplus is simply what is left over after a country consumes what it produces of goods and services. He entered into a long correspondence and friendship with Thomas Malthus, debating the idea. A proponent of Say's Law, Ricardo believed that production automatically creates a market for consumption; hence, a general glut is impossible.

Ricardo drew extensively on Malthus's work in his writings about rent. Ricardo saw rent not just as a return for the use of natural resources but as an unearned surplus. By this he meant that rent was a residual, arising from the difference between the gross outputs of the land minus all of the production costs. This residual had no impact on the future supply of land; and differences in rent simply arose from differences in land–fertility, access to water, and climate. Thus, because the output of varying types of land would be the same (i.e., a bushel of corn grown on inferior land fetches the same price as a bushel grown on very fertile land), producers would bid up the price of better land, benefiting the landowner rather than the producer.

In 1815, Ricardo wrote "An Essay on the Influence of a Low Price of Corn on the Profits of Stock." In this work, he describes one of his most enduring ideas in economics: the concept of comparative advantage.

Prior to the dissemination of this essay, the general belief was that gains from trade arose from *absolute advantage*—in other words, that nations prospered because they had an advantage in the production of a good or service that other nations could not match, and that trading the good allowed the nation to increase its wealth. But Ricardo demonstrated that a nation did not have to have an absolute advantage in anything in order to trade profitably and grow. The nation needed a *comparative advantage*. This meant that as long as a nation had a lower opportunity cost in the production of a good than another nation, the first nation could trade profitably even if the other nation had an absolute advantage.

It was the recognition and application of a lower opportunity cost that provided the comparative advantage and allowed the nation to trade on terms that resulted in growth. If all nations specialized in those products for which they had comparative advantage, then unhindered trade would result in all nations trading and becoming better off.

Ricardo used this idea to argue against the Corn Laws, which set up barriers to imported grain to the benefit of English growers. He argued that reducing the trade barriers not only would make grain more affordable to the poor but also would shift England's resource use to areas where it had a comparative advantage—and so would result in greater wealth, although perhaps at the expense of English landowners.

Ricardo also contributed to the debate about value. Through most of his work, he remained a proponent of the labor theory of value, which held that the relative natural prices of goods reflected the amount of labor necessary to produce them. However, he realized early on that capital usage also was a factor in profitability and, in turn, the level of wages. This led him to develop two explanations: one based on an assumption that firms employ capital in approximately the same proportion to labor, and the other based on the existence of a single commodity that represented the average capital per worker, which would allow an explanation of price and wage variation based on variances from the average amount of capital per worker.

Ricardo's masterpiece was his *On the Principles of Political Economy and Taxation* (1817). It is not particularly easy to read, but it is significant for its breadth and understanding.

What is particularly amazing about Ricardo's work is that it was written without the benefit of the mathematics that is such an integral part of today's economics.

David Ricardo died on September 11, 1823, in Gloucester, England.

Timothy P. Schilling

See also: Capitalism; Economic History; Economic Systems; Malthus, Thomas; Mill, John Stuart; Say, Jean-Baptiste; Smith, Adam; *Vol. 2: Macroeconomics:* Taxes; *Vol. 4: Global Economics:* Absolute Advantage; Comparative Advantage

Further Reading

Gootzeit, Michael. 1975. *David Ricardo*. New York: Columbia Univ. Press.

Henderson, John P., David Ricardo, John Bryan Davis, Warren J. Samuels, and Gilbert B. Davis. 1997. *The life and economics of David Ricardo.* Hingham, MA: Kluwer Academic.

Ricardo, David. 1810. *The high price of bullion: A proof of the depreciation of bank notes.* London: John Murray.

Ricardo, David. 1815. *An essay on the influence of a low price of corn on the profits of stock showing the inexpediency of restrictions on importation; with remarks on Mr. Malthus's two last publications.* London: John Murray.

Ricardo, David. 1817. *On the principles of political economy and taxation.* London: John Murray.

Ricardo, David. 1822. *On protection in agriculture*. London: John Murray.
Ricardo, David. 1824. *Plan for the establishment of a national bank*. London: John Murray.
Weatherall, David. 1976. *David Ricardo: A biography*. Boston: Martinus Nijhoff.

ROCKEFELLER, JOHN D.

Born: July 8, 1839, in Richford, NY; Died: May 23, 1937, in Ormond, FL; Nationality: United States; Professional Interests: U.S. industrialist and philanthropist, co-founder of Standard Oil Company.

John D. Rockefeller shaped how we live in the United States of America today in many ways. He was one of America's leading businessmen, with a net worth estimated at $336 billion when adjusted for inflation. This also makes him the richest American in recorded history. John D. Rockefeller influenced the American economy through his oil company, the laws created because of him and his company, and his charities.

John Davison Rockefeller was born in Richford, New York, on July 8, 1839. He was raised in a Baptist household, and he always valued giving to others. This attitude played a major part in his later life.

He made a business decision to open up an oil refinery in Cleveland, Ohio, and it was not long before the oil business became his main focus. He named his new oil company Standard Oil. Rockefeller quickly bought out all of his competition, making Standard Oil one of the country's first monopolies.

Due to the incredible success of Rockefeller's oil company, the government decided to intervene, trying various methods for regulating how big the company could be. Eventually, Congress passed the Sherman Anti-Trust Act, making monopolies illegal. America would be a different place for businesses without this act. With this act, the Standard Oil Company or any other company could not solely control the market. The act was intended to promote economic growth and allow for diversity and for small businesses to have success. This would serve as an example of how businesses would have to be run in the future.

Rockefeller's charities have had a lasting effect on America's economy, and he is credited with being a major figure in modern philanthropy. He believed that the best way to help people was to attack a problem at its root. All together he gave away $530 million, some of which went into founding the University of Chicago and Rockefeller University and into supporting groundbreaking medical research.

John D. Rockefeller's success in the U.S. economy brought about a better understanding of monopolies, as well as a set of laws to prevent monopolies. He also underscored the value of philanthropy through his donations to enrich the public.

John D. Rockefeller died May 23, 1937, in Ormond, Florida.

Lyndsey Braman
David A. Dieterle

See also: Entrepreneurship; *Vol. 3: Microeconomics:* Business Structures; Monopoly; Sherman Antitrust Act of 1890; *Standard Oil Co. of New Jersey v. United States*

Further Reading

Biography.com. n.d. John D. Rockefeller biography. www.biography.com/people/john-d-rockefeller-20710159 (accessed October 30, 2015).

History.com. 2010. John D. Rockefeller. www.history.com/topics/john-d-rockefeller (accessed October 30, 2015).

PBS (Public Broadcasting Service). 2013. American experience: John D. Rockefeller. www.pbs.org/video/2311494786/ (accessed October 30, 2015).

ROOSEVELT, FRANKLIN D.

Born: January 30, 1882, in Hyde Park, New York; Died: April 2, 1945, in Warm Springs, Georgia; Nationality: American; Professional Interests: 32nd president of the United States, 1932–1944; only U.S. president to be elected for four consecutive terms.

Franklin Delano Roosevelt was born January 30, 1882, in Hyde Park, New York, an only child raised in an environment of privilege. Private tutors educated him until he was 14 years old; then, in 1896, he began attending Groton School for Boys in Massachusetts. After graduating from Groton in 1900, Roosevelt went on to Harvard and graduated in three years. During his last year at Harvard, Roosevelt met and became engaged to Eleanor Roosevelt (1884–1962) (his fifth cousin and the niece of his idol, Theodore Roosevelt). Eleanor and Franklin Roosevelt were married on March 17, 1905. Roosevelt then went on to study law at Columbia. He passed the bar exam in 1907, though he did not get his degree. For the next three years, Roosevelt practiced corporate law in New York.

In 1910, at the age of 28, Roosevelt was invited to run for the New York State Senate. He ran, and he was elected as a Democrat in a heavily Republican district. As a state senator, Roosevelt opposed elements of the Democratic political machine in New York. While he angered Democratic Party leaders, he gained national attention. It was during this time that Roosevelt formed an alliance with political consultant Louis Howe (1871–1936). Louis Howe ended up shaping Roosevelt's political career for the next 20 years. Roosevelt was reelected in 1912, and he served as chair of the Agricultural Committee. During the 1912 National Democratic Convention, Roosevelt supported presidential candidate Woodrow Wilson. After Wilson won, Roosevelt was rewarded with an appointment as Assistant Secretary of the Navy. Roosevelt specialized in business operations and Navy policies during World War I.

In 1914, Roosevelt lost a race for a U.S. Senate seat in New York. He was soundly defeated, but he learned that national stature could not defeat a well-organized political organization. In 1920, Roosevelt accepted a nomination for vice-president on the ticket with James M. Cox. They were defeated, but Roosevelt once again gained experience and national exposure.

In 1921, while he was vacationing in Campobello Island, New Brunswick, Canada, Roosevelt was stricken with polio. Despite efforts, he never regained the use of his legs. Later, he established the March of Dimes Foundation. The March of

Dimes was the program that eventually found an effective polio vaccine. Roosevelt thought having polio spelled the end of his political career, but Eleanor Roosevelt and Louis Howe encouraged him to keep moving forward. He spent the next few years improving his physical and political appearance. He taught himself to walk short distances in braces, and he was never, in his entire political career, seen or photographed in public with his wheelchair. Al Smith urged Roosevelt to run for governor of New York in 1928, so he began to repair his relationship with the Democratic political machine. He was narrowly elected. While Roosevelt was governor, he established many new progressive programs.

By 1930, the Great Depression had begun, and when Republicans began to be blamed for it, Roosevelt saw his chance to win the presidency. Roosevelt had adopted the new economic policies of British economist John Maynard Keynes (1883–1946), who promoted the direct involvement of government to stimulate a failing economy. Roosevelt began to campaign on the platform that the government should help reform and recover the economy. Roosevelt defeated Herbert Hoover in the November 1932 presidential election. When Roosevelt took office in 1933, the Great Depression was at its height. The number of unemployed Americans was 13 million, and hundreds of banks were closed due to the turbulent economic times.

During the first 100 days of his presidency, Roosevelt made sweeping changes in an attempt to better the nation's economic state. First, Roosevelt temporarily closed all the banks. He formed a "Brain Trust" of economic advisers, who designed the "alphabet agencies," such as the Agricultural Adjustments Act (AAA), to support farm prices; the Civilian Conservation Corps (CCC), to employ young men; and the National Recovery Administration. Other agencies insured bank deposits, regulated the stock market, and provided relief for the unemployed. By 1936, the economy showed some signs of improvement; most notably, unemployment had dropped from 25 percent to 14 percent.

As the first U.S. president to embrace the ideas of Keynesian economics, Roosevelt faced criticism for increased government intervention in the economy he promoted. Many of his critics thought he was moving the nation toward socialism. The Supreme Court declared several of Roosevelt's New Deal programs unconstitutional. Roosevelt responded by proposing to pack the courts with justices more favorable to his reforms. Congress rejected this idea. By 1938, the negative press, the continued sluggishness of the economy, and unexpected Republican victories in midterm elections halted Roosevelt's ability to pass more reforms.

Since World War I, America had adopted an isolationist policy in foreign affairs. As conflicts raged in Europe and Asia, Roosevelt sought ways to assist China in its war with Japan. Roosevelt also declared that France and Great Britain were America's "first line of defense" against Nazi Germany.

With World War II looming, Roosevelt won an unprecedented third presidential term in 1940. In March 1941, Roosevelt signed the Lend-Lease Bill to aid nations that were at war with Germany and Italy. On December 7, Japan bombed Pearl Harbor, and Roosevelt delivered his "day of infamy" speech. That same day, he asked Congress for a formal declaration of war against Germany. In 1942, Roosevelt created a "grand alliance" of Allied powers through "the Declaration of the United Nations." In 1944, Roosevelt was reelected as president for his fourth and final term.

In February 1945, Roosevelt attended the Yalta Conference with British Prime Minister Winston Churchill and Soviet General Secretary Joseph Stalin to discuss postwar recovery. Coming into Yalta, the Allied leaders knew that victory in Europe was certain, but they were less sure of an end to the war in the Pacific. As a result, the United States and Great Britain saw it as a major strategic approach to have the Soviet Union enter the Pacific war under specific conditions discussed and agreed upon by Stalin: In exchange for Soviet participation in the Pacific war, the Soviets would have a sphere of influence in Manchuria after Japan's surrender. The future of Eastern Europe was also discussed at the Yalta conference. Specifically, France was to be included in the postwar governing of Germany, Germany would handle its own reparations, and the Soviets would pledge free elections in all territories liberated from Germany. The initial reactions to Yalta were celebratory. However, after Roosevelt's death in April 1945, Truman's new administration clashed with the Soviets over influence in Eastern Europe. Americans, alarmed by the Soviets' perceived lack of cooperation, began to criticize Roosevelt's diplomacy at the Yalta negotiations.

Franklin Delano Roosevelt died on April 2, 1945, in Warm Springs, Georgia, and was buried in Hyde Park, New York. However, his legacy lives to this day: His responses to the challenges he faced (among them, the Great Depression and the rise of Germany and Japan) made him a defining figure in American history. Under FDR, the federal government assumed new and more powerful roles in the United States' economy. For example, the New Deal plan instigated to deal with the Great Depression that was crippling the nation enhanced the capacity of the presidency to meet new responsibilities. Also, after World War II, FDR hoped for a more secure world, so the United States would become a major participant in the postwar United Nations. Roosevelt reshaped the presidency by building a bond between himself and citizens and establishing one of the roles of the president as being a caretaker of the people.

Shima Sadaghiyani

See also: The Great Depression and Wall Street Crash, 1929; Keynes, John Maynard; Keynesian Economics; New Deal; Social Security; Supreme Court; *Vol. 2: Macroeconomics:* Public Goods; Social Security Act of 1935

Further Reading

Black, Conrad. 2003. *Franklin Delano Roosevelt: Champion of freedom*. New York: Public Affairs.

Brinkley, Alan. 2009. *Franklin Delano Roosevelt*. New York: Oxford Univ. Press.

Hiltzik, Michael. 2011. *The New Deal: A modern history*. New York: Free Press.

Smith, Jean Edward. 2007. *FDR*. New York: Random House.

S

SARBANES-OXLEY ACT

The Sarbanes-Oxley Act (SOX) was passed by the U.S. Congress in 2002 and signed into law by President George W. Bush. At the time of its enactment, the United States was the largest economy in the world (as measured by gross domestic product) and entangled in a crisis surrounding the fraudulent reporting of corporate financial data by a number of publicly traded companies. Shortly following a recession (March 2001 to November 2001) that was triggered by the collapse of technology companies losing billions of dollars in stock market value (the dot-com bubble), the illegal accounting methods that precipitated SOX resulted in additional billions of dollars lost and forever changed the practices of investors, the government, and corporate executive management.

This entry will encompass the legislation as it pertains to finance and modern money management; although there continues to be debate around implementation and effectiveness, the act itself was substantial in how it changed the practices of publicly traded companies across the entire United States.

The years 2000–2009 produced several significant financial market corrections, causing trillions of dollars of paper losses to investors. Very early in the decade, stock prices soared as technology companies and others benefited from an existing exuberance. Of the two emotions—fear and greed—that dominate security selection, greed was rampant. Market participants pushed prices higher and higher as they clamored for every available share of booming technology, and other corporations continuously showed giant profits and increasing potential on their income statement, balance sheet, and other financial documents. Unknown to almost everyone, including regulators at the Securities and Exchange Commission (SEC), several significant companies were purposely reporting fraudulent financial data.

In 2001, the energy corporation Enron—one of the largest companies in the United States—began to come under scrutiny for its accounting practices. Investor questions grew more and more common, and the complex use of shell companies beneath Enron's seemingly shiny exterior increasingly confused and concerned almost everyone, from stockholders to Wall Street analysts. As the lies unfolded and the game of hiding debt was discovered, Enron stock fell from over $90 per share to under $1 per share. At the time, this was unprecedented. Employees lost their jobs and their retirement savings while equity owners saw any invested capital disappear, taking markets and overall investor confidence with it. The calamity was ubiquitous as greed quickly turned to intense fear.

In the following year, two other corporations embedded in the fabric of American investment markets were also discovered to have fraudulently altered their accounting and financial statements to make large losses magically disappear, giving the appearance of very profitably run organizations. WorldCom, one of the world's largest telecommunications firms, and Tyco, a sizeable manufacturing company, were discovered to have lied to investors in many ways, including misrepresentation of expenses, smuggling of money, and sale of unauthorized company stock. All of these occurrences, due to the structure of laws and reporting at the time, were done undercover, without shareholder knowledge. As the layers of fraud and deception were peeled away, share prices lost almost all value, investors lost billions of dollars, and many thousands of people were left without jobs as their former employers crumbled under the lens of justice. Markets, and the entire country, were now fully rattled; trust in the financial system, particularly that of corporate bookkeeping, was completely lost.

On July 30, 2002, the U.S. government responded to the accounting scandals and ensuing crisis of confidence by signing into law the Sarbanes-Oxley Act (named for its congressional sponsors Senator Paul Sarbanes and Representative Michael Oxley). The act passed with overwhelming support, obtaining 98 percent of the vote in the House of Representatives and 99 percent of the vote in the Senate.

The Sarbanes-Oxley Act contains 11 sections that include the establishment of a public company accountability board, requirements for auditor independence, details concerning corporate responsibility, enhanced conflict of interest provisions, and new criminal penalties for corporate fraud. The act boosted the reliability of corporate disclosures and changed the way securities analysts interact with corporate management. In the wake of such tremendous financial losses due directly to fraud, this sweeping legislation even required top management to personally certify corporate financial information.

Opponents of SOX contend that the legislation, particularly its requirement that public companies achieve an independent audit of internal controls, is costly for corporations to implement; it was initially feared that relatively small companies would face crippling expenses when trying to facilitate an independent audit. However, supporters of SOX cite sharp bolstering of shareholder confidence that, in turn, results in increased share prices in markets; if investors are more confident, they will be more willing to deploy their capital.

Years after its passing, SOX remains largely intact. Proponents of free markets continue to argue its existence as an impediment toward the long-term health of the financial system. But, as an attack on large-scale corporate fraud, SOX stands as one of the most major pieces of financial legislation in modern times. Throughout the history of the relationship between government and capitalism as an economic system, there has always been a fine line between policing free markets without tinkering in them. In 2002, there was overwhelming support for SOX as the metaphorical flame of fear had been lit. Time will tell if SOX did too much or too little to mitigate the opportunities for fraudulent corporate activities, while the debate concerning how involved governments should be in free markets—which includes regulatory oversight—continues in earnest.

Jonathan David Citrin

See also: Accountant; Bankruptcy; Investing; *Vol. 2: Macroeconomics:* Gross Domestic Product; Gross National Product; Securities and Exchange Commission; *Vol. 3: Microeconomics:* Bursting of the Dot-Com Technology Bubble; Enron, the Failure of Corporate Finance and Governance; Stock Market; *Primary Document:* Sarbanes-Oxley Act (2002)

Further Reading

U.S. Congress. 2002. 107th Congress (2001–2002), H.R. 3763—Sarbanes-Oxley Act of 2002. https://www.congress.gov/bill/107th-congress/house-bill/3763 (accessed November 30, 2016).

U.S. Government Printing Office. 107th Congress Public Law 204. http://www.gpo.gov/fdsys/pkg/PLAW-107publ204/html/PLAW-107publ204.htm (accessed November 30, 2016).

SAY, JEAN-BAPTISTE

Born: January 5, 1767, in Lyon, France; Died: November 15, 1832, in Paris, France; Nationality: French; Professional Interests: general equilibrium, classical, political economy; Major Works: *Traité d'Économie Politique* (Treatise on Political Economy) (1803), *Catechism of Political Economy* (1817).

Jean-Baptiste Say is most famous for Say's Law, which simply states that supply creates its own demand. While those were not his exact words, they do convey the essence of his response to the 19th-century Glut Controversy, a trade dispute England was having with Brazil. Say died in 1832.

Jean-Baptiste Say was born on January 5, 1767, in Lyon, France. His parents had fled to Switzerland to escape religious persecution, and they had recently returned to their French homeland when Jean-Baptiste was born. Say's father was a silk merchant, and he made sure that his son had an education that would prepare him for the business world. Say therefore received a modern education in Lyon and then in London. In 1787, he returned to France where he later worked in the offices of a Paris life insurance company. His employer gave him a copy of Adam Smith's *Wealth of Nations,* which led him to become an economic disciple of Smith.

In 1789, the French Revolution broke out. The young Say took advantage of the general mood of progress to write articles and edit a journal in favor of a free press, republican ideals, and various mildly revolutionary topics. A common thread throughout his writings was the need for the population to be educated in the study of political economy (what is now economics).

In the midst of the Reign of Terror during the French Revolution, Say translated Benjamin Franklin's *Poor Richard's Almanac* into French. He wrote a laudatory biography of Franklin, who was something of a folk hero in revolutionary France. He also corresponded with Thomas Jefferson and considered emigrating to the United States.

When Napoleon Bonaparte became dictator of France, Say was made a member of the Tribunate (part of Napoleon's legislature), where he was given the task of reporting on the government's budget. His report stressed the need for clear accounting standards and for tax revenues to be collected before they were actually spent. These ideas drew Napoleon's disapproval. Say's economic writings lamented war, voiced suspicion of government bureaucrats, deplored slavery, and called for relaxing the restrictions on trade, all of which were features of the Napoleonic government. In 1802, perhaps because of these differences of opinion, Say was removed from his post, whereupon he left Paris and opened a cotton mill. His business was successful, and when he was not managing it, he spent his time writing.

Say did not write only about economics. In 1800, he published a short book called *Olbie,* which gave a picture of a utopian society. In it, he espoused the belief (not uncommon at the time) that if a revolutionary society could overthrow monarchy and aristocracy, emphasize education, remain untempted by greed, and build a republic where morality was enforced by meddling neighbors, then a near-perfect society could exist. Wishing to popularize the economic theories of Adam Smith and expand the subject of political economy, he published his *Treatise on Political Economy* in 1804 and continued to release updated editions throughout his life. In 1821, Say was offered a position as professor at the Conservatoire National des Arts et Metiers. It was the first professorship in political economy ever created in France.

Say is most famous for Say's Law, which in its simplest iteration is that supply creates its own demand. (There are several, sometimes conflicting, versions of Say's Law.) Say did not actually write this, but it appropriately captures his contribution to a two-decade-long dispute known as the Glut Controversy. The question at hand was this: Why do markets collapse into recession? Certain philosophers had blamed overproduction—that producers had foolishly made more than people could consume. Say disagreed, pointing out that "each of us can only purchase the productions of others with his own productions . . . the more men produce, the more they will purchase." Therefore, there could be no "general glut," or total supply greater than total demand. Instead, wrote Say, recessions happen when there is a temporary imbalance of certain goods and services relative to other goods and services. People should produce *more* of the goods that are lacking in order to pay for the ones in relative abundance, rather than seeking through public policy to cut production. Markets would eventually correct themselves.

In response to Say, Simonde Sismondi and Thomas Malthus advanced theories claiming that there could indeed be a general oversupply. For instance, increased demand for money would mean that supply could exceed demand. Demand would be satisfied by the holding of real money balances rather than by products. Another of the critics' ideas was that production might exceed an equilibrium level at which producers could profitably operate their businesses. There might be demand for goods, but producers would go out of business trying to meet that demand. Other economists, mostly notably David Ricardo, agreed with Say.

The Glut Controversy was the central economic dispute of the early 19th century, eventually involving every major economist of the time. The dispute was not always edifying. Both sides tended to misrepresent, or simply misunderstand, each other's arguments. Eventually, a consensus emerged and remained for the rest of the 19th and early 20th centuries. The consensus confirmed that Say was right.

Supply did indeed create its own demand. This theory remained almost completely unchallenged until John Maynard Keynes chose a version of Say's Law as the foil for his own theory of recessions.

Say was not available to defend his ideas. He died in 1832, almost 100 years earlier. Though out of favor with many policy makers and economists, Say's Law remains a cogent, if not quite sufficient, explanation for the tendency of markets to regulate themselves.

Jean-Baptiste Say died on November 15, 1832, in Paris, France.

Stephen H. Day

See also: Classical Economics; Keynes, John Maynard; Malthus, Thomas; Ricardo, David; Smith, Adam; *Vol. 3: Microeconomics:* Markets

Further Reading

Blaug, Mark. 1986. *Great economists before Keynes.* Atlantic Highlands, NJ: Humanities Press International.

Palmer, R. R. 1997. *J.-B. Say: An economist in troubled times.* Princeton, NJ: Princeton Univ. Press.

Say, Jean-Baptiste. 1803. *Treatise on political economy or the production, distribution, and consumption of wealth*, trans. C. R. Prinsep. Boston: Wells and Lilly.

Say, Jean-Baptiste. 1816. *Catechism of political economy*. Trans. John Richter. London: Sherwood, Neely, and Jones.

Say, Jean-Baptiste. 1816. *England and the English people.* London: Sherwood, Neely, and Jones.

Sechrest, Larry. 2000. Jean-Baptiste Say: Neglected champion of laissez-faire. *Mises Institute*, June 15. http://mises.org/page/1462/Biography-of-JeanBaptiste-Say-Neglected-Champion-of-LaissezFaire (accessed October 30, 2012).

Sowell, Thomas. 1972. *Say's Law.* Princeton, NJ: Princeton Univ. Press.

Spiegal, Henry. 1971. *The growth of economic thought.* Upper Saddle River, NJ: Prentice-Hall.

SCHUMPETER, JOSEPH

Born: February 8, 1883, in Triesch, Moravia, Austria-Hungary; Died: January 8, 1950, in Taconic, Connecticut; Nationality: Austrian; Professional Interests: business cycles, economic development, entrepreneurship, evolutionary economics; Major Works: "The Common Sense of Economics" (1933), *Theory of Economic Development* (1934), *Business Cycles* (2 vols., 1939), *Capitalism, Socialism and Democracy* (1942), *History of Economic Analysis* (1964).

Joseph Schumpeter was an Austrian economist who developed a comprehensive theory about economic growth and business cycles that saw the entrepreneur as a major reason for economic growth and evolution. He was responsible for the term *creative destruction* as a way of describing economic growth. He was also a strong proponent of the use of mathematics in economics. Schumpeter died in 1950.

Joseph A. Schumpeter was born on February 8, 1883, in Triesch, Moravia (now the Czech Republic), in what was then Austria-Hungary. His father, who owned a factory, died while Schumpeter was still very young. Schumpeter would remain very close to his mother for the rest of her life. When she remarried, Schumpeter's stepfather was able to send him to a prestigious school, which prepared him well for attending the University of Vienna.

While there, Schumpeter studied law and economics. He also spent some time at Cambridge, Oxford, and the London School of Economics. In the area of economics, Schumpeter was a student of two of the leading members of the Austrian School: Friedrich von Weiser and Eugen von Böhm-Bawerk. Despite this, Schumpeter's beliefs did not develop along the lines of that school; instead, he chose to follow a more classical line of inquiry in his work.

Upon leaving the University of Vienna, Schumpeter took a teaching post at the University of Czernowitz, where he remained from 1909 until being offered a position at the University of Graz in 1911 at the age of 28. Schumpeter was the youngest professor in the entire Austro-Hungarian Empire.

In 1912, Schumpeter completed his first major work. His *Theory of Economic Development* was received to critical acclaim. But it did not receive wide recognition until it was translated into English in 1934. It was in the *Theory of Economic Development* that he first addressed one of the areas that would make him a major figure in 20th-century economics: the role of the entrepreneur. While entrepreneurs had been a subject of study throughout classical economics, Schumpeter made a clear distinction between the role of the entrepreneur and the role of the manager.

After World War I, the Austro-Hungarian Empire was dismantled. Austria, like its ally Germany, was in dire financial straits. Additionally, the winds of socialism were blowing across much of central Europe. In this climate, Schumpeter was appointed minister of finance for the new Austrian Republic in 1919. Unfortunately, his ideas were not popular, and he left the post the next year. He followed this with a stint in banking, which was also not successful. In 1925, Schumpeter found himself at a low point. He enthusiastically accepted a position at the University of Bonn, in Germany. While he was at Bonn, his "Explanation of the Business Cycle" was published in the journal *Economica*. This was a precursor to his two-volume work, *Business Cycles*. He left Bonn in 1932, concerned about the rise of Hitler and the Nazi Party in Germany.

Schumpeter landed in the United States at Harvard. He stayed there until his retirement in 1949. It was at Harvard that the rest of his major works took shape. *Business Cycles* was published in 1939. Schumpeter's theory begins with a static analysis, assuming a period of stability. However, the stability is punctuated by periods of upheaval. These booms represent eras of innovation that result in fundamental changes in production. Over time, the resulting changes lead to periods of dynamic growth that are occasionally punctuated by downturns as the resources of the economy are reallocated. The innovation that causes this instability is generated, to a certain extent, by the entrepreneur working in an environment that allows innovation to take place.

Schumpeter followed that work with *Capitalism, Socialism and Democracy* (1942). It was through this work that two of his most famous ideas became part of the public discussion. The first was his belief that, despite its superiority, capitalism would eventually be replaced by socialism. The success of capitalism would, in his view, lead to the rise of a large class of intellectuals. These same intellectuals would make their living from attacking the system that made their existence possible. But this work also built on some of his earlier work. The success of capitalism was due, in his view, in large part to the entrepreneur. It was here that the second of his famous ideas from this book came into play.

According to Schumpeter, it is the entrepreneur who unleashes what Schumpeter labeled creative destruction. Creative destruction disrupts the static situation that is represented by the circular-flow diagram. This disruption causes the creation of new enterprises and the destruction of the old, with resources being reallocated in the process. This is the cause of the underlying dynamism that was described in *Business Cycles*. Furthermore, creative destruction was the connection between the microeconomics we see in studying the firm and the macroeconomics we see in studying policy. It is the enterprise that creates change, which results in new policies, which change incentives, which lead to new enterprises.

Schumpeter held a number of roles of professional leadership during his career. He was a founding member of the Econometric Society in 1933, president of the American Economic Association in 1948, and chair of the International Economic Association in 1949. During his tenure at Harvard, Schumpeter counted Paul Samuelson, Wassily Leontief, and James Tobin among those he worked with or influenced.

His last major work, *History of Economic Analysis,* was published by his wife in 1964, 14 years after his death.

Joseph Schumpeter died at his home in Taconic, Connecticut, on January 8, 1950.

Timothy P. Schilling

See also: Austrian Economic Thought; Böhm-Bawerk, Eugen von; Capitalism; Menger, Carl; *Vol. 2: Macroeconomics:* Friedman, Milton; Samuelson, Paul; Tobin, James; *Vol. 3: Microeconomics:* Pareto, Vilfredo; Walras, Leon

Further Reading

Blaug, Mark, and Paul Sturges. 1983. *Who's who in economics: A biographical dictionary of major economists, 1700–1980*. Cambridge, MA: MIT Press.

Henderson, David R., ed. 2008. Joseph Alois Schumpeter. In *The concise encyclopedia of* economics. Library of Economics and Liberty. http://www.econlib.org/library/Enc/bios/Schumpeter.html (accessed October 30, 2012).

McCraw, Thomas. 2010. *Prophet of innovation: Joseph Schumpeter and creative destruction.* Cambridge, MA: Harvard Univ. Press.

Schulak, Eugen-Maria, and Herbert Unterkofler. 2012. Joseph A. Schumpeter: Maverick and enigma. Mises Institute, January 26. http://mises.org/daily/5857/Joseph-A-Schumpeter-Maverick-and-Enigma (accessed October 30, 2012).

Schumpeter, Joseph. 1927. Explanation of the business cycle. *Economica* 21: 286–311.

Schumpeter, Joseph. 1933. The common sense of econometrics. *Econometrica* 1 (1): 5–12.

Schumpeter, Joseph. 1934. *Theory of economic development.* Cambridge, MA: President and Fellows of Harvard College.

Schumpeter, Joseph. 1939. *Business cycles.* 2 vols. New York: McGraw-Hill.

Schumpeter, Joseph. 1942. *Capitalism, socialism and democracy*. New York: Harper and Brothers.

Schumpeter, Joseph. 1951. *Ten great economists.* New York: Oxford Univ. Press.

Schumpeter, Joseph. 1964. *History of economic analysis*. New York: Oxford Univ. Press.
Swedberg, Richard. 1992. *Schumpeter: A biography*. Princeton, NJ: Princeton Univ. Press.

SECOND INDUSTRIAL REVOLUTION

Historians have labeled the years from 1870 to 1914 as the period of the second Industrial Revolution. The first Industrial Revolution was regional and primarily affected manufacturers and urban dwellers. The second Industrial Revolution introduced mass-produced goods into an increasingly technologically dependent and international market. It was during the second Industrial Revolution that Henry Ford mastered the moving assembly line and ushered in the age of mass production. The second Industrial Revolution brought a period of rapid growth that increased the standard of living for many Americans and created for the first time a distinct middle class. The United States became a world leader in applied technology. From 1860 to 1890, patents were issued for 500,000 new inventions, over ten times the number issued in the previous 70 years.

Manufacturing in the United States climbed steadily during the second Industrial Revolution, while the percentage of Americans working in agriculture continued to decline from 84 percent in 1800 to less than 40 percent by the beginning of the 20th century. It was also during this time that the rise of advanced capitalist economies split the globe into "advanced" and "backward" regions, creating a distinct group of industrial nations. Economic theory reveals that if one economy is a technological innovator while another economy is a technology adopter, the innovator will maintain a lead in income per capita relative to the adopter. The income gap between the two economies persists over time, even though the technology adopter ends up incorporating all of the technological advances made by the innovator.

The second Industrial Revolution has shown that to be a sustainable leader in economic growth, it is vital to be an innovator of technology. Notably, once new technology has been introduced, several decades will pass before productivity growth actually increases. Historians hypothesize that this delay occurs for a number of reasons. One possibility is that manufacturers are reluctant to abandon the expertise they've accumulated with the old technologies that are currently in use; further, in many cases their plants were designed around these old technologies. The development of electricity did not have an immediate payoff in terms of higher productivity. First of all, U.S. manufacturers were slow to accept the new innovations based on electricity, since a substantial investment of new equipment and capital would be needed. Once the plants began using this new technology, it took time to learn how best to take advantage of it. In the old economy, the pace of technological change and the introduction of new technologies were relatively slow, and thus manufacturers spent a relatively long time building up knowledge and expertise with a given technology.

In time, existing technology will eventually be replaced by new technology—in a process Joseph Schumpeter famously termed *creative destruction*. New advances are not painless to those using and producing older technologies. The phases of technological change have a slow start, because the technology is not fully understood or established. These are the early years where research and development costs are high and little if any savings is achieved. The second phase is characterized by a rapid learning process, where new discoveries are often followed by other new discoveries. In the third phase, costs begin to come down and substantial savings can be realized. In the final phase of the technology growth cycle, advances begin to slow. This is characteristic of all learning processes as they approach their theoretical limit and the law of diminishing returns begins to restrict benefits.

Dale Johnson

See also: Capitalism; Creative Destruction; Industrial Revolution; Schumpeter, Joseph; *Vol. 3: Microeconomics:* Markets; Technological Innovation

Further Reading

Atkeson, Andrew, and P. J. Kehoe. 2001. *The transition to a new economy after the second Industrial Revolution.* National Bureau of Economic Research. Working Paper 8676. http://www.nber.org/papers/w8676.pdf. (accessed November 10, 2014).

Beer, S. 1981. *Brain of the firm.* New York: Wiley.

Economist Staff. The third industrial revolution. 2012. *The Economist*, April 21. http://www.economist.com/node/21553017 (accessed November 10, 2014).

Mokyr, Joel. August 1998. *The second Industrial Revolution, 1870–1914.* https://sites.northwestern.edu/jmokyr/files/2016/06/The-Second-Industrial-Revolution-1870-1914-Aug-1998-1ubah7s.pdf (accessed November 10, 2014).

Sachs, J. D., and McArthur. n.d. *Technological advancement and long-term economic growth in Asia.* http://earth.columbia.edu/sitefiles/file/about/director/pubs/tech_new_economy02.pdf (accessed November 10, 2014).

SELF-CONTROL

Self-control refers to the exertion of conscious, effortful control over actions, thoughts, and even emotions. The term is used interchangeably with self-regulation, self-discipline, ego strength, delay of gratification, and willpower, and it can mean a variety of different things. It may be something as simple as controlling an immediate, reflexive reaction to a positive or negative stimulus occurring in the environment or originating within the body or mind. Alternatively, it may refer to directing attention and maintaining focus to stick with a consciously deliberated plan in the presence of distracting stimuli. In all cases, the core idea is one of exercising control over behavior.

In the brain, the control over action and thoughts is believed to reside in the prefrontal cortex region, which is the anterior portion of the frontal lobes. It is often described as higher-order executive control over lower brain processes that are involved with the planning and execution of actions. Several neuroscience studies have shown that damage to the prefrontal cortex impairs ability to exercise self-control. This part of the brain develops during childhood and adolescence, and it is not fully developed till late adolescence—which might explain why, relative to adults, youth are more impulsive and more prone to risk-taking.

Some psychologists argue that over short periods of time, self-regulation is like a finite resource; when more self-regulation is used in one task, less of it is available for a subsequent task. In a series of experiments, Baumeister and colleagues (Muraven et al. 1998) have shown that individuals who were given a more effortful task performed worse on a subsequent task than other individuals who were given a less effortful first task. Other characterizations of self-control highlight the operation of dual psychological processes, one being the "fast" or "hot" system, which responds quickly to stimuli, and another, which is "slow" or "cold" and takes a more deliberated approach to formulating a response. Self-control then is the ability to override the fast and hot system with the more considered slow and cold system (Kahneman 2011).

The ability to exercise self-control is often treated as a personality trait, and a noncognitive skill. Research from longitudinal studies has shown quite consistently that differences in self-control in early childhood are good predictors of several later-life outcomes, including educational attainment, income, savings, substance use, and even criminal behavior. Even though traits exhibit a substantial degree of heritability, they also develop via training and socialization, thus offering considerable potential for development in school and home environments.

Because self-control is necessarily about the trade-off between lower-valued short-term outcomes and higher-valued, but discounted, longer-term outcomes, its standard treatment is framed in terms of intertemporal choice. But various experimental findings cast doubt on the assumptions of these models, in particular on the inconsistency of preferences. Alternative models in behavioral economics have taken a more realistic approach to human behavior. In these models, the role of self-control is conceptualized in terms of a conflict between myopic, short-term interests, and patient, longer-term interests.

One way of modelling this is by examining how individuals who have essentially long-term interests get a short-term, more realistic, counterpart of themselves to execute a plan (Thaler and Shefrin 1981). The long-term planner is treated as the principal (individual) and the short-term counterpart is the long-term planner's agent. Another, essentially similar, approach is to model the decision-maker as made up of one patient long-term self and a sequence of myopic short-term selves, make assumptions about the preferences of these various selves and interactions between them, and then examine the implications of self-control (Fudenberg and Levine 2006). What differentiates these models from the more standard intertemporal choice models is that they have more realistic depictions of human behavior, and as a result their conclusions and predictions are more reasonable.

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See also: Emotions and Decision-Making; *Vol. 3: Microeconomics:* Dual Motive Theory and Dual Interest; Kahneman, Daniel; Thaler, Richard

Further Reading

Fudenberg, Drew, and David K. Levine. 2006. A dual-self model of impulse control. *American Economic Review* 96: 1449–76.

Kahneman, Daniel. 2011. *Thinking, fast and slow*. New York: Farrar, Straus & Giroux.

Muraven, Mark, Dianne M. Tice, and Roy F. Baumeister. 1998. Self-control as a limited resource: Regulatory depletion patterns. *Journal of Personality and Social Psychology* 74 (3): 774–89.

Thaler, Richard H., and Hersh M. Shefrin. 1981. An economic theory of self-control. *Journal of Political Economy* 89: 392–406.

SEMINOLE TRIBE OF FLORIDA V. FLORIDA

Seminole Tribe of Florida v. Florida, 517 U.S. 44 (1996) was a Supreme Court case that determined the extent of an Indian nation's economic autonomy. The case's economic impact on the Native American economy lay in the transition from a traditional economic system to a market-based system. The Supreme Court addressed a confrontation between tribal sovereignty, states' rights, and federal supremacy powers. It determined the economic future and direction of Native Americans throughout the United States.

The Seminole tribes struggled through economic challenges as their way of living changed from their traditional economy to a market-based economy. The Indian gaming industry was an evolution of ideas starting with bingo and graduating to class III high-stakes gambling (high-stakes gambling venues such as casinos and racetracks). The revenue from these businesses and other associated enterprises allowed the Seminole Indian tribes to support health care facilities, schools, roads, and other such infrastructure and to distribute dividends from the profits among the entire group of remaining tribe members. With this case, the Supreme Court determined the extent of an Indian nation's economic autonomy.

Case Summary

The Seminole are a blend of various Southeastern Indians who relocated to what is now the state of Florida. After the Civil War, the U.S. Congress passed several acts that relocated the Indians to reservations. The Seminole tribe of Florida's reservations included Hollywood, Big Cypress, and Brighton, all located in southern Florida near Lake Okeechobee and the Everglades.

Much of the background of this case centers on the tribe's economic evolution and the federal Indian policy of the early 20th century. In the 1930s, Congress recognized hundreds of Indian tribes on lands held in trust by the federal government. As wards of the state, these tribes were provided with economic support by the federal government and were granted tribal sovereignty. After World War II, Congress reversed its Indian policy. In 1953, Public Law 280 was passed, which gave the states control over criminal and limited civil issues within Indian territories. In addition, in an effort to encourage Native Americans to assimilate into mainstream American society, Congress terminated the legal status of over 100 tribes throughout the United States, which eliminated a great deal of their revenue. Most reservations during this time were geographically isolated from the economic resources necessary to grow prosperous communities.

The 1976 Supreme Court decision in *Bryan v. Itasca County* paved the way for alternative economic initiatives within Indian reservations. Members of the Minnesota Chippewa tribe, the Bryans, sued Itasca County, Minnesota, claiming that states did not have the right to assess a tax on Native American property located on Indian reservations. The state of Minnesota claimed that Public Law 280 gave the states an inherent power to tax Indian property on reservations. The Supreme Court ruled in favor of the Bryans. The Court held that Congress had that power through the Indian Commerce Clause, and the states could share in that only if Congress specifically granted that authority to them.

In the 1970s, the Seminole tribe built a bingo hall. The state of Florida allowed bingo two days a week for charitable organizations, with maximum jackpots of $100. In 1979, the tribe opened the bingo hall six days a week, with increased jackpots. The state of Florida shut it down because it violated Florida laws. An important political precedent was whether the Seminole tribe had the right to sue the state or whether the Eleventh Amendment to the U.S. Constitution (which gives the states sovereign immunity, whereby they cannot be sued in federal court without their consent) provided Florida with immunity.

In *Seminole Tribe of Florida v. Butterworth* (1981), a federal court ruled in favor of the Seminole tribe, affirming Indian sovereignty, federal supremacy, and the states' obligation to negotiate in good faith with the Indian tribes regarding gaming. In 1987, in *California v. Cabazon Band of Mission Indians*, the Supreme Court again confirmed that Indian gaming was to be regulated exclusively by Congress and not by state governments. In 1988, President Reagan signed the Indian Gaming Regulatory Act (IGRA), which established a federal commission to oversee the regulation of Indian gambling. Central to the IGRA was the duty of state officials to negotiate with the Indian tribes and enter into compacts that balanced states' rights, Indian sovereignty, and federal power. By 1991, 121 Indian tribes in 23 states had entered into 137 compacts pursuant to the IRGA.

In 1991, the Seminole Indians sued the state of Florida and its governor, alleging that they had failed to negotiate in good faith toward a tribe–state compact. The state of Florida moved to dismiss the suit on the grounds that the Eleventh Amendment to the Constitution prohibited states from being sued without their consent. The district court denied this motion, and Florida appealed to the Eleventh Circuit Court. That court reversed the district court's decision regarding the state of Florida's Eleventh Amendment rights and remanded the case (sent it back to the lower court) with instructions to dismiss the petitioner's suit.

The Seminole tribe was granted certiorari (a request by a higher court to a lower court for the files of a case to be sent up for the higher court to review) by the Supreme Court in 1995. The question was whether or not the Seminole tribe could sue the state of Florida. Florida repeated its Eleventh Amendment argument. The plaintiff supported its argument by pointing to *Ex parte Young*, a 1908 Supreme Court case that affirmed that officials representing a state could be sued when the litigation involved possible abridgment of constitutional rights. In oral arguments, the attorney for the Seminoles made it clear that the state needed to adhere to the duty required in the IRGA or there was no need for the state to be a part of this regulatory function. For the tribe, working with a single regulator, the federal government, was preferable to dealing with two regulators, state and federal. Florida's response questioned the obligation to negotiate if the only remedy was to agree with the federal government. Florida argued that negotiation choice is actually no choice, using the example that tribal gambling was illegal in Florida, but even so was happening on Indian reservations. Therefore, they would rather yield to the federal government than have Florida write regulations that could be overruled by the federal government nonetheless.

Chief Justice Rehnquist delivered the Court's opinion, in which he stated that Congress does not have the authority under the Commerce Clause to subject states to suit in federal court; nor does *Ex parte Young* allow a suit against state officials, except in a particular circumstance that was not at issue in this case. In a 5–4 vote, the Supreme Court affirmed the Eleventh Circuit Court's dismissal of the petitioner's suit. Furthermore, Chief Justice Rehnquist wrote that even if Congress intended to abrogate the states' sovereign immunity, the Indian Commerce Clause does not grant Congress that power. Therefore, the courts cannot grant jurisdiction over a state that does not consent to be sued. In the dissenting opinion, both Souter and Stevens penned different perspectives yet agreed that Congress could not abrogate state sovereign immunity. However, they did not agree that a state official and a state were the same thing. The federal government can sue a state in order to require the state to follow federal mandates, this being a political safeguard of federalism.

Kathleen C Simmons

See also: Economic Systems; Sustainability; Market Capitalism; Reagan, Ronald; Supreme Court; *Vol. 2: Macroeconomics:* Taxes

Further Reading

Certiorari to the United States Court of Appeals for the Eleventh Circuit No. 94-12. http://caselaw.lp.findlaw.com/scripts/getcase.pl?court=US&vol=000&invol=U10198 (accessed April 12, 2013).

Cornell University Law School, Legal Information Institute. n.d. *Seminole Tribe of Florida v. Florida*. http://www.law.cornell.edu/supct/html/historics/USSC_DN_1995_0041_ZS.html (Summary of the case.) (accessed April 12, 2013).

Cornell University Law School, Legal Information Institute. n.d. *Seminole Tribe of Florida v. Florida*. http://www.law.cornell.edu/supct/html/historics/USSC_DN_1995_0041_ZO.html (Transcript of Chief Justice Rehnquist's majority opinion.) (accessed April 12, 2013).

Cornell University Law School, Legal Information Institute. n.d. *Seminole Tribe of Florida v. Florida*. http://www.law.cornell.edu/supct/html/historics/USSC_DN_1995_0041_ZD.html (Transcript of Justice Stevens's dissenting opinion.) (accessed April 12, 2013).

Cornell University Law School, Legal Information Institute. n.d. *Seminole Tribe of Florida v. Florida*. http://www.law.cornell.edu/supct/html/historics/USSC_DN_1995_0041_ZD1.html (Transcript of Justice Souter's dissenting opinion.) (accessed April 12, 2013).

OYEZ, ITT Chicago-Kent College of Law. n.d. *Seminole Tribe of Florida v. Florida*. http://www.oyez.org/cases/1990-1999/1995/1995_94_12/ (Facts of the case.) (accessed April 12, 2013).

Watson, Larry S., ed. 1991. *Indian treaties. Vol. V: Florida Indians—Based on Charles J. Kappler*. Yuma, AZ: Histree Co.

SEPTEMBER 11 TERRORIST ATTACKS AND RECESSION, 2001

The September 11 terrorist attacks' economic impact on the United States had short-term and long-term costs as well as direct and indirect costs. The total cost to the country was estimated at more than $3.3 trillion. The insurance loss of more than $40 billion was the largest in U.S. history, surpassing the previous largest disaster, Hurricane Andrew, by one and one-half times. In addition, it would become the world's largest insurance loss. The shutdown of air traffic for a week took many airlines to the edge of bankruptcy with long-term losses exceeding $10 billion. Loss of jobs, work, and tourism probably cost New York City near $50 billion in the long run.

The federal government poured more than $20 billion into various forms of assistance. Long-term security costs were in the billions for the transportation industries and city governments. Although the stock market drop of 600 points was temporary, the attack moved the United States into a full-blown recession. The indirect war costs in Iraq and Afghanistan surpassed $1.6 trillion. Right after the attack, the Federal Reserve added $100 billion per day in liquidity to the U.S. banking system to prevent a wider financial crisis.

The September 11 attacks took their greatest toll in 2,996 human lives. The Dow Jones Index suffered its worst one-day drop and biggest one-week drop after the attacks. They created a short-term panic on the stock market, but it was the long-term costs that hurt more. The total monetary costs are staggering. The breakdown of the $3.3 trillion total cost of the event put physical costs at $55 billion, economic impact at $123 billion, homeland security at $589 billion, war costs at $1,649 billion, and projected veteran costs at $867 billion.

The physical building replacement costs included $3.5 billion for the Twin Towers and $1 billion for the Pentagon. Related infrastructure costs were $13 billion. Cleanup costs were more than $1.3 billion. The cost of the four airplanes hijacked by the terrorists was $385 million. The physical total of $55 billion surpassed the previous Hurricane Andrew record in 1992 of $25 billion. Insurance companies and their stocks took a heavy hit. Berkshire Hathaway paid claims exceeding $2 billion, and European insurers had a major portion of the claims. Insurance companies did have significant reserves to make the payouts, but they have since had to put limits on payouts for these types of disasters.

The economic impact costs are more difficult to estimate. The estimated loss in air traffic was more than $10 billion, with another $2 billion attributed to other forms of transportation. The travel and airline industries suffered long-term negative effects as well. Fear of flying increased dramatically. Total costs to overall business disruption were estimated near $12 billion. New York City recorded a job loss of 83,000 in the year after the attack. At least 10,000 small companies were destroyed. Tourism in New York dropped around $4 billion. On the stock market, insurance, airline, airplane manufacturer, bank, financial, and travel stocks declined the most.

Security costs for all types of public events and businesses increased. Security costs added to the problems of the already-struggling airlines. Airport security created long lines and lost time, as customers had to arrive at airports hours ahead of time. Many estimate that lost work time for line waiting has also run in the billions each year. Airports that had been developing business models for increasing consumer shopping were restricted as family and friends waiting for passengers could no longer gain access to airport stores. Major sporting events took on major security costs. Nuclear plants, water-processing plants, major tourist attractions, sporting events, and large malls took on huge increased security. Americans also gave up some privacy rights in exchange for greater security with the passage of the USA PATRIOT Act.

The largest indirect costs were the two wars that followed the September 11 attacks. Known in total as the "war on terror," these government actions would include two of America's longest wars. The wars and the rebuilding funds for Iraq and Afghanistan would be part of this decade of unprecedented spending. The spending continued into 2016. Clearly, the September 11 attacks have dominated the economic history of the United States so far this century. The effects of the September 11 attacks on the recession are less clear, because the United States was already on the path to recession before the attacks. The dot-com crisis and September 11 both contributed to an economy in decline. Before these events, the Federal Reserve had already been raising interest rates in an effort to slow speculation and the economy. Unfortunately, these events hit the economy hard and took the Federal Reserve off its plan. Inflation of house prices and commodities continued. The brief 2002 recession was, to a large degree, a typical contraction of the expansion of the 1990s. The lagging indicator of unemployment showed the impact of the overall recession. The year 2001 recorded a loss of 1.8 million jobs. The unemployment rate started that year at 4.3 percent and ended at 5.7 percent. The unemployment rate peaked at 6.3 percent in June 2003. The stock market did not fully recover until 2003. Based on traditional measures, the 2002 recession was one of America's shortest. The economy continued its expansion, fueled by the growing housing bubble and inflation.

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See also: *Vol. 2: Macroeconomics:* Federal Reserve System; *Vol. 3: Microeconomics:* Bursting of the Dot-Com Technology Bubble.

Further Reading

Alexander, Dean C., and Yonah Alexander. 2002. *Terrorism and business: The impact of September 11, 2001.* New York: Transnational Pub.

Dudziak, Mary L., ed. *September 11 in history: A watershed moment?* Durham, NC: Duke Univ. Press, 2003.

SLAVERY AND SLAVE TRADE

Slavery has existed almost everywhere in the world. The definition of *slavery* is the state of being owned by another person. Slavery was very destructive toward the physical and emotional aspects of each slave. Slaves are treated poorly, are frequently bought and sold, and are forced to carry out difficult duties and submit to many restrictions. Around the world, slavery has affected the way people respect and view other people. Today, most societies that had slavery as a part of their culture have enacted laws and restrictions to end slavery.

Slavery began in North America in roughly 1619 when a Portuguese ship brought 50 African slaves to Jamestown, Virginia, where ships could trade with colonists. The ship's crew was starving, so they traded 20 of these slaves for food and other necessities. The letters that recorded this transaction are the most reliable evidence of the earliest slavery; however, slavery could have existed in the colonies prior to 1619.

As the new country developed, Virginia became more populous and needed more laborers. One result of this can be seen in Bacon's Rebellion, which took place when Nathaniel Bacon led black and white men to revolt against the leaders of Virginia. This unity of black and white scared Virginia's ruling class, so they abolished the prevalent indentured servitude and replaced it with racial slavery. (An *indentured servant* is a person who signs and is bound by indentures to work for another for a specified time, especially in return for payment of travel expenses and maintenance.) Many slaves initially were taken prisoner by black slave traders within Africa; the slave traders sold them to Europeans, who brought them to America to sell. Slavery increased as the 1600s went forward, with the maximum number of slaves being brought from Western Africa to America in the 1800s, by which time over 80,000 Africans were sent to America annually to be slaves. Upon reaching America, two-thirds of slaves were put into the labor force, which is twice the number of free people in the labor force.

Owners regularly mistreated their slaves, although the mistreatment varied depending on many situations. Most slaves either worked in the tobacco or cotton fields or in the sugar industry. By 1850, more than 50 percent of the slaves in the United States were cotton workers; another 12 percent worked with tobacco, 5 percent with sugar, and 4 percent with rice. Working in the fields meant working from sunrise to sunset, six days a week, and being given very little food for such intense labor. The shacks that slaves were housed in had dirt floors and little or no furniture.

Although African slavery, and slavery in general, has been reduced, different types of slavery are still being practiced. It is said that 21 million to 36 million people are enslaved worldwide. Approximately 75 percent of these slaves are in forced-labor slavery, such as farming or ranching, where they're needed for manual labor. Forced-prostitution sex slavery accounts for another 22 percent. Children make up 26 percent of slaves. Slavery today is a very quiet, hidden process, making it difficult for society to identify and help the people who are affected. There are many variables influencing today's slavery, such as the increase in population size; the vulnerability of the migrants being trafficked; governments that still allow slavery to go unpunished; and discrimination across different cultures, gender, and race.

Francine Staudacher
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See also: Discrimination and Behavioral Economics; Human Capital; Resources

Further Reading

About Education. n.d. Slavery and the slave trade. africanhistory.about.com/od/slavery/ (accessed October 30, 2015).

Eyewitness to History. 2007. A slave's life. www.eyewitnesstohistory.com/slavelife.htm (accessed October 30, 2015).

Eyewitness to History.com. 2007. Slave trade: The African connection, ca 1788. www.eyewitnesstohistory.com/slavetrade.htm (accessed October 30, 2015).
History.com. 2009. Slavery in America. www.history.com/topics/black-history/slavery (accessed October 30, 2015).
Gilder Lehman Institute of American History. n.d. Facts about the slave trade and slavery. https://www.gilderlehrman.org/history-by-era/slavery-and-anti-slavery/resources/facts-about-slave-trade-and-slavery (accessed October 30, 2015).
ushistory.org. 2016. Slave life and slave codes. In *U.S. History Online Textbook*. www.ushistory.org/us/27b.asp (accessed October 30, 2015).

SMITH, ADAM

Baptized: June 5, 1723 (exact birth date unknown), in Kirkcaldy, Scotland; Died: July 17, 1790, in Edinburgh, Scotland; Nationality: Scottish; Professional Interests: moral philosophy, political economy (economic theory); Major Works: *The Theory of Moral Sentiments* (1759), *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776).

Adam Smith is considered the father of modern economics. The theories contained in his seminal book, *The Wealth of Nations,* include division of labor, the importance of competition, the idea of the "invisible hand," and arguments for free trade. These concepts form much of the foundation of modern economic thought. Though Adam Smith is considered the founder of free-market economics, other ideas that he held, such as the labor theory of value, were used by later writers to form the foundation for socialism. For his part, Smith was a quintessential Enlightenment thinker. He believed in natural rights, natural law, and limited government. Theology had little place in his writings. He viewed the world, human society, and hence the economy as being governed by natural law that if left on its own would work smoothly, like a grand machine. Smith died in 1790.

Adam Smith was born in Kirkcaldy, Scotland, in 1723. His father, a lawyer and customs official, died shortly before his birth. He was raised by his mother, Margaret Douglas, with whom he had a close, lifelong relationship. At the age of seven, he was enrolled at the reputable Burgh School of Kirkcaldy, where he studied classics and mathematics. He studied moral philosophy at Glasgow University and Oxford University. Upon graduating, he sought an academic career, eventually becoming the professor of moral philosophy at Glasgow. He held this position for 13 years, during which time he assembled his lecture notes into a book titled *The Theory of Moral Sentiments*, published in 1759. In *The Theory of Moral Sentiments,* Adam Smith argues that human morality originates through a natural desire to identify with the emotions of others.

Smith quit his position at Glasgow when he was offered a lucrative job as tutor to a Scottish duke. Though this job lasted only about two years, it provided Smith with a pension on which he could live for the next decade without having to worry about other employment.

The Wealth of Nations begins with the observation that "division of labor," or specialization, is essential for increasing the production of wealth. Division of labor occurs because human beings have a tendency to "truck, barter, and exchange one thing for another," that is, to trade. This causes people to become dependent on one another. Smith's fundamental insight is his explanation of how this complex interdependence is organized: Trade and division of labor occur because of individual self-interest, not from kindness or the designs of politicians. When individuals act as they see best, within the constraints of the law and in a competitive business environment, the economy organizes itself naturally, as if guided by an "invisible hand."

Trade was a controversial issue in the British Empire in Smith's time, and *The Wealth of Nations* was a powerful weapon for those who favored free trade. The book explains that division of labor is limited by the extent of the resources available to a market and that a greater division of labor, and therefore greater wealth, could be obtained by expanding the market through global trade. It also sharply criticizes the ideas of mercantilism, which hold that a country should attempt to accumulate gold by encouraging exports and discouraging imports. By showing the importance of trade, Smith gained great popularity among merchants, whose work had previously been considered distasteful.

While Smith's work legitimizes the work of traders and capitalists, it asserts that an item receives its value from the work of the laborers who made it; this is called the labor theory of value. The labor theory assumes that a given commodity has a natural price that is made up of the amount of work that went into producing it. However, this natural price is difficult to know, since the circumstances of the world can cause the price for which the item is actually sold to change. Smith explains that the sale price will gravitate to the natural labor price, even if the two prices are not always exactly the same. In this analysis of value, Smith recognizes the importance of supply and demand (which had been described by earlier economic thinkers) but defers to the labor theory of value.

The labor theory has been rejected by economists, who now see value as something subjective and price as being determined by supply and demand. It gained adherents, however, in David Ricardo and Karl Marx. Marx built his entire economic philosophy on the labor theory, and he drew other parts of socialist thought from elements of Smith's macroeconomic observations. Later economists used Smith's work in a different way, applying his concepts of supply and demand, competition, spontaneous order, market price, and voluntary trade to all areas of economic thought, eclipsing the indefensible-labor theory and turning economics into the versatile social science that it is today.

Adam Smith died on July 17, 1790, in Edinburgh, Scotland. His gravesite in Edinburgh has become a shrine and symbol of free markets, capitalism, and the strength and power of individual freedom.

Stephen H. Day

See also: Capitalism; Economic History; Economic Systems; Marx, Karl; Moral Sentiments and Adam Smith; Quesnay, François; Ricardo, David

Further Reading

Buchan, James. 2006. *The authentic Adam Smith: His life and ideas.* New York: Norton.

Colander, David, and A. W. Coats, eds. 1989. *The spread of economic ideas*. Cambridge, UK: Cambridge Univ. Press.
McKenna, Stephen. 2006. *Adam Smith: The rhetoric of propriety.* Albany: State Univ. of New York Press.
Muller, Jerry Z. 1993. *Adam Smith in his time and ours: Designing the decent society.* Princeton, NJ: Princeton Univ. Press.
Otteson, James R., and John Meadowcroft. 2011. *Adam Smith.* New York: Continuum International.
Phillipson, Nicholas. 2010. *Adam Smith: An enlightened life.* New Haven, CT: Yale Univ. Press.
Rae, John. 2010. *Life of Adam Smith.* Charleston, SC: Nabu Press.
Shapiro, Michael J. 2002. *Reading "Adam Smith": Desire, history and value.* Lanham, MD: Rowman & Littlefield.
Smith, Adam. 1759. *The theory of moral sentiments.* London: A. Millar, A. Kincaid, and J. Bell.
Smith, Adam. 1776. *An inquiry into the nature and causes of the wealth of nations.* London: J. J. Tourneisen and J. L. Legrand.

SOCIAL CAPITAL AND BEHAVIORAL ECONOMICS

What is *social capital*? As several social scientists have emphasized, it is a concept that can bridge various estranged social sciences—political science, economics, psychology, sociology, and anthropology. Social capital is assumed to consist of a set of norms, networks, and organizations through which people can gain access to power and resources, and through which decision-making and policy formation take place. Because it has been defined in a number of social sciences, economist Joseph Stiglitz (2000, 59) has found social capital to be "a concept with a short and already confused history."

For sociologist James Coleman (1988, 598), *social capital* can be defined as "a variety of different entities, with two elements in common: they all consist of some aspects of social structure, and they facilitate certain actions of actors—whether personal or corporate actors—within the structure." A narrower definition, or perhaps a better one, has been provided by political scientist Robert Putnam (1993, 322): *Social capital* has "features of social organization such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions."

On the basis of such definitions, we can argue that social capital is the glue that holds society—thus, the economy—together. This function can take in two different forms: (1) structural, through rules, procedures and networks; and (2) cognitive; consisting of norms, values, and attitudes like trust that influence the actions of economic agents.

As some economists have argued, social capital can be useful in both the micro level and the macro level of the economy, enhancing the way markets function and, by improving the performance of various institutions, enhancing society's legal framework and government's impact on the economy.

However, not all economists have been enthusiastic about the use of social capital in economic analysis. For example, Robert Solow (2000) found it misleading to include capital in the term *social capital*, because capital is usually identified with tangible, durable, and alienable objects such as buildings and machines whose accumulation can be estimated and whose worth can be assessed. Barron and Hannon (1994) criticized the "social capital" metaphor, arguing that to qualify as capital an entity must possess an opportunity cost, something that social capital lacks. Kenneth Arrow (2000) urges the abandonment of the "capital" metaphor, and thus the term *social capital*, emphasizing that capital implies a deliberate sacrifice in the present for future benefits, which he claims does not apply to elements of social capital. Interestingly, even some institutional economists find the use of the term *social capital* problematic. According to Schmid (2002, 747), "Institutional economists have long argued that social relationships involved in habit, custom, norms and law make a difference in the realization of the potential in physical goods and human skills. But a new name extending the capital metaphor is not needed to describe the institutions of collective action"

Social capital has relevance to behavioral economics. With indirect roots in the works of Adam Smith, social capital is a paradigm that is capable of bridging various social sciences (Hosseini, 2004). This makes it very appropriate for behavioral economics. After all, behavioral economists have tried to make economics consistent with carious social sciences—in particular, psychology. This connection explains why, for example, Jeffrey Dayton-Johnson (2003) incorporates the concept of social capital into a behavioral economics model, where social capital has an impact on the choices made by individuals. Also, social capital can help, for example, explain economic underdevelopment in terms of affecting the choices of decision-making at a multiplicity of levels (Hosseini 2004).

Hamid Hosseini

See also: Behavioral Economics; Economic Sociology; Institutional Economics; Smith, Adam; Social Capital and Personal Capital; Social Preferences within a Population; *Vol. 2: Macroeconomics:* Solow, Robert; *Vol. 3: Microeconomics:* Arrow, Kenneth; *Vol. 4: Global Economics:* Stiglitz, Joseph

Further Reading

Arrow, Kenneth. 2000. Observations on social capital. In *Social capital: A multifaceted perspective*, ed. Prata Dasgupta and Ismail Serageldin, 3–5. Washington, DC: The World Bank.

Barron, James, and Michael Hannon. 1994. The impact of economics on contemporary sociology. *Journal of Economic Literature* 32: 1111–46.

Carpenter, Jeffrey P., Amrita G. Daniere, and Lois M. Takahashi. 2004. Cooperation, trust, and social capital in Southeast Asian urban slums. *Journal of Economic Organization and Behavior* 55: 533–51.

Coleman, James. 1988. Social capital in the creation of human capital. *American Journal of Sociology* 94: 95–120.

Dayton-Johnson, Jeffrey. 2003. Knitted warmth: The simple analysis of social cohesion. *Journal of Socio-Economics* 32 (6): 623–45.

Hosseini, Hamid. 2004. Insufficient social capital and economic underdevelopment. In *Handbook of contemporary behavioral economics: Foundations and developments*, ed. Morris Altman, 659–70. Armonk, NY: M. E. Sharpe.

Putman, Robert. 1993. *Making democracy work: Civic traditions in modern Italy*. Princeton, NJ: Princeton Univ. Press.

Schmid, Allan. 2002. Using motive to distinguish social capital from ITS outputs. *Journal of Economic Issues* 37: 747–67.

Solow, Robert M. 2000. Notes on social capital and economic performance. In *Social capital: A multifaceted perspective*, ed. Prata Dasgupta and Ismail Serageldin, 6–10. Washington, DC: The World Bank.

Stiglitz, Joseph. 2000. Formal and informal institutions. In *Social capital: A multifaceted perspective*, ed. Prata Dasgupta and Ismail Serageldin, 59–68. Washington, DC: The World Bank.

SOCIAL CAPITAL AND PERSONAL CAPITAL

Social capital is a type of resource that a person can cultivate through social networking and interpersonal activities to increase productivity and achieve certain personal goals. The process of social capital accumulation depends primarily not on the person's own effort, but on the person's interaction with relevant past and present peers and social networks. *Personal capital* refers to a person's own activities and experiences that affect the well-being of the person. Hence, the main difference between social capital and personal capital lies in the emphasis on interpersonal activities in the former and personal experiences in the latter. According to Becker's original description, both social and personal capital contribute to a person's human *capital stock*, which is defined as knowledge and skills a person acquires to increase that person's productivity (Becker 1996, 5). Recent literature, however, focuses more on the distinction between *social capital* and *human capital*, where the latter term is used in the context similar to Becker's definition of *personal capital*.

In economics, capital is considered a factor of production that can be used to produce goods and services of economic value. Investment in physical capital such as machinery, for example, increases the production of present and future goods and services. Similarly, people can invest in their own productivity through the accumulation of personal, social, and human capital. However, people's external social environment often constrains the types and amounts of capital they can accumulate.

The social institutions in a person's external social environment—such as school, religious organization, family, and network of peers—determine the types of capital that are feasible within a person's choice set. The choices that are available to people are shaped, but at the same time limited, by their cultural and personal backgrounds, which play an important role in the formation of a person's capital stock. For instance, children born to nonreligious families have less exposure to religion at a young age, and so are less likely to build their capital stocks through religious institutions.

Certain experiences and social networks may contribute to capital accumulation that decreases the well-being of a person or of society as a whole. For example, *criminal capital* refers to knowledge and skills a person would develop in order to become more productive in criminal activities that are negatively valued by conventional society. A person may not prefer to invest in such types of capital, but may have no other feasible choices due to limitations in the external social environment (such as growing up in a poor neighborhood with limited access to conventional social networks and institutions).

Becker suggested two factors that can affect capital accumulation: peer pressure and habitual behavior. A person's choices are often subject to peer pressure that can shape the type of capital accumulated over time. Regarding habitual behavior, an individual's past choices continue to affect current and future choices. As a person starts to build capital stock, it becomes easier for the individual to continue with activities that reinforce the type of capital stock already accumulated—there would be a higher marginal product. Hence, in a person's capital accumulation process over different time periods, there are close links that explain habitual and addictive behavior, some of which are the results of peer pressure.

The rational choice framework suggests that people attempt to maximize their own well-being in a constrained environment, with financial constraints being the most common type accounted for by economists. In the context of social interactions, a person faces social constraints that are partly defined by exposure to various types of social institutions that, in turn, affect the person's accumulation of capital stock and eventually the final choice about how to maximize one's own well-being. This interplay between constraints and incentives brings the study of economics and sociology together under the rational choice framework. Applying the concepts of human capital and social capital to research has become increasingly popular since the late 1990s—especially in fields that are interdisciplinary by nature, such as criminology and social work. In the study of criminology, for example, accumulation of human, social, and criminal capital, through different types of social institutions, has been used to explain a rational individual's decision to engage in criminal activities. In short, the concepts of social, personal, and human capital capture how personal experiences and social interactions influence individual decisions in all aspects of life.

Ambrose Leung
Ian Brittain

See also: Identity Economics; Rationality: Process and Neoclassical; Social Capital and Behavioral Economics; *Vol. 3: Microeconomics:* Becker, Gary

Further Reading

Becker, Gary S. 1975. *Human capital.* 2nd ed. New York: Columbia Univ. Press.

Becker, Gary S. 1996. *Accounting for tastes.* Cambridge, MA: Harvard Univ. Press.

Becker, Gary S., and Murphy, Kevin M. 2000. *Social economics: Market behavior in a social environment.* Cambridge, MA: Belknap Press.

Coleman, James M. 1988. Social capital in the creation of human capital. *American Journal of Sociology* 94: S95–120.

Leung, Ambrose, and Brittain, Ian. 2009. An integrated rational choice framework of juvenile delinquency: A case study of violent acts and property crime. In *Handbook of social justice*, ed. Augustus Kakanowski and Marijus Narusevich, 149–68. Hauppauge, NY: Nova Science Publishers.

SOCIAL LENDING OR PEER-TO-PEER LENDING

Peer-to-peer (P2P) or social lending is a relatively new lending and investing platform in the United States. Started by Prosper in 2005, the concept is quite simple: Individuals both borrow and lend money without using the traditional financial system. Lending Club and Prosper are the dominant players in the social lending platform. Both are registered with the Securities and Exchange Commission (SEC) and have filed the required documents.

In the past, financing was available primarily through mortgage brokers, banks, and quick high-interest-rate payday lenders. Borrowers could also obtain high-interest and fee-heavy loans through their credit cards. Through an online peer-to-peer marketplace, borrower members may borrow directly from lenders without going through a traditional lender.

Borrowing and Lending with Peer-to-Peer

Borrowers apply for loans to consolidate credit cards, fund a business, pay for a home remodel, or engage in any number of financial endeavors. Their credit score impacts the interest rate. Borrowers are categorized according to creditworthiness from A to G for Lending Club. Prosper grades loans from AA for those with higher credit scores down to E for borrowers with the weakest credit histories. Applicants with poorer credit receive higher-interest-rate loans. The practice of matching higher interest rates with higher-risk borrowers is common with both traditional and nontraditional lenders.

The term of loans in the peer-to-peer system ranges from three to five years. Borrowers can obtain from $1,000 up to $25,000 at Prosper and up to $35,000 at Lending Club.

To illustrate: Karen is a typical borrower with a job and credit card debt. She sought a loan from a traditional bank to consolidate her credit card payments. Although Karen had a high credit score, she could not secure a bank loan. She went online and applied for a peer-to-peer loan and got funded in one week at a rate of 5 percent. Her interest rate was favorable because she had a job and a good credit history. This rate was substantially lower than the one she was paying on her outstanding credit card debt.

Lenders (or investors) in social lending platforms obtain higher returns on their investments than are obtained in other types of fixed income securities. Lenders can choose whom they wish to lend to and in what amount. To minimize the *default risk* (the possibility that the borrower won't pay off the loan), lenders typically invest small amounts in many loans. It's customary for an investor with $1,000 in peer-to-peer loans to contribute $25 apiece to 40 different borrowers. This diversification protects the lender from excessive losses if borrowers default on their loans.

Lenders can hand-pick the loans and choose preferred use and loan grades to fund. A conservative lender might choose to invest only in A through C grade loans. For example, Henrik invested only in high grade loans, and he never funded borrowers looking for money for a vacation or a wedding. He preferred to fund smaller and shorter-term loans.

Disadvantages of Social Lending Platforms

Lenders tie up their money for three to five years, and they may face loss of principal (that means they won't get all of their money back) if they need to sell a loan before it matures. This type of investing is less liquid than investing in the traditional financial markets. There are high default rates, and thus lenders need to diversify their investments among many individual loans.

Since this type of lending platform is so new, it hasn't been thoroughly tested during poor recessionary economic times. When the economy performs poorly, loan default rates are likely to rise. In fact, Prosper loans issued during the recession of 2007 lost money.

Lending Club states, on page 1 of its SEC prospectus, "This offering is highly speculative and the Notes involve a high degree of risk. Investing in the Notes should be considered only by persons who can afford the loss of their entire investment." Since the loans are not secured by collateral like a home mortgage or car loan would be, they are considered riskier. In other words, when the borrower does not make payments, their loan does not have any property attached that the lender can take in exchange for the missed payments.

Lending Club acknowledges that the borrower members may supply inaccurate information in order to obtain the loan. In fact, Lending Club states that the borrower-supplied information should not be relied upon.

Risks described in the Lending Club's SEC documents explain that Lending Club does not verify a borrower's time on the job, home ownership status, or intended use of the loan. Nor does Lending Club verify paystubs, IRS forms, tax returns, bank and savings account balances, retirement account balances, home or car ownership records, or any records related to past legal proceedings. Thus, borrowers may be submitting false information in order to receive the loan. In fact, during the last nine months of 2012, when borrower members' income and employment were verified, only about 60 percent of those individuals provided satisfactory responses to requests for income or employment verification.

Additionally, not all states allow these companies to operate, and some states require that lenders demonstrate minimum income levels in order to participate.

This information underscores the riskiness of the social lending platform for the investor.

Advantages of Peer-to-Peer Lending

In contrast with traditional lending, social lending streamlines the borrowing process. The middleman is the online platform. The lending platforms take approximately a 1 percent fee, and the rest of the principal and interest repayments pass from the borrower to the lender. This affords lenders much higher returns on the amount of money loaned.

Borrowers who are unable to obtain a traditional loan may qualify through this platform at lower interest rates and lower credit card rates. This gives borrowers more financing possibilities.

The social lending platform gives investors greater investment opportunities and access to a market previously unavailable. Investors in these loans obtain higher returns than are otherwise available in the financial markets.

For example, Maria wants to fund a new business venture and cannot obtain a traditional loan. She borrows $5,000 from Prosper. Due to her credit score, financial history, and work background, her interest rate is 11 percent. Duane invests $25 in Maria's loan as part of his loan portfolio. After the 1 percent fee to Prosper, Duane receives a prorated portion of all of Maria's loan repayments. If Maria defaults on her loan and after 6 months stops making payments on the loan, Duane does not receive any additional interest or principal payments on this particular loan. The advantage to Duane is that he has many other loans to offset the loss on this one. Further, most loans are repaid, and he earns a higher interest rate than can be found in the financial marketplace.

In the peer-to-peer lending platform, borrowers get fixed-rate personal loans that may have lower interest rates than credit card debt, which may take many years to pay off. Peer-to-peer lending transforms the borrowing and lending activities from traditional financial institutions to individuals borrowing from and lending to other individuals.

Barbara A. Friedberg

See also: Banking; *Vol. 2: Macroeconomics:* Debt; Great Recession, 2009; Securities and Exchange Commission; *Vol. 3: Microeconomics:* Bonds; Credit Cards; Interest Rates; Liquidity; Risk

Further Reading

Kaufman, Wendy. 2013. Peers find less pressure borrowing from each other. *National Public Radio*, May 10. http://www.npr.org/blogs/alltechconsidered/2013/05/10/182651552/peers-find-less-pressure-borrowing-from-each-other (accessed January 11, 2013).

Lending Club. n.d. https://www.lendingclub.com/ (accessed January 11, 2013).

Prosper. n.d. http://www.prosper.com/ (accessed January 11, 2013).

SOCIAL PREFERENCES WITHIN A POPULATION

Social preferences refer to the predisposition of humans to care about others. In particular, people might be concerned about other people's gains, their actions, their opinions, or what kind of people they are. Because of social preferences, people can feel elevated or feel envious because of other people's success, or they can feel bad because others are treated unfairly. Economists are interested in these preferences, as they can influence people's decisions and thus can have economic consequences. For example, donations to charity or the consumption of fair-trade products can be expressions of social preferences.

Economists distinguish three general classes of social preferences:

1. Models with *outcome-based* preferences presume that people's utility or well-being depends not only on how much is allocated to the people themselves, but also on how much other people get. Prominent examples are models of *altruism*, *envy*,

concerns for efficiency, and *inequity aversion*. Altruistic persons give from their own wealth because they feel better when another person's outcome can be increased, even when this comes at their own cost. Envious persons, on the other hand, can engage in costly action to decrease another person's outcome.

2. A second class of social preference theories, so-called *belief-based* models, presumes that people's utility is affected not only by the final allocation but also by additional psychological factors that can be derived from the beliefs that people hold. In such models, the *intentions* that people attribute to other people's actions affect their joint outcome. Joint outcome is also affected by *guilt*, which arises if one's own actions do not meet the beliefs that another person is perceived to have about these actions. Intentions affect outcomes of social interaction if a person wants to increase or decrease the outcome of another person—even at a cost to the first person. Depending on whether the action of the other person was perceived as kind or unkind, such behavior is also referred to as *positive* or *negative reciprocity*. Or, people might take an action that is less favorable to themselves in order to meet the expectation of people, and thus to avoid feeling *guilt*.
3. Finally, models of *interdependent* preferences presume that people have preferences over the type of the other people they interact with. This third type of model can explain, for example, why the same person can act in a nice way towards an altruistic person while being mean to an egoistic person.

All of these models describe the strength of social preferences by a "preference-parameter." For example, in the altruism model, a preference-parameter allows us to say something about the *level of altruism* of a person that determines how much an altruist is willing to give to other persons. Individual preference-parameters represent a person's social preferences. Contrary to other personal characteristics, such as age or gender, social preferences are not directly observable. In order to elicit social preferences as personal traits, economists use experiments of social interactions that involve two or more persons—for example, dictator, ultimatum, trust, or public-goods games. Repeated observation of subjects' behavior in these games allows researchers to measure individual preference-parameters.

From studies that employ such experiments with a large-scale subject pool comprising members of the general population, we can learn how individual preference-parameters are distributed across people. Currently, such studies exist only for the Dutch population covering model classes (1) and (2). Their results suggest that different subgroups of a population seem to be similarly averse to receiving less than others, with retired persons being more averse. Subgroups differ, however, in their aversion to having more than others: young, more-educated persons and persons with higher income are less averse to having more. Men and women are equally averse to having less or more than others. Persons who dislike having less than others are also more averse to having more. People react to perceived intentions and are similar in their negative reciprocity. They vary, however, in their positive reciprocity: young persons and persons with a higher income level have higher levels of positive reciprocity. Also, guilt aversion has been found not to vary across subgroups.

Sabine Kröger

See also: Experimental Economics; Social Capital and Behavioral Economics; Social Capital and Personal Capital; *Vol. 2: Macroeconomics:* Public Goods; *Vol. 3: Microeconomics:* Trust Game

Further Reading

Bellemare, Charles, and Sabine Kröger. 2007. On representative social capital. *European Economic Review* 51: 181–202.

Bellemare, Charles, Sabine Kröger, and Arthur van Soest. 2008. Measuring inequity aversion in a heterogeneous population using experimental decisions and subjective probabilities. *Econometrica* 76: 815–39.

Bellemare, Charles, Sabine Kröger, and Arthur van Soest. 2011. Preferences, intentions, and expectations violations: A large-scale experiment with a representative subject pool. *Journal of Economic Behavior and Organization* 78: 349–65.

Bolton, Gary E., and Axel Ockenfels. 2000. ERC: A theory of equity, reciprocity, and competition. *American Economic Review* 90: 166–193.

Dohmen, Thomas, Armin Falk, David Huffmann, and Uwe Sunde. 2008. Representative trust and reciprocity: Prevalence and determinants. *Economic Inquiry* 46: 84–90.

Fehr, Ernst, Urs Fischbacher, Bernhard von Rosenbladt, Jürgen Schupp, and Gert G. Wagner. 2002. A nation-wide laboratory—Examining trust and trustworthiness by integrating behavioral experiments into representative surveys. *Schmollers Jahrbuch* 122: 519–42.

Fehr, Ernst, and Klaus Schmidt. 1999. A theory of fairness, competition, and cooperation. *Quarterly Journal of Economics* 114: 817–868.

Fehr, Ernst, and Klaus Schmidt. 2006. The economics of fairness, reciprocity and altruism—Experimental evidence and new theories. In *Handbook of the economics of giving, altruism and reciprocity*. Vol. 1, ed. Serge-Christophe Kolm and Jean Mercier Ythier, 161–691. Amsterdam: Elsevier B.V.

Levine, David. 1998. Modeling altruism and spitefulness in experiments. *Review of Economic Dynamics* 1: 593–622.

Rabin, Matthew. 1993. Incorporating fairness into game theory and economics. *American Economic Review* 83: 1281–1302.

SOCIAL SECURITY

Social Security, created in 1935, is a federal program of social insurance and benefits. This program is the foundation of financial security for retirees, disabled persons, and families of retired, disabled, or deceased workers. The program is funded though Social Security tax (Federal Insurance Contributions Act, or FICA) paid by American workers and their employers. It is a pay-as-you-go program, which means that today's workers pay Social Security taxes, and their payments form the Social Security benefits of current retirees.

Social Security differs from the traditional company pension, which is "prefunded." Prefunded program funds are paid in advance, saved, and subsequently disbursed at a later date. Funding in advance programs protects employees from the possibility that a company goes bankrupt, goes out of business, or is unable to pay its pension obligations.

History of Social Security

The Social Security Administration (SSA), initially called the Social Security Board (SSB), was created in 1935 with the passage of the Social Security Act under President Franklin Delano Roosevelt. The stock market crash and ensuing Great Depression prompted President Roosevelt to develop a social insurance system to protect against such major personal economic hazards as unemployment and old age. The three-member board, created to administer the Social Security Act, targeted old age insurance, unemployment compensation, and public assistance.

The SSA began as an independent agency where the Chairman of the Board reported to the president. In 1939, the board became a subcabinet member of the Federal Security Agency.

In 1995, the SSA returned to independent status. Throughout its history, the SSA has undergone much reorganization and may experience further changes in response to implementation of the Affordable Care Act of 2010.

Social Security Retirement Benefits

The earliest a worker can receive Social Security retirement benefits is 62 years of age. Workers who elect to receive Social Security retirement benefits before they reach full retirement age will receive only a percentage of their full retirement benefit. The *full retirement age* is the age when a person may receive full or unreduced retirement benefits. If the retiree chooses to receive benefits after full retirement age, the monthly benefit may increase.

The full retirement age is based upon birth year. For those born in 1937 or earlier, full retirement age is 65. The full retirement age increases monthly until a birth year of 1943, when full retirement age becomes 66. Full retirement age remains at 66 for those born between 1943 and 1954. For the years 1955 through 1959, the full retirement age increases in monthly increments from age 66 to age 67. For birth years of 1960 and later, the full retirement age is 67.

In general, once a retiree begins taking Social Security, the benefit amount remains constant.

Who Receives Social Security Benefits?

Although most people assume that senior citizens are the only recipients of Social Security, a disabled 50-year-old factory worker might also receive Social Security benefits. The Social Security program helps the widows and orphans of both military and nonmilitary citizens as well. For example, children of an army private killed in Iraq receive survivor Social Security payments.

Approximately 57 million people, or one in six U.S. residents, receive Social Security. One in four households has someone receiving Social Security. Retired workers receive approximately 65 percent of the total Social Security benefits paid, or $36.9 million. Adults disabled since childhood are the smallest group of Social Security recipients, receiving just $1 million, or 1.76 percent of the total. Other disabled Americans receive 15.49 percent of the total, or $8.8 million. Widows and widowers, spouses, and children make up the rest of the Social Security beneficiaries (Reno and Walker 2013).

How Much Do Social Security Recipients Receive?

According to the National Academy of Social Insurance, in January 2013 the average monthly Social Security benefits were $1,264 for retired workers, $1,217 for widows or widowers over the age of 60, and $1,130 for disabled workers. For a worker retiring at full retirement age 66, the maximum monthly benefit is $2,533 per month. Benefits are indexed annually to keep pace with inflation.

Although higher-paid workers receive greater amounts of Social Security benefits in retirement, a smaller percent of their preretirement income is replaced. For example, workers who were paid $110,100 per year receive $29,020 in annual Social Security benefits, or 26 percent of their preretirement income, whereas the lowest-paid workers, who earned $19,670 preretirement, receive 56 percent of their preretirement income, or $11,070.

What Is Social Security Disability Insurance?

Initiated in 1957, Social Security Disability Insurance (SSDI) provides monthly payments to disabled workers who cannot work due to a major disability that is expected to last at least a year or to result in death within a year. Workers who paid Social Security taxes in their prior employment are covered. Benefits are determined by past earnings, and they are paid to eligible workers and their dependent family members. Two years after starting to receive SSDI, these individuals are eligible for Medicare.

Additional Social Security Facts

Through FICA Social Security payroll tax reduction, workers pay 6.2 percent of their earnings for Social Security and 1.45 percent of their earnings for Hospital Insurance (HI) earmarked for Medicare (Part A). Employers pay an equivalent amount into the Social Security system. If an employee earns more than $113,700 (in 2013), no additional Social Security FICA tax is owed.

Social Security payments are held in the Social Security trust funds. In 2012, income in the trust funds included $840.2 billion from contributions and $785.8 billion in benefit payments (one percent of the outgoing funds include administrative costs). This resulted in a $54.4 billion surplus (Reno and Walker 2013).By law, the surplus is required to be invested in U.S. Treasury securities, whose interest payments are returned to the trust funds.

Retirees need to provide for additional income during their nonworking years, as Social Security does not contribute enough to cover all of a retiree's living expenses. In spite of the fact that Social Security is not designed to be the sole source of a worker's retirement income, 36 percent of Social Security recipients receive almost all of their income from Social Security according to the National Academy of Social Insurance (Reno and Walker 2013).

Security, Demographic Trends, and the Future

In order to accommodate the growing number of future retirees and lifespan increases, the full benefit retirement age was increased. Additionally, out-of-pocket Medicare premiums and the share of benefits subject to income taxes also will rise. The effect of these changes is that earners' average income replacement percentage will decline from approximately 39 percent in 2002 to 31 percent in 2030.

In less than 10 years, Social Security revenues will not cover benefits owed. The SSA projects that by 2021, revenues and interest income to the Social Security trust funds will not cover expenditures. At this point, reserves will be tapped to fund benefits. By 2033, trust fund reserves are expected to be spent. The SSA predicts that by 2033, income will cover only 77 percent of benefits due (Reno and Walker 2013). Assuming there is no change in taxes, benefits, or assumptions, Social Security revenue would cover 72 percent of benefits due at that point.

This is not the definitive Social Security projection scenario. A positive view predicts trust fund reserves lasting until 2068. A more dire analysis posits trust fund reserves will be exhausted by 2027.

Many options are being considered to increase Social Security funding and benefits for the underserved. For Social Security to continue in a semblance of its present form, changes to the Social Security program are necessary.

Barbara A. Friedberg

See also: Estate Planning; Financial Literacy; *Vol. 2: Macroeconomics:* Entitlements; Inflation; Medicare; Social Security Act of 1935; Taxes; *Vol. 3: Microeconomics:* Affordable Care Act Cases; Retirement Accounts; *Primary Document:* Social Security Act of 1935

Further Reading

Reno, Virginia P., and Elisa A. Walker. 2013. Social security benefits, finances, and policy options: A primer. National Academy of Social Insurance. http://www.nasi.org/sites/default/files/research/2013_Social_Security_Primer_PDF.pdf (accessed September 23, 2013).

Social Security. n.d. http://www.ssa.gov/ (accessed September 23, 2013).

SOCIALISM

Socialism is one major form of government where the government—rather than individual people and companies—controls industries. This level of control enables the government to focus on equality rather than profits. Corporations are seen as beneficial only to the top 1 percent, and wealth would be evenly distributed.

This form of government is a lesser form of communism, but it is formed upon the same principles. Unlike communism, in socialism the government gives some freedom of choice to the people rather than exerting total control. Also, unlike in capitalism there is no "market," because corporations are nonexistent and the government controls market activity. Socialism can be beneficial when poverty and inequality are major problems in an economy. Redistribution of wealth and regulation of government enable people to live financially secure lives.

Socialism first appeared in the Industrial Revolution during the 18th century, although references of socialism appear in the Old Testament of the Bible. Political and religious turmoil was often was the reason given for implementing socialism. Socialism emerged from the success of capitalism, with people striving to improve conditions for workers by moving control from the companies to the state, although the free-market aspect of capitalism was overlooked in the development of socialism.

Early Utopian Socialist reformers were impressed by the success of industrial capitalism, and they wanted to find a way to keep this success while distributing profits more fairly. They noticed that the efforts of lower-class workers were being unfairly exploited. These early leaders knew that they needed to keep business, yet eliminate wealthy business and replace it with the state.

Socialists pictured capitalism as a way to train workers to make large profits for the capitalists who owned the businesses and the means of production. Through capitalism, the wealthy capitalists become out of touch with the lower workers who run the businesses. By eliminating wealthy executives through government control and income redistribution, the wealth can be easily redistributed instead of staying with the wealthy capitalists.

Opponents of socialism view income redistribution as unfair to those who work hard to advance in their careers or build their business. Opponents claim socialism takes a much larger proportion of money earned from those who earn high incomes and either expands government control of the economy or redistributes a larger proportion to the undeserving in order to make incomes more equal.

Socialism exists in three forms:

- Democratic socialism views socialism as an economic principle. Its proponents believe that production should be in the hands of ordinary people.
- Revolutionary socialism looks at socialism with a need for social change rather than gradual reform.
- Utopian socialism was the early economists' model for socialism. It was based on an ideal world where everyone contributed equally to the community. In this model, socialism takes money from the wealthy and distributes it evenly in order to create an economy equal for all while leaving some rights with the people.

Gabrielle Smith
David A. Dieterle

See also: Command Economy; Democratic Socialism; Economic Systems; Industrial Revolution; Marx, Karl

Further Reading

Basics of Philosophy. n.d. Socialism. www.philosophybasics.com/branch_socialism.html (accessed February 28, 2016).

Constitutional Business Consulting. n.d. The origin of socialism. cbc-inc.com/soc_origin.asp (accessed February 28, 2016).

Dagger, Richard, and Terence Ball. 2016. Socialism. In *Encyclopedia brittanica online*. www.britannica.com/topic/socialism (accessed February 28, 2016).
Marx, Karl. 1999. *Das kapital: A critique of political economy*. Gateway Editions. Washington, DC: Regnery Publishing. (Orig. pub. 1867.)
World Socialist Movement. n.d. "What is socialism?" www.worldsocialism.org/english/what-socialism (accessed February 28, 2016).

SOCIETY FOR THE ADVANCEMENT OF BEHAVIORAL ECONOMICS

The Society for the Advancement of Behavioral Economics (SABE) was founded by a group of scholars, mostly economists, who were in a variety of ways dissatisfied with mainstream economics. What these scholars wanted was an interdisciplinary economics distinguished by scientific practices different from those of the economic orthodoxy. SABE members sought to combine economics with psychology, sociology, anthropology, history, political science, philosophy, and other disciplines. They also aspired to create an economics that is less narrow, rigid, intolerant, mechanical, and individualistic than mainstream economics.

SABE's founding meeting was organized by Shlomo Maital; took place on December 29, 1982, in New York City; and was attended by 14 people. The first SABE conference was held at Princeton University on May 22–29, 1984, and was attended by a veritable who's who of prominent scholars, including Harvey Leibenstein, Amos Tversky, Daniel Kahneman, Thomas Schelling, and Richard Thaler. Subsequent conferences were held at Middlebury College; at a kibbutz near Haifa, Israel; and at San Diego State University.

Around 1989, at the impetus of the prominent sociologist Amitai Etzioni, SABE was transformed into the Society for the Advancement of Socio-Economics (SASE), a multidisciplinary organization that was oriented more to non-economic social science scholars—especially sociologists, not economists. During 1990–1991, some SASE economists who were unhappy with the position of behavioral economics in SASE came to the conclusion that SABE needed to be restore. On January 4, 1992, in New Orleans, SABE was officially reestablished independent of SASE, and John Tomer was elected president. Tomer organized the next SABE conference, which took place August 13–15, 1993, in Rensselaerville, New York (outside of Albany). In the years that followed, SABE members began to find common ground with members of the International Association for Research in Economic Psychology (IAREP). This communication led to a pattern of association where every other year SABE would jointly sponsor a conference with IAREP, usually in Europe.

During the late 1980s, SABE became affiliated with the *Journal of Behavioral Economics*, whose editor was Richard Hattwick of Western Illinois University. During the time that SABE was becoming SASE, the journal's name was changed to the *Journal of Socio-Economics* (JSE). After SABE's split with SASE, the journal (now JSE) again became affiliated with SABE. In early 2001, Morris Altman became the JSE's Editor, and he has done much to make the JSE into the widely respected and cited behavioral economic journal that it is today.

It is important to note that in SABE's early years its members' conception of behavioral economics was in some respects considerably narrower than it is today. In the early years, research in the traditions of economist Harvey Leibenstein and psychologist/economist Herbert Simon were prominent. Today, SABE members' research includes all strands of behavioral economics, including notably psychological economics in the tradition of Kahneman and Tversky, experimental economics in the tradition of Vernon Smith, and macrobehavioral economics in the tradition of George Akerlof. SABE's growth and change has to a considerable extent paralleled the emergence of behavioral economics as a much more important and prominent field in the economics profession.

John F. Tomer

See also: Behavioral Economics; Economic Psychology; International Association for Research in Economic Psychology

Further Reading

Tomer, John F. 2007. What is behavioral economics? *Journal of Socio-Economics* 36: 463–79.

STALIN, JOSEPH

Born: December 18, 1879, in Gori, Russia; Died: March 5, 1953, in Kuntsevo, Russia; Nationality: Russian; Professional interests: ruled the Soviet Union from 1929 to 1953.

Iosif Vissarionovich Dzhugashvili (he later changed his name to Stalin) was born on December 18, 1879, in the village of Gori, Georgia (a country that was part of the Russian empire). A bout of childhood smallpox left his face scarred and his left arm slightly deformed. The village children treated him cruelly and made him feel inferior as they made fun of his deformed face and arm. Stalin grew to have a need for greatness and respect, and he had a cruel streak toward those who crossed him. In 1888, Stalin's mother enrolled him in church school in Gori so he could become a priest. In 1894, he graduated at the top of his class and went on to Tiflis Theological Seminary in the village of Tbilisi on a scholarship. A year later, he came into contact with a secret organization, the Georgian Social Democratic organization, which supported Georgian independence from Russia. It was this organization that introduced Stalin to the writings of Marx and Lenin, and Stalin officially joined it in 1898. Stalin then left the seminary in 1899 and stayed in Tbilisi to focus on the revolutionary movement. He was arrested not long after, in 1902, for joining the Social Democratic Labor Party, and he was exiled to Siberia. After only a month in exile, he escaped and returned to Gori. It was around this time that he adopted the name Stalin, meaning "steel" in Russian.

In the years after 1905, the radicals retreated underground, and Stalin finally met Lenin at a party conference after writing an anti-Menshevik creed that attracted Lenin's attention. Stalin also helped the revolutionaries in banditry, for the revolutionaries were forced to turn to crime as a way to get money. Stalin was arrested in the city of Baku in Azerbaijan in March 1908. He was sent to Siberia for two more years, but he escaped within a year. He was re-arrested and sent to Siberia yet again, but this time he had to stay and serve his full sentence. Stalin was never politically inactive; he corresponded with Lenin throughout the duration of his stay.

In February 1917, the Russian Revolution began, and the tsar abdicated the throne. Stalin immersed himself in Marxism. Although he was never a strong speaker like Lenin, Stalin was extremely proficient at doing the mundane tasks of the revolution, like handing out pamphlets. In 1922, Stalin was appointed the general secretary of the Communist Party. This appointment gave him control over all other party member appointments. He abused this power, however, and he made shrewd appointments that only strengthened his power as secretary.

After Lenin's death in 1924, Stalin set out to take Lenin's place. His success was partly due to his political genius, and partly due to the way Stalin always found it easy to bend and twist things to his advantage. His rivals were gifted idealists and Marxists to the core. Stalin, however, never truly understood the core principles of Marxism and was always willing to change them so they favored him. When Stalin took control of Russia, paranoia set in. His reign of terror began. Stalin had people arrested during the night and, with public trials, executed them in the morning; he wanted to teach a lesson to all "opposition." Also, Stalin had potential rivals killed, saying they were aligning with capitalist nations.

In the late 1920s and the 1930s, Stalin began industrializing Russia rapidly. This was hugely successful in the beginning, but it soon turned destructive. The heavy machinery and industry caused the death toll to skyrocket and had a heavily impact on the environment and the national budget; an idea that was originally fruitful turned sour in Stalin's hands. In 1939, Stalin signed a nonaggression pact with Hitler, never thinking that the German forces would double-cross him. This naiveté caused the Russian forces to be unprepared when the Nazis struck in June 1941. The "purges" that Stalin had ordered in the 1920s and 1930s did nothing to help the Soviet Army against the Nazis, and the Soviets suffered massive losses.

Stalin had been suspicious of the West ever since the Soviet Union threw off the tsar. In 1945, this suspicion deepened when the Allies refused to open a second front against Germany in World War II. Even after the war was over, Stalin was obsessed with the fear that the United States would invade Russia. Stalin made a "buffer zone" between Western Europe and Russia so that no one could pass into Russia unnoticed. Stalin also ordered an economic blockade of the now-Soviet-controlled German city of Berlin. He went so far as to build a wall around the city. In 1989, the Allies forced the Soviets to back down and tear down the wall, ending the blockade. East Germany and West Germany reunified into a single state in 1990.

Stalin's health began to deteriorate in the early 1950s, and he died of a stroke on March 5, 1953, at the age of 74. His successor, Nikita Khrushchev (1956), rekindled the popularity that Stalin had lost with Russia's younger generation. Although Stalin left a legacy of death and terror, he had managed to turn Russia into a world superpower to be revered and feared.

Shima Sadaghiyani

See also: Command Economy; Communism; Lenin, Vladimir; Marx, Karl; Marxism; Socialism

Further Reading

Montefiore, Simon Sebag. 2004. *Stalin: The court of the red tsar*. London: Weidenfeld and Nicolson.

Volkogonov, Dmitri. 1991. *Stalin: Triumph and tragedy*. Trans. Harold Shukman. New York: Grove Press.

Volkogonov, Dmitri. 1998. *The rise and fall of the Soviet empire: Political leaders from Lenin to Gorbachev*. New York: HarperCollins.

STANDARD & POOR'S 500

The Standard & Poor's 500, often referred to as the S&P 500, is a stock market equity index that serves as a representation of the stock market at large. A *stock market index* compiles the performance of various stock groups classified in a variety of ways and gives an index indicator of the performance of that group of stocks. The Standard and Poor's 500 is unique in that it attempts to gather and analyze the performance of 500 publically traded domestic companies. The S&P 500 was launched on March 4, 1967. Investors and economists alike agree it is the best single indicator of the health of the American stock market.

The history of Standard and Poor's involves its beginnings, the merger, development and expansion, and the S&P's role in the global markets. Standard and Poor's was begun in 1860 by Henry Varnum Poor as a source for investment information. The need for Poor's services was initiated largely by the rise of capital markets in the United States—driven by the introduction, construction, financing, and implementation of the railroad as it began to greatly impact the lives of Americans and businesses alike. This created the need for record-keeping, transparency, and analysis.

Poor operated a company called Poor's Publishing, where he and his son wrote and published material about U.S. railroads and their impact on economic affairs. In 1906, Luther Lee Blake recognized the need for a standardized, central, credible area where investors could turn for financial information. Out of these efforts, Standard Statistics was born. Information about a variety of industries was published on 5 x 7-inch cards that were continuously revised and eventually published in an annual edition. These informational cards were published by Babson Stock and Bond Card System, which Blake purchased. In 1919, Babson was merged with Moody's Manual Company and Poor's Railroad Company, becoming Poor's Publishing Company. Poor's Publishing and Standard Statistics would soon begin rating bonds and securities. The first stock index was developed in 1923, in order to most accurately mirror market trends. The initial index compiled financial data on 223 companies and was compiled weekly. This was the first published capitalization-weighted index.

In 1941, Standard Statistics merged with Poor's Publishing. During this year the companies would also publish the *Bond Guide*, a bond-rating guide that focused on statistics and the quality of 7,000 municipal bond ratings. Standard and Poor's revenue, employees, and capabilities continued to grow substantially through the 1940s and 1950s. In 1962, Standard & Poor's began trading on the New York Stock Exchange (SPX).

In 1966, McGraw-Hill Companies acquired Standard and Poor's. When the Committee for Uniform Security Information Procedures (CUSIP) was created, Wall Street was able to manage the level and volume of trading taking place on a daily basis. If not for Standard and Poor's publishing the data from the CUSIP, the buying and selling of stocks on Wall Street would not exist as it is known today.

S&P would begin charging issuers for ratings their first mortgage-backed securities, signifying a level of sophistication in the market that had not previously existed. In 1976, the SEC named Standard and Poor's a Nationally Recognized Statistical Rating Organization (NRSRO), as a result of the high level of credibility, reliability, and clarity that investors received from Standard and Poor's Ratings. During the 1980s, Standard and Poor's expanded globally. They initially entered the European markets by establishing a presence in London and over the next 20 years they opened offices in 20 countries worldwide.

Throughout the 1990s and 2000s Standard and Poor's continued to expand both their presence and the variety of their services. They began rating derivatives, and they introduced other index services such as the SmallCap 600 and the Standard and Poor's 1500. They also began to provide a Stock Guide Database, grouping 8,700 securities, dividing them into 11 economic sectors and 122 industry groups. In 2002, Standard and Poor's began the Hedge Fund Index, and in 2003 they acquired Smith Barney's global business, which encompassed the rating of 7,500 companies in 52 markets globally.

Companies included in the S&P 500 must meet specific eligibility requirements. These criteria include market capitalization, liquidity, domicile, public float, financial viability, treatment of IPOs, and eligibility securities. The stocks must have an unadjusted company market capitalization of U.S. $5.3 billion or more. The companies need to demonstrate adequate liquidity, and at a reasonable price. They must be U.S. companies—according to their annual reports, recognition by the SEC, their fixed assets and revenues, the exchange market where they are primarily listed, and their corporate governance structure. They must maintain a public float of at least 50 percent of the propositioned stock and must contribute to sector balance and maintenance relevant to market capitalization ranges. The sum of their last four consecutive quarters along with their most recent quarter should display positive earnings. After their initial public offering, they must be tried and tests for 6 to 12 months before ever being considered for addition to any index.

As of January 30, 2015, the top 10 companies by index weight were Apple Inc., Exxon Mobil Corp., Microsoft Corp., Johnson & Johnson, Berkshire Hathaway, Wells Fargo & Co., General Electric Co., Procter & Gamble, JP Morgan Chase & Co., and Pfizer Inc. The 500 stocks ranged from sectors including Information Technology, Financials, Health Care, Consumer Discretionary, Industrials, Consumer Staples, Energy, Utilities, Materials, and Telecommunication Services. The Standard

& Poor's 500 encompasses approximately 80 percent of the total market capitalization. It is considered the best indicator of the U.S. large cap stocks market.

Amber Thomas

See also: Asset Allocation; Financial Literacy; National Association of Securities Dealers Automated Quotation; New York Stock Exchange; *Vol. 2: Macroeconomics:* Financial Reform Act of 2010 (Dodd-Frank Act); Stock Market Crash, 1987; *Vol. 3: Microeconomics:* Annuity; Stock Market; Stocks; *Vol. 4: Global Economics:* New Trade Theory; *Primary Document:* Financial Reform Act of 2010 (Dodd-Frank Act)

Further Reading

Encyclopedia Britannica. n.d. S&P 500 stock market. http://www.britannica.com/EBchecked/topic/1085463/S-P-500#ref849125 (accessed April 7, 2014).

NASDAQ. n.d. Stock market indices.http://www.nasdaq.com/markets/indices/major-indices.aspx (accessed April 7, 2014).

S&P Dow Jones Indices. n.d. S&P 500. http://us.spindices.com/indices/equity/sp-500 (accessed April 7, 2014).

SUICIDE

Suicide can be considered to be a rational decision over the life cycle under both certainty and uncertainty. Lester and Yang (1997) have analyzed suicide under certainty with a static framework in a demand and supply model and in a cost-benefit analysis. From the perspective of a cost-benefit analysis, an individual will choose suicide when the benefits of suicide outweigh the costs, bearing in mind that the individual uses a highly subjective evaluation of the mental relief and pain involved. When this is framed in a demand and supply model, the equilibrium is an unstable one. Lester and Yang note that these models support the restriction of access to lethal methods for suicide (such as gun control) as a method of suicide prevention.

Under certainty, the analysis can be expanded over the life cycle. Hamermesh and Soss (1974) argue that an individual's permanent income is negatively associated with the risk of suicide, and so suicide is expected to increase with age. If a spouse's income is incorporated into the model, then divorce and widowhood increase the likelihood of suicide. However, Becker and Posner (2004) note that Hamermesh and Sosh's model fails to take into account what decisions might be made at a later point in life. In this case, suicide should decline with age because the people who survive to an older age are those who are the happiest.

Game theory has also been used for economic models of suicide. For example, Robert Rosenthal viewed suicide attempts as a credible signal intended to manipulate the behavior of the receiver (a spouse) in a way favorable to the sender. Another application concerns crisis intervention, where seeking help is an alternative to committing suicide. In a game-theoretical approach, Yaniv (2001) notes that the mental health practitioner has the choice of offering crisis intervention or hospitalization, and under certain behavioral assumptions crisis intervention minimizes society's expected loss from suicide and the cost of prevention.

If physician-assisted suicide were available, then terminal patients could evaluate the benefits and costs associated with euthanasia in order to arrive at an informed decision about easing their pain and suffering. Leo Chan and Donald Lien conclude that the policy implication resulting from their analysis of this was that more medical research in pain management would help reduce the demand for euthanasia.

Under uncertainty, since suicides ignore the uncertainty of the future and the option value of life, some economists deem suicide to be an irrational choice. Two other types of behavior are defined by Gary Becker as irrational: (1) random, erratic, and whimsical choices and (2) repetitive choices. This definition of *irrationality* parallels the major typology of suicidal behavior in which suicidal behavior is treated as a time-limited impulsive crisis or as a chronic maladaptive pattern.

At the aggregate level, Yang (1992) has analyzed how suicide is tied to the business cycle. She notes that Emile Durkheim argued that both business expansions and contractions result in rapid changes in social integration and social regulation and, therefore, both increase the suicide rate. On the other hand, Ralph Ginsberg proposes that individuals commit suicide because of the discrepancy between rewards and aspirations, resulting in a cyclical relationship between the economy and suicide, while Andrew Henry and James Short theorize that suicide is driven by changes in the hierarchical ranking of people of different social classes as a result of the business cycle, resulting in a countercyclical relationship.

Yang and Lester (2006) have noted that these three distinctive theories of suicide and the business cycle imply the existence of a "natural rate" of suicide for societies (based on steady-state unemployment). In their 2006 study, they estimated the natural rate of suicide in the United States to be about 8 per 100,000 per year; for other, selected countries the rate ranged from 5 in Poland to 17 in France.

Bijou Yang

See also: Rationality: Process and Neoclassical; *Vol. 3: Microeconomics:* Becker, Gary; Game Theory

Further Reading

Becker, Gary S., and Richard A. Posner. 2004. Suicide: An economic approach. http://www.gwern.net/docs/2004-becker.pdf (accessed November 30, 2016).

Hamermesh, Daniel S., and Neal M. Soss. 1974. An economic theory of suicide. *Journal of Political Economy* 82: 83–98.

Lester, David, and Bijou Yang. 1997. *The economy and suicide*. Commack, NY: Nova Science.

Yang, Bijou. 1992. The economy and suicide. *American Journal of Economics and Sociology* 51: 87–99.

Yang, Bijou, and David Lester. 2006. A prolegomenon to behavioral economic studies of suicide. In *Handbook of contemporary behavioral economics*, ed. Morris Altman, 543–59. Armonk, NY: M. E. Sharpe.

Yaniv, Gideon. 2001. Suicide intention and suicide prevention: An economic perspective. *Journal of Socio-Economics* 30: 453–68.

SUPREME COURT

The Supreme Court of the United States was established under Article III, Section 1, of the U.S. Constitution when the Constitution was ratified in 1789. The Supreme Court is a part of the judicial branch of the government. The role of the Supreme Court is to interpret the laws created by the legislative branch of the government. The rulings by the Supreme Court are considered final. These rulings set a precedent for all other rulings similar to them.

When Congress first met on March 4, 1789, one of the first items of business was how to organize and establish the court system. Article III, Section 1, of the Constitution establishes the need for a court system and asks for a Supreme Court, stating, "The judicial Power of the United States, shall be vested in one supreme Court, and in such inferior Courts as the Congress may from time to time ordain and establish." The Constitution allowed Congress to decide how the court system should be organized. To do this, Congress passed the Judiciary Act of 1789. This act created 13 district courts in major cities, three circuit courts, and a Supreme Court comprising a chief justice and five associate justices. It also set up a lower federal court system.

The Supreme Court is the highest court in the United States and is considered the court of last resort. The Supreme Court has a great deal of power due to judicial review. In 1803, the case of *Marbury v. Madison* established the principle of judicial review, allowing the Supreme Court to declare any laws that went against the Constitution as invalid. This gave the Supreme Court much more influence, as the Court now could oversee the executive and legislative branches to ensure that what they were doing was constitutional. Since the Supreme Court uses the Constitution as its guiding document, the decisions made by the Court are said to stand the test of changing.

Over time, the number of justices who serve on the Supreme Court has increased from six to nine, with one serving as chief justice. Supreme Court justices are chosen by the president and confirmed by the Senate. According to the Constitution, the justices "shall serve their offices during good behavior." This has been interpreted as justices serving for life terms, until they decide to retire or resign or are impeached from their position. Congress cannot change the salaries of justices during their term in office. This is done so as not to influence the justices in their decisions by increasing or decreasing their pay.

Under Article III, Section 2, of the Constitution, the Supreme Court has original jurisdiction in cases that involve more than one state and cases involving ambassadors, ministers, and consuls. It also has jurisdiction in cases that involve treaties and events that happen on the open sea. The Supreme Court has appellate jurisdiction over cases that deal with constitutional or federal law. The Court receives over 10,000 petitions for a writ of certiorari on a yearly basis. A *petition for writ of certiorari* is a document that a losing party files with the Supreme Court asking the Supreme Court to review the decision of a lower court. It includes a list of the parties, a statement of the facts of the case, the legal questions presented for review, and arguments as to why the Court should grant the writ. Of these 10,000 petitions, the Court agrees to hear oral arguments on 75 to 80 cases yearly. The

Supreme Court hears these cases during yearly terms while it is in session—from the first Monday in October until the first Monday in October the following year.

For a case to be heard by the Supreme Court, there must be a quorum of six justices present. The justices review the decisions of the lower courts and the history of the case prior to listening to oral arguments from the petitioner and the respondent. Justices can also participate in cases by listening to audio recordings of the arguments and reading transcripts from the cases. Justices make a decision by voting on how they feel the case should be decided, either upholding the decision of the lower courts or reversing the decision. A decision is reached when five of the nine justices have voted for or against the decision of the lower court.

The Supreme Court justices have responsibilities in addition to hearing cases and making decisions based on precedent and the Constitution. Whenever they make a decision, they may also decide to write their opinions on the cases. These opinions may concur with the majority opinion or dissent from it. Also, the Supreme Court justices are responsible for overseeing one or more of the 13 federal circuit courts and handling emergency applications from these courts.

The Supreme Court plays a vital role in how the U.S. government functions. With the power to oversee the actions of both the executive and legislative branches, the Court sets appropriate limits on the government and ensures that all Americans can enjoy the freedoms promised to them through the Constitution and proper due process of law.

Ekaterini Chrisopoulos-Vergos

See also: *Citizens United v. Federal Election Commission*; *Seminole Tribe of Florida v. Florida*; *Vol. 2: Macroeconomics: Alaska Dept. of Environment v. EPA*; *Gibbons v. Ogden*; *Helvering v. Davis*; *Juilliard v. Greenman*; *Kelo v. City of New London, Connecticut*; *Lechmere, Inc. v. National Labor Relations Board*; *McCulloch v. Maryland*; *Menominee Tribe v. United States*; *Pollock v. Farmers' Loan & Trust Company*; *Vol. 3: Microeconomics:* Affordable Care Act Cases; *Corning Glass Works v. Brennan*; *Kellogg Co. v. National Biscuit Co.*; *Lochner v. New York*; *MCI Telecommunications Corp. v. American Telephone and Telegraph Co.*; *Standard Oil Co. of New Jersey v. United States*; *United States v. South-Eastern Underwriters Association*; *West Coast Hotel Co. v. Parrish*; *Youngstown Sheet & Tube Co. v. Sawyer*

Further Reading

Supreme Court Historical Society. n.d. How the court works: The chief justice's role. http://supremecourthistory.org/htcw_chiefjustice.html (accessed October 25, 2013).

Tech Law Journal. n.d. Definition: Certiorari, petition for writ of certiorari. http://www.techlawjournal.com/glossary/legal/certiorari.htm (accessed October 25, 2013).

United States Supreme Court. n.d. The court as an institution. http://www.supremecourt.gov/about/institution.aspx (accessed October 25, 2013).

United States Supreme Court. n.d. The supreme court of the United States—History. https://www.judiciary.senate.gov/nominations/supreme-court/history/ (accessed October 25, 2013).

uscourts.gov. n.d. About the supreme court. http://www.uscourts.gov/educational-resources/get-informed/supreme-court/about-supreme-court.aspx (accessed October 25, 2013).

SUSTAINABILITY

The concept of sustainability plays an important, if contested, role in the related fields of environmental and ecological economics. Historically, environmental economists focused on the use of benefit–cost analysis to identify the efficient allocation of nonmarket goods and services. This had major implications for the conservation of environmental resources, which typically involve complex streams of costs and benefits accruing to diverse sets of stakeholders. In informal terms, benefit-cost analysis involves assigning monetary values to unpriced costs and benefits. When these externalities are internalized, the result is often a conservative approach that involves the sustained provisioning of high-value ecosystem services.

That said, the limitations of benefit–cost analysis were apparent quite early on, as emphasized for example in Ciriacy-Wantrup's (1952) work on safe minimum standards. The conservation of natural resources, ecosystems, and biodiversity typically involves significant short-run opportunity costs that are well-defined and that often accrue to politically influential stakeholders. If decision-makers employ high discount rates based on impatience and/or a reliance on short-run planning horizons, the costs of conservation can dominate the perceived benefits both in formal benefit-cost analysis and in practical decision-making. On the other hand, the long-run benefits of conservation are often difficult to gauge because of scientific uncertainty and uncertainty about the preferences and needs of future generations. Ciriacy-Wantrup was concerned that at least some environmental resources might be truly essential to posterity, anticipating the more recent discourse surrounding ecosystem services and their role in supporting human flourishing. As such, he embraced an approach to decision-making in which unique and potentially irreplaceable resources should be conserved unless the costs were judged to be unbearably large. In effect, this approach placed bounds on the application of the benefit-cost approach as a way of managing catastrophic environmental risks under conditions of strong uncertainty.

Ciriacy-Wantrup's framework is similar to the concept of strong sustainability that has emerged in the ecological economics literature. Broadly, ecological economics studies the economy and an embedded subsystem of social and ecological systems, adopting a transdisciplinary approach to environmental policy and governance. More specifically, ecological economists emphasize a tripartite approach to managing the links between the economy and the environment, with equal importance attached to the goals of (1) enhanced human flourishing, (2) distributive and procedural fairness, and (3) ecological sustainability. Advocates of strong sustainability see environmental resources as the joint or common property of present and future generations. While the present generation has a right to utilize resources for short-run economic gains, it also holds a duty to conserve the resource base for the enjoyment of future generations. In this framing, the degradation or despoliation of ecological systems would impose a wrongful harm on future generations in the absence of restorative measures, such as the rendering of appropriate compensation. As a rule of thumb, ecological economists are skeptical about the ability of monetary payments to compensate for the loss of ecosystem services over multigenerational time scales. Operationally, then, this approach is in line with Ciriacy-Wantrup's criterion. The depletion of natural resources (say, high-quality petroleum resources) carries with it a duty to develop and provide substitutes (e.g., renewable energy technologies) that could generate equivalent services on a sustainable basis. Good policies would then achieve this goal cost-effectively with due attention to equity concerns.

In environmental economics, the concept of weak sustainability has received comparatively more emphasis. At a fundamental level, this approach is based on the moral supposition that the utility or well-being of a typical member of society should be maintained or enhanced from each generation to the next. This framework envisions environmental resources as a form of capital that contributes importantly to production and consumption and to the provisioning of nonmarket goods and services. As such, it calls for modeling and accounting techniques that explicitly gauge the value of natural capital stocks and the role they play in supporting the material economy. Weak sustainability, however, views natural capital, manufactured capital, and new technologies (i.e., blueprints used for combining inputs to produce outputs) as appropriate substitutes. Accordingly, it does not call for the conservation of environmental resources as a core policy objective. Rather, the focus is on maintaining the overall productive capacity of the economy and its ability to sustain human well-being in the long run.

Operationally, advocates of weak sustainability often argue that an economy is sustainable if the rate of investment in manufactured capital is at least as high as the monetary value of natural resource depletion. National governments and international agencies have therefore developed accounting frameworks for tracking changes in the monetary value of natural capital stocks. This approach, grounded in the early and important contributions of John Hartwick (1977), is strictly valid only under idealized conditions it holds for economies in which population, technology, and terms of trade are all constant through time, and where resources are allocated in a fully efficient manner through the correction of all market failures. In the face of population growth, a higher rate of capital investment is needed to achieve weak sustainability, while technological change allows society to derive higher well-being from a given set of capital assets. In theory, then, it is not possible to gauge the sustainability of an economy in the weak sense based on accounting metrics alone. Instead, forward-looking models are required that simulate the coupled dynamics of complex ecological–economic systems.

One interesting theme of the sustainability literature is its emphasis on the endogeneity of preferences and the complex relationship between economic growth and human welfare. Daly and Cobb's (1989) Index of Sustainable Economic Welfare (ISEW), for example, corrects a standard measure of per capita consumption for a wide array of social and environmental costs. This indicator suggests that the robust economic growth that occurred in the 1970s through the 2000s led to relatively little improvement in social welfare. This disparity can be explained by two factors: rising inequality and the social costs imposed by greenhouse gas emissions. While controversial in terms of its details, the ISEW indicator is interesting both for the clarity of its rationale and its attempt to provide a comprehensive welfare metric that accounts for a wide array of market and nonmarket goods. Similar results stem from survey research on life satisfaction or happiness, which suggests that relatively little improvement in experienced well-being has occurred in recent decades in the world's advanced industrial societies. This may be in part because economic growth has led to upward pressure on the social norms that define what people understand as the good life. Also, it may be that the gains of increased private consumption have been offset by declines in the quality of social interaction and other factors known to strongly affect happiness. While these results do not undercut the importance and legitimacy of the weak sustainability concept, they do suggest that it is inappropriate to gauge well-being using uncorrected measures of income and consumption.

The concepts of weak and strong sustainability point to a broad and pluralistic approach to understanding and managing the relationship between ecological and economic systems. On the one hand, it is surely salient to construct deep and meaningful measures of well-being plus models that project the welfare implications of environmental degradation over intergenerational time scales. On the other hand, Ciriacy-Wantrup's core arguments remain well taken in the face of uncertainty; conserving environmental resources is often essential in securing the life opportunities of future generations. This is an area of research and praxis and involves a deep engagement among multiple disciplines and among academic researchers, practitioners, and stakeholders.

Richard B. Howarth

See also: Ecological Economics; Green National Accounting; Population; Sustainability; Welfare Economics; *Vol. 3: Microeconomics:* Welfare and Equity; *Vol. 4: Global Economics:* Sustainable Consumption; Sustainable Economic Development

Further Reading

Ciriacy-Wantrup, S. V. 1952. *Resource economics: Conservation and policies*. Berkeley: Univ. of California Press.

Daly, Herman E., and John Cobb. 1989. *For the common good: Redirecting the economy toward community, the environment, and a sustainable future*. Boston: Beacon Press.

Hartwick, John M. 1977. Intergenerational equity and the investing of rents from exhaustible resources. *American Economic Review* 67 (5): 972–74.

Neumayer, Eric. 2003. *Weak versus strong sustainability*. Cheltenham, UK: Edward Elgar.

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TABLEAU ECONOMIQUE

The *Tableau Economique* is considered the forerunner to the circular flow of economic activity. The individual most associated with the Tableau is François Quesnay. The economic philosophy responsible for the creation of the Tableau Economique is the French Physiocrats, of which Quesnay was a member. The Physiocrats were an 18th-century French group who believed that wealth in an economy was based on agriculture surpluses through wages and rents, while consumption created economic wealth. They were also government minimalists. This was in contrast to the reigning philosophy of the day, mercantilism. Mercantilists believed that wealth was based on the accumulation of gold, silver, and other precious metals and that national wealth was the pinnacle of economic standards.

François Quesnay first introduced the Tableau Economique in 1759. Using the Tableau as their flow chart, Physiocrats labeled three classes of individuals in the economy. The first class, which the Physiocrats called the productive class, consisted of farmers, landowners, and other laborers in agriculture; they had no surplus, as they consumed all they produced. The second class, the sterile class, included artisans, merchants, and laborers in manufacturing and industry; they, too, consumed all they produced so there was no surplus to carry forward. The third class, the proprietor class, was much like proprietors in today's economy; they were people who generated agricultural products and rents and created the surplus for the future. An economy would be in a natural state of balance when all three sectors' income flows were equal. This natural state, once achieved, would replicate itself in perpetuity.

Quesnay pictured these three sectors of the economy in a zigzag pattern. In his zigzag diagram of a circular flow, he illustrated who and what each sector produced with who and what each sector spent and on what. Using the Tableau Economique, Quesnay was explaining how an economy grew.

As we now know, Quesnay was incorrect in his calculation about the sterility of the manufacturing sector. What the Tableau Economique did show was that the poverty in Quesnay's homeland of France was the direct result of the mercantilist philosophy that the French government was pursuing at the time. The work of Quesnay and his Tableau Economique laid the groundwork for Adam Smith's *An Inquiry into the Nature and Causes of the Wealth of Nations* and a whole new world of economic thinking.

David A. Dieterle

See also: Circular Flow of Economic Activity; Mercantilism; Quesnay, François; Smith, Adam; *Vol. 2: Macroeconomics:* Physiocrats

Further Reading

Henderson, David R., ed. 1993. François Quesnay. In *The concise encyclopedia of economics.* Library of Economics and Liberty. www.econlib.org/library/Enc1/bios/Quesnay.html (accessed February 14, 2016).

Monroe, Arthur Eli. 1923. François Quesnay—Tableau Economique. In *Early economic thought*. Trans. Arthur Monroe, 336–48. Cambridge, UK: Cambridge Univ. Press. www.marxists.org/reference/subject/economics/quesnay/1759/tableau.htm (accessed February 14, 2016).

THATCHER, MARGARET

Born: October 13, 1925, in Grantham, England; Died: April 8, 2013, in London, England; Nationality: English; Professional Interests: Prime Minister of the United Kingdom, 1979–1990; Awarded the Presidential Medal of Freedom in 1991; Major Works: *The Downing Street Years* (1993), *The Path to Power* (1995).

Margaret Thatcher made her mark in British politics and economics. The first woman to lead a major Western democracy, she was the British prime minister for more than 11 years. Thatcher reshaped almost every part of British politics and helped create a school of conservative, conviction-led politics. She left office in 1990 after winning three consecutive general elections, and she died on April 8, 2013, in London, England.

Margaret Roberts was born in Grantham, England, on October 13, 1925. Her parents, Alfred and Beatrice Roberts, were Methodists, and her childhood was based on an ethos of self-help, charitable work, and truthfulness. It was this upbringing that helped her to become the powerful politician and speaker that she was known to be. Her father was a local councilor in Grantham, and he often came home and talked to Margaret about the issues that had arisen in his work. Margaret went on to study chemistry at Oxford under the future Nobel Prize winner Dorothy Hodge, an experience that greatly influenced her outlook in politics. While at Oxford, she became president of the Oxford University Conservative Association, clearly demonstrating her interest in politics.

In 1951, Margaret married Denis Thatcher and took his surname. She also left her chemistry studies behind and ran as the conservative candidate for the safe Labour seat of Dartmouth. Margaret Thatcher twice failed to win the seat, but nevertheless gained national publicity. Her experience standing for election in Dartmouth also helped shape her political style; she was known to speak with poise and confidence on issues that mattered to voters.

In 1951 Thatcher studied to become a lawyer, and in 1959, she was elected to serve in England's Parliament as MP for Finchley. During the late 1960s, she established her place among senior figures of the Conservative Party as a shadow minister. In 1970, Thatcher achieved a cabinet position in Ted Heath's government as Education Secretary, which was not an easy position to gain or hold. Facing a bleak economy, she imposed a series of harsh budget cuts, the most notorious being the removal of a program left over from the days of the Great Depression that guaranteed a daily pint of milk to schoolchildren between the ages of 7 and 11. The abolition of this program gave Thatcher the nickname "Milk Snatcher," which haunted her for the rest of her career. The early 1970s also saw student radicalism at its peak, and Thatcher's speeches were often disrupted by protesters. In 1975, Thatcher was elected as the Conservative Party leader, becoming the first woman to lead a British political party. In 1976, she earned her iconic nickname, "Iron Lady," given to her by the Soviets for her uncompromising speeches against them. However, while she did not soften her criticisms of the Soviet system, when Mikhail Gorbachev became the new leader of the Soviet Union Thatcher declared him to be someone she could "do business with."

In the 1974 general election, no party had a majority. The Conservative Party won the popular vote, but the Labour Party took the most seats. Heath tried to negotiate a coalition with the Liberal Party but failed, and he subsequently resigned. The Labour Party, led by Harold Wilson, had established itself as the minority government. By the end of 1975, there had been some economic growth, but inflation was still high. In 1976, Wilson resigned and was replaced by Callaghan. During the winter of 1978–1979, public opinion was against the Labour government. "The Winter of Discontent," as it was dubbed, was characterized by widespread strikes by trade unions in response to the ongoing pay caps that Callaghan's Labour Party had imposed in an effort to control inflation. The government's inability to control the strikes helped the Conservatives (led by Thatcher) win a Parliamentary majority in the 1979 general election. The very next day, Thatcher took office, becoming the first female prime minister of the United Kingdom.

During Thatcher's first term as prime minister, from 1979 to 1983, her government pledged to check and reverse Britain's economic decline. Although the key economic goal during the first Thatcher government was controlling inflation, Thatcher took steps toward privatization through less government intervention in the economy, less government spending, and lower taxes. Thatcher's privatization was associated with marked improvements in performance (especially in labor productivity). Regulation was also expanded to compensate for loss of direct government control. At first, however, the measures she took were painful and produced no noticeable change in the economy. She did cut the abhorred direct taxes; however, she increased indirect taxes to make up for this loss of income. By the end of Thatcher's first term, more than 3 million British citizens were unemployed. Thatcher's reelection was made certain only by the British victory in the Falklands War. The British response to the Argentine invasion of the Falkland Islands in 1982 displayed the firm and careful touch for which Thatcher was known. When diplomacy failed, Great Britain's military action was quick and successful. The Falklands were back under British control in 1982. By fighting for the islands in a calm and efficient manner, Thatcher not only ensured her reelection but also increased public confidence in her.

In 1984, during Thatcher's second term (1983–1987), the government found itself dealing with a yearlong miners' strike. In 1986, the Irish Republican Army tried to assassinate Thatcher by bombing her hotel in Brighton during the Conservative

Party Conference. She survived unharmed, but some of her closest colleagues were injured or killed. Thatcher proceeded to negotiate the Anglo-Irish Agreement of 1985 to improve security and cooperation between Britain and Ireland. In 1985, Thatcher's reforms aimed at curbing the influence of the trade unions defeated the miners' union, proving that the reforms would endure. Thatcher, however, faced heavy criticism from within her own party for her decision to allow U.S. warplanes to fly from Britain's bases to attack Libya in 1986. But the economy continued to improve during the period from 1983 to 1987. With the strong economy, in June 1987, the Conservative government was reelected and Thatcher returned as prime minister for a third term.

Thatcher's third and final term was her most ambitious one. In 1988, she took measures to reform the education system by introducing a national curriculum. She also introduced a new tax system for local government, commonly known as the poll tax, which replaced the property tax. All of these measures, however, were controversial and stirred up heavy criticism. It did not help that the previously booming economy started to decline, and the public was made aware of a division within the government over different styles of management. Thatcher found herself at odds with her foreign secretary on everything involving European integration.

In 1990, many of her cabinet ministers had already begun to desert her by the time Michael Heseltine launched a challenge to her party leadership. Although Thatcher won the first ballot, she did not win by a wide enough margin to secure an outright victory. She resigned on November 28, 1990, and was succeeded by her chancellor, John Major.

After 1990, Thatcher remained an internationally recognized political figure, though the Conservative Party distanced itself from her. She wrote two memoirs, *The Downing Street Years* (1993) and *The Path to Power* (1995). She began touring and lectured around the world. In 1991, Thatcher received the Presidential Medal of Freedom from U.S. president George H. W. Bush.

Thatcher remains an intensely controversial figure in Britain. Critics claim that she was harsh and uncaring, pointing to her treatment of the coal miners in the 1980s, the withdrawal of free milk for children, and the controversial poll tax, while defenders point to how much Britain's economy grew and changed under her administration. Both critics and supporters recognize her time in government as a period of significant change in British political history.

Margaret Thatcher died of a stroke on April 8, 2013, in London, England, at the age of 87.

Shima Sadaghiyani

See also: Democratic Socialism; Hayek, Friedrich von; Market Capitalism; Private Property; Privatization; Reagan, Ronald

Further Reading

Campbell, John. 2012. *The iron lady: Margaret Thatcher: Grocer's daughter to prime minister*. New York: Vintage Books.

Thatcher, Margaret. 1993. *The Downing Street years*. London: HarperCollins.

Thatcher, Margaret. 1995. *The path to power*. London: HarperCollins.
Young, Hugo. 1989. *The iron lady: A biography of Margaret Thatcher*. New York: Farrar, Straus & Giroux.

THEORY OF PUBLIC CHOICE

The *theory of public choice* (or public choice theory) is rooted in the application of economic principles used by economists to understand and predict people's actions in the marketplace. It also deals with understanding government or political behavior in collective decision-making situations. The theory states that no matter which roles people play in the collective decision-making process—voter, elected official, or interest group—they are largely motivated by self-interest.

Public choice theory dates to the 1950s, and it evolved throughout the early 1970s. The founders of the theory of public choice include Anthony Downs, James Buchanan, Duncan Black, Kenneth Arrow, Gordon Tullock, Mancur Olson, and William Niskanen.

Modern public choice theory begins with Anthony Downs, who is known for the idea that voters are not always aware of current political issues. He believes that the vote of one person generally does not decide an election. Therefore, most informed voters reason that their votes will be canceled out by those of uninformed voters, making their time investment in becoming informed a waste. The informed voter then rationalizes a zero–sum game in being knowledgeable about the issues. As a result, since most voters are easily influenced, politicians do what they can to get votes and win an election. Downs also believes that some people vote simply to preserve the democratic practice and that people vote based on their pocketbooks or how well-off they are—or are promised to be (Pressman 2004).

James Buchanan is considered to be a founder of public choice theory, and he earned a Nobel Prize in Economic Sciences in 1986. He is famous for referring to the theory as "politics without romance" (Buchanan 2003), meaning that there are many self-interested factors that influence the decision-making of politicians and bureaucrats.

In 1962, James Buchanan and Gordon Tullock wrote *The Calculus of Consent: Logical Foundations of Constitutional Democracy*, which describes how economists view the organization of the political society. The authors examine how government officials, politicians, and bureaucrats use their self-interest when making decisions on behalf of the public. Both men also look to the U.S. Constitution as a basis for how the government works and how it can be regulated. In this work, they also emphasize voting and how majority rule is necessary when approaching public issues. In the end, if everyone is aware of the rules in democratic society, even self-interested politicians are not dangerous to society as a whole because the Constitution itself places limitations on things such as the powers of the government. These ideas have evolved into a theory called constitutional economics.

Mancur Olson, the author of *The Logic of Collective Action: Public Goods and the Theory of Groups* (1965), is known for the idea that public choice is heavily influenced by interest groups who seek to redistribute wealth. Despite this, these groups often struggle to gain support from those who would benefit the most from their work. Interest groups, or lobbyists, fight for specific causes or reforms for citizens and are rewarded by getting politicians to listen to their concerns. For example, an interest group that's pushing for a higher minimum wage might ask a particular congressperson or senator to help introduce a bill on the issue.

The theory of public choice applies economic principles to understanding and predicting the decision-making actions of legislators. Legislators, elected to carry out the best interests of their constituents, make decisions on behalf of many others, not just themselves. Legislators may also engage in pork-barrel politics or logrolling, trading votes on one issue in order to gain something in another area. *Pork-barrel politics* involves politicians promising something to constituents to gain their support. In an effort to gain votes, the politician might promise to spend more on local public schools, be tough on crime, or build a new public park. *Logrolling* involves politicians supporting the bills of other politicians in an effort to gain support for a bill that is important to them. Politicians are often criticized for these practices, but politicians use them to gain things for the districts they represent. In this case, the constituents would be pleased with their legislators because they are bringing benefits to their local city or town.

Another element emphasized in the theory of public choice is government failure and the idea that sometimes government intervention in the marketplace can do more harm than good. For example, a government of a country decides to take over its health care system in an effort to streamline it and make it more affordable for citizens, but instead makes the health care system worse off. When a government intervenes in the economy, its goal is to put something in place that the people will view favorably. Perhaps this new health care reform policy is what people favor, but at the same time it puts more power in the hands of the government—and too much government involvement can cause the government to fail.

Today, the theory of public choice still focuses on collective decision-making and its impact on the political world. Political parties are increasingly working toward appealing to the median voter, and voters seek to weigh the costs and benefits of policies when voting for a particular political party.

Angela M. LoPiccolo

See also: *Vol. 2: Macroeconomics:* Pubic Goods; *Vol. 3: Microeconomics:* Arrow, Kenneth; Olson, Mancur

Further Reading

Arrow, Kenneth J. 1963. *Social choice and individual values.* 2nd ed. New York: Wiley.

Black, Duncan. 1958. *The theory of committees and elections*. Dordrecht, Neth.: Kluwer Academic.

Buchanan, James M. 2003. Public choice: Politics without romance. *Policy* 19 (3): 13–18.

Buchanan, James M., and Robert D. Tollison, eds. 1984. *The theory of public choice—II*. Ann Arbor: Univ. of Michigan Press.

Buchanan, James M., and Gordon Tullock. 1962. *The calculus of consent: Logical foundations of constitutional democracy*. Ann Arbor: Univ. of Michigan Press.

Downs, Anthony. 1957. *An economic theory of democracy*. New York: Harper and Row.

Lee, Dwight R. 1913. Politics, ideology, and the power of public choice. *Virginia Law Review* 74: 191–98.

McDowell, George R. 1978. An analytical framework for extension community development programming in local government. *Agricultural and Applied Economics Association* 60: 416–24.

Niskanen, William A., Jr. 1971. *Bureaucracy and representative government*. Chicago, IL: Aldine Transaction.

Olson, Mancur. 1965. *The logic of collective action: Public goods and the theory of groups*. Cambridge, MA: Harvard Univ. Press.

Pennington, Mark. 2000. *Planning and the political market: Public choice and the politics of government failure*. New Brunswick, NJ: Athlone Press.

Pressman, Steven. 2004. What is wrong with public choice. *Journal of Post Keynesian Economics* 27: 3–18.

Shughart, William F., and Robert D. Tollison. 2005. Public choice in the new century. *Public Choice* 124: 1–18.

Shughart, William F., and Robert D. Tollison. 2005. The unfinished business of public choice. *Public Choice* 124: 237–47.

Tullock, Gordon, Arthur Seldon, and Gordon L. Brady. 2002. *Government failure: A primer in public choice*. Washington, DC: Cato Institute.

TRADE-OFFS

The title line from the popular song "You Can't Always Get What You Want" by the Rolling Stones (a British rock band that got its start in the 1960s) announces the basic dictum of economics. Anyone exposed to this song was, perhaps unknowingly, being introduced to the prime economic concept of trade-offs. While the resources available to produce economic goods and services are limited, the desire to obtain the goods and services is limitless. Economic wants are unlimited, yet the ability to produce goods and services is limited. Therefore, it is up to an economic system to make choices and decide the trade-offs of an economy. When decisions are made to allocate resources to a set of goods and services, the same decision is also claiming that society is not going to allocate those resources to other goods and services. There is a trade-off between what to produce and what not to produce.

A trade-off describes what you sacrifice to get something else. Scarcity forces people and societies to make choices—and choices always involve a trade-off. Trade-offs are part of everyone's daily life. Whether it is how we spend our income or what we do with our time, our resources are never enough. Every time we make a decision, we are giving up the possibility of choosing something else or doing something else with that resource. Every trade-off has both a cost and a benefit that must be considered.

Every choice has a cost, called the "opportunity cost." *Opportunity cost* refers to the cost of not choosing what was given up. For example, one might choose to read this entry instead of making a sandwich. The trade-off is giving up time needed to make the sandwich for the chance to read. Opportunity cost refers to what was given up. In this example, the opportunity to eat was relinquished. Most decisions are not a matter of "all or nothing." They are made incrementally, or at the margin. This is known as "marginal analysis."

Our world is one of trade-offs and opportunity costs at all levels of life. Since all decisions involve a trade-off and an opportunity cost, trade-offs are made by individuals, families, companies, and governmental agencies at all levels—and, more and more often, globally. All these entities have limited resources and therefore must give up something with each decision. Not all decisions are made in the same way. Companies make decisions via their leadership or stockholders. Government decisions are made by voters or those who are voted into office. Consumers make decisions in the marketplace. Not all trade-offs are identical. One consumer may choose a hamburger over french fries, while another consumer may choose a hamburger over a soda.

Another type of trade-off made by economic systems is between the social goals of an economy. One society may decide that economic security is more important than economic freedom. Yet another economic system may choose economic freedom over economic security. While both may be worthwhile, an economic system and a society must decide which is more important. Societal and economic system decisions, and their trade-offs, are made by political leaders, by voters when they vote, or by consumers when they vote with their money in the marketplace.

Individuals face similar dilemmas. All of the choices that individuals make in the marketplace involve a trade-off of another good or service. In a market economy, the decisions and trade-offs of consumers determine which goods and services will be produced and which will not. As a result, the market economy decisions of consumers determine which businesses will be successful and which will fail. Any situation that involves losing one quality or aspect of something in return for gaining another quality or aspect can be considered a trade-off. Everyone, everywhere, has been forced to make decisions with trade-offs. The decision to read this entry has taken away the time to spend doing something else. The term *trade-off* may refer to a decision made with full comprehension of both the up side and the down side of a particular choice; it can also be used in an evolutionary context, in which case the selection process acts as the "decision-maker."

This concept does not apply only to decisions involving money. Every time you are asked, "Would you like fries with that?" or your Amazon checkout reminds you that there is free shipping on orders over $25, you are being asked to practice marginalism and make trade-offs that will afford you the greatest satisfaction for your buying power. Producers, in an attempt to maximize profits, will seasonally adjust the size of the workforce and the items produced. If you want to lifeguard in the winter or eat a mince pie in July, you are likely to be disappointed. At times like that, it is a good idea to remember the wisdom of the Rolling Stones.

Maura Donnelly
David A. Dieterle

See also: Decision Costs; Marginal Analysis; Opportunity Cost; Private Property; *Vol. 2: Macroeconomics:* Macroeconomics; Public Goods; Taxes; *Vol. 3: Microeconomics:* Microeconomics

Further Reading

Smith, Estellie. 2000. *Trade and trade-offs: Using resources, making choices, and taking risks*. Lake Zurich, IL: Waveland Press.

Weber, Elke U., with Jonathan Baron and Graham Loomes, eds. 2001. *Conflict and tradeoffs in decision making*. Cambridge, UK: Cambridge Univ. Press.

Winter, Harold. 2013. *Trade-offs: An introduction to economic reasoning and social issues.* 2nd ed. Chicago, IL: Univ. of Chicago Press.

TVERSKY, AMOS

Born: March 16, 1937, Haifa, British Palestine (Israel); Died: June 6, 1996, Stanford, California; Nationality: Israeli; Major Works: *Prospect Theory* (1974), *Choices, Values and Frames* (2000).

Amos Tversky, born in Israel to immigrant parents in 1937, served courageously in the Israeli military, and then completed his undergraduate education at Hebrew University of Jerusalem. In 1964, he received his PhD in psychology from the University of Michigan, and continued his academic career through teaching positions at Michigan, Harvard, and Hebrew University. In 1970 he joined the Center for Advance Studies in the Behavioral Sciences at Stanford as a fellow, and in 1978 he joined the Stanford faculty of psychology. Afterward, he received prestigious awards and fellowships, as well as four honorary doctorates in psychology and other fields. He passed away at age 59 and is survived by his two sons and one daughter. His wife, Barbara, whom he met in Michigan, is a professor emerita of psychology at Stanford University.

Tversky is known for extending psychological findings to other fields, especially economics, law, and medical decision-making. *Rational decision theory* assumes that people seek information in logical ways and use information to calculate probabilities or chances for possible outcomes, and then combine their findings to choose the option with the highest payoff. Tversky turned his observations of advertisers and salesmen into mathematical relations and used the resulting models to test the assumptions of economic rationality. For example, rational people experience the same level of utility from receiving $1 as they feel loss from losing $1 (this time in the negative domain). But, in reality people weight losses more than gains in terms of utility. *Loss aversion* refers to the reality that the loss of $1 causes more bad feelings than the good feelings brought by the gain of $1. As a result, people deal differently with losses and gains. In 1974, Tversky and Kahneman developed this idea in the book *Prospect Theory*. Together, these scholars also generated a list of “cognitive illusions,” which are the basis for predictable mistakes and have generated a sizable literature. Together with Paul Slovic, they outlined an approach to human decision-making based on heuristics and errors and biases.

Heuristics are rules of thumb that people regularly use to make choices in risky situations. These rules do not completely agree with the rules of logic or statistics.

The *heuristics and biases* view holds that people are predisposed to make certain errors because of their mental biases. *Anchoring* is an example of biases that are hard for the human mind to overcome: When starting with a larger number, people make larger estimates because they are anchored on the first value received. In general, people react to information based on the form of presentation or the *framing* of information not based on logic. For instance, patients are more willing to accept a treatment if the doctor says, "There is a 99% chance of cure," and they're less willing when told, "There is a 1% chance of death."

Tversky's legacy is bringing vigor to cognitive psychology by providing a mathematical or more logic-based framework that allows testing the assumptions of rational decision theory with respect to observed behavior. The results from such studies forced theorists to pay attention to actual human behaviors as they exert an impact on decision-making and the decision-making process, which in turn contributed to the emergence of fields such as behavioral economics.

Shabnam Mousavi

See also: Behavioral Economics; *Vol. 3: Microeconomics:* Kahneman, Daniel; Prospect Theory

Further Reading

Bernstein, Peter L. 1996. *Against the gods: The remarkable story of risk*. New York: Wiley.

Gigerenzer, Gerd. 2002. *Calculated risks: How to know when numbers deceive you*. New York: Simon & Schuster.

Kahneman, Daniel. 2003. Maps of bounded rationality: Psychology for behavioral economics. *American Economic Review* 93: 1449-75.

Kahneman, Daniel, and Amos Tversky. 1979. Prospect theory: An analysis of decisions under risk. *Econometrica* 47: 313–27.

Kahneman, Daniel, and Amos Tversky, eds. 2000. *Choices, values and frames.* New York: Cambridge Univ. Press and Russell Sage Foundation.

Laibson, David, and Richard Zeckhauser. 1998. Amos Tversky and the ascent of behavioral economics. *Journal of Risk and Uncertainty* 16: 7–47.

Tversky, Amos, and Daniel Kahneman. 1974. Judgment under uncertainty: Heuristics and biases. *Science* (New Series) 185: 1124–31.

Tversky, Amos, and Daniel Kahneman. 1986. Rational choice and the framing of decisions. *Journal of Business* 59: S251–78.

Tversky, Amos, and Daniel Kahneman. 1991. Loss aversion in riskless choice: A reference-dependent model. *Quarterly Journal of Economics* 106: 1039–61.

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UNITED NATIONS SYSTEM

The United Nations System consists of the six branches of the United Nations (UN), and 25 autonomous specialized agencies, programs, and funds. The United Nations System promotes world peace, sustainable economic development, and human rights. In 2000, the UN adopted the Millennium Development Goals (MDGs) to focus the energy of the United Nations System and other international organizations on poverty reduction, sustainable economic development, and related objectives.

The UN was born in 1945 when 51 countries formally adopted the UN Charter at the San Francisco Conference. Membership climbed during the post–World War II era, as newly independent countries from the developing world joined the UN. The largest membership increase occurred during the 1960s, when 44 nations, mainly from Africa, joined the UN. In 2016, the UN comprised 193 countries. The secretary-general is the UN's leading official.

The six principal branches, or organs, of the UN protect the personal and economic security of the world's peoples. UN branches include the General Assembly, Security Council, Economic and Security Council, Trusteeship Council, International Court of Justice, and Secretariat. Five UN branches are located in New York City. The sixth, the International Court of Justice, or World Court, is located in The Hague, Netherlands.

The United Nations System also consists of 15 specialized agencies, and 10 special programs and funds. These institutions of the UN family are autonomous, self-financing bodies. Yet, the specialized agencies, programs, and funds are linked to the UN through formal agreements and a shared mission to improve the human condition. Many institutions of the UN family are directly involved in promoting sustainable economic development. Key specialized agencies within the UN family include the following:

- **World Bank Group:** The World Bank Group works to reduce world poverty and promote sustainable economic development. Through its five complementary institutions, the World Bank Group makes development loans, provides technical assistance, and supports foreign investment in developing countries.
- **International Monetary Fund (IMF):** The IMF promotes financial and monetary stability and economic growth in developing countries. Its main policy tools are financial assistance, technical assistance, and financial and monetary surveillance.
- **World Health Organization (WHO):** The WHO sets global health standards and supplies technical and financial assistance to strengthen nations' health programs. WHO assistance is vital to human capital development in the world's poorer regions.

- **International Labor Organization (ILO)**: The ILO establishes and monitors core labor standards to safeguard workers' rights and improve working conditions and wages. The ILO's labor standards set a benchmark for acceptable labor practices in the global economy.
- **United Nations Educational, Scientific and Cultural Organization (UNESCO)**: UNESCO promotes educational opportunity, scientific collaboration, and cultural preservation and development. Its mission directly supports human advancement in the developing world.
- **Food and Agriculture Organization (FAO):** The FAO strives to improve people's standard of living and quality of live by boosting agricultural productivity, mainly in the developing world. Agriculture is the backbone of many of the world's least-developed countries (LDCs).
- **World Intellectual Property Organization (WIPO):** WIPO protects copyrights, trademarks, patents, and other forms of intellectual property in the global economy. The protection of intellectual property encourages invention, innovation, and entrepreneurship.

A number of autonomous UN programs and funds also support global poverty reduction and sustainable economic development. Key programs and funds include the following:

- **United Nations Development Program (UNDP):** The UNDP sponsors development projects, especially those directly related to the overriding goal of poverty reduction. Projects reverse desertification; provide advanced education and training for women; and promote agricultural development, technology sharing, and infrastructure construction.
- **United Nations Environment Program (UNEP):** The UNEP promotes environmentally sound programs and sustainable economic development in the developing world. UNEP projects expand access to clean water, reverse local environmental degradation, and introduce appropriate technologies. Globally, the UNEP works to reduce global warming, ozone depletion, desertification, deforestation, acid rain, and threats to the world's biodiversity.
- **United Nations Children's Fund (UNICEF):** UNICEF provides a number of basic services to the developing world to improve people's quality of life. UNICEF programs improve nutrition and health care, sanitation systems, education, and other social services for women and children. UNICEF also responds to people's needs after natural disasters and other crises.
- **World Food Program (WFP):** The WFP provides food aid, mainly to alleviate human suffering in crisis situations. WFP food aid reaches refugees and others dislocated by civil strife, warfare, or other human calamity. The WFP is the world's largest food aid organization.
- **United Nations Population Fund (UNFPA):** The UNFPA supports programs to improve reproductive health, a precondition for sustainable economic development. Specific initiatives help young people plan their families, avoid sexually transmitted diseases, and stop violence against women.

The United Nations has also sponsored major international conferences, approved global resolutions, and used its prestige to promote positive change in the global economy. For example, in 1992 the United Nations Conference on

Environment and Development, more commonly called the Rio Earth Summit, produced *Agenda 21*—the world's most comprehensive statement on sustainable production, worker and human rights, and protections for the natural environment and indigenous peoples. In 1999, the UN's Global Compact garnered international support for corporate social responsibility in the realms of human rights, worker rights, and environmental protection. In 2000, the UN's MDGs gave focus to global development efforts. Today, the work of such multilateral institutions as the World Bank Group and the IMF is guided by measurable objectives listed in the MDGs.

David E. O'Connor

See also: Poverty; *Vol. 4: Global Economics:* Developing Countries; International Labor Organization; International Monetary Fund; Millennium Development Goals; Sachs, Jeffrey; Sustainable Economic Development; World Bank; World Health Organization

Further Reading

Alger, Chadwick, and Mildred Vasan, eds. 2005. *The United Nations system: A reference handbook*. Santa Barbara, CA: ABC-CLIO.

Drakulich, Angela, ed. 2004. *A global agenda: Issues before the 59th general assembly of the United Nations, 2004–2005 edition.* Lanham, MD: Bernan Press.

Schlesinger, Stephen. 2004. *Act of creation: The founding of the United Nations: A story of superpowers, secret agents, wartime allies and enemies, and their quest for a peaceful world.* Boulder, CO: Westview Press.

United Nations, 2004. *Basic facts about the United Nations.* New York: United Nations Department of Public Information.

Weiss, Thomas G. 2005. *UN voices: The struggle for development and social justice*. Bloomington: Indiana Univ. Press.

UNITED STATES CENSUS BUREAU

The United States Census Bureau collects data on the quality of life of U.S. citizens and the state of the U.S. economy. There are two types of U.S. Census Bureau programs: economic and demographic. Most widely known for its data collection on the U.S. population and housing every 10 years, the U.S. Census Bureau also collects data every five years on the economy and government. The economic, agriculture, and government censuses taken every five years comprise more than 98 percent of U.S. economic activity. The Census Bureau also collects data on U.S. foreign trade.

The data collected are used in many ways, including allocation and planning. One of the most important areas is population and housing data, collected each decade and used to determine the number and location of congressional seats in the House of Representatives. At the federal level, census data are also used to determine distribution of federal funds to local governments. Many state and local governments use the data to identify their legislative districts. The census data are also used by local governments to identify and plan where roads may be built, to determine school district boundaries, or to determine the distribution and location of public health care facilities. A second area of service provided by the U.S. Census Bureau is age-related data drawn from its population census. The federal government uses Census Bureau data to plan and budget for Social Security and other age-related government benefits and federal programs.

The first census of the U.S. population (censuses had been conducted in the 13 American colonies as well) was taken in 1790, as ordered in the U.S. Constitution. The census was carried out by Secretary of State Thomas Jefferson. It was used only as a head count, and it only classified the population by age (over 16 or under 16 for white males), race, and sex. The first censuses were taken by local census-takers, who asked only a few basic questions, then tabulated and reported the results locally. This simple process became more complex and the questions more detailed as the country grew and as political and business leaders came to understand the value of the data. Today, the Census Bureau conducts over 200 surveys.

In the early days of the census, U.S. marshals were responsible for collecting information. They had no training on what information to gather, no forms on which to record the information they obtained, and no schedules for when to conduct the census. In 1879, part-time trained census-takers were hired to replace the marshals and conduct the 1880 and subsequent door-to-door censuses. The U.S. Census Bureau began using mail questionnaires beginning with the 1960 census. Today, census-takers are used only for remote areas, special circumstances such as shelters and soup kitchens, and nonresponse follow-ups. The 2010 census was the first census in which the census-takers used hand-held GPS devices.

The census expanded its information-gathering in 1810 to include economic data, such as manufacturing and products being produced. In 1840, it expanded again to gather data on the additional economic sectors of agriculture, fisheries, and mining. The 1850 census data expanded even further, covering for the first time demographic data on taxes, church attendance, and crime. With each subsequent census, the amount of data collected increased. Through an act of Congress in 1902, the U.S. Census Bureau became a permanent agency of the federal government, located in the U.S. Department of Commerce.

Once it became a permanent government agency, the U.S. Census Bureau greatly expanded its data-gathering abilities. During the 20th century, the Census Bureau significantly expanded its ability to accumulate economic information. It created three new surveys that continue to be used today: the American Housing Survey, the Current Population Survey, and the Survey of Income and Program Participation. These new programs go far beyond the historical decade population survey.

Not only has the Census Bureau expanded its date-gathering capabilities; it has led the world in technology innovation. The U.S. Census Bureau was the first nonmilitary government agency to enter the computer age. The 1950 census was tabulated by a UNIVAC I computer, one of the fastest and most modern computers of its time. The global positioning systems (GPSs) we now enjoy in our cars and on our cell phones are directly attributed to the cartographic innovations of the U.S. Census Bureau during the 1970s and 1980s. Census data-gathering has grown from neighborhood walks and local surveys to computer tape and CD-ROMs, and now to the Internet.

The U.S. Census Bureau is headquartered in Suitland, Maryland. The bureau also has 12 regional offices, in Atlanta; Boston; Charlotte, North Carolina; Chicago; Dallas; Denver; Detroit; Kansas City, Kansas; Los Angeles; New York; Philadelphia; and Seattle. The Census Bureau director is appointed by the president and confirmed by the Senate.

David A. Dieterle

See also: *Vol. 2: Macroeconomics:* Bureau of Economic Analysis; Bureau of Labor Statistics; Department of Commerce; National Bureau of Economic Research; Office of Management and Budget

Further Reading

Aljazeera America. n.d. Census Bureau. http://america.aljazeera.com/topics/topic/organization/census-bureau.html (accessed June 3, 2014).

Trethan, Phaedra. n.d. The U.S. Census Bureau: Counting heads and then some. About.com. http://usgovinfo.about.com/od/censusandstatistics/a/aboutcensus.htm (accessed June 3, 2014).

United States Census Bureau. n.d. American fact finder: Community facts. http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml (accessed June 3, 2014).

United States Census Bureau. n.d. Latest news. http://www.census.gov/ (accessed June 3, 2014).

United States Census Bureau. n.d. Quick facts. http://quickfacts.census.gov/qfd/index.html# (accessed June 3, 2014).

United States Census Bureau. n.d. Statistics in schools: Resources for teachers and students. http://www.census.gov/schools/ (accessed June 3, 2014).

UNITED STATES MINT

The United States Mint is part of the Department of the Treasury and is responsible for producing, manufacturing, and distributing coins as well as providing security for the nation's $100 billion in gold and silver assets.

Article 1, Section 8, of the United States Constitution states, "The Congress shall have power . . . [t]o coin money, regulate the value thereof, and of foreign coin, and fix the standard of weights and measures." With this statement, the Constitution places the power of creating a monetary system on Congress. The task of developing this system fell to the first Secretary of the Treasury, Alexander Hamilton. As soon as he began his term in 1789, Hamilton was quick to organize the nation's finances and come up with ideas about how to make the United States an industrial powerhouse. His ideas included establishing a national bank, funding the national debt, taking on the war debts of individual states, and encouraging manufacturing. With Hamilton's assistance, Congress passed the Coinage Act on April 2, 1792. The Coinage Act created the U.S. Mint and authorized construction of a building to house it. At that time, the nation's capital was in Philadelphia. When construction began, the U.S. Mint was the first federal building erected under the Constitution.

The primary mission of the U.S. Mint is to serve the American people by manufacturing and distributing precious metals and collectible coins and national medals, and providing security for the assets entrusted to the Mint. One of its most important jobs is to manufacture and distribute coins. The production of these coins takes place primarily at the Philadelphia and Denver Mints.

The U.S. Mint operates six facilities across the United States, with each facility performing unique functions. These facilities include the Mint headquarters in Washington, D.C., and production facilities in Philadelphia, Pennsylvania; West Point, New York; Denver, Colorado; and San Francisco, California. In addition, there is the United States Bullion Depository at Fort Knox, Kentucky, which does not produce anything but serves as a storage facility for the nation's $100 billion in gold and silver bullion.

The facility in Washington, D.C., is responsible for policy formulation, administrative guidance, program management, research and development, marketing operations, customer services, and order processing. The Philadelphia Mint is responsible for all engraving, manufacturing of coin and medal dies, and production of circulating coins. The Denver Mint is also responsible primarily for circulating coins. Both the Philadelphia and Denver Mints are open to the public for tours. The San Francisco Mint is responsible for producing proof coins for numismatic collectibles as well as some commemorative coins. The West Point Mint is responsible for manufacturing gold, silver, and platinum bullion and proof and uncirculated coins, and it also strikes some commemorative coins.

Ekaterini Chrisopoulos-Vergos

See also: Hamilton, Alexander; *Vol. 2: Macroeconomics:* Federal Reserve System; National Deficit versus Debt; United States Treasury

Further Reading

National Archives. n.d. America's founding fathers: Delegates to the constitutional convention. http://www.archives.gov/exhibits/charters/constitution_founding_fathers_new_york.html (accessed May 21, 2012).

United States Mint. n.d. About us. http://www.usMint.gov/about_the_Mint/ (accessed May 21, 2012).

United States Mint. n.d. History of the mint. http://www.usMint.gov/education/historianscorner/?action=history (accessed May 21, 2012).

United States Mint. n.d. Roles in history. http://www.usMint.gov/education/historianscorner/?action=roles (accessed May 21, 2012).

U.S. Department of the Treasury. n.d. U.S. mint overview. http://www.treasury.gov/about/organizational-structure/offices/Treasurer-US/Pages/usMint-overview.aspx (accessed May 21, 2012).

UNITED STATES SOCIETY FOR ECOLOGICAL ECONOMICS

The United States Society for Ecological Economics (USSEE) is one of several regional professional organizations within the broader scope of the International Society for Ecological Economics (ISEE). USSEE and the other regional ecological economics organizations provide a venue for intellectual exchange and collaboration on issues related to the theory, policy, and implementation of sustainability and sustainable development. USSEE consists of interdisciplinary scholars and practitioners who seek to develop integrated solutions to our most pressing economic, social, and environmental problems, and who care about the well-being of the earth. Other regional ecological economics societies represent ecological economists in Africa, Australia–New Zealand, Brazil, Canada, Europe, India, Latin America, and Russia. All ecological economics societies hold professional meetings that serve as a forum for exchanging information, presenting cutting-edge research results, and advancing practical solutions toward an ecologically sustainable and economically viable future.

Ecological economics is the science of sustainability, which is predicated on the notion that environmental problems are complex and nonlinear, and that transdisciplinary approaches are required to solve them. This integration of economic, social, and ecological systems brings together scholars and practitioners from a variety of natural and social science disciplines. The common goal of ecological economists is to enhance theoretical understanding and practical solutions for achieving long-term economic and social well-being, without undermining the absorptive, regenerative, and resource capacity of the natural environment. The focus of the USSEE is on developing new approaches to understanding our economy and its dependence on the biophysical systems that govern life on earth. USSEE is intentional about advancing dialogue across different disciplines, backgrounds, and professional contexts to address pressing social and ecological problems. The society is particularly interested in identifying concrete solutions and actions to bring about a more just and sustainable future.

The USSEE is a membership organization, and USSEE members are also members of the ISEE. A portion of annual dues paid to the ISEE are contributed to USSEE initiatives and activities.

The USSEE was founded in 2000. Its past presidents have been Robert O'Neill (2000–2001), John Gowdy (2002–2003), Barry Solomon (2004–2005), Karin Limburg (2006–2007), Sabine O'Hara (2008–2009), Jon Erickson (2010–2011), and Valerie Luzadis (2012–2014).

The board of directors of the USSEE establishes policy for the society and is responsible for the fulfillment of the stated purposes of the society. Officers of the society include the president, president-elect, immediate past president, and secretary-treasurer. The USSEE board of directors comprises eight individuals—drawn from the president, president-elect, immediate past president, secretary-treasurer, four at-large members—and one student member. The positions of president-elect and immediate past president are vacant every other year for periods of one year so that the two never simultaneously serve on the board. The at-large members, student member, secretary-treasurer, and president-elect are elected by a direct vote of the USSEE membership.

The USSEE's biennial conferences provide a national and international forum to focus on the latest issues in ecological economics and to share information about new developments and activities. Biennial conferences provide opportunities for students of ecological economics to present their research and to engage with scholars in the field. Students are represented on the USSEE board, and the society provides financial aid and volunteer opportunities to students to enable them to participate in meetings in order to present work and share ideas for the future. USSEE biennial conferences are held in odd-numbered years, and ISEE conferences are held in even-numbered years. The inaugural conference for the USSEE was held in Duluth, Minnesota (2001), and subsequent conferences have been held in Saratoga Springs, New York (2003); Tacoma, Washington (2005); New York (2007); Washington, D.C. (2009); East Lansing, Michigan (2011); and Burlington, Vermont (2013).

In between conferences, USSEE board and members work to advance knowledge in ecological economics through publications, higher education, workshops, blogs, and other formal and informal communications. *Ecological Economics*, the long-standing transdisciplinary journal of the ISEE, is concerned with extending and integrating the study and management of nature's household (ecology) and humankind's household (economics). This integration is necessary because conceptual, academic, and professional isolation has led to economic and environmental policies that are mutually destructive rather than reinforcing in the long term. USSEE previously sponsored the publication of *Ecological Economics Reviews* as a special issue of the *Annals of the New York Academy of Sciences*. The USSEE also supports regular webinars related to ecological economics, edited collections of papers from biennial conferences, and regular posts to an online blog that highlights education opportunities, publications, general discussion topics, and related job postings.

The USSEE honors scholars and practitioners in ecological economics through the Herman Daly Award, which is given in honor of Herman Daly, one of the visionaries who founded the field of ecological economics. The award is designed to recognize individuals who have connected ecological economic thinking to practical applications and implementation of solutions that are sustainable in scale, equitable in distribution, and efficient in allocation. The award is given in conjunction with the USSEE biennial conference. Past recipients of the Herman Daly Award include David Batker (2003), Mathis Wackernagel (2005), Gretchen Daily (2007), John Gowdy (2009), Juliet Schor (2011), and Annie Leonard (2013).

The USSEE also provides leadership in curriculum development at the undergraduate, graduate, and continuing-education levels in such academic fields as environmental science, environmental studies, ecological economics, policy, management, law, and ethics. Outside of academia, USSEE members engage in intellectual exchange and communication about the full scope of ecological economics, including analyses and positions about the economic, social, and environmental crises faced by the nation and the globe, as well as the policy options available for addressing these crises effectively.

The USSEE plays a key role in setting the research agenda for ecological economics in the United States, and in communicating the development of effective economic, social, and environmental policies. In engaging scholars, practitioners, and policymakers as its members, the USSEE is committed to advancing research and analysis as well as identifying policy tools and practical solutions that can be implemented at the national, state, and community levels.

Robert B. Richardson

See also: Association of Environmental and Resource Economists; Ecological Economics; *Vol. 3: Microeconomics:* Fisheries Economics Associations; *Vol. 4: Global Economics:* International Association for Energy Economics

Further Reading

Costanza, Robert, John H. Cumberland, Herman E. Daly, Robert Goodland, and Richard B. Norgaard. 1997. *An introduction to ecological economics*. Boca Raton, FL: CRC Press.

Daly, Herman E., and John B. Cobb, Jr. 1994. *For the common good: Redirecting the economy toward community, the environment, and a sustainable future*. Boston: Beacon Press.

Daly, Herman E., and Joshua Farley. 2010. *Ecological economics: Principles and applications.* 2nd ed. Washington, DC: Island Press.

Ehrlich, Paul R. 2008. Key issues for attention from ecological economists. *Environment and Development Economics* 13 (1): 1–20.

Rœpke, Inge. 2005. Trends in the development of ecological economics from the late 1980s to the early 2000s. *Ecological Economics* 55 (2): 262–90.

UNIVERSITY ECONOMICS DEPARTMENTS

Many economic programs offer doctoral degrees with a specialty in environmental and resource economics and/or agricultural economics. University of California at Riverside, University of New Mexico, and University of Wyoming were among the first schools (1969, 1974, and 1975, respectively) to begin offering the environmental and resource economics field as part of their doctoral degree in economics. However, students seeking a doctorate in economics with a field in environmental and resource economics have a host of universities to choose from, including both traditional economics departments and agricultural economics departments.

Agricultural economics departments are listed on the Agricultural and Applied Economics Association website (www.aaea.org) and on individual department websites. Graduate programs in economics are listed on the American Economic Association website (www.aeaweb.org) and on individual department websites, and are also obtained through email correspondence. Some departments provide students flexibility to choose a field without limiting the choices offered by the program.

The following agricultural economics departments offer a PhD in the field of environmental and resource economics (in alphabetical order): Arizona State University, Auburn University, Colorado State University, Cornell University, Iowa State University, Kansas State University, Michigan State University, North Carolina State University, Ohio State University, Oklahoma State University, Oregon State University, Pennsylvania State University, Purdue University, Texas A&M University, Texas Tech University, University of Arizona, University of California at Berkeley, University of California at Davis, University of Connecticut, University of Georgia, University of Florida, University of Illinois, University of Maryland, University of Minnesota, University of Missouri, University of Nebraska, University of Rhode Island, University of Tennessee, University of Wisconsin, Utah State University, Virginia Tech University, Washington State University, and West Virginia University.

The following economics departments offer a PhD in the field of environmental and resource economics (in alphabetical order): Arizona State University, Auburn University, Clemson University, Colorado School of Mines, Colorado State University, Cornell University, George Washington University, Georgia State University, Harvard University, Iowa State University, Michigan State University, North Carolina State University, Oregon State University, Rensselaer Polytechnic Institute, Stanford University, SUNY Binghamton, Texas Tech University, Tulane University, University of Arizona, University of California at Riverside, University of California at San Diego, University of California at Santa Barbara, University of Colorado, University of Connecticut, University of Delaware, University of Hawaii, University of Kentucky, University of Maryland, University of Miami, University of Michigan, University of New Mexico, University of Notre Dame, University of Oregon, University of Rhode Island, University of Tennessee, University of Texas, University of Utah, University of Washington, University of Wyoming, Vanderbilt University, Virginia Tech University, Washington State University, West Virginia University, and Yale University.

Many schools appear in both the agricultural economics and economics lists. In these cases, a PhD in environmental and resource economics is offered through both programs, either as a separate program or a joint program.

Economists and prospective students are interested in how academic departments fare relative to others in research productivity. Such rankings serve as an aid in benchmarking research productivity, aligning perspective graduate students with PhD programs, or matching job candidates with potential academic employers. In the field of environmental and resource economics, studies provide rankings for economics departments based on faculty research productivity in *Journal of Economic Literature* (JEL) category Q, which is Agricultural and Natural Resource Economics; Environmental and Ecological Economics. Rankings are typically based on quality-weighted publication measures such as citation impact scores. Other methods of department rankings include surveys of faculty, graduate student placements, and journal article page counts in select journals.

Using faculty publications between 1985 and 2010 provided in the Econlit database and quality indicators provided by the Social Science Citation Index (SSCI) and Research Papers in Economics (RePEc) in JEL category Q, the top agricultural economics programs (in ranked order) are the University of California at Davis, Iowa State University, University of Maryland, University of California at Berkeley, Cornell University, North Carolina State University, Purdue University, University of Illinois, University of Minnesota, Michigan State University, University of Wisconsin, Ohio State University, Texas A&M University, Oregon State University, Washington State University, and Utah State University.

The top economics departments (in ranked order) are Iowa State University, University of Wyoming, North Carolina State University, Yale University, Harvard

University, University of California at Santa Barbara, SUNY Binghamton, University of Rhode Island, Massachusetts Institute of Technology, Stanford University, University of Colorado, University of Connecticut, Georgetown University, and Rensselaer Polytechnic Institute.

There are differences in the top departments in the subdisciplines of JEL category Q. In JEL category Q1—Agriculture—agricultural economics departments dominate the top 10 based on total productivity in this field. The top 10 departments (in ranked order) are the University of California at Davis, Iowa State University, Purdue University, Cornell University, North Carolina State University, University of California at Berkeley, University of Illinois, University of Maryland, Michigan State University, and University of Minnesota.

In the other JEL subdisciplines—Q2,·renewable resources and conservation; Q3,·nonrenewable resources and conservation; Q4,·energy; and Q5,·environmental economics—there is a mix of agricultural economics and economics departments in the top 10. The top departments in the field of renewable resources and conservation (in ranked order) are the University of Wyoming, University of Maryland, University of California at Davis, University of California at Berkeley, Iowa State University, North Carolina State University, University of Illinois, Cornell University, University of Minnesota, and Ohio State University.

The top departments in the field of nonrenewable resources and conservation (in ranked order) are the University of California at Berkeley, University of Maryland, University of California at Santa Barbara, University of Wyoming, University of California at Davis, University of Minnesota, University of Wisconsin, Cornell University, Purdue University, and University of Colorado.

The top departments in the field of energy (in ranked order) are the University of Wyoming, Cornell University, Iowa State University, University of California at Davis, Harvard University, University of Minnesota, University of California at Berkeley, Purdue University, University of California at Santa Barbara, and Texas A&M University.

The top departments in the field of environmental economics (in ranked order) are the University of Wyoming, University of Maryland, University of California at Santa Barbara, Michigan State University, University of California at Berkeley, University of Illinois, Iowa State University, University of California at Davis, Oregon State University, and Cornell University.

While schools may be ranked differently according to their productivity, statistical analysis indicates that there may be minimal difference between groups of schools.

Therese C. Grijalva
Clifford Nowell

See also: Nobel Prize in Economics

Further Reading

Grijalva, Therese C., and Clifford Nowell. 2008. A guide to graduate study in economics: Ranking economics departments by fields of expertise. *Southern Economic Journal* 74 (4): 971–96.

Grijalva, Therese C., and Clifford Nowell. 2012. What interests environmental and resource economists? A comparison of research output in agricultural economics versus environmental economics. *Agricultural and Resource Economics Review* 43 (2): 209–26.
Smith, V. Kerry. 2010. Reflections—Legacies, incentives, and advice. *Review of Environmental Economics and Policy* 4 (2): 309–24.

URBANIZATION

Urbanization is the process by which cities develop from smaller villages and towns. Cities form and expand when people from many different, often rural, areas move to the same central locations, forming large communities. Urbanization is a historical process that has occurred for millennia, with larger and larger populations concentrating in small geographic areas over the centuries.

The formation of cities is primarily accomplished through economic forces, with most migrants to cities seeking employment or other benefits such as natural resources. For this reason, cities have generally emerged in areas with favorable climates, with high natural resource concentrations, and with emerging industries seeking to expand. While the process of urbanization as led to many economic advances, it has also caused concerns. Both historically and in modern times, prevalent issues for large cities include sanitation, pollution, and overcrowding.

Early urbanization traces to the formation of cities in Mesopotamia in the fertile valley between the Tigris and Euphrates Rivers. This land was especially suitable for agriculture due to its proximity to the rivers. The rivers provided resources and facilitated transportation by water. This being the case, people from different groups migrated to this area of abundance, concentrating in the small portion that afforded them the greatest economic opportunities. Famous cities—including Uruk, Babylon, and Nineveh—emerged in Mesopotamia, generally concentrated on the banks of the rivers.

In the centuries and millennia after these cities arose, urbanization continued to predominate in areas with abundant natural resources, in particular along waterways. Prominent cities the world over—including London, Tokyo, and New York—have emerged along the coasts of rivers, lakes, and oceans. The original factors that drove the settlement of coastal areas (fertility of land and transportation) still invite urbanization in these regions.

During the Industrial Revolution of the 18th and 19th centuries, power emerged as a new necessity. By locating along water, factories could capture energy from the movement of water to operate machines mechanically. Eventually, the need for electricity led to the development of hydroelectric methods for obtaining energy from water's motion. The availability of energy led factories to locate along the water and in turn brought workers to these cities, spurring a new age of urban growth and increasing population density.

This entrance of job-seekers into cities demonstrates the relevance of this group even in the modern era of job specialization. While most people no longer need direct access to the natural resources surrounding their cities, settling these concentrated areas still offers many benefits. In addition to increased job opportunities, cities offer many more cultural attractions than are available in most rural areas. They also facilitate the easy transfer of ideas and resources, allowing for increased trade and innovation while encouraging an improved standard of living and creating more opportunities for human growth and development.

Urbanization has generally led to improved conditions for the concentration of populations, but it also has had many consequences. Waste management and lack of adequate sanitation have always been challenges in cities, resulting in health hazards. Having many people in close proximity has facilitated the spread of disease, with many deadly outbreaks arising in cities due to increased opportunities for exposure and transmission. Tensions between different ethnic, socioeconomic, and racial groups increase when the groups are so near each other. This closeness has resulted in the rise of crime—in particular, organized crime—in the cities.

Adam Vallus

See also: Industrial Revolution; Population; *Vol. 3: Microeconomics:* Industrial Policy; *Vol. 4: Global Economics:* Brain Drain; Brazil: General Economy; China: General Economy; Developing Countries; Less Developed Countries

Further Reading

Birch, Eugenie L., and Susan M. Wachter. 2011. *Global urbanization*. Philadelphia: Univ. of Pennsylvania Press.

Economist Staff. 2012. Urban life: Open-air computers—Cities are turning into vast data factories. *The Economist*, October 25. http://www.economist.com/news/special-report/21564998-cities-are-turning-vast-data-factories-open-air-computers (accessed November 30, 2012).

Wagner, Luca N., ed. 2008. *Urbanization: 21st-century issues and challenges*. New York: Nova Science Publishers.

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WAR OF 1812

The War of 1812 between the United States and Britain was about economics and trade. The problem started with *impressment* (the act of seizing for public use or public service) of sailors. Conditions on British ships were particularly poor; a harsh system of discipline was used, and British sailors were often forced into service. In contrast, American sailors made about $30 a month compared with $7 a month for British sailors. As a result, British sailors often signed on with American ships. To combat this practice, British ships began to stop American ships and search for British deserters.

In a British seizure, rule of law was lacking, as the British authorities impressed sailors for being deserters—on suspicion alone. In just one year, 250 American flagged ships were seized and searched. Between 1808 and 1811, more than 6,000 sailors were impressed from American ships. Another underlying factor in the dispute was the rise of American shipping and the decline of British shipping. Further economic tension between the United States and Great Britain occurred on the western frontier. Britain wanted to hold on to the fur trade. Americans had also become expansionists, looking west for land. Even Southerners were looking west for land as tobacco depleted the soils of Maryland and Virginia. In the long view, the United States and Britain had never ended the mutual economic warfare that had started in 1776.

The political and military conflicts in Europe complicated the situation. The British and French were at war with each other and were consequently interfering with American trade, and the American public was split on which nation to support in the Napoleonic wars. In New England, many sailors and their families believed the United States should declare war to stop impressments. Yet New England was suffering from the loss of trade before the war, and for economic reasons, therefore, many opposed America's entering the war. The western states of Ohio, Tennessee, and Kentucky wanted war because the British were interfering with the fur trade and western expansion. In 1811, Congress changed hands and was led by Speaker Henry Clay, a Kentuckian and a war hawk. President James Madison was under pressure to declare war after being sworn into office in 1812.

On June 18, 1812, the United States declared war against Britain, and initially found success as Great Britain was bottled up in a war with Napoleon. Britain hoped to win by a naval blockade because of the United States' dependence on trade with Britain and her colonies. The interruption of trade not only hurt citizens but also caused a major decrease in tariffs, which were the main source of government revenues. The U.S. government moved from having a surplus to having to make loans to cover its debt. Government expenses soared, too, as the army and the navy needed to expand. By 1814, the United States was again moving into deep debt.

The British blockade of America was devastating, and prices soared. The blockade prevented use of the sea route from the Midwest down the Mississippi to New Orleans and then by ship to New York and Philadelphia. Kentucky and Tennessee whiskey prices tripled in New York. Wagon trains over the Appalachian Mountains were needed to meet demand. Sugar from the West Indies could still get to New Orleans, but not direct by sea to New York. Sugar that sold for $9 a pound in New Orleans cost $40 a pound in New York. South Carolina rice, which normally went by sea to New York, was blockaded as well. This drove rice prices from $3 per 100 pounds to $12 per 100 pounds.

As the national debt rose, Congress was forced to implement a series of taxes to finance the war. States were charged a direct tax. Taxes on goods focused on luxury items. The whiskey tax was doubled. Taxes were put temporarily on manufactured goods such as tobacco, iron, candles, saddles, boots, gold products, silver, jewelry, and furniture over $100. In 1815, the nation raised $13 million, which covered some of the war expenses. In addition, fees, such as the price of postage stamps, increased. To cover most of the expenses, the government had to issue Treasury bills paying 6 percent interest. Taxes, fees, borrowing, and trade shortages created an inflationary spiral that would reduce support for the war among average American citizens.

The total cost of the war and its economic suffering left Americans with little interest in new wars. Total costs, including those from lost economic opportunities, were estimated at $157 million. Naval expenditures were more than $16 million. The government was forced to borrow $80 million. Total debt reached $147 million by 1815. The government also gave away much in land contracts to cover soldiers' pay. Washington, D.C., was burned by the British, resulting in millions of additional war-related expenses.

Little was gained from the war, though the impressments of sailors on U.S. ships were halted. Soon, Britain would begin a new type of economic warfare against the United States: mountains of manufactured goods were awaiting shipment to America. One positive outcome was that the American iron, textile, and glass industries had expanded to meet shortages from the British naval blockade. After the war, America experienced a short economic boom. The South prospered as tobacco went from 3 cents a pound in 1812 to 16 cents a pound in 1817. Cotton went from 2 cents a pound to 10 cents a pound. Exports boomed from $30 million to $68 million by 1817.

Quentin R. Skrabec Jr.

See also: Civil War Economics, Shortages, and Inflation, 1861–1865; *Vol. 4: Global Economics:* Tariffs; Trade Policy

Further Reading

Gutzman, Kevin R. C. 2012. *James Madison and the making of America.* New York: St. Martin's Press.

Hickey, Donald R. 1989. *The War of 1812: A forgotten conflict.* Urbana: Univ. of Illinois Press.
Latimer, Jon. 2007. *1812: War with America.* London: Belknap Press.

WEALTH VERSUS INCOME

In today's society, the terms *wealth* and *income* are often used interchangeably for the same purpose. However, they are quite different, and the difference can be significant when considered in regard to an individual's personal economic health. First, wealth is a *stock value*, which means it is a measure at a given point in time—for example, December 31. Income is a *flow value*, which means its value measured is over a given period of time—for example, per week or per month or per year.

People can be quite wealthy while having only a moderate income or even a low income. Vice versa, people can have a high to very high income and have no wealth at all or have even negative wealth. We do not often hear or read about the former, but quite often we hear news of someone with very high income filing for bankruptcy.

Wealth is the total accumulated value of a person's assets at any given point in time. An *asset* is anything that has monetary value. Real estate, including equity in a home, is an asset. Other examples are cars, savings, stocks owned, the value of paintings owned, and life insurance cash values. Wealth does not necessarily include items of sentimental value, such as a family keepsake ring or a stack of old record albums saved since childhood. The age of an item does not determine its value. An item's value is determined by the value someone else places on the item. Items may also lose value over time; while an automobile may have some value, most automobiles—other than classic cars in pristine condition—are depreciating assets, with their value decreasing over time. Some assets, such as stocks and bonds, may fluctuate in value over time.

Net wealth is the accumulated value of all of a person's assets minus the person's liabilities. *Liabilities* are the debts an individual still owes others. For example, a home may have a market value of $500,000, but if the home's owner still owes $200,000 the net asset value of the home is only $300,000. The homeowner still has a liability of $200,000 to the mortgage holder. Other liabilities can include credit card debt, car loan debt, and student loan debt. A person's net wealth is determined by subtracting the value of the liabilities from the value of the assets at a point in time.

Notice that income was not a variable in determining wealth. Wealth is accumulated, while income is current. *Income* is the money a person receives in return for performing a work function. Income represents the value of one's human capital to an economy. Income can be described as current wealth versus accumulated wealth (net worth).

Income is a variable in a person's personal economic ledger that changes over time. Income is a variable that depends on several other variables, such as business cycle, experience, level of expertise, or demand for a skill. As a person accumulates more experience and expertise in a particular career, income may increase to reflect those changes. Conversely, if one's expertise is no longer needed because of technological changes or a downturn in the economy, there may be a decrease in income.

Income is also dependent on one's life cycle of work. While a person is young and still in school, part-time and odd jobs determine income level. Once that person has graduated from school and entered into a career, income levels will rise above the part-time levels the worker earned as a student. Income levels likely will continue to rise—through further education, experience, and potential promotions and job changes—during the peak years to retirement. At retirement, income levels decline to a level based on one's savings and retirement planning during the working years.

Spending all—or even more than all—of one's income in the present is a primary reason why high-income earners often file for bankruptcy and we read about them in the news. They have confused income with wealth.

David A. Dieterle

See also: Financial Literacy; Investing; *Vol. 3: Microeconomics:* Becker, Gary; Household Decisions; Income; Stock Market; *Vol. 4: Global Economics:* Organisation for Economic Co-operation and Development

Further Reading

Money Crashers. n.d. Income vs. wealth—What's the difference? www.moneycrashers.com/wealth-and-income-difference/ (accessed January 15, 2016).

Rahn, Richard. W. 2008. Confusing wealth and income. *Washington Times*, August 27. Cato Institute. www.cato.org/publications/commentary/confusing-wealth-income (accessed January 15, 2016).

Riley, Geoff. n.d. Economics: Income and wealth. *tutor2u*. www.tutor2u.net/economics/reference/income-and-wealth (accessed January 15, 2016).

WELFARE ECONOMICS

Welfare economics is the study of social well-being. If one's utility, or happiness, rises, then one enjoys a welfare improvement (and vice versa). Social welfare is a function of all individual welfare levels. In environmental and resource economics, with its focus on market failures, welfare economics is often used to consider whether society is better or worse off in response to government policy. The early welfare economists, such as Arthur Pigou, thought that utility could be measured by assigning numbers to units of happiness so that welfare could be compared directly from one person to another. Economists realized that such cardinal utility measurement was not feasible, and they came to favor ordinal utility. *Ordinal utility* means that individuals can rank bundles of goods and services from the most preferred to the least preferred.

Using the notion of ordinal utility, one way to judge if a reallocation of resources improves social welfare is to determine if it improves the well-being of at least one member of society without making any other members of society worse off. If it does, then the policy is called a Pareto improvement (named after the Italian economist Vilfredo Pareto). The Pareto criterion has come to be viewed as very strict.

Very few, if any, policies make no one worse off. Under the strict Pareto criterion, a policy that takes one dollar from the richest person in society and gives it to the poorest person in society would not be an improvement: the richest person is worse off by one dollar. Alternatively, a potential Pareto improvement is a policy that passes the compensation test if it has benefits greater than costs such that the winners could compensate the losers so that the losers are no worse off than before the policy. The compensation need not actually occur in order to pass the potential Pareto test.

Benefit-cost analysis, a method used to calculate and compare monetary gains and losses, is the practical application of welfare economics. The concept of economic surplus is the basis for the theory of economic benefit and cost measurement. Considering a market good—for example, a car—the consumer's economic surplus is the difference between the amount the consumer is willing and able to pay and the market price of the car. The consumer may be willing and able to pay the manufacturer's suggested retail price of $35,000. However, if the negotiated price is $31,000, then the consumer surplus is $4,000: the difference between the consumer's maximum willingness to pay and the market price. The consumer surplus is a monetary measure of the net benefit that the consumer gained from the transaction.

Goods that are not sold in markets, such as water quality, also provide consumer surplus. Consider an angler who is willing and able to pay $5 for each additional fish caught per trip. If an environmental regulation leads to a water quality improvement, and the improvement enables the angler to catch two additional fish beyond the usual catch, then the consumer surplus per trip increases by $10.

Producer surplus is the difference between the amount a business firm is willing to accept in exchange for a product and the additional cost of producing that unit of the product. It is measured as the difference between the revenue earned by business firms and the variable costs of production (i.e., the sum of marginal costs). Producer surplus is equivalent to profit if the fixed costs of production are zero. With environmental regulations that negatively affect business firms, the loss of producer surplus is a measure of the cost of the policy.

Consumer surplus is usually a good approximation of what is known as an exact welfare measure. Consumer surplus is not exact, because of income effects. Consider a price reduction that leads to an increase in consumption of a market good. As the price falls, the amount of money available to spend on all goods, including the one for which the price has fallen, increases. This is a form of the income effect on demand. As income increases, the demand for a product increases for normal goods and decreases for inferior goods. In the same way, a price decrease will lead to a positive change in income available for spending, which might further increase the amount consumed of the good for which the price has changed (if it is a normal good). On the other hand, a price increase will lead to a negative change in income available for spending, which might further decrease the amount consumed of the good for which the price has changed.

Consumer demand has both income effects and substitution effects. A demand function with income effects is known as a Marshallian (named after the economist

Alfred Marshall) demand function. Exact, income-compensated, or Hicksian (named after the economist John Hicks) demand functions are preferred for welfare analysis because they focus on the substitution effect. The *substitution effect* is the change in quantity demanded that arises solely due to the willingness to pay for more or less of a good, not due to a change in the ability to pay (i.e., the income effect).

Exact welfare measures include compensating and equivalent variations and surpluses. The *compensating variation* is the amount of money an individual would need in order to obtain the initial utility level after a price change. When a policy leads to a price decrease, the compensating variation is the willingness to pay to obtain the price decrease. When a policy leads to a price increase, the compensating variation is the willingness to accept compensation for the price increase. In both cases, the utility level with the price change and after income is adjusted by the compensating variation is equal to the utility level before the price change.

The *equivalent variation* is the amount of money an individual would need in order to obtain the subsequent utility level after a price change. When a policy leads to a price decrease, the equivalent variation is the willingness to accept compensation to forgo the price decrease. When a policy leads to a price increase, the equivalent variation is the willingness to pay to avoid the price increase. In both cases, the utility level with income adjusted by the equivalent variation and the price change is equal to the utility level that would result after the price change.

In environmental and resource economics, it is often the case that a policy will change a nonmarket good instead of a market price. In this case, there are compensating and equivalent surpluses. The *compensating surplus* is the amount of money an individual would need in order to obtain the initial utility level after a change in environmental quality or resource quantity. When a policy leads to a quality or quantity increase, the compensating surplus is the willingness to pay to obtain the increase. When a policy leads to a quality or quantity decrease, the compensating surplus is the willingness to accept compensation to avoid the decrease. In both cases, the utility level with income adjusted by compensating surplus and the quality or quantity change is equal to the utility level before the quality or quantity change.

The *equivalent surplus* is the amount of money an individual would need in order to obtain the subsequent utility level after a quality or quantity change. When a policy leads to a quality or quantity increase, the equivalent surplus is the willingness to accept to forgo the increase. When a policy leads to a quality or quantity increase, the equivalent surplus is the willingness to pay to avoid the decrease. In both cases, the utility level with income adjusted by equivalent surplus and the quality or quantity change is equal to the utility level after the quality or quantity change.

The differences in exact welfare measures are subtle but important. The correct measure is a function of the implicit property rights to the environment. If those who are affected by the policy feel that they have a property right to the *original* level of price, quality, or quantity, then the compensating measures are appropriate. If those who are affected by the policy feel that they have a property right to the *subsequent* level of price, quality, or quantity, then the equivalent measures are appropriate.

Total economic value is the decomposition of willingness to pay and willingness to accept into use value and passive use value. *Use value* is the willingness to pay for a change in the resource allocation that results from on-site or direct use of the environment or natural resource. Use value can derive from consumptive or nonconsumptive use. *Consumptive use value* is when the resource is extracted from the natural environment; examples include hunting and fishing (catch and keep) and mining. *Nonconsumptive use value* is when the resource is enjoyed but not extracted from the natural environment; examples include hiking and wildlife-watching. *Passive use value* is the willingness to pay for (or accept) the resource reallocation that does not lead to changes in behavior.

John C. Whitehead

See also: Cost-Benefit Analysis; *Vol. 3: Microeconomics:* Pareto, Alfredo; Pareto Optimality; Welfare and Equity

Further Reading

Banzhaf, Spencer H. 2010. Consumer surplus with apology: A historical perspective on nonmarket valuation and recreation demand. *Annual Review of Resource Economics* 2: 18.1–25.

Bergstrom, John C., 1990. Concepts and measures of the economic value of environmental quality: A review. *Journal of Environmental Management* 31 (3): 215–28.

Boadway, Robin W., and Neil Bruce. 1984. *Welfare economics*. Oxford, UK: Basil Blackwell.

Randall, Alan, and John R. Stoll. 1980. Consumer's surplus in commodity space. *American Economic Review* 70 (3): 449–55.

Willig, R. D. 1976. Consumer's surplus without apology. *American Economic Review* 66 (4): 589–97.

WICKSTEED, PHILIP

Born: October 25, 1844, in Leeds, West Yorkshire, England; Died: March 18, 1927, in Childrey, Berkshire, England; Nationality: English; Professional Interests: Unitarian minister and lecturer, Austrian economics; Major Works: *An Essay on the Co-ordination of the Laws of Distribution* (1894), *The Common Sense of Political Economy* (1910).

Philip Wicksteed was a Unitarian minister who spent the latter part of his life as a lecturer of economics. He is best known in economics for *An Essay on the Coordination of the Laws of Distribution* (1894) and *The Common Sense of Political Economy* (1910). He is usually associated with Austrian economics, though he had no formal connection. His research focused on marginalism, microeconomics, and the actions of the economic individual in the marketplace. Wicksteed died in 1927.

Philip Henry Wicksteed was born on October 25, 1844, in Leeds, England. His father was a Unitarian minister, and his mother came from a family with a long business history. He received his master's degree (with a gold medal for classics) in 1867 after studying at University College (1861–1864) and Manchester New College (1864–1867). In 1868, he became a Unitarian minister himself, serving in various locations around London and Manchester. While he was a minister, he developed a great interest in the ethics of the commercial society, and his study of economics led him to begin lecturing on economics in 1884. In 1897, he began lecturing full-time.

Wicksteed's involvement with economics began around the early 1880s as he began to study Henry George's *Progress and Poverty* (1879) and the works of William Stanley Jevons. Wicksteed was exposed to *Progress and Poverty* through his membership with the socialist Fabian Society in the 1880s, and the books seemed to open his eyes to distribution and labor problems that lead to poverty. He expressed in a letter to George his agreement about the benefits of the expanded use of technology in agriculture and the problem of labor not being helped by increased capital. Wicksteed would also take ideas about the labor supply from Jevons and expand on them.

Despite the socialist nature of the Fabian Society, Wicksteed was a major opponent of the views of Karl Marx. One of Wicksteed's first forays into economic writing came in 1884 in a critique of Marx's *Das Kapital,* where Wicksteed pointed out fallacies in Marx's ideas of "abstract labor" and the cost of production in the labor force. In 1888, Wicksteed published his *Alphabet of Economic Science,* which focused on utility, marginal utility, and the theory of demand. During this time, Wicksteed began what would be a more than 30-year involvement with the London Society for the Extension of University Teaching (LSEUT), during which time he would teach over 300 courses in a variety of subjects, especially economics.

In 1888, Wicksteed republished a series of articles in *Getting and Spending: Papers on the Meaning and Uses of Money.* This work focused on what people's spending reveals about what they value. In 1894, he published *An Essay on the Coordination of the Laws of Distribution,* which dealt with expansions of ideas by Jevons and George on marginal products. In this work, he proves how the distribution of marginal factors, if paid relative to marginal product, would exhaust the total product. This relationship between marginal factors and marginal product with total product was first made by Leonhard Euler and became known as Euler's theorem.

Wicksteed's next major work, published in 1910, was the two-volume *Common Sense of Political Economy.* It attempts to examine human action in a comprehensive way, including morality in its analysis of economic action. This subjective approach to economics also worked against the concept of the economic man by taking economic actions as "non-tuistic." Wicksteed coined the word *non-tuistic* to describe an economic transaction where the consequences to someone involved in the economic decision are not considered. He also used economics to analyze seemingly noneconomic behaviors, like spending time leisurely. Aristotle's ethical works and Jevons's marginalism were both very influential to Wicksteed's publication.

Among other insights, the *Common Sense* is known for the idea that prices will come to an equilibrium or a balance point, now known as the Wicksteedian state of rest (WSR). To illustrate the movement of prices, Wicksteed used the example of a fruit market, where prices are determined and changed in real time as fruit-sellers observe customer behavior and factor in customer preferences. In this process, an equilibrium price can be achieved through the actions in the market place. According to WSR, forecast errors in plain state of rest (PSR) values will lead to the ideal values of the WSR.

Wicksteed was also accomplished as a medievalist through his study of Dante Alighieri and Thomas Aquinas. His work with the LSEUT included lectures on sociology, Dante, Aristotle, and other topics. He wrote *Six Sermons on Dante* (1879), *The Religion of Time and Eternity* (1899), *Dante and Aquinas* (1913), *The Reactions between Dogma and Philosophy, Illustrated from the Works of St. Thomas Aquinas* (1920), and other books and articles, as well as a translation of Dante's *Divine Comedy.* He was also a student of Old Testament criticism and Dutch liberal theology.

Philip Wicksteed died on March 18, 1927, in Childrey, England.

Joseph Lee Hauser

See also: Austrian Economic Thought; Marx, Karl; *Vol. 3: Microeconomics:* George, Henry; Jevons, William Stanley

Further Reading

Herford, C. H. 1931. *Philip Henry Wicksteed: His life and work.* London: J. M. Dent.

Howson, Susan. 2004. The origins of Lionel Robbins's essay on the nature and significance of economic science. *History of Political Economy* 36 (3): 413–43.

Klein, Peter G. 2008. The mundane economics of the Austrian school. *Quarterly Journal of Austrian Economics* 11: 165–87.

Newton, Bernard. 1971. The impact of Henry George on British economics, I: The first phase of response, 1879–82; Leslie, Wicksteed and Hobson. *American Journal of Economics and Sociology* 30 (2): 179–86.

Spencer, David A. 2003. The "labor-less labor supply model" in the era before Philip Wicksteed. *Journal of the History of Economic Thought* 25 (4): 505–13.

Wicksteed, Philip. 1894. *An essay on the co-ordination of the laws of distribution.* London: Macmillan.

Wicksteed, Philip. 1888. *The alphabet of economic science.* London: Macmillan.

Wicksteed, Philip. 1910. *The common sense of political economy.* London: Macmillan.

WILLS AND TRUSTS

A *will* is a legal document that states who should receive a person's possessions after the person dies. A *trust* is a fiduciary relationship (where one trusted individual is directed to act on behalf of another) in which one person, known as a trustor, gives another person, the trustee, the right to hold title to property or assets for the benefit of another who is known as the beneficiary. A trust can be in effect during the trustor's lifetime or created upon the trustor's death. Both wills and trusts are governed by state law.

History of Wills and Trust

During the Middle Ages, the Catholic Church exercised authority over domestic matters, such as probate. *Probate* is the legal process by which a court validates a will.

Under religious beliefs at this time, it was thought not to have a will was sinful, and it was expected that some portion of the deceased's estate would go to the Church for the saying of masses. Therefore, the ecclesiastical (religious) courts would oversee the distribution of all personal property, and if an individual died without having made a will, the Church would then assume jurisdiction of the dead person's goods. In 1857, the English Parliament passed legislation that transferred probate from the ecclesiastical courts to the Courts of Probate. Early American colonists brought English traditions with them, and they established the first probate court in the United States in Massachusetts.

The idea of a trust being created upon the death of a trustor can be traced back to Roman times, but it is not until the Middle Ages that living trusts were introduced. During the Crusades, when a knight went to fight in a foreign land, he conveyed ownership of his lands, and the income generated from that land, to another person (a trustee) with the understanding that upon the knight's return, the lands would be returned to him. The trustee was holding the land and income for the knight's benefit. When many of these knights returned, however, the trustees refused to re-convey the lands and rents. The knights then had to petition the king, who set up the Courts of Chancery to hear such cases. It quickly was established that the knights did not "give away" their land, but in fact established a trust relationship stating that the land was held for the benefit of the knights while they were away fighting for the king. It is from this circumstance that the concept of the modern-day inter vivos trust, or living trust, developed (Beyer 2012).

Wills

The idea behind a last will and testament is that individuals have the ability to own property during their lifetime and should have a say in the dispensation of that property upon their death. Wills give people the ability to make their wishes known regarding how their personal belongings should be distributed, who should care for any minor children they leave behind, and how any final expenses should be paid. Many people, however, die without making their wishes known. It is estimated that up to 70 percent of Americans currently do not have a will. To die without a will is known as dying intestate.

When a person dies intestate, the probate court does not have a document to follow, so it must look to the state's law of intestacy to determine who will inherit the decedent's estate. Though this varies from state to state, typically the property goes first to a surviving spouse, then to children and their descendants. If there is no spouse and there are no children, the law of intestacy looks to the decedent's parents, then siblings, the siblings' descendants, the grandparents, and so forth until a surviving relative can be found. If no surviving relative can be found, then the decedent's estate is turned over to the state government.

Today, many commercial legal publishers have created do-it-yourself will kits that allow individuals with no legal training to create basic last will and testament documents inexpensively.

Trusts

Trusts take two forms: those created upon an individual's death for the benefit of another, known as testamentary trusts; and those created while an individual is still alive, known as either inter vivos trusts or living trusts.

A testamentary trust is created by the terms of a will, and it goes into effect only after the person's death. The person who creates this type of trust is known as the trustor or settlor. The trustor may name an individual to act as the trustee, and that person oversees how the assets are managed in the trust and makes payouts to the beneficiary, who will receive funds from the trust. Often these types of trusts are used for the benefit of an individual, such as a minor child or an incapacitated individual. Testamentary trusts are irrevocable, because they fund only after an individuals has died.

A living trust is created during the trustor's lifetime through a declaration-of-trust document and by placing property into the trust. This type of trust has a duration that is determined at its creation, and it can include distributions of assets to the beneficiary during or after the trustor's lifetime. Often this type of trust is used in estate planning to avoid the lengthy probate court process, which can be costly and can expose a wealthy family's private financial matters to the public. A living trust can be either revocable or irrevocable.

A *revocable trust* allows the trustor to retain control of all the assets in the trust, and the trustor can revoke or change the terms of the trust at any time. An *irrevocable trust* does not allow the trustor to revoke or make changes to the trust once it has been created.

Specialty Trusts

In certain situations, families need trusts to assist them in managing more complex financial or medical circumstances. The following is a brief synopsis of some of these specialty trusts.

Credit Shelter Trust

A *credit shelter trust* allows a spouse to include in the will an amount up to but not exceeding the estate-tax exemption. This is a dollar amount that the heir may inherit federally tax-exempt. The remaining assets fund a testamentary trust for the benefit of the trustor's heirs and avoid estate taxes. The amount equal to the estate-tax exemption passes tax-free to the surviving spouse.

Generation-Skipping Trust

A *generation-skipping trust* is used to transfer a substantial amount of money tax-free to beneficiaries who are at least two generations the junior, typically grandchildren, of the trustor.

Health and Education Exclusion Trust

A *health and education exclusion trust* is created to pay for the education and medical care of grandchildren and more remote descendants, without the trustor being subject to the generation-skipping tax.

Pet Trusts

A *pet trust* is used for the care and maintenance of a trustor's pets in the event of the pet-owner's disability or death. In some states, the trust may continue for the rest of the animal's life or for 21 years, whichever comes first.

Special Needs Trust

A *special needs trust* is created to for the care of beneficiaries who are disabled or mentally ill. These types of trust also may shelter beneficiaries from losing access to essential government benefits.

Qualified Terminable Interest Property Trust

Qualified terminable interest property trusts are often used by families in which there have been divorces, remarriages, and stepchildren. This type of trust allows surviving spouses to either receive income from the trust or remain in a home during their lifetime, and the beneficiaries (e.g., children from a first marriage) will get the principal or home upon the surviving spouse's death.

Wills and trusts are part of the overall estate-planning process. They are tools that individuals can use to manage the effective disposal of their assets in accordance with their wishes. Wills and trusts are, in effect, the last personal financial activity in which a person will engage.

John C. Linfield

See also: Estate Planning; *Vol. 2: Macroeconomics:* Taxes; *Vol. 3: Microeconomics:* Life Insurance

Further Reading

American Bar Association. Family law in the 50 states. http://www.americanbar.org/groups/family_law/resources/family_law_in_the_50_states.html (accessed October 16, 2013).

Beyer, Gerry W. 2012. *Examples & explanations: Wills, trusts, and estates*. 5th ed. New York: Aspen Publishers.

Haertle, Eugene M. 1962. The history of probate court. *Marquette Law Review* 45 (4): 546–54.

Weisbord, Reid K. 2012. Wills for everyone: Helping individuals opt out of intestacy. *Boston College Law Review* 53 (5): 877–952.

WORLD WAR II RATIONING AND SHORTAGES, 1940s

The United States of America has known rationing in all of its wars. World War I, for instance, created shortages in rubber, gasoline, auto tires, chemical dyes, starchy foods, sugar, and coffee. World War II, because of its long duration and the volume of its requirements, imposed severe effects on the public. Rubber, nylon, tires, gasoline, steel, alloy metals, cotton, wool, and a variety of foods were, at times, in critical shortages. World War II and its shortages would be aggressively addressed through rationing, substitute materials, recycling, new foods, conservation in industry, home victory gardens, and aggressive research programs. By 1945, for example, more than 20 million victory gardens produced 40 percent of America's fresh vegetables.

Initially, rationing was the only route possible to secure war materials. The first wave of rationing included tires, cars, gasoline, fuel oil, rubber, nylon stockings, typewriters, sugar, and coffee. The next wave included meat, cheese, shoes, and stoves. More than 8,000 rationing boards were established, and prices were frozen on all items to be rationed. The rationing was complex. There was uniform coupon rationing on things like sugar, meat, and cheese, which were distributed equally to consumers. There was also differential coupon rationing based on various needs, such as gasoline and fuel. Voluntary rationing of gasoline and fuel proved a failure, and coupons were issued starting in 1942.

Gasoline rationing consisted of a normal "A" coupon, which allowed 4 gallons per week, and for those whose jobs were essential to the war effort a "B" coupon, which allowed 8 gallons a week. Further enforcement included a mandatory tire inspection every 5,000 miles. If the government concluded that a car was not in use, its gasoline ration and tire ration could be reduced. Some people—such as truckers, congressmen, physicians, railroad workers, and mail carriers—were allowed unlimited amounts of gasoline. Certificate rationing was imposed on some products that required an application and approval, such as industrial chemicals. In the case of food, rubber, and gasoline, consumers were encouraged through patriotic appeals to reduce their consumption to even lower levels than the coupons allowed.

Much of the rationing centered on the family car, just when the nation had become addicted to the automobile. Gasoline rationing required many people to carpool. This rationing was an economic burden that basically eliminated all but necessary driving. Educational programs were the key to gaining public acceptance. Consumers were encouraged to maintain the "victory speed" of 35 miles per hour. Tire pressure monitoring and tire rotation were encouraged. These suggestions were shown in cartoons at all movie theaters. Educational programs made everyone part of the war effort and capable of making great sacrifices. People were encouraged to plant victory gardens to increase the food supply, and the government issued special cookbooks to help people learn how to save on food. Major advertising campaigns focused on reducing heat levels in homes, having meatless days, and recycling scrap materials.

Scrap steel and rubber were both vital in the production of war equipment. Recycling efforts put things in war terms. For example, Americans were told that a scrap steel shovel could be used to make four hand grenades. The government required 6 million tons of scrap steel alone to keep the war effort going in 1941, and American scrap drives, many of which were led by children, produced that amount in a month. One problem became overzealous collectors who stripped homes of wrought iron fences; tore iron out of cemetery memorials; tore up railroad rails, park statues, historic cannons, and church bells; and aggressively stripped steel signs.

Rubber was considered the most critical war material, followed by starch sources. Cornstarch was one of the most critical items, because at the start of World War II the country was very dependent on cornstarch and imported starches for a large variety of necessary products. Starch imports had been growing since 1922 , and by the start of World War II the country was using more than a billion pounds of cornstarch. Only 250 million pounds were being used for food. The sizing of cotton textiles used 300 million pounds of cornstarch, the laundering of garments used 250 million pounds, and the paper industry used about 200 million pounds. Another 100 million pounds of cornstarch was used to produce dextrin for glues, adhesives, and other industrial uses. On the eve of war, nearly half of this starch was being imported. With the war increasing demand and reducing imports, government chemists and private chemurgists were again studying George Washington Carver's sweet potato research of the 1920s. Sweet potatoes offered a great source of additional starch and chemical bases for glue, adhesives, and dyes.

The government even went into clothing design to save cloth. A 15 percent savings was achieved by shortening hems and removing belts and cuffs on women's clothing. Bridal gowns, maternity dresses, and religious clothing were exempt from cloth rationing. The creative effort of Americans helped achieve major reductions in cloth usage and included the creation of new fibers. Henry Ford announced his opening of a pilot plant to produce soybean fiber as a replacement for wool. Ford predicted that he would cut his upholstery costs for cars by 50 percent, and during World War II, Ford's soybean wool did indeed replace 30 percent of the imported supply of wool that was cut off. The government invested millions of dollars in synthetic and substitute materials programs. Ethanol alcohol was mixed with gasoline to stretch gasoline supplies, but the United States never fully mastered synthetic gasoline as the Germans did during the war. Ford even promoted the use of a 40 percent alcohol/60 percent gasoline mix as the ideal fuel. Similarly, efforts to make synthetic rubber did not fully come to production until after the war.

Oil and fats for soap-making and paint were in short supply, as more than 80 percent were imported. The soap and paint industries were one of the major users of these imported oils, such as palm and coconut. The tropical oils—coconut, palm, and tung—had almost no domestic sources, and the world's major sources were in the Philippines. The Henry Ford lab helped the soap and paint industries use soybean and peanut oil as substitutes. Paint was scrapped and recovered for consumer use. Oil from petroleum was badly needed for machine lubrication, and new recovery processes were developed. Salvaged kitchen fat was used to produce glycerin for explosives.

Although black markets and scams evolved for all rationed goods, the general behavior of the American people proved patriotic. History has shown that shortages on the home front can often break a nation's will to win. The United States in World War II demonstrated a unity rarely seen in nations at war. Organizations and churches helped in recycling drives. Companies voluntarily tried to save on materials and converted over to wartime production. The foundations of Henry Ford's, and later Toyota's, lean manufacturing systems were built during these war years. Government research programs in synthetic rubber, cloth, and alloys would pay huge dividends by the 1950s. The shortages of World War II would again demonstrate the creative motivation of economic shortages.

Quentin R. Skrabec Jr.

See also: *Vol. 2: Macroeconomics:* Economic Embargo and Depression, 1807; *Vol. 3: Microeconomics:* Markets

Further Reading

Jaffe, Bernard. 1957. *Chemistry creates a new world*. New York: Thomas Y. Crowell.

Knight, Katherine. 2011. *Spuds, spam and eating for victory: Rationing in the Second World War.* New York: History Press.

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Columbia University

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Index

Boldface numbers refer to volume numbers.

Economics

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The Definitive Encyclopedia from Theory to Practice

Volume 2: Macroeconomics

DAVID A. DIETERLE, EDITOR

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Contents

Preface

When I was in graduate school a professor described the subject of economics as the "clothesline of life." There were several meanings to his phrase. One, there are many ways to approach the world of economics. Two, economics is a living, breathing discipline we use to play out our lives every day. Economics is part art, part science, part history, and all human behavior. If one digs down into the subjects of life, one will find a component of economics in virtually every subject. Economics surrounds us daily. *Economics: The Definitive Encyclopedia from Theory to Practice* has been created in a way to make economics come alive. Within our four volumes, including the comprehensive glossary, document excerpts, and other appendices, *Economics: The Definitive Encyclopedia from Theory to Practice* explores all corners of economic history, the individuals who gave economics life, the economic events that have shaped our world, and the foundational concepts and ideas that make, define, and sculpt our economic world.

We began this project with several goals. Our first, and most important, was to assemble a comprehensive and varied collection of entries on economic history, personal finance, money and banking, environmental, and behavioral economics, to name a few of the subdisciplines that hang from the "economics clothesline." An extension of that first goal was to provide a comprehensive, readable, one-stop resource for the general reader as well as for students, teachers, and researchers of economics, personal finance, and entrepreneurship.

To do so required assembling a diverse collection of economics material. Contained within the four volumes of the *Definitive Encyclopedia* are the people who laid the groundwork for economics as a science, the historical events upon which economics grew, and the concepts and ideas on which they built their legacy. I strongly believe we have accomplished these goals.

Volume 1, Foundations of Economics, is the "economics clothesline." In Volume 1 we present the people, concepts, history, the events, and places and institutions on which economics is built. It includes basic economic concepts such as opportunity cost and marginal analysis. Also included are the business tycoons who shaped the early U.S. economy, such as Henry Ford and John D. Rockefeller. No book on foundations of economics would be complete without the economists who laid the groundwork for economics such as Adam Smith, John Maynard Keynes, and Friedrich Hayek. Not to be forgotten are the political leaders whose contributions to their respective economies during their lives is still with us today, including U.S. president Ronald Reagan, Great Britain's Margaret Thatcher, and the Soviet Union's Joseph Stalin.

Volume 2, Macroeconomics, is our big picture volume. As the title suggests, Volume 2 focuses on the institutions, people, events, and places that have shaped the roles and responsibilities of the economy as a whole—the macroeconomy. Volume 2 presents the different methods and ways in which economies are measured and also explores government's role in the economy. Macroeconomics is about the institutions that measure our economies, such as the Bureau of Economic Analysis (BEA) or the Bureau of Labor Statistics (BLS). Key political figures such as Winston Churchill and President Franklin D. Roosevelt are featured for their economic contributions to world history.

Volume 3, Microeconomics, takes on markets, prices, and looking at the economy under the proverbial microscope. Volume 3 presents how markets function and the institutions that allow markets to work more efficiently and equitably for both the producer and the consumer. In Volume 3 you will find the concepts, economists, institutions, and historical events along with major market events such as the transitioning of the automobile industry and the economic bubbles, such as the "dot-com" bubble, that have determined the behavior and interaction of producers and consumers in today's modern economy. In Volume 3 we explore subfields such as environmental economics with entries such as "Tragedy of the Commons," "Clean Water Act," and "Clean Air Act," along with other environmental issues. Personal finance is a highlighted subfield in the "Annuity," "Debt Credit Counseling," and "Health Insurance" entries.

Volume 4, Global Economics, is the volume of the future. Volume 4 encapsulates the first three volumes in the context of an ever-growing global economy. Barring a cataclysmic event, today's world will continue to get smaller and smaller, translating into a more global economic community. Volume 4 includes concepts such as "Comparative Advantage" and "Balance of Payments." Volume 4 introduces the reader to the individuals changing the world, such as Muhammad Yunus and his Grameen Bank. As the new rules of a global community take shape to include all of the world's 7 billion inhabitants, at the forefront of those conversations and debates are the global institutions: the International Monetary Fund (IMF) and the World Bank, along with the United Nations.

Of equal value to the teacher, student, and researcher are primary documents in economic history; a list of Nobel laureates in economics; a timeline of economic events; and a glossary. The Primary Documents section includes 27 documents, such as the Tariff Act of 1930 and the Financial Reform Act of 2010, better known as the Dodd-Frank Act. The *Definitive Encyclopedia* would not be complete without highlighting some of the most important documents that have shaped the economic landscape of the United States. The Appendix of Nobel laureates highlights those individuals who have changed the course of economics. The Timeline presents key events in the global economy from 1776 to 2016. The Glossary presents a second layer to the all-inclusive nature of the *Definitive Encyclopedia*. Approximately 1,000 additional concepts, people, and events in the Glossary go beyond the four volumes' 850-plus entries.

Throughout my career in economics and economic education one of my main concerns has been that economics often has been presented as a subject beyond the scope of the average reader. In compiling *Economics: The Definitive Encyclopedia from Theory to Practice* we took aim at that notion head-on. Our goal was to bring to both the general and experienced student of economics a readable source to better understand the economic world around them. I strongly believe we have succeeded in this goal.

Of course, a project of this magnitude would not be possible without a team of highly dedicated contributors. I owe a huge debt of gratitude and big thank-you to the contributors without whose efforts this project would not have succeeded. My team of contributors possessed the quality and expertise needed for this project. As some of the best college professors and high school AP economics teachers anywhere, they represent all that is good about economic education. I am humbled they would give of their precious time to be part of the team. I owe them a major debt of gratitude. I owe a debt of gratitude as well to Jillian Davidson for her research and editing assistance.

I would like to thank Brian Romer for bringing me onto this project and then passing the baton into the capable hands of Hilary Claggett, Patrick Hall, and the rest of the ABC-CLIO team who had a hand in this project's development. Thanks for making us look good. I also need to thank my many colleagues, students, and friends who also provided support, feedback, and a kick in the pants when necessary. Most of all I need to thank my family and friends for putting up with me during this time. There were times I was a bit like the candy bar commercial. I owe a big thanks to each and every one of them for their patience and understanding. Finally, I dedicate this project to my mom and my four daughters—Branda, Laura, Jillian, and Mary. They say behind every successful man is a woman. Well, I don't know about being successful but I do have five very precious women behind me. This is for you.

David A. Dieterle

Introduction to Volume 2: Macroeconomics

Because we live in a world of scarcity every individual must make choices. Every choice has a cost. Every choice has a consequence that lies in the future. What can be stated for individuals is just as true for economies—every economy, as a functioning entity, must also make choices, which have costs and consequences. The consequences may be positive or negative but there will be consequences. Where the decisions of economies do differ from decisions of individuals is that the decisions of societies regarding their economic systems determine the context in which individual economic decisions will be made.

Before addressing the questions every economy needs to answer, let's first identify and define an economic system. In its most basic form an economic system is a society's way of allocating and distributing resources (land, labor, capital) to the production of goods and services by sellers (businesses) that will be available to buyers (households) in the marketplace. The allocation and distribution of resources occurs in the resource market and the production of goods and services in the product market. An economic system also encompasses the role of government in an economy, financial institutions to determine the role of money and act as intermediaries, and foreign companies that also provide goods and services to the product market as well as use the economic system's resources from the resource market. This circular flow of economic activity is the makeup of every economic system. How that economic system functions is determined by *how* society answers the following questions and, more importantly, *who* answers them.

Every society must answer three basic questions regarding its economy: what will be produced, how will it be produced, and for whom will it be produced. Who answers those questions and how those three basic questions are answered will determine the economic environment in which individuals, families, businesses, and organizations make their decisions. The answers to the three questions are interdependent. One is no more important than the other. Yet the way in which one is answered will affect how the other two may be answered. Before we get to the "who," let's briefly explore each of these three basic questions.

What to produce is the question that determines how the economy's resources are being allocated to produce goods and services. The answer to this question will determine what goods and services are available in the economy. Is the economy producing three-legged chairs or four-legged chairs? Is the economy producing mostly military goods or private consumption goods?

How to produce is the question of efficiency. Are the economy's resources being used to their most productive level? Is the economy producing chairs one at a time or implementing specialization and division of labor to use labor and capital to their most efficient use?

For whom the goods and services are being produced is a question regarding the distribution of resources within the economy. Are the chairs available to everyone or just to a specific segment of the population? Are the chairs a public good or a private good?

These three basic economic questions have to be answered by every economy, no exceptions. The what, how, and for whom answers are the driving forces behind an economy's efficiency, allocation, and distribution of goods and services, and the use of its valuable limited resources. But there is one additional, even more important, question that needs to be answered by society: who is going to answer the three questions?

The "who" question determines an economy's rules. The answer to this question determines the rules that individuals will use to make their decisions. The "who" question determines the economic system in which society will operate.

An economic system defines the rules of an economy. Determining "who" answers the three basic questions can take on many forms. However, there are two extremes in defining an economic system with many blended or mixed systems in between.

The first extreme is the market system. In a market economic system the three questions are answered in the marketplace through the interaction of the buyers and sellers. In both the product market and the resource market buyers and sellers determine what will be produced, how the goods will be produced or services delivered, and who will be able to participate in the market for a particular good. In a market economy there is a connection between the interaction of buyers and sellers in the product and what action occurs in the resource market.

Referring back to the chair example, in a market economic system the interaction between buyers and sellers would send a message to the resource market indicating the buyers' preference for four-legged chairs over three-legged chairs, because the latter do not stay upright and continually fall over. Buyers in the product market have also signaled they prefer metal chairs to wooden chairs because they last longer. In a market economy these messages from the market product buyers are picked up by the producers who then determine the allocation of resources is in the production of four-legged metal chairs. This results not just in the resource allocation to produce metal four-legged chairs but producers also explore more efficient methods to produce the chairs addressing the "how" question. One producer might be making chairs one at a time, but another producer has figured out how to use specialization and division of labor so they can make many more chairs in the same amount of time and as a result the economy becomes more productive. Because all decisions are determined by the interaction of buyers and sellers in a market system, the "for whom" question is answered in the product market by those who are willing and able to purchase the metal four-legged chairs.

The three-legged chairs no longer have a market so the producer of these chairs goes out of business. This frees up these resources for a more productive use. The wooden chair-makers likewise go out of business, freeing up more resources for a more productive use determined by the product market's buyer and seller interactions. Finally, the four-legged metal chair-maker who was producing chairs one at a time has a choice to make. It may change its method of production to compete with the other, more productive four-legged metal chair producers or it will most likely eventually go out of business.

The market economy functions best when all signals and messages between buyers and sellers and the markets are uninterrupted and unrestricted. There is a free flow of information between the markets and between the participants whether they are buyers or sellers in the product market, resource market, financial market, foreign market, or a government.

The second extreme of "who" is the command economic system. This economic system is at the opposite extreme of the market system. In a command system there is no free flow of information because one central authority, usually government, makes all economic decisions in this society. Referring back to the three basic economic questions of every society, these questions are answered by one voice, the central authority. The central authority decides what will be produced for the product market, thereby determining how the resources will be allocated and ultimately who will receive the goods and services of the product market.

Because all the decisions are made by one central authority there is no connection between the desires of the buyers (households) and sellers (businesses) in the product market with the buyers (businesses) and sellers (households) in the resource market. This bad, or nonexistent, communication between the markets usually results in a misallocation of resources resulting in shortages of products that households desire in the product market. Because the central authority also determines "how" resources will be allocated, a misallocation of resources is highly probable. For example, if an important member of the central authority has a favorite nephew who is making wooden three-legged chairs one at a time, the authority member may push for the decision to allocate more resources to the wooden three-legged chair industry in an effort to help the nephew. The result of such a decision is an inefficient misallocation of resources. The product market now has wooden three-legged chairs made one at a time that no buyer in the product market desired. The central authority also sets the price of those chairs.

Political dictators or populists often accompany command economic systems. Dictators are dictators for a reason. They demand control over all aspects of one's life including the economic decisions individuals can make. A command economic system fits their political style quite nicely. If they want wooden three-legged chairs made one at a time they will have them regardless of messages from the product market, resource market, or other markets of the economy. Dictators and populists generally can have economic success with a command economic system in the short run. Eventually, however, history has shown success is brief and the economic fallout severe.

The third and most popular and varied economic system is the mixed economic system. By its very name it is the hardest to define except to state it is a combination of the market system and a command system. Of course within that are essentially an infinite number of variations. Because of the wide variations of mixed economies the easiest way (not sure that is accurate, either) to define mixed economies is to define them as being either closer to a market economy or closer to a command economy. What is political foundation of the economy in question? If the political system is a democracy (e.g., South Korea) odds are its economic leanings are toward the market system. If the political system is a dictatorship then the economy almost certainly leans toward a command economic foundation (e.g., North Korea).

Mixed economic systems, regardless of the foundation, by definition have a bit of both a market system and a command system. A market-based mixed system can also have the favorite nephew who receives preferential treatment even though he is producing a good or delivering a service the product market buyers have messaged they are not willing or able to purchase. In a market-based system it is called *crony capitalism*. Likewise, in a command system there will be pockets of a market-based system. It may be farmers who are allowed to grow the crops of their choosing and take them to the marketplace to sell.

Mixed economies are a complex array of economic systems. Economists and academics may try to categorize and compare them but the task is very difficult because the political, geographic, and social systems in which they align are often so different.

There is one modern case study to compare economic systems: South Korea and North Korea. Both were established simultaneously following World War II. South Korea chose democracy and a market-based economic system. North Korea chose a Communist and command-based economic system. Both systems are now more than 50 years old and the differences could not be clearer. However a society answers the three basic economic questions, they must answer, and who answers them can have both good and bad consequences for all of the society.

A

AGGREGATE DEMAND AND AGGREGATE SUPPLY

Aggregate demand and aggregate supply are two of the primary concepts in macroeconomics. *Aggregate* means total, and *demand* is the desire and ability to purchase goods and services. *Supply* refers to the desire and ability of producers to provide goods and services. *Aggregate demand* is the total amount of goods and services demanded in an economy during a given time period, while *aggregate supply* is the total amount of goods and services provided. Aggregate demand is composed of all consumer spending, investment spending, government spending, and net exports (exports–imports)—the components of gross domestic product (GDP). Aggregate supply is composed of all income, in the forms of wages, rents, profits, and interest earned.

The British economist John Maynard Keynes (1883–1946) is credited with creating the concepts of aggregate demand and aggregate supply. He used these concepts in the 1930s to explain how governments can recover from recessions by increasing government spending to impact aggregate demand, which in turn would increase aggregate supply. Keynes did the lion's share of his writing and economic thought from 1920 to 1940. Prior to Keynes, market explanations centered on classical economics, popularized by the writings of Adam Smith (1723–1790). Smith emphasized the market concept of *laissez faire*, which is the minimal use of government actions to control economic activity.

Aggregate demand and aggregate supply are graphed on the aggregate demand and aggregate supply graph with the *y*-axis being the general price level, or CPI, and the *x*-axis being real GDP. The aggregate demand curve is downward-sloping to the right while the aggregate supply curve is upward-sloping.

Aggregate Demand

Most economists support the downward-sloping aggregate demand (AD) curve for three primary reasons: the wealth effect, the interest rate effect, and the exchange rate effect. All three of the explanations for the downward-sloping AD curve center around lower prices, which induce greater quantity demanded and the downward slope of the AD curve. When the price level falls, wages do not change immediately, which makes consumers feel wealthier so they purchase more goods and services than before. When interest rates fall, consumer spending on durable goods such as homes and cars and business investments on capital goods will increase. When the domestic exchange rate falls, domestic exports become relatively cheaper to foreign consumers and foreign sales will increase.

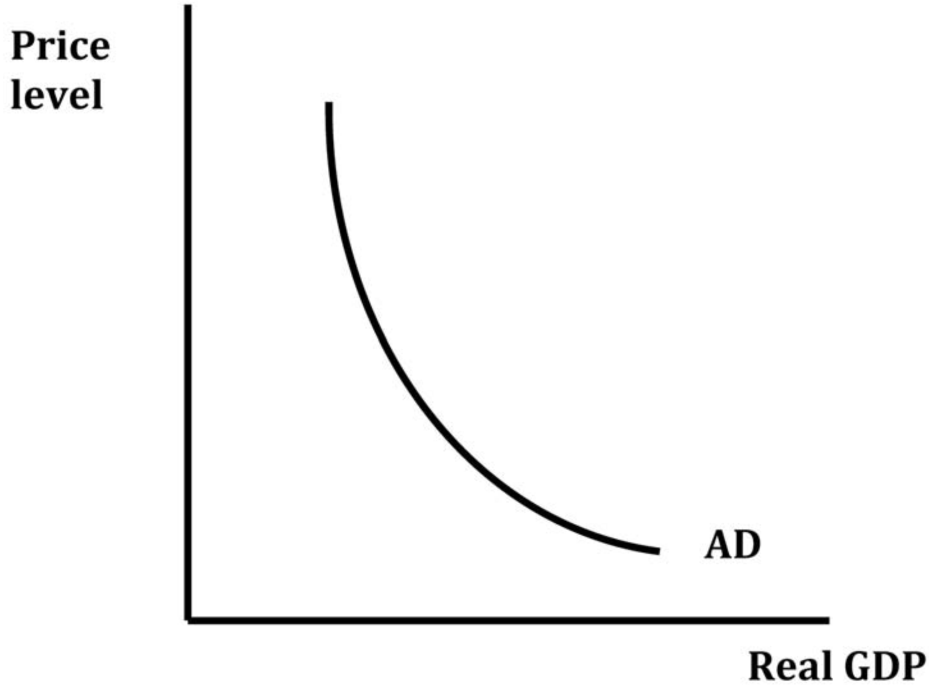

Figure 1. An aggregate demand curve

AD is sensitive to changes in consumer wealth, business investment, government spending, and net exports. When any of these components decrease, AD will shift to the left (decrease), and when any of these components increase, AD will shift to the right (increase). These changes in AD impact the price level; a decrease in AD causes disinflation or deflation, and an increase in AD causes inflation.

Economic systems experience multiple changes like toppling dominos, which create a situation of long-run equilibrium in the AD model. For example, when consumer spending falls (AD decreases), the demand for money will also decrease (because consumers are demanding less money to purchase goods and services), which will lower real interest rates—increasing investment spending (AD increases) and restoring AD to long run equilibrium.

During prolonged contractions and expansions in AD, the government implements fiscal policies and a nation's central bank implements monetary policies to control the price level (inflation, disinflation, or deflation), economic growth, and unemployment (or growing employment) that result from economic contractions or economic expansions due to changes in AD.

The government's fiscal policies include either increases in government spending and/or decreases in taxes to address high unemployment. Conversely, fiscal policies to combat inflation involve decreases in government spending and/or increasing taxes. Government officials often find that the policies to cure inflation are politically unpopular. A central bank's monetary policies can often control changes in AD with more speed and accuracy than the government's fiscal policies. To address high unemployment, the central bank will increase the money supply with the three tools of monetary policy, usually open market operations (buying bonds in the open market). This will decrease key interest rates. To combat inflation, the central bank will decrease the money supply by using one or more of the tools of monetary policy. The most popular tool used is the open market operations (selling government bonds), which increases key interest rate

Economic growth is demonstrated with a rightward shift of the AD curve due to an increase in consumer spending, government spending, or net exports. Keynes's sticky wage/factors of production theory is the idea that when prices change due to increases in AD, wages and the prices of the factors of production do not immediately change. They are "sticky" downward (i.e., they will not decrease) because of labor and or commodity (resources) price contracts. Wages and the prices of the factors of production will eventually adjust with the inflation rate, which results in a leftward shift of the short-run aggregate supply curve back to the original equilibrium point in the aggregate supply/aggregate demand model. This shift to the left of the short-run aggregate supply curve restores real GDP due to the increase in the prices of the factors of production (including wages) and increases the overall price level.

Aggregate Supply

Aggregate supply (AS) shows how changes in both short-run aggregate supply (SRAS) and long-run aggregate supply (LRAS) impact both the price level and real GDP. LRAS is composed of the productive capacity of an economic system or the production possibilities frontier, which is bound to the quantities of the factors of production and technology. SRAS is bound to the prices of the factors of production.

The SRAS curve is upward-sloping because as prices increase, producers are more willing to supply goods and services (law of supply). The LRAS curve is vertical: a constant that is fixed to the quantity of the factors of production and technology or the production possibilities frontier.

LRAS and SRAS are sensitive to changes in the quantities of the factors of production and technology. When there are more productive resources or an increase

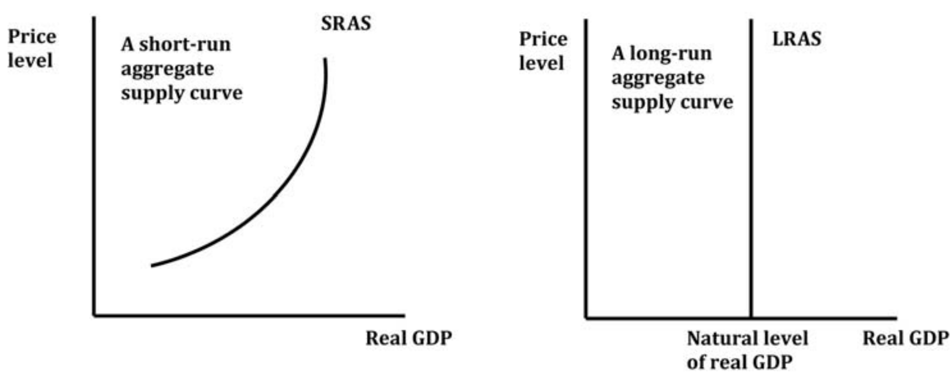

Figure 2. Short-run and long-run aggregate supply curves

in technology, the LRAS and SRAS curves will increase or shift to the right in the AD/AS model, which will increase GDP and decrease the overall price level. The SRAS curve is sensitive to changes in the prices of the factors of production or temporary disruption in a supply-chain of an essential good, such as oil, and expectations about future inflation (this is really producers reacting to what they believe it will cost to replace their inventories). If the prices of the factors of production increase, or if producers expect future inflation, producers will supply less because it will be more costly to produce (some producers will exit the market) and the SRAS cure will shift to the left, resulting in an increase in the overall price level and a short-run decrease in real GDP. This combination of an increase in the overall price level and a short-run decrease in real GDP, called stagflation, is very difficult for the Federal Reserve or the government to cure.

Many economists believe that the best way to combat stagflation is to wait until the prices of the factors of production adjust back down or the disruption in the supply chain is remedied. Conversely, if there is a decrease in the prices of the factors of production or if producers expect lower inflation in the future, SRAS will increase (more suppliers will enter the market) because it is cheaper to produce, which results in a decrease in the overall price level and a short-run increase in real GDP.

The central bank and the government can attempt to increase AS, which would result in lowering the overall price level and increasing real GDP. The central bank can implement monetary policy in an attempt to increase AS by increasing the money supply and lowering key interest rates. Changes in key interest rates will impact other interest rates, which will impact investment spending. As interest rates decrease, producers have an incentive to borrow money and purchase new capital, which will be used to produce future goods and services (this is an increase in the factors of production of an economic system). Additionally, the government can attempt to increase AS through fiscal policy by lowering taxes for producers or by providing direct payments in the form of grants or low-interest loans for creating new capital investments. Both these monetary and fiscal policies are based on the belief that as producers are more willing to produce more goods and services, they will hire more workers—and this increased wealth of the producers will result in increased income levels for households to purchase more goods and services.

As long as producers use their decreases in taxes or direct payments for sound capital investments, AS will increase. The economic and political debate surrounding these ideas is that producers will use their decreases in taxes not to purchase new capital investments but to further their own personal wealth. Additionally, some believe government induces producers to make poor investments in capital that does not yield an increase in AS, resulting in a loss of tax-payer money.

Although AD, AS, and GDP are often viewed as the benchmarks of economic success, they do not say everything about an economic system. They do not measure happiness, leisure time, values, environmental quality, and that many other variables that are unrelated to monetary wealth.

Xavier Whitacre

See also: Federal Reserve System; Fiscal Policy; Macroeconomics; Monetary Policy; *Vol. 1: Foundations of Economics:* Central Bank; Keynes, John Maynard

Further Reading

Khan Academy. n.d. Macroeconomics: Aggregate demand and aggregate supply. www khanacademy.org/economics-finance-domain/macroeconomics/aggregate-supply-demand-topic (accessed June 10, 2015).

Moss, David. 2007. *A concise guide to macroeconomics.* Boston: Harvard Business Review Press.

Wheelen, Charles. 2002. *Naked economics.* New York: Norton.

AGRARIAN ECONOMY

Agrarian economy refers to the complexities of economic practices and theories based around agriculture. This topic reaches many levels and different societies. Preceded by hunter–gatherer societies, agrarian systems rely on farming and land as the main source of wealth. In modern times there are mixtures of cultures that still heavily rely on agrarian practices as a main source of their economy. These societies mainly exist in Africa and Asia. Agrarian economies also play a large role in industrialized nations. Within these nations, *agrarian economy* refers to and economically measures the importance of farm and cultivation practices within the scheme of the overall economy. Westernized nations tend to be more industrialized, but they still develop economic notions of agriculture by measuring its relative production, labor movements, and cultivation.

For developed nations, the industrial revolution ushered in a new source of economic strength. Industrialization changed labor movements and goods of production. The manufacture of materials to sustain and promote growth as well as the ability to locate facilities in various places played a large roll in its efficiency. However, agrarian practices are equally important in sustaining economic growth since the products of agriculture, mainly food, are crucial to supporting the growing population. As such, the economics of agriculture are vital in assuring that ample food is available. Agrarian economic patterns have forged theories on trade, surpluses, politics, class structure, and technology.

Throughout history, the advent of certain technologies has vastly increased the productivity of agricultural societies and created greater complexities in anthropological interaction. In this case, simplistic technology—such as advances in storage methods and the application of the wheel to wagons—allowed farmers to increase productivity by addressing the challenges of sustainability and transportation. Originally, agrarianism held values on self-sustenance and preserving simple life needs. However, as empires spread and cultures interacted, transportation became necessary. Value was created by supplying the population with foodstuffs, creating the need for surpluses and preservation of goods. Over the course of history, the external forces of famines, droughts, and flooding have constantly challenged agrarian productivity.

The base of the original concept was the value and products given by the land itself. Different regions were more fertile than others or produced unique products, and this fact led the way to trade. This trade and need for mobility—through the growing concepts of empire, colonialism, and globalization—further led to consumerism. This consumerism was born from the concept of differentiation of product and the demand for specific products, making transportation and even exploration paramount for growing economies. This new need for trade led to the advent of currencies, which in simple primitive agrarian societies existed in the form of barley (Grenier n.d.). Many believe the first accounting principles originated in primitive societies in the measure of agricultural trade.

Today, agrarian economics are crucial in maintaining food source for the growing population. As recently as 1960, nearly 60 percent of the simple agrarian societies still in existence are located in Africa and Asia and are responsible for only 30 percent of the world's food. Many of these societies exist on the brink of starvation. It is believed that total food production must increase by 30 percent in order to fill the world's basic food needs (Georgescu-Roegen 1960). These figures have increased as population growth continues and the gap in economic strength widens. Quantifying these types of theories makes clear that the consumption of products plays a role in determining economic strength as well as the ability to successfully supply efficient and sustainable food for an economy. In that sense, agrarian economics is a vital part of measuring an economy, in that it is a measurable part of trade and value within a given nation. Therefore agrarian economies must be carefully studied and continually developed to help increase productivity and efficiency.

Daniel S. Talwar

See also: *Vol. 1: Foundations of Economics:* Agriculture and Environment; Economic Systems; *Vol. 3: Microeconomics:* Commodities; Markets; *Vol. 4: Global Economics:* Corn Laws; Development Economics; Developing Nations; Isolationism

Further Reading

Georgescu-Roegen, N. 1960. Economic theory and agrarian economics. *Oxford Economic Papers* 12: 1–40. http://www.jstor.org/stable/2661989?seq=1#page_scan_tab_contents (accessed June 25, 2015).

Grenier, G. n.d. Chapter 7: Agrarian societies. http://www2.fiu.edu/~grenierg/chapter7.htm (accessed June 25, 2015).

Standage, Tom. 2006. *History of the world in 6 glasses.* New York: Walker.

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION V. EPA

Standards for safeguarding the environment are set at both the state and national levels. Most of the economic burden associated with protecting the environment and economic growth is incurred by local industry. Meeting clean air standards includes expenses that increase the cost of doing business. In a competitive market, these added expenditures to clean up existing factories and build new ones have long-term effects on a state's economic development. In addition, there is a political relationship between economic growth and protecting the environment. In the case of *Alaska Dept. of Environmental Conservation v. EPA,* 540 U.S. 461 (2004), the relationship between the state of Alaska and a federal bureaucratic agency snowballed into a classic battle between states' rights and federal power.

Case Summary

Red Dog Mine is one of the largest zinc mines in the world. It is located in the Northwest Arctic borough of Alaska, almost 50 miles from the Chukchi Sea. Red Dog is operated by Teck Cominco Alaska Incorporated and owned by NANA, a regional Alaska native corporation formed in 1971 under the Alaska Native Claims Settlement Act (ANCSA). NANA (not an acronym) is a for-profit corporation owned by thousands of Inupiat (indigenous people who inhabit northwest Alaska) and is one of Alaska's largest employers. The partnership between Teck and NANA over the last three decades has been a serious contributor to Alaska's economy. Mine operations provide hundreds of jobs for the local and regional economy, as well as key economic benefits to Alaska's Native population through shareholder dividends and community support.

The method Red Dog Mining uses to extract zinc and lead is an open pit process where there is drilling, blasting, and separating. To secure future productivity, a plan for expansion of the mining industry included the completion of a new diesel-fired power generator to fuel operations. Mining can have negative impacts on the surrounding environment, including air, soil, and water. However, this case was concerned with air pollution from the stacks connected with the power generator.

During President Lyndon Johnson's administration, the Clean Air Act of 1963 was signed into law. This act authorized the U.S. Public Health Department to research techniques that would monitor and control air quality. The Clean Air Act of 1970 (CAA) changed the focus from research and monitoring to standard-setting and enforcement. At the same time, the 90th Congress passed the National Environmental Policy Act (NEPA), which took effect in January 1970. This landmark piece of legislation was passed unanimously in the Senate and almost as favorably in the House, reflecting an increased national appreciation for the environment and attention to its safekeeping. Following this stream of legislation, in December 1970 President Nixon signed an executive order (presidential power that enables the operation and management of the federal government) consolidating the administration and enforcement of environmental law to the Environmental Protection Agency (EPA).

At the onset of this case, Alaska had not seen 30 legislative sessions. In terms of developing bureaucratic agencies, statutory history, and political encounters, Alaska is a youngster. The fledgling Alaska Department of Environmental Conservation (ADEC) has a division of Air Quality that manages stationary out-of-stack discharges of air pollution through a permit and compliance program. In addition, it monitors, measures, and alerts the public to any health concerns. These standards were developed with the federal EPA guidelines in mind, but they reflect the unique idiosyncrasies of Alaska, such as an occasional volcanic eruption or glacial ice dust storm. As well as the federal and state duty to the environment, industries such as Teck and Red Dog Mining assert that they also take seriously their responsibility to care for the land and to ensure the future of these natural resource benefits.

Red Dog Mining applied for a permit through ADEC to comply with local and federal air-quality standards at its construction site. The CAA states that new facilities must use the "best available control technology" (BACT) to limit pollution, especially in areas still relatively free of contamination. Alaska had a legal obligation to meet this standard, but on final review, the state decided that the BACT was too costly and gave a permit for a less expensive alternative.

The EPA disagreed and, after much-documented memo tag, ordered a halt to construction of the Red Dog generator in February 2000. Alaska challenged the EPA in the Ninth Circuit Court of Appeals in San Francisco. The appellate court upheld the EPA's authority to require a stricter interpretation of the standards, and it frowned upon the pressure put on states by industries feeling the economic weight of added costs. Alaska appealed to the Supreme Court.

In October 2003, the Supreme Court heard arguments in the case of *Alaska Dept. of Environmental Conservation v. EPA*. The plaintiff argued that the EPA did not have the authority to override a discretionary determination by the state of Alaska. Moreover, it was never Congress's intention to allow such encroachment of the federal government into what should be decided by local priorities and local control. Furthermore, if the EPA did not agree with Alaska's interpretation of the law, the correct procedure was a review by the courts. The EPA disregarded states' rights and overstepped its congressional authority when it barred the construction of the facility.

The EPA responded by stating that nothing in the CAA shielded states from arbitrary and unreasonable decision-making. In the EPA's view, Alaska was arguing the letter of the law—procedure—and ignoring the spirit of the law—clean air. As for the former, the EPA had a due process drill that Alaska chose not to follow. In the EPA's opinion, air quality suffered and procedural due process was not a valid excuse. The EPA recognized that state agencies had the power to make discretionary decisions as to what constituted the BACT based on what the costs would mean to the mine in terms of profitability, employment, or global competitiveness. The problem was that Alaska admitted that the Red Dog Mining Company had failed to bring this evidence to trial. Alaska thereby conceded that it had made the discretionary decision without substantive facts. The EPA claimed the authority to stop such random acts of disregard for air quality, as Congress gave it a mandate to carry out the intent of the law.

The responsibility of the Supreme Court in this case was to determine if under the CAA, the EPA had the authority to overrule a state agency's discretionary decision in determining the BACT. The Court questioned the EPA's implication that in this case Alaska was not the depository of best judgment as to what would work in local communities and federal law requirements. On the other hand, the Court examined the extent of Congress's intention to give the EPA the enforcement authority to prevent significant deterioration of ambient air, especially in areas where early prevention would be key to maintaining air quality.

In January 2004, in a 5–4 vote, the Court decided to uphold the findings of the Ninth Circuit Court. Justice Ginsburg wrote in the opinion of the Court that ADEC should have stayed with its original permit suggestion to Red Dog Mining, whereby emissions would be reduced by 90 percent, as opposed to its final decision allowing only a 30 percent reduction. The Court conceded that states have the discretionary power to make these decisions, though not untethered to the federal requirements of BACT as stated in the CAA. In this case, the justification of this choice lacked evidentiary support and was therefore unreasonable. In addition, it assumed hypothetical usage of various smokestacks to justify the lower standards, again not providing enough substantive evidence. In the opinion of the Court, the EPA properly exercised its authority when it stopped construction at the Red Dog Mine.

James Madison cautioned in Federalist Paper No. 46 that intrusion of the federal government on the power of state governments would be cause for serious alarm. Supreme Court Justice Kennedy echoes Madison's forewarning in his dissent. Kennedy states that the majority opinion rests its findings on principles that do not preserve the integrity of the states in our federalist system. Furthermore, Kennedy continues, the EPA exceeded its power by executing administrative fiat and not allowing a review by the courts to take place. By definition, BACT presumes that the states will take into consideration all criteria and apply a more comprehensive lens to the decision-making process.

However, preceding the federal intervention in Alaska was a chain of events from Love Canal to the publication of Rachel Carson's *Silent Spring*. The balance of environment and economic growth involves an evolution of circumstances. Indeed, the America Invents Act of 2011 (Leahy-Smith Act) continues James Madison's analysis. In Federalist Paper No. 10, Madison stated that the Constitution is a "happy combination" in which the national government takes the aggregate interest and the states care for the local and particular concerns. Whether or not the Clean Air Act anticipated the local and particular concerns to be accommodated by the agents of the state legislatures remains part of this precarious balancing act. The outcome in this case suggests that the federal government must be vigilant in safeguarding standards that Congress established to protect the environment.

Kathleen C. Simmons

See also: Externality; *Vol. 1: Foundations of Economics:* Environmental Protection Agency; Supreme Court; *Vol. 3: Microeconomics:* America Invents Act of 2011 (Leahy-Smith Act); *Primary Document*: America Invents Act of 2011 (Leahy-Smith Act)

Further Reading

Chicago-Kent College of Law at Illinois Tech. n.d. *Alaska Dept. of Environmental Conserv. v. EPA* (Facts of the case). Oyez. www.oyez.org/cases/2000-2009/2003/2003_02_658 (accessed November 30, 2016).

Chicago-Kent College of Law at Illinois Tech. n.d. *Alaska Dept. of Environmental Conserv. v. EPA* (Full transcript text of oral argument and opinion announced). Oyez. http://www.oyez.org/cases/2000-2009/2003/2003_02_658 (accessed November 30, 2016).

Congress.gov. n.d. The Federalist Papers. Congress.gov Resources. https://www.congress.gov/resources/display/content/The+Federalist+Papers (accessed November 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. *Alaska Dept. of Environmental Conservation v. EPA (02-658) 540 U.S. 461* (2004) 298 F.3d 814, affirmed. (Opinion of the Court, delivered by Justice Ginsburg.) http://www.law.cornell.edu/supct/html/02-658.ZO.html (accessed November 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. *Alaska Dept. of Environmental Conservation v. EPA (02-658) 540 U.S. 461* (2004) 298 F.3d 814, affirmed. (Transcript of Justice Kennedy, dissenting.) http://www.law.cornell.edu/supct/html/02-658.ZD.html (accessed November 30, 2016).

ALCHIAN, ARMEN

Born: April 12, 1914, in Fresno, California; Died: February 19, 2013, in Los Angeles; Nationality: American; Professional Interests: macroeconomic theory, inflation, costs and output, property rights; Major Works: "Information Costs, Pricing and Resource Unemployment" (1969), *Choice and Cost under Uncertainty* (2006).

Armen Alchian provided scholars with significant insights into several fields of economics. In macroeconomics, Alchian was instrumental in identifying the relationship between inflation and wages and clarifying why money is necessary for an efficiently functioning economy. In microeconomics, he clarified the relationship between costs and production. He also countered the argument for property rights. While his body of work was not weighty in size, it was impressive in breadth and depth and it broadened the understanding of economics.

Armen Albert Alchian was born in Fresno, California, in April 12, 1914. He attended Fresno State College for two years before transferring to Stanford University. He earned a BA from Stanford in 1936. He continued his graduate studies at Stanford, earning his PhD in economics in 1943. Upon graduation, he had a brief tenure at the University of Oregon as an instructor. During World War II, he served as a statistician for the U.S. Air Force. Following World War II, he joined the faculty at the University of California, Los Angeles.

While often cited for his work in microeconomics, Alchian was also responsible for important contributions in macroeconomic theory. Within the study of macroeconomic theory, he stands out as a contrarian voice to some of the prevailing ideas of his day, particularly on the effects of inflation. Alchian emphasized the importance of detailed historical data when testing economic theories with empirical evidence. An engaged thinker, he would not accept claims without evidence to back them up.

This is most clearly illustrated in the work he did concerning "wage lag" inflation. Wage lag inflation favorably affects firms at the expense of laborers. Many economists believed that labor markets operated differently than other markets. Most of his contemporary economists believed inflation did not have an effect on wages: Wages would not follow as the general price level of goods and services in an economy began to rise. Although economists made these claims, it was Alchian who applied empirical historical data and discovered that in reality there was barely any evidence to support the wage lag theory. He was able to establish that labor markets functioned much in the same way as all other markets.

His work on inflation went beyond his study of the wage lag theory. He also developed detailed ideas about the impact of anticipated inflation versus unanticipated inflation. Alchian conducted much of his work on this area of inflation during the late 1950s and early 1960s, when price indices were showing little inflation. But in subsequent decades when the U.S. inflation rate began to rise, Alchian's ideas became reality as economists witnessed a transition from a world where people expected and experienced price stability to a world with persistently higher-than-expected inflation. His work and experiences showed the need to include inflationary expectations when modeling inflation's effects. He did this by showing that if inflation is unanticipated, holders of cash will behave in a certain way and generate a certain set of implications. If on the other hand holders of cash do expect inflation, they will behave differently, generating an entirely different set of expectations.

A second area Alchian was known for exploring is the role of money in an economy, specifically addressing the questions of what is money and why is it used. In a short essay titled "Why Money?" Alchian explored what money is and why it exists. In this essay, Alchian also demonstrated his ability to use plain language to clarify complicated issues and make them accessible to everyone. For Alchian, a thorough understanding of money serves as an important basis for the understanding of monetary policy. In "Why Money?" he identified three conditions that give rise to the use of a commodity as money. When there is a commodity about which everyone is informed, then everyone will be a specialist in that good and it will be used as money. Alchian also illustrated how what a society considers "money" has a low "recognition cost." As such, its quality and characteristics are readily identifiable by everyone. It can be used to facilitate almost every trade, and therefore it satisfies the characteristics as to what can serve as money.

Even with his important contributions to macroeconomics, his work in microeconomics represents even greater contributions to the field. Two notable areas of his work are developments in understanding the relationship between costs and output in the production process and the implications of private property.

Prior to his work on costs and output in the production process, it was commonly held that a firm's costs depend only on the output. In "Costs and Outputs" (1959), Alchian held that costs are actually determined by several dimensions within a well-defined production process. In his work, he outlines what these dimensions are and describes how costs respond to those variables when they are allowed to change separately. His work in this field was a departure from the classical theory of production.

In his work on private property, Alchian attempted to clarify important issues surrounding property rights by explaining the structure of property rights, the social consequences that result from a particular structure of property rights, and the way in which a particular structure of property rights comes into being. Alchian submitted that what is owned is not the property itself but the right to use it in a particular socially accepted way. Alchian rejected the critics who say property rights take away from human rights, by asserting that property rights are human rights and that a well-defined and enforceable system will lead to better outcomes for society.

Armen Alchian's long career and groundbreaking work qualify him as one of the most important economic thinkers of modern times. His insights into both macro- and microeconomic theory have shed light on the subject in ways that no one previously had. His unique ability to make difficult concepts accessible to any interested party also set him apart as a skilled educator. In 1996, he was named a distinguished fellow of the American Economic Association.

Amen Alchian died on February 19, 2013, at his home in Los Angeles. He was 98.

John E. Trupiano

See also: Inflation; Money; Property Rights; *Vol. 3: Microeconomics:* Coase, Ronald; *Vol. 4: Global Economics:* De Soto, Hernando

Further Reading

Alchian, Armen. 1969. Information costs, pricing, and resource unemployment. *Economic Inquiry* 7: 109–28.

Alchian, Armen. 1977. *Economic forces at work*. Springville, UT: Liberty Press.

Alchian, Armen. 1977. Why money? *Journal of Money, Credit and Banking* 9: 133–40.

Alchian, Armen, and Daniel K. Benjamin. 2006. *Choice and cost under uncertainty*. Indianapolis, IN: Liberty Fund.

Baird, Charles W. 2000. Alchian and Menger on money. *Review of Austrian Economics* 13: 115–20.

Gavin, William T., and Jerry L. Jordan. 1996. Armen Alchian's contribution to macroeconomics. *Economic Inquiry* 34: 496–505.

Lott, John R., ed. 1997. *Uncertainty and economic evolution: Essays in honor of Armen A. Alchian*. New York: Routledge.

Orr, Daniel. 1964. Costs and outputs: An appraisal of dynamic aspects. *The Journal of Business* 37: 51–56.

AUTOMATIC STABILIZERS

Automatic stabilizers aim to lessen the impact of negative business cycle fluctuations or too-rapid economic expansion on individuals. Since the changes in government spending and/or taxation occur automatically to offset recessionary or expansionary economic conditions, government does not have to intervene in the economy.

The contraction or recessionary phase of a typical business cycle is troubled with declining economic growth that often translates to higher levels of unemployment and declining wages. During a recession, government spending (at both the federal and state levels of government) automatically increases in the form of transfer payments. The most common increases in government spending are in the areas of unemployment compensation and welfare payments such as food stamps, Temporary Assistance for Needy Families (TANF), and free and reduced school lunch programs. All of these transfer payments automatically increase during a recession (the contraction phase of the business cycle).

Coupled with the increase in government spending, federal income tax rates and payroll taxes received by the government are reduced. During recessions, individuals pay less in taxes as their incomes decline or they become unemployed. Consequently, payroll taxes paid by businesses also decrease. The automatic increases in government spending help to lessen the negative impact of an economic contraction on individuals.

The goal of automatic stabilization policies is to increase consumer and investment spending, which will increase real gross domestic product, which in turn will decrease the unemployment rate. According to Douglas Elmendorf of the Tax Policy Center, reduced income and payroll taxes offset any decline in real gross domestic product by 8 percent (2008).

Similarly, the expansion phase of the business cycle is filled with increasing economic growth, a decrease in unemployment, and rising wages—which can lead to inflation. The automatic stabilizers that control this part of the business cycle are decreases in government spending and an increase in marginal tax rates. Government spending decreases during the expansionary phase of the business cycle as more individuals are employed, because transfer payments such as unemployment compensation, welfare payments in the form of food stamps, and free and reduced school lunch programs decrease. Additionally, a progressive income tax schedule leads to increased government revenues as incomes increase and to increasing payroll tax revenues from businesses as the economy expands. The goal of these policies is to decrease consumer and investment spending, which will slow economic growth and reduce the potential of an increased inflation rate.

While automatic stabilizers help control the large negative or positive fluctuations of the business cycle, the stabilizers often do not have a large enough impact to reverse a business cycle. Coupled with the above automatic stabilizers, most economic systems rely on additional fiscal and monetary policy measures to control the extreme (severe recession or too-rapid expansion) aspects of the business cycle.

One of the major arguments against relying on the automatic stabilizers of government spending and taxation to control the fluctuations of the business cycle is the impact that these policies have on interest rates. During an economic contraction, government spending automatically increases and taxes automatically decrease, which often results in deficit spending by the government. When a government spends more money than it collects in taxes, it must borrow money by selling bonds in the open market to fund the increase in spending or the shortfall in tax collection. This increase in borrowing by the government has a crowding-out effect on private investments, because the increase in government borrowing tends to increase the real interest rate in the loanable funds market. This higher real interest rate encourages saving and discourages spending or borrowing to purchase goods and services, which has the opposite effect of the intended increase in government spending and decrease in taxes. Similarly, during times of rapid economic expansion, government spending automatically decreases and taxes automatically increase, which often results in a decrease in deficit spending. This decrease in government borrowing will lead to lower real interest rates in the loanable funds market, which will encourage spending or borrowing to purchase goods and services and discourage saving; this is the opposite effect of the intended decrease in government spending and increase in taxation. The movement of interest rates in the loanable funds market that these policies create decreases the impact of the automatic stabilizers of government spending and taxation.

Despite the interest rate effect that automatic stabilizers create, they are viewed as a positive way to control the large fluctuations in the business cycle and to lessen the negative impact these fluctuations have on individuals. This is most likely because these policies target individuals who are negatively impacted by the business cycle. These policies are a transfer of wealth from individuals not impacted by the change in the business cycle to the individuals who are impacted.

Xavier Whitacre

See also: Contractionary Fiscal Policy; Contractionary Monetary Policy; Entitlements; Expansionary Fiscal Policy; Expansionary Monetary Policy; Fiscal Policy; *Vol. 3: Microeconomics:* Business Cycle

Further Reading

Akerlof, George, and Robert Shiller. 2009. *Animal spirits: How human psychology drives the economy, and why it matters for global capitalism.* Princeton, NJ: Princeton Univ. Press.

Elmendorf, Douglas. 2008. Economic stimulus: What are automatic stabilizers and how do they work? In *Tax Policy Center' Briefing Book*. Urban Institute & Brookings Institution. http://www.taxpolicycenter.org/briefing-book/background/stimulus/stabilizers.cfm (accessed April 9, 2014).

Moss, David. 2007. *A concise guide to macroeconomics*. Boston: Harvard Business Review Press.

Orszag, Peter R. 2001. Unemployment insurance as economic stimulus. Washington, DC: Center on Budget and Policy Priorities.

B

BANK OF THE UNITED STATES, CLOSURE AND LOWER TARIFFS, 1833

When Andrew Jackson was elected president in 1828, he faced a major recession, a national debt of $45 million, and a nation divided on tariffs. The real problem was that the United States was a nation of two very different economies in the South and the North that often worked in opposition to each other. In the presidential election, Jackson had faced three opponents: John Quincy Adams, William Crawford, and Henry Clay.

Jackson had run against John Quincy Adams of the National Republican Party who supported high tariffs and an aggressive expansion of business. The election was a split decision and had to be settled by Congress. Jackson's focus had been on the national debt and distrust of the Bank of the United States' ability to resolve the financial crisis. Jackson had hoped to sell government shares in the bank, sell land back to the states, and reform the bank in an effort to eliminate the national debt.

In Jackson's first term, the U.S. economy improved, and he focused on government corruption. He won a second term with 56 percent of the vote, and he took that result as a mandate to take on the Bank of the United States and other economic issues, such as the tariff rates. Jackson was able to effectively shut down the national bank and lower tariffs, but one effect of these successes was a recession in the manufacturing sector. For decades, the bank had been a key element in a robust expansion of manufacturing. Jackson's attack on the bank also set the stage for the panic of 1837 and America's first major economic depression. On the positive side, Jackson paid off the national debt through sales of federal land.

The Bank of the United States and its branches had been popular in the eastern, mid-Atlantic, and western states, where it had financed and expanded manufacturing and business in such cities as Pittsburgh, Cincinnati, and St. Louis. The South generally disliked the bank, believing it favored the North and did little for the South's agricultural society. They believed the government was funding the bank on the backs of cotton and tobacco producers with tariffs. The West often thought the bank did not loan enough money to support land purchases. The scandals and corruption that sometimes surrounded the bank had often upset the general public.

Still, the bank had been the real driving force behind America's rise in manufacturing. It had also performed the function of a central bank, making America more resistant to deep economic depressions. The bank was popular with manufacturers as a source of capital but opposed by farmers and southern plantation owners. Unfortunately, the bank became the focus of a populist political movement. In

1828, Andrew Jackson had won the presidency by running against the bank. As president, his dislike of the bank only grew as the bank remained outside of government control while being funded with government funds.

Early in his second term, Jackson addressed the country's high tariffs with reduced rates in the Tariff Act of 1832. This tariff was still a problem for South Carolina, but Jackson and Henry Clay, his opponent in the Congress, worked out a Compromise Tariff of 1833. The opportunity to end the Bank of the United States came in 1836 when the bank's charter was up for renewal. In 1832, Congress had passed a bill to renew the bank's charter, but Jackson used his veto to stop it. This veto would create a personal fight between Jackson and Nicholas Biddle, the president of the Bank of the United States.

Jackson moved to destroy the bank by launching an investigation into its operations and removing all its government funds. Biddle countered by starting to replace the lost funds with foreign notes. The feud would become known as the "bank war." When the government investigation found no corruption, Jackson ordered his secretary of the Treasury, William Duane, to remove government funds. Duane refused, and Jackson named a new secretary of the Treasury. In September 1833, Jackson stopped all future deposits to the bank. In Congress, Clay opposed Jackson's actions and labeled them as unconstitutional.

Biddle tried to turn the public against Jackson by slowing the economy. The economy in the North had been in a robust expansion. Biddle, using the tools of the Bank of the United States, moved interest rates up, which slowed the economic expansion. The interest-rate increases allowed loans to be called in. This action led to bankruptcies and business failures. Biddle also held back on lending to business. The bank's actions also put financial strain on land purchases and home-building in the West. Unemployment increased, and the public turned on Jackson, then on the bank. The recession hit the manufacturing states hard.

In the long run, however, the Bank of the United States, acting in its self-interest, behaved just as Jackson feared. He was able to convince the public that the bank was out of control and not responsible to the people. Congress finally jumped in to back Jackson, and the bank's charter was not renewed. The Bank of the United States reverted back to its roots as the Bank of Pennsylvania. In 1841, the bank filed for bankruptcy. The closing of the national bank weakened the nation's banking system, which would lead to the great panic of 1837.

Quentin R. Skrabec Jr.

See also: *McCulloch v. Maryland*; United States Treasury; *Vol. 1: Foundations of Economics:* Civil War Economics, Shortages, and Inflation, 1861–1865; *Vol. 4: Global Economics:* Tariffs

Further Reading

Meacham, Jon. 2008. *American lion: Andrew Jackson in the White House.* New York: Random House.

Remini, Robert V. 1977. *Andrew Jackson and the course of the empire, 1767–1821.* New York: Harper & Row.

BANKING ACT OF 1933 (GLASS-STEAGALL ACT)

The Banking Act of 1933, also known as the Glass-Steagall Act, was introduced as a response to the stock market crash of 1929. It established the Federal Deposit Insurance Corporation (FDIC) and enforced many other banking reforms. The congressional sponsors of this act were Senator Carter Glass, a Democrat from Virginia, and Representative Henry Steagall, a Democrat from Alabama. The Banking Act of 1933 combined two congressional projects: (1) the creation of a federal system of bank deposit insurance, and (2) the regulation of commercial and investment banking. Although at the time, the Roosevelt administration and many in Congress resisted and criticized the act for introducing inefficiency and limiting competition, today many of its supporters consider the act to be the possible explanation for a long period of financial stability in U.S. banking history.

Contrary to the commercial banking theory prevalent during the 1920s, many economists and politicians argue that the stock market crash of 1929 happened mainly because banks were loosely regulated and were actively involved in security market speculation. Following its inception in 1913, the Federal Reserve System had minimal control over the activities of U.S. commercial banks. Senator Glass was one of the proponents of the commercial banking theory, which suggests that commercial banks should limit their lending to short-term loans to finance only the production and sale of goods (versus securities such as stocks or bonds) in commercial transactions. Glass believed that if this theory had been followed and enforced, the crash of 1929 could have been avoided. Senator Glass introduced his first bill on June 17, 1930, to investigate the operations of the National and Federal Reserve banking systems.

Furthermore, Glass and his long-term adviser Henry Willis opposed the engagement of commercial banks in real estate lending, a practice that decades later crippled the U.S. economy during the recession of 2007–2009. Glass criticized banks for lending to stock market speculators and for engaging in risky security transactions, and he criticized the Federal Reserve for not applying better regulatory policy.

In 1933, Senator Carter Glass and Representative Henry Steagall introduced the Banking or Glass-Steagall Act. The main purpose of this historic legislation was to limit conflicts of interest between the banks and individual investors caused by the involvement of commercial banks in underwriting activities related to the security exchange. The new law prohibited commercial banks from underwriting securities. In addition, the banks had to choose between being a commercial bank or an investment bank. The Glass-Steagall Act also introduced the Federal Deposit Insurance Corporation (FDIC) to insure deposits of all commercial banks and to increase the control of the Federal Reserve over them. The deposit insurance and most provisions of the act were severely attacked during congressional debate, mainly for limiting competition and introducing inefficiency into the U.S. banking industry. Despite all opposition, the Banking Act of 1933 was signed into law by President Roosevelt on June 16, 1933.

The law imposed numerous banking reforms and established the FDIC in the U.S. banking system. The Banking Act of 1933 had a significant number of provisions, many of which were changed or repealed over time. The provision that required all FDIC-insured banks to be members of the Federal Reserve System was repealed in 1939. In 1956, the Bank Holding Company Act extended banking regulations by restricting banks that owned other banks from engaging in nonbanking activities or acquiring banks in other states. During the 1960s and 1970s, bank lobbyists persuaded Congress to allow commercial banks to enter the securities market. By the 1970s, a number of investment firms started introducing some of the traditional commercial banking services, offering services such as money market accounts with interest, allowing check writing, and offering credit or debit cards.

In 1986, the Federal Reserve Board bent the law by allowing commercial banks to earn up to 5 percent of their gross revenue from investment banking. Later, the Federal Reserve Board allowed the Banker Trust, a commercial bank, to actively participate in short-term credit transactions and underwriting activities. Finally, in 1987, after more than five decades of strong lobbying of big commercial and investment firms against the Banking Act of 1933, the Federal Reserve Board voted three to two in favor of easing the restrictions imposed by the act. In March 1987, despite strong opposition from Paul Volcker, the Federal Reserve Board chair at the time, the Fed approved an application by Chase Manhattan to participate in underwriting securities. In addition, the Fed increased the limit for participation of commercial banks in securities investment from 5 percent to 10 percent of their gross revenue.

In August 1987, Alan Greenspan became the new chair of the Federal Reserve Board of Governors. A former director of J. P. Morgan, Greenspan firmly advocated for banking deregulation. In 1989, the Federal Reserve Board approved additional applications by J. P. Morgan, Chase Manhattan, and other national banks to allow them to expand their transactions to debt and equity securities. In 1990, J. P. Morgan became the first bank to participate in underwriting activities, with the condition that it not exceed the newly imposed 10 percent limits. After the Senate's numerous failed attempts to repeal the Glass-Steagall Act of 1933, in December 1996, supported by Chairman Alan Greenspan, the Federal Reserve Board increased the limit for engaging in securities business to 25 percent of the gross revenue of commercial banks. Finally, in 1999, Congress passed the Financial Services Modernization Act, repealing the Banking Act of 1933.

Elham Mahmoudi

See also: Federal Deposit Insurance Corporation; Federal Reserve System; Greenspan, Alan; *Vol. 1: Foundations of Economics:* Great Depression and Wall Street Crash, 1929; Roosevelt, Franklin D.; *Primary Document*: Banking Act of 1933 (Glass-Steagall Act)

Further Reading

Federal Reserve Bank of Philadelphia. n.d. A day in the life of the FOMC. http://www.philadelphiafed.org/education/teachers/resources/day-in-life-of-fomc/ (accessed November 30, 2016).

Federalreserveeducation.org. n.d. History of the federal reserve. http://www.federalreserveeducation.org/about-the-fed/history/ (accessed November 30, 2016).

Landis, James M. 1959. Legislative history of the securities act of 1933. *George Washington Law Review* 28: 29.

National Archives. n.d. Act of June 16, 1933 (banking act of 1933), public law 73-66, 48 STAT 162. http://docsteach.org/documents/299834/detail (accessed November 30, 2016).

Preston, Howard H. 1933. The banking act of 1933. *The American Economic Review* 23 (4, December): 585–607.

Westerfield, Ray B. 1933. The banking act of 1933. *The Journal of Political Economy* 41: 721–49.

BANKRUPTCY REFORM ACT OF 1978

President Jimmy Carter signed the Bankruptcy Reform Act of 1978 on November 6, 1978. However, it was not until October 1, 1979, that the Bankruptcy Reform Act of 1978 took effect. The act made it easier for both businesses and individuals to file bankruptcy and reorganize. This law substantially transformed bankruptcy practices in the United States, and it still serves as the federal law that governs bankruptcy cases today.

The act authorized three main types of bankruptcies: Chapter 7, which allows to liquidation of a business and discharge of debts; Chapter 11, which allows for corporations to continue operations after reorganizations; and Chapter 13, which restructures debt but does not forgive it. While these important changes helped to pave the law of bankruptcy in the United States, they created several controversies in the process.

The most controversial changes were those involving personal or nonbusiness bankruptcy. Some were concerned that the act enhanced the position of debtors in relation to creditors. Others believed the benefits of personal bankruptcy would lead to an increase in the number of bankruptcy cases that would have an adverse effect on the market. Bankruptcy filing rates did increase, but this may have been due more to external factors, including that consumer debt had become more common than it was prior to the enactment of the 1978 act. More people were likely to borrow money, resulting in a greater likelihood of defaulting on their debt and filing for bankruptcy. Consumer protection advocates, however, argued that bankruptcy should be more generous than the legislation established.

As a result, there have been a number of notable developments and judicial clarifications in bankruptcy rules following the 1978 act. One pivotal amendment was made in a 1982 Supreme Court ruling that deemed the extended jurisdiction of the Bankruptcy Court, originally established under the 1978 act, as unconstitutional. The Supreme Court ruling stated that Congress had given bankruptcy judges too much power. The Court asserted that their responsibilities overlapped with the duties of other branches of government. This ruling led to the Bankruptcy Amendment Act of 1984.

Continued debates led to the Bankruptcy Reform Act of 1994 signed into law by President Bill Clinton. The 1994 act is said to be the most comprehensive piece of bankruptcy legislation since the 1978 act, and it contains many provisions to both business and consumer bankruptcy. Specifically, the 1994 act created a National

Bankruptcy Commission to further investigate revision of bankruptcy laws. The law encouraged debtors to use Chapter 13 to reschedule their debts, as opposed to Chapter 7 to liquidate and aid creditors in recovering claims against bankrupt estates. This was encouraged with the intention of expediting bankruptcy proceedings.

Another trend following the 1978 act was the frequency of corporate reorganization. Like the increase in bankruptcy cases, it is unclear whether this was a result of the act. Major changes in the economy took place during the 1980s, and many corporations borrowed money in order to finance their investments. As many corporations took on more debt, they became more likely to default on their loans—with bankruptcy an increasingly appealing option.

These debates, nonetheless, obscure the true intentions and consequences of bankruptcy law. A generous personal bankruptcy law that shields assets and future income can be beneficial as well as detrimental. On the one hand, the law reduces that adversity individuals experience when circumstances prevent them from paying their debt. On the other hand, the law increases the cost of credit by making it harder for creditors to collect their debt.

Similarly, corporate reorganization also involves tradeoffs. A flexible law makes the reorganization of firms easy, and as a result insiders and large creditors might use reorganization as an opportunity to improve their financial position at the expense of small creditors, workers, and other stakeholders. Conversely, if the law makes it hard to reorganize firms, then a firm may be unable to pay and its debts will be liquidated, keeping the firm from executing a potentially good business plan. A good corporate bankruptcy law gives managers, creditors, and other stakeholders some flexibility, but not too much.

Lauren A. Drum

See also: *Vol. 1: Foundations of Economics:* Bankruptcy; Supreme Court; *Primary Document*: Bankruptcy Reform Act of 1978

Further Reading

New Generation Research, Inc. n.d. A brief history of bankruptcy. http://www.bankruptcydata.com/Ch11History.htm (accessed May 31, 2015).

Posner, Eric. 2004. Bankruptcy act of 1978. Encyclopedia.com. http://www.encyclopedia.com/doc/1G2-3407400030.html (accessed May 31, 2015).

BERNANKE, BEN

Born: December 13, 1953, in Augusta, Georgia; Nationality: American; Professional Interests: monetary policy, chairman of the Federal Reserve System 2006–2014; Major Works: "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression" (1983), *Essays on the Great Depression* (2004), *The Federal Reserve and the Financial Crisis* (2013).

Ben Bernanke is an American economist who served as chairman of the Board of Governors of the Federal Reserve System from 2006 through January 2014. Notably, Bernanke directed the Federal Reserve's response to the financial crisis of 2008–2009. He first served as a member of the Federal Reserve Board of Governors from 2002 to 2005. He then served President George W. Bush for a short time as chairman of the Council of Economic Advisers. In early 2006, Bernanke was appointed chairman of the Federal Reserve Board of Governors by President George W. Bush, and in 2010 he was reappointed by President Obama. Prior to joining the Board of Governors, Bernanke was a tenured professor and chair of the Princeton University Department of Economics.

Benjamin Shalom Bernanke was born on December 13, 1953, in Augusta, Georgia. Growing up in Dillon, South Carolina, as the grandson of Jewish immigrants, he graduated as high school class valedictorian. Bernanke earned his BA in economics from Harvard University with honors in 1975. He received his PhD in economics from Massachusetts Institute of Technology (MIT) in 1979. His dissertation adviser was future Bank of Israel central bank counterpart, Stanley Fischer.

Bernanke's dissertation, "Long-Term Commitments, Dynamic Optimization, and the Business Cycle," launched his career as a Depression-era economic historian. Upon graduation from MIT, Bernanke began his academic career in the Stanford University Graduate School of Business. Bernanke joined the faculty at Princeton University in 1985, becoming department chair in 1992—a position he would hold until 2002.

Bernanke's expertise and research on the economic causes and consequences of the Great Depression elevated his reputation as an equal to Milton Friedman and Anna Schwartz. In 1983, Bernanke published "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression." In this piece he made the case that the key cause of the eventual collapse of the economy in 1929 and the subsequent depression of the 1930s was the banking system's failure to provide sufficient credit. This view goes beyond Friedman's response, which laid blame directly on the Federal Reserve and the government. Later, in 2004, Bernanke would provide a summation of his views in *Essays on the Great Depression*.

Beyond his work on the Great Depression, he is the coauthor of two successful economics textbooks, both in their multiple editions. Bernanke has delivered lectures at the London School of Economics on monetary policy and theory. He directed the Monetary Economics Program of the National Bureau of Economic Research and edited the *American Economic Review*.

Ben Bernanke entered public service in 2002 when he accepted an offer from President George W. Bush to join the Federal Reserve Board of Governors. He remained on the Board of Governors till 2005, when he chaired President Bush's Council of Economic Advisers until 2006. In 2006, he was a top candidate to replace the retiring Alan Greenspan as chairman of the Federal Reserve Board of Governors. On February 1, 2006, Ben Bernanke succeeded Greenspan as chair, becoming the most important monetary economist in the nation. He also chaired the Federal Open Market Committee, the committee responsible for key monetary policy decisions.

Although he soundly defended the Federal Reserve's actions, Bernanke was not without his critics. He was criticized for the Federal Reserve's role in backing J. P. Morgan Chase in order for Chase to buy Bear Stearns, and he was further criticized for the Troubled Asset Relief Program (TARP) and for the U.S. Treasury bailout of AIG.

An avowed monetarist and student of the Great Depression, Bernanke feared deflation more than inflation. As a result, he publicly advocated supplying as much money as necessary to the monetary system to avoid a deflationary spiral. Because he used a helicopter analogy in a speech to describe his monetary views, Bernanke was labeled (mostly by his critics) "Helicopter Ben."

On three different occasions (Quantitative Easing [QE] I, II, and III), the Fed went into the business of buying and adding depreciated assets to the Federal Reserve's balance sheet. In return, the Federal Reserve supplies sufficient quantities of dollars into the monetary system, keeping interest rates at historical lows. In responding to these crises, under Ben Bernanke the Federal Reserve took on more direct actions than at quite possibly any time since its inception in 1913.

Bernanke's honors have included being named a fellow of the American Academy of Arts, the Guggenheim, and the Econometric Society. He also was a member of the National Bureau of Economic Research (NBER) and NBER's Business Cycle Dating Committee.

Ben Bernanke was succeeded by Janet Yellen as Chairman of the Board of Governors of the Federal Reserve System and Federal Open Market Committee beginning February 1, 2014. Ben S. Bernanke is a Distinguished Fellow in Residence with the Economic Studies Program at the Brookings Institution.

David A. Dieterle

See also: Federal Open Market System; Federal Reserve System; Fischer, Stanley; Friedman, Milton; Greenspan, Alan; Monetarist Economic Thought; Monetary Economics; Monetary Policy; Money Supply; Volcker, Paul

Further Reading

Bernanke, Ben S. 1983. Nonmonetary effects of the financial crisis in the propagation of the great depression. *American Economic Review* 73 (3): 257–76.

Bernanke, Ben S. 2009. *Essays on the great depression.* Princeton, NJ: Princeton Univ. Press.

Bernanke, Ben S. 2013. *The federal reserve and the financial crisis*. Princeton, NJ: Princeton Univ. Press.

Bernanke, Ben S., Andrew B. Abel, and Dean Croushore. 2007. *Macroeconomics.* 6th ed. Boston: Addison-Wesley.

Bernanke, Ben S., and Alan S. Blinder. 1992. The federal funds rate and the channels of monetary transmission. *American Economic Review* 82 (4): 901–21.

Bernanke, Ben S., and Robert H. Frank. 2007. *Principles of macroeconomics.* New York: McGraw-Hill.

Bernanke, Ben S., Mark Gertler, and Mark Watson. 1997. Systematic monetary policy and the effects of oil price shocks. *Brookings Papers on Economic Activity* 1:91–157. https://www.brookings.edu/wp-content/uploads/1997/01/1997a_bpea_bernanke_gertler_watson_sims_friedman.pdf. (accessed October 30, 2012).

Bernanke, Ben S., Thomas Laubach, Frederic S. Mishkin, and Adam S. Posen. 2001. *Inflation targeting: Lessons from the international experience.* Princeton, NJ: Princeton Univ. Press.

Board of Governors of the Federal Reserve System. n.d. Ben S. Bernanke: Chairman (Board of Governors). Federal Reserve History. http://www.federalreservehistory.org/People/DetailView/12 (accessed September 30, 2016).
CBS News. 2009. Ben Bernanke's greatest challenge. *60 Minutes*, March 12. http://www.cbsnews.com/stories/2009/ 03/12/60minutes/main4862191.shtml (accessed October 30, 2012).
Forbes.com. n.d. Forbes profile: Ben Bernanke. http://www.forbes.com/profile/ben-bernanke/ (accessed October 30, 2012).
Washington Post Staff. n.d. Ben Bernanke: Chairman of the federal reserve (since January 2006). *Washington Post.* http://www.washingtonpost.com/politics/ben-bernanke/gIQA3UaU9O_topic.html (accessed October 30, 2012).

BUREAU OF ECONOMIC ANALYSIS

The Bureau of Economic Analysis (BEA) is an agency of the Department of Commerce. The Census Bureau and the BEA are two divisions of the department's economic and Bureau of Economic Analysis statistics administration. The BEA's main responsibility is to promote an accurate picture of the U.S. economy by providing key economic statistics, including the national income and product accounts (NIPAs) and gross domestic product (GDP). These estimates are then used to provide important information about essential issues such as economic growth rate, industry-specific and regional development, and, most importantly, the economic strength of the nation in the world's economy. The BEA's mission is to promote an enhanced understanding of the U.S. economy by developing and providing timely, relevant, and accurate economic accounts statistics in an objective and cost-effective manner.

In 1972, the BEA was officially established in the Social and Economic Statistics Administration (SESA) within the Department of Commerce. However, the function of developing and interpreting the economic accounts of the United States goes back to 1820, when the Division of Commerce and Navigation (1820–1866) was responsible for developing and publishing annual statistics on U.S. foreign trade. By 1844, this responsibility had expanded to include domestic trade within the United States.

During the 20th century, the important task of deriving and analyzing national economic statistics evolved and expanded. Today, the BEA is one of the most important statistical agencies in the world and is the main agency of the Federal Statistical System in the United States. The BEA collects and manages data from various segments of the U.S. economy, conducts research, develops statistical estimates, and disseminates statistics to the public. The BEA offers statistical information in five different categories: (1) national, such as GDP, personal income, consumer spending, corporate profits, and fixed assets; (2) international, such as balance of payments, trade in goods and services, international services, international investment, direct investment and multinational companies, and survey forms and related materials; (3) regional, such as GDP by state and metropolitan area, personal income by state and local area, and economic information for coastal areas; (4) industry, such as annual industry accounts, benchmark input-output accounts, research and development satellite accounts, travel and tourism satellite accounts, and supplemental statistics; and (5) Integrated Accounts, such as integrated income, product, and Federal Reserve Financial Accounts, integrated BEA GDP–BLS productivity accounts, and integrated BEA–BLS industry-level production accounts.

GDP and national accounts statistics are used by the White House and Congress to prepare budget estimates, by the Federal Reserve to define appropriate monetary policy, by Wall Street to provide accurate economic projections, and by business communities for financial strategies. The industry data are used by both industry and academia to estimate productivity, by the U.S. International Trade Commission to analyze trade policies, and by national and local leaders to evaluate the impacts of economic shocks. International trade and investment data are mainly used by trade policy officials to negotiate international agreements and by analysts and policymakers to evaluate the effects of international investment. Regional estimates are used by federal and local government agencies as well as businesses to track various economic activities and develop the best strategies for the future.

One of the most closely watched of all economic statistics that is developed by the BEA is the GDP. GDP is the market value of all legally recognized final goods and services produced within a country in a given period of time. GDP per capita is recognized as one of the indicators of a country's standard of living. GDP is also related to national accounts, and it is an important macroeconomic indicator.

Another primary set of macroeconomic estimates that is widely used for economic and policy analysis is the integrated macroeconomic accounts (IMAs). The IMAs consist of several macroeconomic accounts that connect production and income to the change in net worth in the U.S. economy. The accounts define the sources and expenditures of the funds that are made available for capital formation or lending. Furthermore, they track assets and liabilities of the major segments of the economy. IMAs provide enough information regarding changes in the market values of assets and liabilities to be able to draw conclusions regarding changes in the net worth of each economic segment or the entire U.S. economy.

Elham Mahmoudi

See also: Bureau of Labor Statistics; Department of Commerce; Gross Domestic Product; National Bureau of Economic Research; *Vol. 1: Foundations of Economics:* United States Census Bureau

Further Reading

Bureau of Economic Analysis. 2002. Information quality guidelines. U.S. Department of Commerce. http://www.thecre.com/pdf/20021014_commerce-bea-final.pdf (accessed November 30, 2016).

Bureau of Economic Analysis. n.d. Interactive data. U.S. Department of Commerce. http://www.bea.gov/itable/index.cfm (accessed November 30, 2016).

Wall Street Journal. n.d. Economic analysis. http://topics.wsj.com/subject/E/economic-analysis/2515 (accessed November 30, 2016).

BUREAU OF ENGRAVING AND PRINTING

The Bureau of Engraving and Printing (BEP) is an agency of the Department of the Treasury. The BEP's most important task is to produce paper currency. In addition, the BEP produces treasury securities, military commissions, and a variety of other security documents. The BEP has two large production facilities in Washington, D.C., and Fort Worth, Texas.

Prior to the Civil War, the production process for paper currency was completely manual. A private company produced bills in sheets of four. Then, the sheets were transferred to the Treasury Department, where clerks signed the bills and other workers cut them by hand. In 1861, in order to help fund the Civil War, Congress empowered the secretary of the Treasury to produce paper currency instead of coins. The paper currency served as government IOUs and was redeemable in coins at specific Treasury locations. In 1863, Congress created the Office of Comptroller of the Currency, which was responsible for the production of currency. In 1874, the BEP was officially established.

The BEP has produced a variety of different documents, such as passports, money orders, bonds, refunding certificates, and treasury notes. In 1894, the BEP officially started producing postage stamps for the U.S. government; during its first year, the BEP produced more than two billion stamps. For the next 111 years, the BEP was the sole producer of postage stamps in the United States. Finally, it became more cost-effective for the U.S. Postal Service to move stamp production to the private sector, and in 2005, the BEP produced its last set of postage stamps for the U.S. Postal Service. After more than 100 years of monopolizing stamp production, the bureau terminated its postage stamp production entirely and returned to its original main task of printing paper currency.

In 1918, following World War I, the production of paper currency increased from the initial four notes per sheet to eight. In 1929, the design of the paper currency was standardized and it became much smaller than its original size. The bureau could increase the number of notes per sheet from 8 to 12. Over the years, mainly by reducing the size of the notes, the BEP was able to lower the cost of producing paper money.

Counterfeit deterrence has improved dramatically through the BEP's application of better engraving and security techniques and the general public's improved recognition of paper note features. In 1952, after new developments in the production of non-offset inks, the BEP was able to increase the number of notes per sheet even further. The use of new ink that dried faster enabled the BEP to reduce the rate of damage and distortion in its money production. Because paper notes have to be printed on both the front and the back, this faster-drying ink made it possible for the sheets to be kept moist until both the back and the front were printed. By avoiding the re-wetting process and therefore decreasing the damage rate, in 1952 the BEP was able to switch from 12-note printing plates to 18-note plates.

In 1957, the BEP started using the dry intaglio method, which is a printing technique in which the image is marked into a surface. The areas created by the marked lines hold the ink. The BEP had to use special paper and non-offset inks to switch to the intaglio printing technique. This made it possible to increase the number of notes from 18 to 32 per sheet and to be more efficient. Using the intaglio method made wetting the paper prior to printing an unnecessary step. Since 1968, all paper monies have been printed using the intaglio method. After both faces are printed, the sheets are printed with serial numbers and U.S. Treasury seals.

The Washington, D.C., building is listed in the U.S. National Register of Historic Places. It has a neoclassical architectural style with fireproof concrete. In 1938, because of an increase in number of personnel and in size of production, the BEP added another building, opposite the main building, to its original facility. In 1987, the BEP started building a new facility in Fort Worth, Texas. The Fort Worth facility was built not only because of an increase in production size, but also to be used in case of an emergency in the Washington, D.C., area. In December 1990, the Fort Worth facility officially started production.

Elham Mahmoudi

See also: Money; United States Treasury; U.S. Treasury Bills, Notes, and Bonds

Further Reading

Gelinas, Ulric J., Jr., and Janis L. Gogan. 2006. Accountants and emerging technologies: A case study at the United States Department of the Treasury Bureau of Engraving and Printing. *Journal of Information Systems* 20 (2): 93–116.

Ichikawa, Ieyasu. 1976. Special intaglio printing process for preventing forgery of securities. www.google.com.tr/patents/US3980018?hl=tr (accessed November 30, 2016).

U.S. Bureau of Engraving and Printing. 1909. *Annual report of the director of the bureau of engraving and printing*. Washington, DC: U.S. Government Printing Office.

U.S. Bureau of Engraving and Printing. 1929. *A brief history of the bureau of engraving and printing: With a description of its work*. Washington, DC: U.S. Government Printing Office.

U.S. Bureau of Printing and Engraving. n.d. Home. www.moneyfactory.gov/home.html (accessed November 30, 2016).

BUREAU OF LABOR STATISTICS

The Bureau of Labor Statistics (BLS) is an agency within the Department of Labor. The BLS formed in 1884, and it has been the main statistical agency responsible for collecting, managing, analyzing, and disseminating statistical data to the public, the U.S. Congress, other federal agencies, state and local governments, businesses, and labor representatives. The BLS is the main statistical source of the U.S. government.

On June 27, 1884, the Bureau of Labor Act established the Bureau of Labor within the Department of the Interior. The main purpose of this establishment was to collect information on labor and employment. In 1888, the Bureau of Labor became an independent department, but in 1913, it joined the Department of Labor and has remained there ever since. It is located in the Postal Square Building, close to the United States Capitol in Washington, D.C. A commissioner who serves a four-year term heads the BLS.

The BLS produces a wide range of surveys and statistics that can be divided into three main divisions: (1) prices, (2) employment and unemployment, and (3) compensation and working conditions. The U.S. Consumer Price Index (CPI), the Producer Price Index (PPI), the U.S. Import and Export Price Indices (IEPI), and the Consumer Expenditure Survey (CES) track statistics related to prices. For employment and unemployment, there are various surveys and statistics, such as the Current Population Survey (CPS), the Current Employment Statistics (CES), the Job Openings and Labor Turnover Survey (JOLTS), the Business Employment Dynamics (BED), and the Mass Layoff Survey. For compensation and working conditions, the BLS produces the National Compensation Survey; the Injury, Illnesses, and Fatality (IIF) program; and the Productivity Report. All reports, surveys, and statistics produced by the BLS are categorized into four geographic regions that are known as census regions: Northeast, South, Midwest, and West. Each region then is divided into many census divisions.

The reports and statistics produced by the BLS must be of the highest accuracy, relevance, and timeliness. Furthermore, impartiality in both content and presentation of the reports is of the utmost importance to the Department of Labor.

The following are the main sections within the BLS:

1. Office of Employment and Unemployment Statistics: This office analyzes and publishes data on employment, labor demand, work hours, earnings, and employment by occupation and industry. Every two years, this office publishes a career handbook covering the outlook for employment in many occupations.
2. Prices and Living Conditions: This office analyzes and publishes data on the CPI and the PPI, U.S. import and export processes, consumer spending patterns, and sources of consumer income.
3. Office of Compensation and Working Conditions: This office analyzes and publishes data on wages and benefits (such as health insurance, retirement plans, paid vacations, and paid holidays), and occupational safety (such as workplace injuries or occupational hazards).
4. Productivity and Technology: This office analyzes and publishes indexes of labor productivity for each industry, as well as for large economic sectors. In addition, this office compares U.S. productivity measures, labor costs, and benefits with those of other countries.
5. Survey Methods Research: This office has two centers: (1) the Mathematical Statistics Research Center (MSRC) and (2) the Behavioral Sciences Research Center (BSRC). The MSRC is responsible for the accuracy and efficiency of the BLS survey methods and its statistical analyses. The BSRC is responsible for increasing survey response rates, reducing nonsampling errors, and improving applied survey methods.
6. Publications and Special Studies: This office is mainly responsible for public relations, media contact, and dissemination of all that is produced in the BLS.
7. Field Operations: This office trains field economists who are responsible for collecting data throughout the United States. The office also conducts quality assurance and provides technical direction regarding how to collect data.
8. Administration: This office manages the administrative tasks of the BLS in such areas as financial management and human resources.
9. Office of Technology and Survey Processing: This office uses information technology to promote the mission of the BLS. Project managers and information technology specialists in this office provide a reliable and efficient system to be used for the BLS's advanced and highly technical computational tasks.

Elham Mahmoudi

See also: Bureau of Economic Analysis; Inflation, Measures of; National Bureau of Economic Research; Unemployment; *Vol. 1: Foundations of Economics:* United States Census Bureau

Further Reading

Cunningham, Jim. 1998. Bureau of labor statistics. *Behavioral & Social Sciences Librarian* 16 (2): 73–75.

Goldberg, Joseph P., and William T. Moye. 1985. *The first hundred years of the Bureau of Labor Statistics*. Washington, DC: Bureau of Labor Statistics.

U.S. Department of Labor. n.d. Occupational outlook handbook—High school teachers. Bureau of Labor Statistics. http://www.bls.gov/ooh/education-training-and-library/high-school-teachers.htm (accessed November 30, 2016).

BURNS, ARTHUR

Born: April 27, 1904, in Stanislawow, Galicia (now Ivano-Frankivsk, Ukraine); Died: June 6, 1987, in Baltimore, Maryland; Nationality: American; Professional Interests: monetary policy, economic growth; Major Works: *Economic Research and the Keynesian Thinking of Our Time* (1946), *Prosperity without Inflation* (1957), *Reflections on an Economic Policy Maker* (1978).

Arthur Burns was the chairman of the Board of Governors of the Federal Reserve System from 1970 until 1978. Although his record of academic work and government service continued far beyond his time as head of the central bank, he is most commonly remembered for his work at the Federal Reserve, particularly for his part in creating the policies that led to economic stagnation and inflation during the 1970s. Burns died in 1987.

Arthur Frank Burns was born in April 27, 1904, in Stanislawów, Galicia (now Ivano-Frankivsk, Ukraine). He emigrated with his parents to New Jersey when he was a little boy. Burns earned his bachelor's and doctoral degrees from Columbia University. After earning his PhD, he was hired at the new National Bureau of Economic Research, which was located at Columbia. Here, he gathered copious amounts of data on various industries, which he used to predict economic business cycles.

Burns's research during this period focused on booms and busts in the American economy. He carefully measured aspects of the business cycle, looking into the behavior of many different industries to create a complex yet somewhat predictable view of the economy. Burns believed that recessions occurred not so much because of lack of aggregate demand, as the popular Keynesian theory posited, but because several industries happened to slump at the same time. Such a theory promised to be valuable for macroeconomic forecasting, and it gave Burns the reputation as a respectable, impartial scientist.

Burns's nuanced and moderately conservative work got the attention of the Eisenhower administration, and he was recruited to serve on the Council of Economic Advisers in 1953, which he did until 1956. Burns is credited with convincing President Eisenhower not to attempt an aggressive fiscal policy when responding to a recession. When the economy improved in 1954 without significant fiscal stimulus, Burns's fame as an approachable, wise adviser grew. In 1968, this reputation served to elevate Burns as a counselor to the newly elected President Richard

Nixon, and in 1970 Burns was appointed chairman of the Board of Governors of the Federal Reserve System.

Burns inherited an economy beset with both rising unemployment and rising inflation. He embarked upon a policy of fighting unemployment with "easy" monetary policy (i.e., keeping interest rates low in order to stimulate economic activity) while fighting inflation with a variety of schemes to discourage large companies from increasing wages and prices. He failed on both counts, as both unemployment and inflation continued to increase. Throughout his tenure as chairman of the Federal Reserve, Burns kept interest rates at a level that is now considered dangerously low. In 1978, Burns was replaced by G. William Miller—before Paul Volcker fought skyrocketing inflation not with wage and price controls (as Nixon and Burns had done), but with tighter monetary policy. This policy worked, and the Burns era of the Federal Reserve became known as a lost decade.

During the time of Arthur Burns's tenure as Federal Reserve chair, it was not clear that inflation was mostly about money. Many economists believed that inflation had to do with factors such as the power of unions and the price of oil. Attributing inflation to "real" factors such as these made monetary policy of secondary importance. More interesting, however, was the influence of President Nixon and Treasury Secretary John Connally. Nixon was convinced that he had lost the 1960 presidential election because tight monetary policy had raised unemployment, and he did not intend to lose the 1972 election for the same reason. He was recorded in the White House tapes in 1971 as saying, "I've never seen anybody beaten on inflation in the United States. I've seen many people beaten on unemployment." Nixon and Connally cynically urged, threatened, and manipulated Burns to keep an expansive monetary policy. They leaked hints to the press that Burns would no longer be an adviser and that the Federal Reserve might lose its independence if interest rates were not kept low. These threats seem to have been effective in convincing Burns to agree to a looser monetary policy than he would have held without their persuasion.

Thus, throughout the 1970s, inflation surged despite wage freezes, price freezes, and federal anti-inflation councils, and without a significant drop in unemployment. Since that time, economists have refocused on the importance of controlling the money supply as a means to stop inflation. Burns was appointed ambassador to West Germany by President Ronald Reagan in 1981, where he served effectively until 1985.

Arthur Burns died in Baltimore, Maryland, on June 6, 1987.

Stephen H. Day

See also: Bernanke, Ben; Federal Open Market System; Federal Reserve System; Fischer, Stanley; Friedman, Milton; Greenspan, Alan; Monetarist Economic Thought; Monetary Economics; Monetary Policy; Money Supply; Volcker, Paul

Further Reading

Burns, Arthur. 1946. *Economic research and the Keynesian thinking of our time.* Washington, DC: National Bureau of Economic Research.

Burns, Arthur. 1957. *Prosperity without inflation.* New York: Fordham Univ. Press.

Burns, Arthur. 1966. *The management of prosperity*. Pittsburgh, PA: Carnegie Institute.

Burns, Arthur. 1978. *Reflections of an economic policy maker.* Washington, DC: American Enterprise Institute for Public Policy Research.
Burns, Arthur, and Jacob Koppel Javits. 1968. *The defense sector and the American economy.* New York: New York Univ. Press.
Burns, Arthur, and W. C. Mitchell. 1946. *Measuring business cycles.* Washington, DC: National Bureau of Economic Research.
Columbia 250. 2004. Arthur Burns. http://c250.columbia.edu/c250_celebrates/remarkable_columbians/arthur_burns.html (accessed April 12, 2012).
Schulman, Marc. n.d. Arthur Burns, 1904–1987, economist. HistoryCentral.com. http://www.historycentral.com/Bio/people/burns.html (accessed April 12, 2012).
Wells, Wyatt C. 1994. *Economist in an uncertain world: Arthur F. Burns and the Federal Reserve, 1970–78.* New York: Columbia Univ. Press.

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CHURCHILL, WINSTON

Born: November 30, 1874, in Marlborough, United Kingdom; Died: January 24, 1965, in London, United Kingdom; Nationality: English; Professional Interests: Prime Minister of the United Kingdom 1940–1945, 1951–1955; Major Works: *The Story of the Malakand Field Force* (1898), *The River War* (1899), and *London to Ladysmith via Pretoria* (1900).

Winston Churchill's attachment to the principles of political freedom guided his decisions and was the heart of his ability to inspire through speech. This strong belief in freedom was the product of his experiences throughout his lifetime.

Winston Churchill was born in Woodstock, United Kingdom, on November 30, 1874. His father, Lord Randolph Churchill, was a member of the British Parliament; his mother, Jennie Jerome, was an American heiress. After graduating from Harrow, Churchill was accepted into the Royal Military College, Sandhurst, in 1893. In December 1894, Churchill graduated near the top of his class and was given a commission as a cavalry officer. During his military career he participated in war campaigns in India, Sudan, and South Africa as a war correspondent for *The Morning Post*. During the South African campaign, he was captured and spent a month as a prisoner until he was able to escape. These experiences led Churchill to write several books: *The Story of the Malakand Field Force* (1898), *The River War* (1899), and *London to Ladysmith via Pretoria* (1900).

In the 1920s and 1930s, Churchill observed with unease the collectivism trends that were draining the internal strength of his homeland and threatening to create instability abroad. He opposed such programs; whether they originated on the Left or on the Right of the political spectrum in Britain, Churchill viewed them as destructive of freedom.

Churchill's thoughts as a whole were in agreement with America's first principles of individual liberty and limited government for both Britain and worldwide. Even though Churchill and Franklin D. Roosevelt had a working relationship and supported one another on many foreign policies, a number of scholars wrongly assume that they were also in agreement on domestic policy. Such was not the case. Churchill was opposed to the thoughts and ideas of Roosevelt's New Deal. Churchill opposed FDR's large centralized government that was not based on the founding principle of freedom.

During the 1945 election in Great Britain, Churchill had to defend his strong opposition to socialism. With the end of World War II, the government of Great Britain had assumed many extra controls. Churchill campaigned against these controls and the challenge of the Labour party, claiming that a Labour victory would increase government control over the individual.

Churchill noted that socialism attaches itself onto nationalism and the particular features of the nations it infects. He believed that Germany and the Weimar regime were destroyed and Adolf Hitler propelled to power through national patriotism. In Russia the program of Communism was supported by national sentiment and imperialist aspirations. Churchill went even further to link the United States under the New Deal due to the economic crisis to efforts to increase the power of the central government and to limit the rights of individuals. In his writings, after he described the trends in Germany, Russia, and the United States he often spoke on the opposite view. He always rejected any policy that would use crisis to extend the power of the state and decrease individual liberty. Churchill firmly believed that governments were meant to be servants of the citizens and that states come into existence only by preserving the true power that rests with the individual.

Labor Unions

Another subject about which Churchill had strong opinions was trade unions. As President of the Board of Trade, Home Secretary, and Chancellor of the Exchequer, Churchill had been involved in shaping government policy toward labor disputes and strikes. The General Strike of 1925–1926—and its political implications, in particular—had given Churchill strong negative views on the subject. Churchill's anti-union attitude often suggested that labor unions would reduce England's economic competitive edge. However, Churchill was willing to admit that the trade unions in Britain had become a stable force in the industrial development of Britain.

Redistribution of Income

According to Churchill, economic redistribution through penalties on the wealthy does not benefit a society in the long run. Redistribution drains the wellsprings of economic development. Churchill held that free markets should be allowed to operate without centralized bureaucratic controls. To Churchill, bureaucratic controls destroy the principle of competition that is the mainstay of economic health. Churchill strongly supported limiting the government's ability to make it impossible for private business to thrive by suppressing free market competition.

He and his wife Clementine had five children. Winston Churchill died of a stroke on January 24, 1965, in London, United Kingdom, at the age of 90.

Tracy L. Ripley

See also: *Vol. 1: Foundations of Economics:* New Deal; Roosevelt, Franklin D.; World War II Rationing and Shortages, 1940s

Further Reading

The Churchill Centre. n.d. The life of Churchill: Learn more about the life of Sir Winston Churchill. www.winstonchurchill.org/the-life-of-churchill/life (accessed September 20, 2015).

Lyons, Justin D. 2009. *Winston Churchill's constitutionalism: A critique of socialism in America.* Washington DC: Heritage Foundation.

Severance, John B. 1996. *Winston Churchill: Soldier, statesman, artist*. Boston: Houghton Mifflin Harcourt.

COLONIAL HYPERINFLATION AND CURRENCY DEFLATION, 1749

The American colonial financial crisis of the late 1740s was the confluence of a number of growing currency problems throughout the British colonies, exacerbated by war and trade issues. Periods of hyperinflation, shortages of specie, the uneven quality of colonial paper currencies, the costs of wars with France, and trade issues with Britain all contributed to the colonial crisis.

Hyperinflation was particularly problematic in the colonies of Massachusetts, Rhode Island, Connecticut, and New Hampshire. During the 1740s, the annual inflation rate was above 19 percent. (By comparison, during the period of high inflation in the United States in the 1970s, it never rose above 13.3 percent.) Inflation increased the price of basic commodities, such as molasses, by 60 percent from 1745 to 1749. Extreme increases in the prices of raw goods created a nightmare for British trade, which counted on a supply of cheap colonial raw materials for manufactured goods. Parliament was pressured to enact the Currency Act of 1751, which prevented the colonies from printing their own paper money. The resulting lack of money in circulation, along with the high cost of goods, ultimately caused riots in the streets of Boston.

Currency problems had plagued the colonies from the start. Great Britain promoted a barter system for goods from its American colonies because it gave an advantage to British manufacturing and the goods were carried in British ships. Colonial exports of skins, ginseng, and tobacco were paid for in English goods such as clothing, pewter, and glass windows. The colonists preferred to receive specie (gold and silver coins) as payment, but coins were in short supply. Unlike Spain, Britain did not have colonial gold and silver mines as a source of the precious metals needed to make additional specie.

The best source of coins for the colonies was from piracy, as British and colonial pirates and adventurers captured Spanish treasure ships sailing between Spain and its colonies. The most common coin in the British colonies was the Spanish dollar, which could be divided into eight pieces. The activities of such pirates were welcomed by the colonists and were responsible for the wide circulation of the Spanish dollar. More coins in circulation helped improve the terms of trade for colonial merchants and farmers, because a currency-based trade is more efficient than barter.

The king of England had refused to allow the colonies to mint their own coins. During King William's War (1689–1697), when British colonists first began to pay for their own defense forces, the king had allowed the colonies to pay soldiers in paper money known as "bills of credit." Slowly, the creation of these bills of credit outpaced the silver in circulation, which was needed to lend the bills legitimacy. This resulted in inflation throughout the colonial economies from 1710 to 1750. These bills of credit were backed by the colonial governments and had to be accepted for goods; thus, they had the attributes of paper money. Like our paper money today, the bills of credit were not backed by silver or gold. Inflation increased as spending on King George's War (1744–1748) and on the French and Indian War (1754–1763) put more of this paper money into circulation and created demand for more goods.

The tight trade links between British merchants and the colonies exacerbated colonial inflation. English merchants had begun accepting these bills of credit as payment for the goods they shipped to the colonies. As the value of the bills began depreciating because of inflation in the colonies, British merchants began to charge more for their goods in compensation. A spiral of inflation began.

The currency crisis created local economic turmoil and recession as well as inflation. In the 1740s, the rate of inflation was in the double digits, creating street riots. American traders were at odds with British merchants as their barter system broke down. Another problem arose because the New England colonies could not collect taxes from farmers and merchants who were not making any money. Small farmers found themselves in deep debt to merchants in Boston, who made the currency shortage in the colonies—and thus the recession—worse by shipping much-needed colonial coins to Great Britain in return for goods.

The colony tried another form of bills of credit backed by land, known as the Land Bank. In effect, the Land Bank would create more paper money and allow more money in circulation. The idea was extremely popular with the colonists. The governor and the king did not like the idea of the Land Bank, however, judging that it would further increase inflation and allow colonists to escape full payment for goods. The Land Bank idea went forward because it was popular in elections, but ultimately it failed. The father of Samuel Adams (Samuel Adams Sr.), one of America's founding fathers, was one of those who went bankrupt when the Land Bank failed.

The combination of the economic downturn and inflation made life miserable in the colonies. Shortages of silver required customers to supply their own old silver if they wished to have new silver implements made. The shortage of currency prevented landholders from paying taxes, which in turn often resulted in their property being seized. Merchants could not sell their goods, because their buyers lacked currency.

In Massachusetts, political pressure for reform mounted as tax revenues dropped, trade tightened for lack of money, and street protests continued. In 1750, Massachusetts began currency reforms, which offered a way out of the crisis, but the other colonies refused to join it. Massachusetts worked with Great Britain to retire bills of credit through the payment of specie to the colony. Colonists had four months to turn in the bills, after which they became worthless. No future paper money would be allowed. Shortfalls would be covered by additional taxes. Massachusetts also banned the use of paper money from other colonies. The state could still issue bills backed by specie but retained an exception in case of a major war.

The immediate effect was a shortage of currency, which made things worse in the colony for a brief period. But Massachusetts issued a new type of paper currency called a Treasury Note, which was redeemable in specie and earned interest while it was held. Although Massachusetts had not planned for these treasury bills to circulate, they did—and they became a type of currency. The backing of these bills with specie restored confidence in the colony's currency. The Massachusetts reform proved highly successful as prices fell and inflation declined. By the 1740s, the Boston Land Bank had circulated these new land-backed notes at an alarming rate, and Parliament used the old Bubble Act of 1720 to restrict the practice. Finally, Parliament moved to further restrict paper money in 1751.

Britain passed the Currency Act of 1751 to impose the Massachusetts reform on Rhode Island, New Hampshire, and Connecticut. More wealthy colonists and some farmers who owned bills of credit from the Land Bank were bankrupted. New England once again suffered a mild recession. The Currency Act did not apply to the middle and southern colonies, which at the time had a stable currency. Unfortunately, New York, Pennsylvania, and Delaware continued to print bills to finance the French and Indian War. Eventually, all the colonies would be covered under the Currency Act of 1764. Virginia remained a special case because of its direct tobacco trade with Great Britain. Virginia's high currency demands during the French and Indian War allowed it to continue issuing paper bills.

Economists still use the hyperinflation in colonial Massachusetts as a case study for understanding modern-day inflation. It is striking that this colonial inflation was far more problematic than even America's experience with high inflation in the 1970s. The currency reforms that arose in Massachusetts and that Britain imposed on the colonies helped to return some stability to colonial economies. The failure of individual currencies from each colony would ultimately lead to the use of a common currency, under a common government.

Quentin R. Skrabec Jr.

See also: Currency Deflation and Inflation, 1781; Deflation; Double-Digit Inflation, 1974; Hyperinflation; Inflation; Money; Treasury Securities

Further Reading

Ernst, Joseph. 1973. *Money and politics in America, 1755–1775: A study in the currency act of 1764 and the political economy of revolution.* Chapel Hill: Univ. of North Carolina Press.

Smith, Bruce. 2002. Money and inflation in colonial Massachusetts. *Federal Reserve Bank of Minneapolis Quarterly Review* 69 (Fall): 1–5.

CONFERENCE BOARD

The Conference Board was established during a period of economic turmoil. In 1910, a dynamite bomb exploded in a plant in Los Angeles, killing 20 workers. The following year, in New York, a fire burned the Triangle Shirtwaist Factory, killing 146 workers, most of them young women. In 1914, in Colorado, a strike between miners and the Colorado Fuel and Iron Company led to the "Ludlow Massacre," in which more than 25 people were killed. Following these tragic events, the public largely began to condemn businesses, leading Albert Magnus to found the Conference Board as an idea, not an institution.

An executive at General Electric, Alexander was especially concerned about these events, and he wanted to change people's view of business to a positive one, rather than the current negative one. To do this, Alexander met up with Frederick Fish, who had been a president of AT&T and was at the time an attorney in Boston. Over the next two years, Alexander and Fish held a series of business meetings to discuss ways to reduce the high tensions between businesses. Businesses were notoriously secretive about even their most basic practices, which only made relationships worse.

On May 5, 1916, the National Industrial Conference Board formed (in 1970 the name was officially changed to the Conference Board). It became an official entity, with Alexander acting as the president and Fish as the chairman.

With a $100,000 budget and a new little office, the Conference Board was in business. At this time the board focused on workers' compensation laws and their effect on businesses, employee compensation, labor strikes, and boycotting. In 1917, after World War I started, President Woodrow Wilson asked the Conference Board to bring business leaders together to look at what America could manufacture for the war effort. In 1918, the Conference Board came out with the very first U.S. Cost of Living Index, which instantly began to be incorporated in sessions of planning and strategy.

With the United States engaged in a war with Korea from 1950–1953, the Conference Board Council on Mobilization and Planning took action. The council began producing studies, reports, and surveys on critical issues pertaining to business during wartime. The Conference Board also published a study on how the business and government could protect confidential data in the event of a nuclear war. Today the Conference Board continues its original mission, as an independent source of economic and business knowledge to provide the world's leading organizations with practical knowledge to improve their performance and better serve today's society.

Kadie Sardo
David A. Dieterle

See also: Economic Growth, Measures of; Fiscal Policy; Monetary Policy; *Vol. 3: Microeconomics:* Consumer Credit and Debt

Further Reading

The Conference Board. n.d. conferenceboard.org (accessed December 2, 2015).
Sourcewatch. n.d. Conference Board. www.sourcewatch.org/index.php?title=Conference_Board (accessed December 2, 2015).
Stone, Chris. n.d. Conference Board: What is it? Investopedia. www.investopedia.com/university/conferenceboard/conferenceboard1.asp?header_alt=c. (accessed December 2, 2015).

CONGRESSIONAL BUDGET OFFICE

The Congressional Budget Office (CBO) is a nonpartisan agency within the federal government that produces analytical budgetary and economic reports. These analyses are then used to assist Congress in maintaining and balancing the federal budget.

The power to maintain the federal budget is an enumerated power in the U.S. Constitution, and the responsibility is given to the Congress. Despite this, with the passage of the Budget and Accounting Act of 1921, the president became increasingly involved in planning the budget. The Budget and Accounting Act caused two things to occur. First, the Bureau of the Budget was created, giving the president greater authority over budget information. Second, the Budget and Accounting Act gave the president the power to plan a yearly budget that needed to be given to Congress for approval.

Conflicts between the legislative and executive branches of the government gave rise to the Congressional Budget and Impoundment Control Act of 1974, otherwise known as the Budget Act. The Budget Act returned the responsibility of maintaining the federal budget to Congress. As part of retaking that responsibility, Congress enacted several changes.

First, new procedures were established for Congress to develop, coordinate, and enforce budgetary priorities without presidential oversight. Second, the House and Senate Budget Committees were created to direct the budgeting process. Lastly, the Congressional Budget Office was formed, to provide objective and impartial information on budgetary and economic issues for use by the House and Senate Budget Committees and the rest of Congress. The Congressional Budget Office also assists the Appropriations, Ways and Means, and Finance Committees.

The director of the Congressional Budget Office is selected jointly by the president pro tempore of the Senate and the Speaker of the House of Representatives. The rest of the approximately 235-member staff of the Congressional Budget Office is made up of nonpartisan economists and policy analysts who are selected on the basis of their professional competence, not political association. The Congressional Budget Office also employs lawyers, information technology specialists, and editors.

The Congressional Budget Office is organized into the Office of the Director as well as the following eight divisions:

- Budget Analysis Division
- Financial Analysis Division
- Health, Retirement, and Long-Term Analysis Division
- Macroeconomic Analysis Division
- Management, Business, and Information Services Division
- Microeconomic Studies Division
- National Security Division
- Tax Analysis Division

The Office of the Director houses several agents who are essential to running the office smoothly. The Director of the Congressional Budget Office works closely with the following:

- Associate Director for Economic Analysis, who contributes to all aspects of the agency's analytic work;
- Associate Director for Legislative Affairs, who serves as the Congressional Budget Office's central liaison with the Congress;

- Associate Director for Communications and the members of the Office of Communications, who are responsible for all of the public affairs activities of the Congressional Budget Office, including relations with the media and with the public; and
- Office of the General Counsel, which performs the agency's legal work and acquisitions.

Each division is responsible for compiling information based upon its category. Information and data from one agency are often used by other divisions for their reports. The Budget Analysis Division is responsible for gathering both formal and informal cost estimates for every bill proposed or approved by Congress, as well as coming up with a baseline federal budget. This division also makes important contributions to the Congressional Budget Office's reports on items such as the Analysis of the President's Budget and the Monthly Budget Review.

The Financial Analysis Division's responsibility is to focus on the federal government's financial commitments and offer information on financial valuation, modeling, and accounting. The Macroeconomic Analysis Division studies such changes in the economy as labor force participation, international trade, and economic recovery, to name a few.

The Congressional Budget Office produces several reports and economic analyses for Congress. These reports are created with the intent to assist the Congress in making the best decisions to maintain a healthy federal budget. The Congressional Budget Office selects what to research and analyze based upon what is needed by Congress. One of the most important reports created is the Budget and Economic Outlook, which includes projections of spending and revenues over 10-year periods and an economic forecast for those periods as well. These projections provide Congress with a measure of how changes in spending and taxes may affect the future. The Congressional Budget Office generates most of its projections from government-produced data, such as the surveys of labor market conditions and prices, the Current Population Survey, and health care surveys. The Congressional Budget Office also uses information from state and local governments, industry groups, professors, government agencies, and other sources.

Ekaterini Chrisopoulos-Vergos

See also: Macroeconomics; Office of Management and Budget; *Vol. 3: Microeconomics:* Microeconomics

Further Reading

Blahous, Charles. 2013. Ten things the latest CBO report tells us about federal finances. *E21 Manhattan Institute*, February 7. http://www.economics21.org/commentary/ten-things-latest-cbo-report-tells-us-about-federal-finances (accessed May 11, 2013).

Congressional Budget Office (CBO). n.d. Congressional budget office (CBO). http://cbo.gov (accessed May 11, 2013).

Graduate School USA. n.d. Congressional budget process. http://www.graduateschool.edu/search?search=Congressional%20budget%20process (accessed May 11, 2013).

Office of Management and Budget. n.d. The president's budget for fiscal year 2014. http://www.whitehouse.gov/omb/budget. (accessed May 11, 2013).

CONSERVATION RESERVE PROGRAM

The Conservation Reserve Program, commonly abbreviated CRP, is a large, federally funded program that provides payments to landowners and farmers in exchange for taking their land out of production agriculture and planting native grasses, trees, or other vegetation instead. The United States Department of Agriculture is the primary federal agency that administers the program, but three other agencies contribute to running it: the Commodity Credit Corporation, which is the agency that farmers contract with to enter the program; the Farm Service Agency, which provides support to the commodity Credit Corporation; and the Natural Resource Conservation Service, which provides expert assistance in implementing conservation practices on CRP lands.

The CRP has its roots in farm programs and policies from the Dust Bowl era and the Great Depression. During this period, farmers were struggling to make ends meet and the devastation wrought by the Dust Bowl led to the passage of the Agricultural Conservation Program in 1936, which provided support for farmers who planted perennial vegetation (i.e., grasses, shrubs, or trees) on erosion-prone lands. In addition to helping protect the soil, this had the benefit of reducing the amount of crops grown and harvested. Thus, this early version of the CRP was intended to do more than conserve soil. It was also seen as an important means to improve farm income and rural livelihoods by directly providing money to rural inhabitants and by reducing the supply of agricultural commodities, thereby keeping prices higher than they would be otherwise.

The current version of the CRP got its start in the 1985 Farm Bill, where the program became more focused on a broad set of environmental endpoints—including water quality, wildlife habitat, and general ecosystem health—rather than its previous focus on soil erosion and soil quality. The program also reduced its official focus on income support and rural development. Over 35 million acres of cropland were enrolled in the CRP across the United States in the years following the program's expansion. The number of acres enrolled reached its peak in 2007, when nearly 37 million acres of land were managed under a CRP contract.

Farmers who are interested in enrolling in the CRP identify the acres they would like to enroll; the land's characteristics, such as the type of soil and whether the land is highly sloped; the plantings the farmers are willing to place on the land, and other factors. The information they provide is used to form a score, formally called the Environmental Benefits Index, which is used to determine whether the land will be accepted into the program. Farmers typically sign a contract for 10–15 years; in it they agree to make the changes to the land specified in their bid, in exchange for an annual payment (called the rental rate) and possibly additional compensation to support the costs and maintenance of the new plantings.

There are other conservation programs supported by the federal and state governments that pay farmers to adopt conservation practices. A variety of environmentally friendly agricultural practices can be supported under these programs. Examples include contour farming, buffer strips, and the creation and maintenance of wetlands or other environmentally beneficial open spaces. These programs are sometimes referred to as green payment programs, because they pay farmers to adopt land uses that benefit the environment. Some of these programs provide only a portion of the cost of the conservation practices; others pay the full cost of taking the land out of production, including payments to cover the installation and maintenance of the conservation practices. The CRP has grown to be the largest of these green payment programs. The Environmental Working Group reports that nearly $30 billion was spent on the CRP over the period 1995–2011.

Because the primary motivation of the CRP is to provide environmental services to society, an important question is whether it has achieved its goals, particularly given the high cost of the program to the U.S. taxpayer. Studies by the United States Department of Agriculture and others have identified the CRP as a source of significant environmental benefits, including impressive reductions in erosion; improved habitat for many birds and animals, resulting in larger and more diverse populations; and decreases in agricultural runoff, including less nitrogen, phosphorus, and pesticides. The planting of native plants contributes to preserving ecological diversity and increases the storage of carbon, a greenhouse gas, in agricultural soils. However, research has also indicated that even greater environmental improvements could be achieved if alternative selection rules were used for choosing which land should be enrolled; the idea of improved targeting of conservation dollars to lands that can provide the biggest "bang for the buck" is one of the most important ways that the CRP program could continue to be improved.

The CRP has been criticized for contributing to the decline in rural populations, since if land is taken out of active production, fewer workers may be needed and there may be less business for suppliers of such agricultural products as seed, fertilizer, and machinery. However, studies by the United States Department of Agriculture suggest that such effects are small and that in some areas the additional spending generated by outdoor recreation opportunities has more than made up for these economic losses.

In recent years, the competition for land driven by high commodity prices has put pressure on the CRP. Farmers whose contracts are expiring are increasingly finding it more profitable to replant crops on their fields rather than enter into a new contract to keep the land out of production. This has raised concerns about the environmental performance and sustainability of the program, as the higher prices mean that successfully retaining large areas of land in the program may become increasingly difficult.

Catherine Kling

See also: *Vol. 1: Foundations of Economics:* Agriculture and Environment; Great Depression and Wall Street Crash, 1929; New Deal; Roosevelt, Franklin D.; *Vol. 3: Microeconomics:* Agricultural Depression and the Dust Bowl, 1930s

Further Reading

Cain, Zachary, and Stephen Lovejoy. 2004. History and outlook for farm bill conservation programs. *Choices Magazine*, 4th Quarter. http://www.choicesmagazine.org/2004-4/policy/2004-4-09.htm (accessed November 30, 2016).

Feather, Peter, Daniel Hellerstein, and LeRoy Hansen. 1999. Economic valuation of environmental benefits and the targeting of conservation programs: The case of the CRP. USDA Economic Research Service. *Agricultural Economic Report No. (AER-778)*. http://www.ers.usda.gov/publications/aer-agricultural-economic-report/aer778.aspx (accessed November 30, 2016).

Sullivan, Patrick, Daniel Hellerstein, LeRoy Hansen, Robert Johansson, Steven Koenig, Ruben Lubowski, William McBride, David McGranahan, Stephen Vogel, Michael Roberts, and Shawn Bucholtz. 2004. The conservation reserve program: Economic implications for rural America. USDA Economic Research Service. *Agricultural Economic Report No. (AER-834)*. http://www.ers.usda.gov/publications/aer-agricultural-economic-report.aspx (accessed November 30, 2016).

CONTRACTIONARY FISCAL POLICY

Contractionary fiscal policy is a policy enacted by the government to slow economic growth by increasing tax rates, decreasing government spending, and lowering transfer payments. This policy is used only when there is fear that very fast

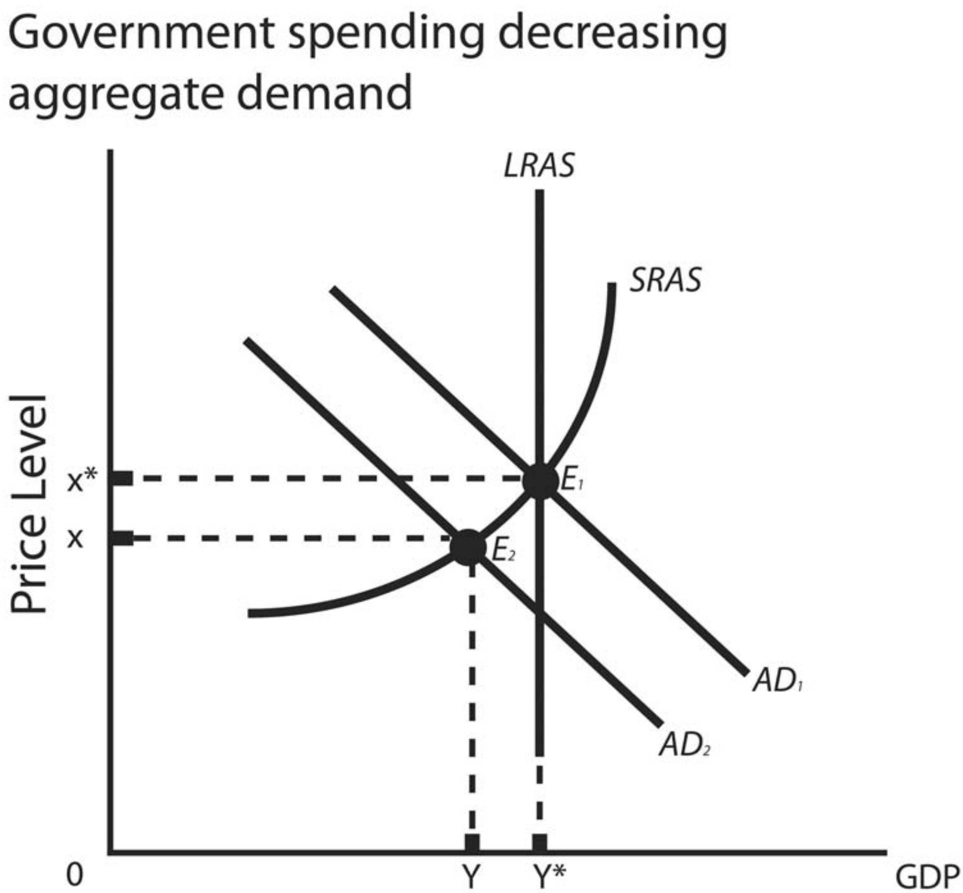

Figure 1. Aggregate demand decreases (AD1 to AD2) when government spending decreases (x* to x)

economic growth is causing inflation, which economists call the inflationary or expansionary gap. The goal of using contractionary fiscal policy is to close this gap. Fiscal policy's ultimate goal is to ensure that the economy is performing at its best.

Aggregate demand (AD) decreases (from AD1 to AD2) when government spending decreases (from x^* to x).

There are two conflicting viewpoints on handling the economy when inflation is high. Classical economists believe that the government should not get involved in the economy—that the market will balance out naturally. However, fiscal policy is based on the theories of the British economist John Maynard Keynes (1883–1946). Keynesian economists believe that the government should step in and make policy changes when the economy is growing too quickly and causing inflation to rise. This approach calls for the government to employ a mix of raising taxes and decreasing government spending in order to slow the economy.

Changes in fiscal policy are made to stabilize inflation, balance employment, and uphold the value of currency. The most important element of fiscal policy is to maintain and balance the federal budget by comparing tax revenues with government expenditures. Contractionary fiscal policy is used when the government is looking to decrease the budget deficit or if it needs to increase its budget surplus.

Economists illustrate the enactment of a contractionary fiscal policy by saying that it shifts the aggregate demand curve to the left, which lowers economic output along with inflation. *Aggregate demand* is the level of demand for goods and services by consumers, businesses, and the government. When contractionary fiscal policy goes into effect, it works to slow aggregate demand for goods and services.

There are three main tools utilized by the government to enact a contractionary fiscal policy: increasing taxes, decreasing government purchases, and reducing transfer payments. When using increased taxation as a contractionary fiscal policy tool, the government typically focuses only on an individual's personal income taxes, though it can also include property taxes and sales taxes. An increase in taxes can be either a one-time payment to the federal government or an overall increase in income tax rates. Either way, when taxes increase, the amount of disposable income an individual has decreases. Thus, with a decrease in disposable income comes less spending power, which in turn causes decreased production of consumer goods.

Overall, this slows the economy and helps to combat inflation. Of the three contractionary fiscal policy tools that can be used, increased taxation is fairly easy to implement, though it is not favored by taxpayers or by politicians. Politicians do not like to implement tax increases, because the politicians are then viewed negatively by taxpayers, who may not reelect candidates who support such a fiscal policy. Another reason that taxpayers view paying more in taxes negatively is that the people with the least amount of disposable income are the hardest hit by this increase.

Reducing government spending means decreasing funds available across several different government agencies, and it can include cuts in military expenditures, teacher salaries, and road construction, for example. When these government agencies have funding cuts, they are no longer able to purchase as much. When an agency has decreased income, its overall production is lowered, and this assists in reducing the inflation rate. Lowering the amount of transfer payments is also a useful tool of contractionary fiscal policy. *Transfer payments* are payments made by the government directly to individuals. Those who receive transfer payments fall into three categories: the elderly and disabled who are on Social Security, people who are unemployed and receive unemployment benefits, and the poor who are on welfare. Transfer payments can be lowered either by decreasing the amount of payment that one or two of the categories receive, or by using a blanket percentage reduction across the three categories.

Decreasing transfer payments lowers the disposable income of those who receive these benefits. Less disposable income means people can no longer purchase as many goods and services; similar to an increase in taxes, this leads to a decrease in production. It also helps to decrease inflation. Although lowering transfer payments can be effective, it usually is not used because the elderly, poor, and unemployed are the ones receiving transfer payment benefits and they are already at a disadvantage economically. Just as with increasing taxes, lowering payments further for those who need Social Security, welfare, or unemployment assistance could have a negative consequence for politicians who vote for these policies.

In summary, contractionary fiscal policy slows the economy to a pace that allows inflation to stabilize by lessening aggregate demand. Using policy tools such as increasing taxes, decreasing government spending, and lowering transfer payments—either separately or together—can work to balance the budget.

Ekaterini Chrisopoulos-Vergos

See also: Aggregate Demand and Aggregate Supply; Contractionary Monetary Policy; Entitlements; Expansionary Fiscal Policy; Expansionary Monetary Policy; Inflation; Social Security Act of 1935; Taxes; Unemployment; *Primary Document*: Social Security Act of 1935

Further Reading

AmosWEB. n.d. Contractionary fiscal policy. AmosWEB Encyclonomic WEB*pedia. www.amosweb.com/cgi-bin/awb_nav.pl?s=wpd&c=dsp&k=contractionary+fiscal+policy (accessed July 16, 2013).

Hall, Shane. n.d. Contractionary fiscal policies. eHow. www.ehow.com/info_7745738_contractionary-fiscal-policies.html (accessed July 16, 2013).

McEachern, William A. 2010. *Macroeconomics: A contemporary introduction*. Mason, OH: South-Western Cengage Learning.

Nash, Jon. n.d. Contractionary fiscal policy and aggregate demand. Study.com. http://study.com/academy/lesson/contractionary-fiscal-policy-and-aggregate-demand.html (accessed July 16, 2013).

CONTRACTIONARY MONETARY POLICY

Contractionary monetary policy is a policy in which the central bank of a country decides that it is necessary to decrease the money supply in order to prevent inflation or slow economic growth. Monetary policy works together with fiscal policy, which is controlled by the government, to ensure economic growth in the economy. The most frequent tool used by a central bank to implement contractionary monetary policy is the selling of government bills, notes, and bonds. The buyer of the treasuries pays the central bank with money, which reduces the amount of money in the system.

In the United States, contractionary monetary policy is under the direction of the chair of the Federal Reserve. The Board of Governors of the Federal Reserve System decides when contractionary monetary policy is necessary. The Federal Reserve accomplishes contractionary monetary policy using three primary tools: raising the reserve requirement; raising the discount rate; or selling government bills, notes, and bonds. This last tool is applied through the Federal Open Market Committee (FOMC). The FOMC implements contractionary monetary policy by raising interest rates.

In order to implement the monetary policy decisions of the Federal Reserve Board of Governors, the FOMC carries out open-market operations. To apply contractionary monetary policy, the Federal Reserve sells government bonds. The decrease in demand decreases the price and increases the interest rate. The higher interest rates create incentives for financial institutions to decrease loans, which slows economic growth but may increase unemployment.

The Federal Reserve sells government bonds by taking cash from the purchasers of the treasuries. With less cash, commercial banks make fewer loans. If any banks are offering loans, the interest rates on these loans are higher, which will restrict business expansion and home purchasing. In this way, the Federal Reserve selling government bonds raises interest rates, which in turn decreases monetary supply.

When increasing the discount rate to accomplish contractionary monetary policy, the Federal Reserve is increasing the interest rate it charges banks to borrow money directly from the central bank—or, more specifically, one of the 12 regional banks. This discourages banks from borrowing more reserves, thus decreasing the money supply. The decreased money supply leads banks to lend less to businesses and households. In summary, increasing the discount rate decreases the money supply, which encourages higher nominal interest rates and brings about decreases in business and household borrowing.

Increasing the reserve requirement increases the amount a bank must have in its end-of-day reserves to satisfy the Federal Reserve's reserve requirement regulations. Reserves include vault cash as well as Federal Reserve deposits. When banks have their reserve requirement increased, the supply of loanable funds is decreased, which raises nominal interest rates. The higher rates create a disincentive for banks to supply more loans to businesses and households.

A risk in utilizing a contractionary monetary policy is an economic slowdown, which leads to higher unemployment. When unemployment is higher, fewer households are participating in the purchasing of goods and services.

Using open market operations to sell government bonds, increasing the discount rate, and raising the reserve requirement are actions that the Federal Reserve can take to decrease the money supply and fulfill contractionary monetary policy. Each is key in contractionary monetary policy to prevent inflation.

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See also: Aggregate Demand and Aggregate Supply; Bernanke, Ben; Burns, Arthur; Contractionary Fiscal Policy; Expansionary Fiscal Policy; Expansionary Monetary Policy; Federal Reserve System; Greenspan, Alan; Monetary Policy; Volcker, Paul; Yellen, Janet

Further Reading

BusinessDictionary.com. n.d. Contractionary policy. WebFinance Inc. www.businessdictionary.com/definition/contractionary-policy.html (accessed July 23, 2013).

DeLong, J. Bradford. 2009. *Macroeconomics*. New York: McGraw-Hill Higher Education.

Federalreserveeducation.org. n.d. Monetary policy basics. http://www.federalreserveeducation.org/about-the-fed/structure-and-functions/monetary-policy/ (accessed July 23, 2013).

Hetzel, Robert L. 2008. *The monetary policy of the Federal Reserve*. Studies in Macroeconomic History. New York: Cambridge Univ. Press.

COST-PUSH INFLATION

When the higher cost of resources forces producers to raise their prices on the goods and services they produce, cost-push inflation occurs. There are several theories on how and why inflation occurs. One of those is the cost-push theory.

According to the cost-push theory, producers raise prices in order to meet increased input costs, such as land, labor, or capital. The increased costs of these

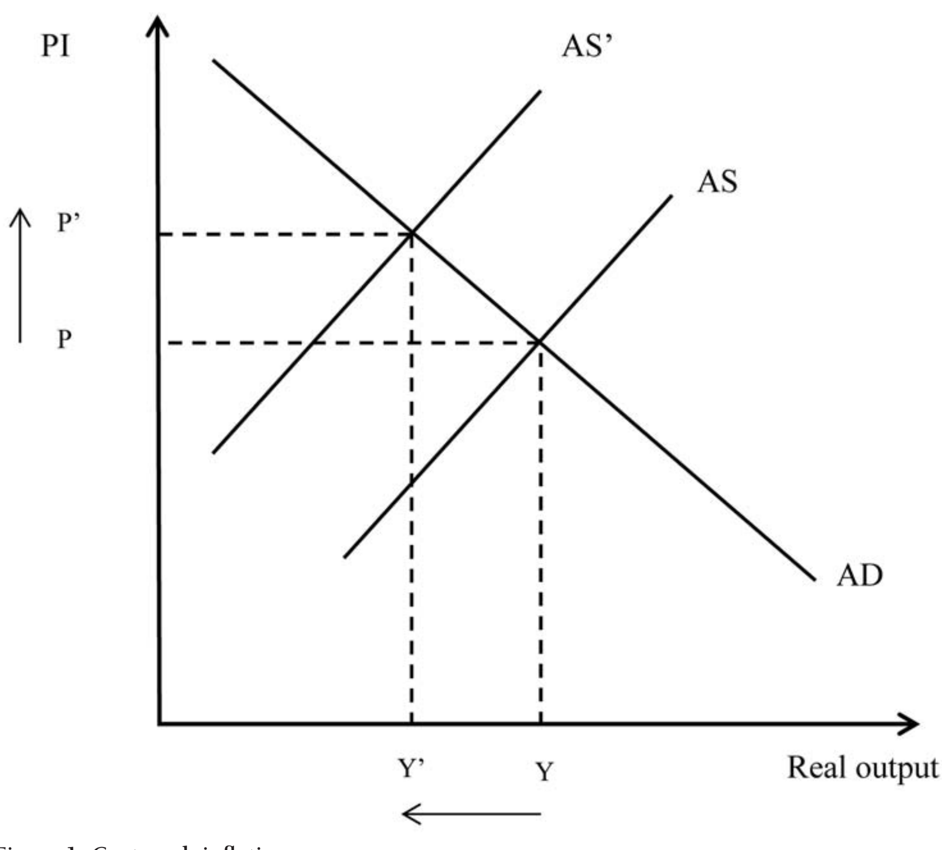

Figure 1. Cost-push inflation

factors of production lead to a decreased supply of goods and services in the short run, with demand remaining constant. The leading cause of the cost-push inflation theory is wage increases. Wages are the leading cause of the theory because wages are the single largest production cost for most companies.

Wage increases can occur for several reasons: when low unemployment leads employers to offer higher wages, as a result of *collective bargaining*, or when the minimum wage increases across the board. This increase in wages leads to an increase in prices, which leads to another increase in cost. This process by which rising wages causes higher prices, and higher prices cause higher wages, is known as the *wage-price spiral*. The wage-price spiral is one reason why some economists are against across-the-board minimum wage increases.

Cost-push inflation causes the purchasing power of the current dollar to decrease. It also negatively affects current income levels, because a person's income can no longer maintain the same level of purchasing power due to inflation. The burden of this falls most heavily on people living on fixed incomes.

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See also: Inflation; Inflation, Measures of; *Vol. 1: Foundations of Economics:* Factors of Production

Further Reading

The Economic Times. n.d. Definition of "cost push inflation." http://economictimes.indiatimes.com/definition/cost-push-inflation (accessed November 30, 2016).

Heakal, Reem. n.d. Cost-push inflation versus demand-pull inflation. Investopedia. http://www.investopedia.com/articles/05/012005.asp (accessed November 30, 2016).

O'Sullivan, Arthur, and Steven M. Sheffrin. 2007. *Economics principles in action.* New York: Pearson/Prentice Hall.

COUNCIL OF ECONOMIC ADVISORS

The Council of Economic Advisers (CEA) was established by the Employment Act in 1946. The CEA is a three-person group charged to give the U.S. president advice on both foreign and domestic issues regarding the economy, as well as other economic decisions. The council bases its opinions on economic research and empirical evidence, trying to give the president the best information and statistics available, in order to properly set our nation's economic structure up properly.

Currently the council consists of a chairman and two members. The council includes a support staff of professional senior economists, staff economists and research assistants, as well as a statistical office.

The responsibilities of the CEA include assisting and advising the president in the preparation of the annual *Economic Report of the President*. The *Economic Report* is a follow-up document the president submits to Congress after the president has submitted to Congress the annual budget. The CEA is also responsible for gathering timely and authoritative information on economic developments and economic trends, both current and prospective, and analyzing and interpreting such information.

Other CEA responsibilities include appraising the various programs and activities of the federal government; developing and recommending to the president national economic policies to foster and promote free competitive enterprise; avoiding economic fluctuations, or diminishing the effects thereof; and maintaining employment, production, and purchasing power. The CEA conducts studies, furnishes reports, and makes recommendations on matters of federal economic policy and legislation for the President of the United States.

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See also: Economic Growth, Measures of; Fiscal Policy; Macroeconomics; *Primary Document*: Employment Act of 1946

Further Reading

Council of Economic Advisors. n.d. About CEA. www.whitehouse.gov/administration/eop/cea/about (accessed December 10, 2015).
The New York Times. n.d. White House council of economic advisers. topics.nytimes.com/top/reference/timestopics/organizations/w/white_house_council_of_economic_advisers/index.html (accessed December 10, 2015).

CROWDING-OUT EFFECT

Crowding-out effect is the term used to describe the result when the government needs to borrow money in order to pay its debts. When government borrows money from the public, the government increases the demand on the money supply. If the money supply does not increase, the increased demand causes interest rates to rise. Together, the additional demand on the money supply and the increase in interest rates make it more difficult for small businesses and individuals to obtain loans for items such as cars and homes. These groups are crowded out of the market for money to borrow.

Crowding out is one risk of using expansionary fiscal policy. In theory, when an expansionary fiscal policy tool is used, the government spends money on programs that increase employment—and by extension increase the demand for goods and services; alternatively, the government decreases taxes, giving consumers more money to spend, which also increases demand for goods and services. Economists call this aggregate demand. *Aggregate demand* is the total demand for goods and services by consumers, businesses, and the government.

One risk of using expansionary fiscal policy tools—specifically, increasing government spending—is that it increases government debt and the government's need to borrow more money. The risk is relatively low in times of a major recession or a depression. The threat of crowding out is greatest when the economy is operating at near-full capacity.

When the government spends its own money to stimulate the economy and it borrows money to pay for this expansion, interest rates go up because of more demand in the money market. Interest rates are the "cost" to borrow money. When interest rates go up, small business owners and individuals do not invest as much, because the cost to borrow money is higher. These groups become crowded out of the market. Without loans during an economic downturn, small businesses that are struggling to continue operating are unable to purchase of raw materials and supplies. Lack of usable resources means that the business cannot produce the goods and services needed to maintain an income. Still worse is the effect that the struggling businesses have on the unemployed. Without raw materials and the means to produce goods and services, small businesses cannot rehire employees who may have previously been laid off; nor can they afford to hire new employees. Without a source of income, those who are unemployed cannot make purchases to help stimulate the economy.

Individuals are also hard hit by the crowding-out effect, as lenders are more likely to give loans to those they believe have the capability to repay the loan, such as the government. If people cannot repay a loan when the "cost" to borrow becomes higher, banks will not lend to them. If consumers cannot take out loans for purchasing a home, a vehicle, or other items that are seen as life essentials, then those people cannot spend on additional items that could help stimulate the economy further. A vehicle, for example, may be a necessity for people who must commute to work. When people cannot obtain a loan for a vehicle, because the interest rates are higher than they can afford, they face additional difficulties, such as keeping their jobs. When small companies and individuals cannot borrow money, economic growth slows down. This is the opposite of what the expansionary fiscal policy tools are intended to do.

The crowding-out effect is a risk that comes from using expansionary fiscal policy tools when the economy is struggling, consumer spending is low, and unemployment is high. In spite of its good intentions trying to stimulate the economy, if the government borrows money to provide the stimulus, lenders raise interest rates. Then, small companies and individual investors are excluded from being involved in the market, and the threat of crowding out remains.

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See also: Aggregate Demand and Aggregate Supply; Expansionary Fiscal Policy; Expansionary Monetary Policy; Fiscal Policy; *Vol. 1: Foundations of Economics:* Keynes, John Maynard

Further Reading

InvestingAnswers. n.d. Crowding out effect. http://www.investinganswers.com/financial-dictionary/economics/crowding-out-effect-2159 (accessed June 10, 2013).

Parke, William R. 2006. Macroeconomics challenges: Crowding out. http://econmacro.com/challenges/crowding_out.htm (accessed June 10, 2013).

Riler, Keith. 2011. Crowding out. *American Thinker,* June 1. http://www.americanthinker.com/2011/06/crowding_out.html (accessed June 10, 2013).

CURRENCY DEFLATION AND INFLATION, 1781

Even before the Revolutionary War ended, the value of America paper money was declining rapidly. France and Holland grew nervous about whether they would receive repayment of their loans, but more pressing was the large amount owed to the soldiers of America's army. The risky floating of paper money during the war could no longer be continued. Parts of the army were in open rebellion. Robert Morris was forced to resign as superintendent of finance of the new country. The nation had piled up too many loans while winning the war against the British, and it was nearing default on its debt to France.

Individual states had their own war debt, and they were imposing high taxes on land to secure money to pay their debts. High taxes and the lack of new credit forced many citizens into bankruptcy and even jail. In the midst of this financial crisis, the states were wrestling with the politics of creating a union. John Adams and Benjamin Franklin were in Europe negotiating a peace treaty, while also working to find more credit to support the young country's finances. America was also in a postwar recession. Merchants and traders on both sides of the Atlantic were trying to collect on debts. In addition, merchants often refused to accept continental dollars as payment for their goods, or they inflated the prices of goods to cover potential losses. British import restrictions and a lack of credit caused massive unemployment in major port cities. In addition, many counterfeit gold and silver coins of diluted base metal were being circulated in the new American economy. Merchants again raised prices to cover their risk. Commerce was at a standstill, and many buyers and sellers returned to the barter system.

Debt, however, was the main issue that had to be resolved before the economy could expand. Alexander Hamilton and James Madison argued for a 5 percent tax or duty on imports. As almost all imports at the time were from Great Britain, a tax on imports was popular. Hamilton and Madison's main concern was to establish the right of the new government to tax its citizens. Hamilton believed the government needed revenue instead of the perpetual loans that it regularly used to push the debt burden into the future.

Hamilton also proposed that these revenues be put into a sinking fund to pay off the country's debt. The sinking fund was to consist of funds set aside from the general budget. The idea was to sequester revenues from the grasp of politicians, who were inclined to use the revenues for short-term gain. Hamilton clearly understood the shortcomings of politicians. Although the North favored the import duties, the South with its plantations feared British retaliation on tobacco, cotton, and rice exports. Western farmers did not want import duties, because they would raise prices on badly needed manufactured goods. As Congress debated the formation of the political union, it refused to address federal funding issues such as taxes. The debt mounted. Politicians clearly preferred to continue issuing perpetual debt to fund the new government, as this would not upset new voters the way raising their taxes would.

John Adams was able to negotiate a major loan with the Dutch, but at a rate of 7 percent. Like Morris's funding during the war, the Dutch loan merely postponed dealing with the debt, because the Continental Congress had no incoming revenues. One success had been the formation during the war of the Pennsylvania Bank, which became the Bank of North America with private investors. It paid shareholders 8 percent in 1782 and 14 percent in 1783. This allowed the bank to raise more capital through a share offering. Bank notes were critical for commerce in a currency-short nation in recession.

Still, the debate in Congress split the farmers, who feared the bank, from the merchants, who demanded it. Eventually, the bank won out, and charters were created for each state. The bank formation addressed the current problems of commerce but did nothing to solve the issue of war debt. New England and the Deep South slipped into depression. Virginia fared the best because of its strong tobacco trade with France, which had started during the war. A number of wealthy Virginia planters were holders of war debt, but as a state, Virginia had paid off most of its war debt. After the war, tobacco prices fell quickly, moving Virginia into recession. By the end of the decade, New York fur trader John Astor reestablished a fur-trading network.

America's war debt was more than $65 million ($90 million with states' debt included). The interest rate on the debt ranged from 4 percent to 6 percent. Britain and the West Indies had closed their markets to the new United States and destroyed the old trade network. Great Britain prohibited the import of American fish, beef, and whale oil. Meanwhile, some American leaders argued that a new government should not be responsible for the debt of the former individual colonies. Men like Thomas Jefferson and James Madison were part of this political group that wanted to ignore the debt.

Even the methods of debt payment were a matter of endless debate among politicians. Some wanted to use land sales to obtain money. New York, for example, had reduced some debt by giving ranking officers land grants. The problem of paying the officers with land grants was that the grants, unlike actual cash payments, did not put currency back into circulation in a badly depressed economy. In addition, few could afford the land taxes imposed by the states. Long-term annuities paying 4 to 5 percent were also suggested as a means to pay off the accumulated debt over time. As the debate continued, prices spiraled out of control in anticipation of the reduced value of continental dollars and other paper currencies.

Many of the debts of the new government and the former colonies were held by citizens and former soldiers, and a currency panic set in. Rumors spread that the new government, as Jefferson and Madison suggested, would not—and should not—honor paper dollars and bonds issued by the former colonies. As Congress debated, wealthy speculators started buying up continental paper for $25 on a $100 face-value note. Many states considered levying taxes themselves to pay off the debt.

Massachusetts, for example, started to enact and enforce the payment of taxes by seizing property. Farmers and ex-soldiers were overwhelmed with debt, and in Massachusetts the conflict over debts led to armed rebellion in 1787. The conflict, which became known as Shays' Rebellion (after Daniel Shays, a Continental Army veteran), happened because the new state government reacted much like Britain had a decade earlier, answering rebellion and violence with strict new laws. A Riot Act was passed with harsh punishments. The state militia and some federal troops finally put down the rebellion, but it sent a clear message to Congress about the uneasy state of the new union. A majority of American citizens, perhaps reacting to difficulties and conflicting solutions within individual states, finally approved the Constitution with a strong central government.

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See also: Colonial Hyperinflation and Currency Deflation, 1749; Deflation; Double-Digit Inflation, 1974; Hyperinflation; Inflation; Money

Further Reading

Chernow, Ron. 2004. *Alexander Hamilton.* New York: Penguin Books.

Rappleye, Charles. 2010. *Robert Morris: Financier of the American revolution.* New York: Simon & Schuster.

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DEBT

The obligation to repay borrowed money is called a *debt*. Individuals, corporations, and nations all borrow money and incur debt.

Individuals and corporations use debt to buy things they otherwise could not afford. When one party borrows from another, the parties draw up a written agreement that specifies how much money is being borrowed, from whom it's being borrowed, to whom it's being loaned, and the repayment terms. Debt repayment usually includes interest payments as well. How the interest is calculated and repaid is specified in the initial borrowing agreement.

There are various types of debts, including secured, unsecured, and revolving debt. Some examples: Consumers take on debt when they use a credit card to purchase dinner at a restaurant and don't repay the credit card bill in full at the end of the month. Corporations take on debt when they borrow money to expand their business internationally. When a consumer borrows $100,000 from a lender to buy a home, the consumer signs a legal agreement to repay that money. This particular type of debt is called a mortgage.

This entry will discuss the various entities that borrow and incur debt, such as individuals, companies, and nations. Types of debt will be covered. Finally, national household debt will be discussed.

Types of Debt

Secured

Secured debt requires the borrower to give the lender collateral or real goods or property (security) if the borrower fails to repay the debt. A mortgage loan is secured by the property, as collateral. If the borrower fails to repay the loan, then the bank takes possession of the real estate. If a pawnbroker loans someone $100, the pawnbroker expects collateral in exchange for the loan. In that case, the collateral might be jewelry or other valuable property.

Corporations might pledge real property for a secured loan. A corporation might also pledge its financial securities, such as stocks and bonds, as collateral.

Unsecured

This type of loan is not secured by such underlying assets as real estate, jewelry, or physical property. Credit card debt is unsecured, as are medical bills or unpaid utility bills. In this case, if the borrower defaults on the loan, there is no home or jewelry or vehicle to seize.

With unsecured loans, if the borrower fails to make the debt payments within the agreed-upon time period, then the borrower must use other remedies to pay the amount owed. The lending party might sue in court for the unpaid debt. If the lender wins the suit, the lending party may be allowed to garnish or take a part of the debtor's future wages.

Because unsecured debt carries higher risk than secured debt, unsecured loans usually charge higher interest rates. For example, a vehicle loan might be obtained for 5 percent, whereas the interest on a credit card can be as high as 18 percent or more.

Revolving

Revolving debt, frequently called revolving credit, gives borrowers, either corporations or individuals, access to credit if they need it in the future. Revolving debt is also called a "line of credit."

In some cases, the borrower pays a commitment fee and then is allowed to use the available funds as needed. The amount available is agreed upon when the original contracts are initiated.

There are various types of revolving credit, including signature loans (which do not require collateral but simply the borrower's signature), credit cards, and home equity lines of credit, to name a few. Credit cards also offer a type of revolving debt. This type of debt is more complicated than a typical loan. The lender approves the borrower for a specific amount of money, or a credit limit. This amount is determined by the borrower's perceived ability to repay the debt, and it considers the borrower's income, assets, and other debt. As the consumer or company repays the debt, the repaid amount is available for the consumer or company to borrow again.

Home equity lines of credit and overdraft protection for checking accounts are also considered revolving debt. This type of debt may have variable interest payments and fees, instead of a fixed interest rate that stays the same for the life of the loan.

What Is the Difference between Debt and Liabilities?

Frequently, the terms *debt* and *liabilities* are used interchangeably, to mean an amount owed to another. More specifically, *debt* has a narrower definition than *liabilities*. In this instance, *debt* refers to monies borrowed with their terms formalized in a written document.

Debt is not a synonym for *liability* when used to describe types of insurance.

Corporate Debt

Corporations frequently borrow in order to grow and expand. A limited amount of corporate borrowing, sometimes referred to as leverage, gives companies a greater amount of financial resources to use in order to grow the company more rapidly. It is a widely accepted business practice for companies to borrow in order to grow.

The percent of debt, as compared with the amount the company owns (equity), should remain within certain constraints so that the company can afford to repay the debt in a timely manner. There are acceptable industrywide debt percentages. For example, a utility company, with a great amount of guaranteed monthly utility payments made by consumers, can afford to borrow more than a small start-up company with uncertain revenue projections.

National Debt

Nations, just like individuals and corporations, borrow money to pay for things they could not otherwise afford. In the case of the U.S. government, the national debt includes public debt such as the Treasury securities (Treasury bonds, notes, and bills) issued by the government. The purchasers of these debt securities are loaning money to the government. This debt might be used to help fund wars or pay for government programs, or for a variety of governmental uses.

When the U.S. government lacks sufficient funds from tax revenues to pay for government obligations, the government must borrow the deficient amount (or deficit) by issuing Treasury securities. Not only do U.S. citizens, corporations, and other governmental entities purchase Treasury bonds, notes, and bills; foreign individuals and governments also buy these securities. That is how the United States develops some financial dependence on international entities.

Consumer Debt Levels in the United States

As previously discussed, debt is a useful tool to finance large purchases such as homes and cars, as well as to assist when times are tough. When layoffs or unexpected expenses occur, consumers use debt to help make ends meet.

According to Vornovytskyy, Gottschalck, and Smith (2011), in 2011, 69 percent of U.S. households held debt. Although 69 percent may seem like a great amount of debt, it represents a decline in household debt from 2000, when households with debt hit a peak of 74 percent. Although the percent of households with debt decreased during the decade, the median amount of debt has increased. In 2000, the median debt level per household was approximately $50,971, whereas in 2011 the approximate median amount of debt per household rose to $70,000.

This increase was caused by a 30 percent rise in both secured and unsecured debt.

The increase in debt may have positive and negative implications. On a positive note, more debt may indicate an increase in consumer confidence. Individuals may feel that the economy is growing and their employment is secure, so they are willing to borrow for new homes, cars, and additional consumption.

The negative impact of increased debt levels includes risks to financial health as well as mental health. When a household incurs a greater amount of debt, relative to its income, there is a repayment risk. In general, total debt percentage, when compared with gross income, should remain below 43 percent, according to the Consumer Financial Protection Bureau. If a consumer encounters financial problems such as a job loss or unanticipated medical expenses, the debt repayment could be in jeopardy.

Home foreclosures and bankruptcies are caused when individuals have greater debt than they can repay. Individuals are at risk for financial difficulty if they have taken on too much debt and unexpected expenses then occur.

In sum, debt, when used responsibly, is a tool to enable individuals, companies, and countries to smooth out consumption and pay for expenses they would otherwise be unable to afford.

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See also: Treasury Securities; *Vol. 1: Foundations of Economics:* Accountant; Banking; Budget; *Vol. 3: Microeconomics:* Consumer Credit and Debt; Credit Cards; Credit Cycle; Credit Report; Debt and Credit Counseling; Household Decisions; Liabilities; Liquidity; Subprime Mortgage Bubble and Crisis; *Vol. 4: Global Economics:* European Sovereign Debt Crisis, 2012

Further Reading

CFPB (Consumer Financial Protection Bureau). n.d. Debt-to-income ratio? Why is the 43% debt-to-income ratio important? http://www.consumerfinance.gov/askcfpb/1791/what-debt-income-ratio-why-43-debt-income-ratio-important.html (accessed April 15, 2014).

Investopedia. n.d. Debt. http://www.investopedia.com/terms/d/debt.asp (accessed April 15, 2014).

U.S. Department of the Treasury. n.d. National debt. http://www.treasury.gov/resource-center/faqs/markets/pages/national-debt.aspx (accessed April 15, 2014).

Vornovytskyy, Marina, Alfred Gottschalck, and Adam Smith. n.d. Household debt in the U.S.: 2000 to 2011. http://www.census.gov/people/wealth/files/Debt%20Highlights%202011.pdf (accessed April 15, 2014).

DEBT CRISIS OF THE 1980s

In August 1982, a U.S. and international banking crisis developed as a result of least (or lesser) developing countries (LDCs) being unable to service their foreign debt. Latin American countries were forced to borrow heavily to cover budget deficits in the 1970s as a result of spiking import oil costs. Commercial banks in the United States and other world banks acted as intermediaries by loaning the budget surpluses of oil-producing nations to non-oil-producing nations. Monetary policy focusing on inflation reduction contributed to the inability of LDCs to pay their debts.

The Latin American debt crisis of the 1980s was a result of sharp rises in oil prices in the 1970s, which created large current account deficits for LDCs. The increased oil prices created surpluses for the oil-producing countries. With oil bought and sold on the world market in U.S. dollars, the quantity of loanable funds at large U.S. banks increased significantly. In an effort to expand overseas profits, and with encouragement from the U.S. government, U.S. commercial banks began to reinvest the U.S. dollar deposits from the oil-producing nations into developing countries, especially in Latin America. Latin American countries aggressively borrowed from these U.S. banks, and their outstanding debt rose dramatically. From 1970 to 1978, foreign debt by Latin American nations had risen from $29 billion to $159 billion.

Despite warnings from economists and government officials that the rapid growth of LDC debt was putting the banks' capital and the entire banking system in jeopardy, commercial banks continued to assume these excessive risks. By 1982, Latin American debt had reached $327 billion. Lower interest rates allowed the Latin American countries to initially service the loans without much trouble.

However, in an effort to slow inflation, the United States began to tighten the money supply. Interest rates rose and the economy entered a recession. Commercial banks began to shorten loan repayment periods and increase interest rates, which increased the cost of debt for the Latin American nations. The interest rate payments rose to a level that the Latin American nations could not sustain. Demand for exports from the Latin American nations fell due to a global recession, which further worsened their balance-of-payment difficulties. In August 1982, Mexico announced that it could no longer make the interest payments on its debt, and within a year, 27 other nations were attempting to renegotiate their debt payments.

In an attempt to avoid a major financial crisis, the Federal Reserve worked with other central bankers around the world to provide a bridge loan to Mexico and encouraged U.S. banks to reschedule Mexico's debt. As the crisis spread, the United States—along with commercial banks, central banks, and the IMF—conditionally agreed to lend the funds necessary for the Latin American nations to pay the interest on their loans. The conditions for the funds included structural reforms to their economies and efforts to eliminate their budget deficits. It was found that the high debt levels, high domestic consumption, excessive government control, and unsustainable currency values were are all responsible for the Latin American debt crisis. The goal of restructuring was to allow the nations to increase their exports and generate the trade surplus they needed in order to pay off their debts. The practice, however, was to cut spending in infrastructure, education, and health but continue to subsidize the state-owned enterprises. The result was increased unemployment and negative economic growth. By the end of 1989, it became apparent that the Latin American nations would not be able to repay the loans. The commercial banks began loan loss provisions for the Latin American debt. The U.S. government, under the Brady Plan, established permanent reductions in principal and interest obligations, while the commercial banks forgave $61 billion—approximately one-third—of Latin American debt.

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See also: Debt; Deficit; Federal Reserve System; Economic Growth, Measures of; Public Debt; *Vol. 1: Foundations of Economics:* Central Bank; *Vol. 3: Microeconomics:* Subprime Mortgage Bubble and Crisis; Interest Rates; *Vol. 4: Global Economics:* Developing Countries; International Monetary Fund; Latin America: General Economy; Trade Policy; Trade, Measures of

Further Reading

Cuddington, John T. 1989. The extent and causes of the debt crises of the 1980s. In *Dealing with the Debt Crisis, Volume 35*, ed. Ishrat Husain and Ishac Diwan, 15–44. Washington, DC: World Bank Publications.

Husain, Ishrat. 1991. How did the Asian countries avoid the debt crisis? Policy Research Working Paper 785. Washington, DC: World Bank Publications. http://documents

.worldbank.org/curated/en/289461468776979430/pdf/multi0page.pdf (accessed November 30, 2016).
U.S. General Accounting Office. 1997. *Financial crisis management: Four financial crises in the 1980s*. Washington, DC: General Accounting Office.

DEFICIT

A *deficit* means you have more cash leaving your account than coming into the account. You can determine if there is a deficit by taking your cash inflows and subtracting your cash outflows; if the difference is a negative number, then you have a deficit. For example, if you are bringing in $1,000 a month in income and your expenses are $1,200 a month, then you have a deficit of $200 a month.

The concept of a deficit can be found anywhere that money is going and out, including—but not limited to—personal finances, corporate finances, and government.

How Deficits Are Financed

When you have a deficit, you need to pay for the difference between the cash coming in and the cash going out. Most entities have three ways to finance the difference: equity, existing savings, or debt.

Governments have the added ability to create new money supply in order to pay their existing bills.

Having a deficit might be sustainable for a short amount of time, but in the long run it will create a situation that can be escaped only by bankruptcy. This happens because after you use all your existing savings, you must turn to debt to continue to cover a deficit.

Debt comes with a payment that must be made every month. As you borrow money and increase your payments, your expenses increase, making the deficit every month even bigger. This creates more debt, and more payments—so eventually the debt payments become bigger and creditors will no longer allow you to take on more debt through them. This ends the ability to borrow to cover the deficit. The final outcome is that someone will not get paid because you are unable to cover the deficit.

It is a vicious cycle that you can correct only by increasing the cash coming in every month so that it's more than the cash going out every month, thus eliminating the deficit.

Personal Deficit

If you are creating a deficit on a personal level, you may begin by paying for it with your existing savings. Once your savings has run out, you will have to use debt to manage the difference, including credit cards and other loans.

Eventually your debt payments combined with your existing expenses will become too big, and no additional credit will be given to you. At this point, you will approach bankruptcy as you are no longer able to pay all your expenses. You can eliminate the deficit, however, by bringing in more income.

Corporate Deficit

A corporate deficit occurs when a company is not selling enough to cover its costs. The company's revenue minus costs is less than what is needed to pay the bills.

A company has three ways to cover the deficit: They can utilize savings that they have; they can take out debt to cover the difference; or they can sell shares of stock, otherwise known as equity, in the company to raise more money.

As with personal debt, a company cannot maintain a deficit for a long time, as savings will dry up, debt providers will stop loaning money, and possible new shareholders won't be interested in buying into the company due to the status of the company's finances. This will either cause the company to go through bankruptcy and rework its existing debt or force the company to close its doors permanently.

Government Deficit

A government deficit occurs when incoming funds from taxes do not cover the expenses the government is paying out during a given time period. An accumulation of deficits creates a debt.

A government can cover the deficit by using savings if it has any, by issuing bonds as a debt instrument to get money, or by printing new money.

Government savings may occur from one part of the government bringing more than they need to cover their own costs. This money can then be reallocated to other branches to cover their expenses. For example, the Social Security surplus funds were shifted to other areas to cover costs, in the form of bonds issued to the Social Security Trust.

The government issues its own debt in the form of bonds, instead of using credit cards and other loans. Depending on the type of bond, the government has to pay interest on an ongoing basis, or all at once when it pays back the borrowed amount. Either way, the expenses of the government are increased in the same way that a loan to an individual would be.

Printing new money is the least desirable of the options available to the government, since increasing the supply of money causes inflation, which will raise the prices of goods, thus eliminating the benefits of the new printed money since the value of each dollar goes down.

Governments or countries may also experience a trade deficit. This occurs when a country is importing more goods than it is exporting. More dollars are leaving the country than are coming in, causing an increase in the price of goods coming into the country if the countries holding the currency decide to sell. This has no direct relationship to the expenses of a government, but instead has the indirect effect of causing the cost of items to increase.

How to Eliminate a Deficit

To eliminate a deficit you must do one of two things: increase the incoming cash flow or decrease the outgoing money. On a personal level, this means increasing your income and decreasing your expenses. On a corporate level, it means increasing revenues or lowering costs. For a government to get the desired reduction in the deficit, the government can increase taxes or decrease spending.

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See also: Debt; Entitlements; Expansionary Fiscal Policy; Fiscal Policy; Inflation; National Debt versus Deficit; Public Debt; Recession; Taxes; Treasury Securities; Wage and Price Controls, 1971; *Vol. 1: Foundations of Economics:* Bankruptcy; Budget; Keynes, John Maynard; New Deal; New Keynesian Economic Thought; *Vol. 3: Microeconomics:* Bonds; Consumer Credit and Debt; Credit Cards; *Vol. 4: Global Economics:* Trade Policy; Trade, Measures of

Further Reading

Congressional Budget Office. 2004. The outlook for Social Security. http://www.cbo.gov/publication/15712 (accessed March 24, 2014).

Jensen, Henrik. 2013. 10 governments that went bankrupt. SeoCEOcustomer.com. http://www.slideshare.net/HenrikJensen4/10-governments-that-went-bankrupt (accessed March 24, 2014).

Moffat, Mike. n.d. Why not just print more money. About.com. http://economics.about.com/cs/money/a/print_money_2.htm (accessed March 24, 2014).

PBS.org. 2014. Which American municipalities have filed for bankruptcy. *PBS Newshour*, February 8. http://www.pbs.org/newshour/updates/municipalities-declared-bankruptcy/ (accessed March 24, 2014).

DEFLATION

Deflation occurs when prices fall instead of rising as they do in inflation. Deflation makes the value of your dollar greater tomorrow than it is today—thus creating a desire to not spend money today, and instead to wait and buy items in the future as the price continues to drop.

For example, if prices were falling and one dollar would buy you five pieces of gum today but would buy you seven pieces of gum tomorrow, then you would wait to buy, because your dollar would have more purchasing power in the future.

How Deflation Occurs

Deflation typically occurs for three reasons: a decrease in demand, an increase in operating efficiency, or a reduction in the money supply. When deflation does occur, it might include one or all of the elements that are contributing to the downward pressure of prices.

The most common cause of deflation is a decrease in demand. When demand for a product or service goes down, because of the decreased demand the company selling the item will need to lower the price in order to sell the product. For example, if a company ordered too many winter boots, when spring comes around the company may have to lower the price of the unsold boots to get customers to purchase them. Those boots are no longer worth what they were when it was cold outside.

While this example is for a single product, deflation can occur on a national level with most prices decreasing. This has occurred a handful of times in the history of the United States, the most recent being in the recession of 2008–2009.

Deflation can also occur when there are great improvements in the efficiency of the production or delivery of goods. For example, when a new technology first comes out, it is expensive. As the manufacturer perfects the process, the costs to produce the item decrease, and the seller can lower the price it charges consumers and maintain its profit.

The automobile is an example of this improved efficiency. Before Henry Ford created the assembly line, building a car took days and sometimes months, because cars were made one at a time. The assembly line enabled cars to be assembled in a matter of hours, thus lowering the overall cost to produce the item and allowing more to be made.

Deflation can also occur because of a decrease in the money supply. The *money supply* is the amount of monetary assets available in an economy at a specific time—in other words, how much cash is available in people's checking accounts, and and how much is available for access in tools such as bank loans. As the amount of money available for consumption decreases, the ability to pay for goods and services decreases, thus decreasing demand and lowering prices.

Impacts of Deflation

When we encounter deflation across the entire economy, a few things are impacted, including unemployment and wages, the desire of consumers and businesses to spend, and a worsening position of debtors.

As prices fall, people become less willing to purchase items. They know the price will go lower, so they are in a position to ask why they should spend $5 today when that same item might cost $3 next week?

Another way of saying this is that your dollars are worth more tomorrow than they are today, so you want to save as much cash as you can. Unfortunately, as this occurs it worsens the deflationary cycle, also known as deflationary spiral.

When no one is buying, the retailers must lower the price if they want to move the product off the shelf. This makes buyers want to wait, which makes the retailers have to lower the price even more. It becomes a cycle that is hard to stop.

As this desire to spend decreases, it causes unemployment and falling wages. Since the factories don't have to run as much to produce products since they are not selling, there is no need for workers to run the plants and therefore they are laid off.

With fewer people working, demand decreases again as those that are not working have little or no money coming in and are not able to buy as much.

The deflationary spiral continues to worsen. This will also decrease the level of wages being paid by employers, since when unemployment is high wages go down because of more workers being willing to work for less money.

Finally, people who owe money on loans find that the burden of their debt is consuming more of their dollars. Because debt represents items they purchased earlier, those items become more expensive because money is worth more today than it was yesterday. Thus they must also reduce spending in order to make up for the increased portion of their dollars that is going to debt repayment, yet again decreasing the level of demand for goods.

How to Stop Deflation

There are a few ways to get out of the deflationary spiral, including increasing government spending and increasing the money supply. In order to create more demand for goods and services, governments and the Federal Reserve Bank may use a mixture of these tools to get demand moving. By increasing spending on the government's side, they increase the demand for goods and services immediately, allowing retailers to sell their products.

An example of this tool being used comes from the Great Depression: The federal government started a program called the New Deal, which began public works projects. These projects not only increased demand for products for construction, but also they employed workers. These workers could then increase their spending because of an increase in their wages. New government spending and increased wages for consumers helped stop the deflation of the Great Depression.

The government can also increase the money supply by modifying reserve requirements for each bank or by lowering interest rates to encourage borrowing and lending. Also, the Federal Reserve can purchase bonds on the open market, thus putting more money into the system for people to spend.

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See also: Bernanke, Ben; Contractionary Fiscal Policy, Contractionary Monetary Policy; Economic Growth, Measures of; Federal Reserve System; Inflation; Inflation, Measures of; Recession; Unemployment; *Vol. 1: Foundations of Economics:* Banking; Great Depression and Wall Street Crash, 1929; *Vol. 3: Microeconomics:* Bonds; Interest Rates; Time Value of Money; *Vol. 4: Global Economics:* Currency Appreciation and Depreciation

Further Reading

Federal Reserve Bank of San Francisco. 1999. What is deflation and how is it different from disinflation? http://www.frbsf.org/education/publications/doctor-econ/1999/september/deflation-disinflation-causes (accessed March 25, 2014).

Krugman, Paul. 2010. Why is deflation bad? *New York Times*, August 2. http://krugman.blogs.nytimes.com/2010/08/02/why-is-deflation-bad/?_php=true&_type=blogs&_r=0 (accessed March 25, 2014).

Swanenberg, August. 2005. *Macroeconomics demystified*. New York: McGraw-Hill.

DEPARTMENT OF COMMERCE

The U.S. Constitution states in Article 1, Section 8, Clause 3, that Congress has the power "[t]o regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes." In the latter part of the 1800s, the United States made huge strides in business and economic development. Many businesspeople and industrialists felt they needed closer ties to and protection by the federal government. They pushed the government for a specific department to fulfill their needs and interests. Congress called for the creation of such a department.

Thus, on February 14, 1903, under the presidency of Theodore Roosevelt, the Department of Commerce and Labor was founded. Overtime, however, the Department of Commerce and Labor grew too large to be contained under one secretary, and on March 4, 1913, it was split into two separate entities: the Department of Labor and the Department of Commerce. The Department of Commerce is dedicated to promoting economic growth, job creation, and a higher standard of living for all Americans.

The Department of Commerce is a cabinet-level department of the federal government's executive branch. As a cabinet position, the secretary of commerce reports directly to the president of the United States. The department works with businesses, communities, universities, and workers. The Commerce Department employs over 47,000 employees worldwide and operates with an annual budget of over $7 billion (see www.commerce.gov/about-department-commerce).

Throughout its history, the Commerce Department has grown and changed as required to accommodate the needs of the American society and people. In response to these needs, the Commerce Department established several subagencies that are designed to, among other things, support businesses, promote economic growth, and protect the environment.

The Department of Commerce is made up of 12 bureaus: the Bureau of Economic Analysis (BEA), the Bureau of Industry and Security (BIS), the Economic Development Administration (EDA), the Economics and Statistics Administration (ESA), the International Trade Administration (ITA), the Minority Business Development Agency (MBDA), the National Oceanic and Atmospheric Administration (NOAA), the National Telecommunications and Information Administration (NTIA), the National Institute of Standards and Technology (NIST), the National Technical Information Service (NTIS), the U.S. Census Bureau, and the United States Patent and Trademark Office (USPTO).

Each of these bureaus serves a specific function within the Commerce Department. The U.S. Census Bureau shows the Commerce Department's commitment to maintaining a wide array of useful data on and about the economy, people, and population residing within the United States, and this information has a variety of functions. Some examples of how the U.S. Census Bureau data are used include how Congressional districts are created; how over $400 billion in federal funds are allocated within communities; and what community services to provide, such as the building of schools and roads, and services for the elderly.

The U.S. Patent and Trademark Office highlights the Commerce Department's promise to protect American businesses by granting patents and generating trademarks. Patent and trademark security ensures that intellectual property created by Americans nationally and internationally is not infringed upon. Patents and trademarks emphasize an economy's property rights. Protection of property rights through patents and trademarks helps to create a strong economy through job creation.

The National Oceanic and Atmospheric Administration (NOAA) reflects the Department of Commerce's commitment to maintaining economic and environmental health by monitoring weather patterns, preserving coastlines, and supporting marine commerce. NOAA's products and services affect more than one-third of the United States' gross domestic product.

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See also: Bureau of Economic Analysis; Department of Labor; Gross Domestic Product; *Vol. 1: Foundations of Economics:* United States Census Bureau *Vol. 3: Microeconomics:* Trademarks and Patents

Further Reading

American Business. n.d. U.S. department of commerce: History of business in the U.S. american-business.org/2397-us-department-of-commerce.html (accessed April 12, 2013).

NOAA (National Oceanic and Atmospheric Association). n.d. About our agency. www.noaa.gov/about-noaa.html (accessed April 12, 2013).

U.S. Census Bureau. n.d. About the bureau. http://www.census.gov/about.html/ (accessed April 12, 2013).

U.S. Department of Commerce. n.d. About commerce. https://www.commerce.gov/page/about-commerce (accessed April 12, 2013).

U.S. Department of Commerce. n.d. Milestones: 2001–2009. commerce.gov/About_Us/Milestones/index.html (accessed April 12, 2013).

U.S. Patent and Trademark Office. n.d. USPTO: About us. www.uspto.gov/about/index.jsp (accessed April 12, 2013).

DEPARTMENT OF LABOR

In 1903, President Theodore Roosevelt established the Department of Commerce and Labor. In response to labor's growing lobbying efforts for a position of influence within the president's cabinet and the growth of responsibilities of the Department of Commerce and Labor, the decision was made to separate the department into two cabinet posts. The Department of Labor was created by President William Howard Taft on March 4, 1913, when he signed the Organic Act. This was the same year that the Federal Reserve Act was signed by President Woodrow Wilson.

When the Department of Labor was created in 1913, its main charge was to promote and advance working conditions and employment opportunities for the average working person. The responsibilities and scope of the department have expanded significantly since those early days.

Four bureaus became the center of activity within the Department of Labor: the Bureau of Labor Statistics, the Bureau of Immigration, the Bureau of Naturalization, and the Children's Bureau. The Bureau of Labor Statistics (BLS) is the oldest, established in 1884. The BLS produced its first report in 1886, while it was a part of the Department of the Interior. With the creation of the new Department of Labor, the BLS was moved to its new home in the Labor Department. As it is today, the primary function of the BLS is to collect, assemble, report, and analyze economic and employment data on the labor force. The Bureau of Immigration was responsible for the laws that applied to foreigners. It also served as an employment agency, helping new immigrants find employment. The Bureau of Naturalization administered the laws for foreigners who wanted to become naturalized U.S. citizens, and the Children's Bureau, as its name suggests, had oversight of the welfare of children; the newest of the bureaus, it was established in 1912, serving as a predecessor to Child and Protective Services in caring for the welfare of children.

As the department grew in those early years, it took on the footprint of its first secretary, William B. Wilson. Wilson was not related to President Woodrow Wilson, who appointed him, but he was a former labor leader and one of the members of Congress responsible for the creation of the department. Secretary Wilson was always quick to point out that while the department was created to serve the average wage earner, it was first and foremost a federal department devoted to fairness for everyone.

With Wilson as secretary, the department conducted many mediation and labor dispute interventions early in its existence. This one function grew so much that by 1916, conciliation had become a single item budgeted for by Congress. A second major charge early on was unemployment. Using existing personnel and resources from other bureaus, Secretary Wilson built a national framework for finding jobs for the unemployed. President Wilson was so impressed he funded the effort out of the president's office, not Congress.

As the need for the United States to join in World War I became more and more certain, and as Secretary Wilson shifted the department's resources to aid the war effort, labor became in short supply and labor disputes increased. The Department of Labor became the primary source for administering labor policies during the war. The department was charged with the bulk of the government's programs on labor, including the all-important War Labor Board. The Department of Labor was also responsible for interring German sailors from German ships captured in U.S. harbors.

During the presidency of Warren G. Harding, the Department of Labor took on much less of an activist role in labor disputes, and new restrictive immigration policy implementation took on a more prominent role. President Harding and the new labor secretary, James Davis, expanded the role of the Children's Bureau. The Women's Bureau, which had been created during the war and made permanent in 1920, advanced the welfare of women in the workforce. In 1931, during the Depression, the department was responsible for passage of the Davis-Bacon Act, which required federal contractors to pay the local standard rate on federal construction projects.

The first woman to serve in a president's cabinet was a secretary of labor. Appointed by President Franklin Roosevelt in 1933, Frances Perkins became the new secretary of labor and the first female member of the president's cabinet. The Bureau of Immigration and Naturalization had, in the view of some people, become overzealous in its deportation strategies. Secretary Perkins took on a popular special corps devoted to deportation and disbanded the group. The Bureau of Immigration and Naturalization was eventually transferred to the Department of Justice.

As President Roosevelt's secretary of labor, Frances Perkins was instrumental in creating and implementing many of the president's New Deal programs as they related to labor. She was especially involved in the development of the Civilian Conservation Corps (CCC) and Social Security. The CCC was a labor program for young men to work on federal projects in rural America. Secretary Perkins was instrumental in the promotion and eventual passage of the Social Security Act in 1935. Perkins also revitalized the United States Employment Service (USES), instituting a nationwide network of employment services. As opposed to its involvement in World War I, the department's role in World War II was minimal.

Following World War II, the department's energies were mostly devoted to leveling the workplace landscape between labor and management. Subsequent presidential administrations added their individual agendas, and Congress added laws to retain collective bargaining and maintain adequate working conditions. New programs for the Department of Labor began to emerge under President Lyndon Baines Johnson and his Great Society initiatives. President Johnson created the Manpower Administration to oversee new programs that focused directly on labor issues. The passage of the Civil Rights Act of 1964 also changed the landscape of the department. It now devoted its energies to enforcing new nondiscriminatory policies in the workplace and within federal contracts.

Through the 1960s and 1970s, major restructuring occurred within the Department of Labor. President Johnson's Manpower Administration was restructured in 1969. That same year, the Job Corps, whose programs were aimed at youths, was moved to the Department of Labor. The Comprehensive Employment and Training Act (CETA) was created in 1973 as a training and revenue-sharing mechanism for local activities. In 1971, during an economic downturn, the Emergency Employment Act was created, providing jobs in the public sector. A second 1971 initiative for the Department of Labor was a new charge of job safety, with the creation of the Occupational Safety and Health Administration (OSHA) to oversee workplace safety. The Employment Retirement Income Security Act (ERISA) was created in 1974 to protect private retirement systems.

One of the main responsibilities of the Department of Labor is to administer and enforce more than 180 federal laws regarding employment and wages. The Wage and Hour Division, for example, regulates the Fair Labor Standards Act (FLSA), which requires employers to pay their employees the federal minimum wage for most public- and private-sector jobs. This division also administers the Family Medical Leave Act (FMLA), guaranteeing employees up to 12 weeks of unpaid, job-protected leave for the birth, adoption, or serious illness of a loved one. The Veterans' Employment and Training Service (VETS) protects deployed service members by administering the Uniformed Services Employment and

Reemployment Rights Act. This act ensures that members of the military who are deployed can return to their jobs when they return from duty.

While most of the programs have been revised or altered over the years and presidential administrations, the Department of Labor continues to administer many programs to protect, educate, or provide access for the U.S. labor market. The Department of Labor serves a very important role through the various programs, services, and acts it administers. At some point, every person's life is probably somehow affected by a Department of Labor–administered program. By protecting workers and workers' rights, these programs help ensure that the American public is able to maintain gainful employment in a safe, ethical environment.

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See also: Bureau of Labor Statistics; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; New Deal; Roosevelt, Franklin D.

Further Reading

Bureau of Labor Statistics. n.d. K–12. http://www.bls.gov/bls/k12_history_prototype.htm (accessed April 22, 2013).

U.S. Department of Labor. n.d. A brief history: The U.S. department of labor. http://www.dol.gov/dol/aboutdol/history/dolhistoxford.htm (accessed April 22, 2013).

U.S. Department of Labor. n.d. Chapter 1: Start-up of the department And World War I, 1913–1921. http://www.dol.gov/dol/aboutdol/history/dolchp01.htm (accessed April 22, 2013).

U.S. Department of Labor. n.d. Chapter 2: The 1920s and the start of the depression, 1921–1933. http://www.dol.gov/dol/aboutdol/history/dolchp02.htm (accessed April 22, 2013).

U.S. Department of Labor. n.d. Chapter 3: The department in the new deal and World War II, 1933–1945. http://www.dol.gov/dol/aboutdol/history/dolchp03.htm (accessed April 22, 2013).

U.S. Department of Labor. n.d. Chapter 4: Post-war era and Korean War mobilization, 1945–1953. http://www.dol.gov/dol/aboutdol/history/dolchp04.htm (accessed April 22, 2013).

U.S. Department of Labor. n.d. Chapter 5: Eisenhower administration, 1953–1961. http://www.dol.gov/dol/aboutdol/history/dolchp05.htm (accessed April 22, 2013).

U.S. Department of Labor. n.d. Chapter 6: Eras of the new frontier and the great society, 1961–1969. http://www.dol.gov/dol/aboutdol/history/dolchp06.htm (accessed April 22, 2013).

U.S. Department of Labor. n.d. Chapter 7: Nixon and Ford administrations, 1969–1977. http://www.dol.gov/dol/aboutdol/history/dolchp07.htm (accessed April 22, 2013).

U.S. Department of Labor. n.d. Chapter 8: Carter administration, 1977–1981. http://www.dol.gov/dol/aboutdol/history/dolchp08.htm (accessed April 22, 2013).

U.S. Department of Labor. n.d. Chapter 9: Reagan administration, 1981–1988. http://www.dol.gov/dol/aboutdol/history/dolchp09.htm (accessed April 22, 2013).

U.S. Department of Labor. n.d. Leadership team. http://www.dol.gov/dol/contact/contact-phonekeypersonnel.htm (accessed April 22, 2013).

U.S. Department of Labor. n.d. Our mission. http://www.dol.gov/opa/aboutdol/mission.htm (accessed April 22, 2013).
U.S. Department of Labor. n.d. Summary of the major laws of the Department of Labor. http://www.dol.gov/opa/aboutdol/lawsprog.htm (accessed April 22, 2013).
U.S. Department of Labor. n.d. Occupational outlook handbook—High school teachers. Bureau of Labor Statistics. http://www.bls.gov/ooh/education-training-and-library/high-school-teachers.htm (accessed April 22, 2013).

DEPOSITORY INSTITUTIONS, DEREGULATION OF

Depository institutions are financial institutions that are legally allowed to accept deposits from consumers. On March 31, 1980, President Jimmy Carter signed the Depository Institutions Deregulation and Monetary Control Act. The act changed how depository institutions were regulated and intended to improve the control of monetary policy for the Federal Reserve. The law was passed during a period of high inflation when the depository institutions needed a great deal of reform. The key points that helped to change the way depository institutions were functioning were the elimination of interest rate ceilings, changes to the checking account system, and new disclosures and changes for customers.

The most important aspect of the Depository Institutions Deregulation and Monetary Control Act came under Title II—Depository Institutions Deregulation Act of 1980, which led to the elimination of interest rate ceilings. Due to high levels of inflation, interest rates rose to double-digit levels. Because of the regulations that were in place at the time, the banks were unable to raise the level of the interest rate high enough to compete with the market, since Regulation Q made the banks unable to raise the interest rate beyond 5.25 percent. As a result of this difference in interest rates, customers were moving their money to less regulated accounts such as mutual funds in order to achieve a higher rate of savings; this was creating disintermediation for the banks. Lower-income households that were unable to move their savings to mutual funds were forced to accept the lower interest rate at the bank despite the fact that the market interest rate paid much higher. The decrease in deposits left banks with less funds to operate with, making it difficult for banks to compete in the marketplace. In the act, the interest rate controls that were being abolished were to be slowly phased out over a period of six years. The six-year period was intended to allow for an orderly phase-out that would not add to problems in the marketplace. The act was also designed so that the interest rate would increase gradually, until it eventually was abolished in the sixth year.

Under Title III—Consumer Checking Account Equity Act of 1980 there were regulations that allowed banks to provide automatic transfer services from savings to checking accounts. This change made it possible for banks to provide better service for their customers since the banks were able to transfer funds for the customer to use. This let customers leave their primary money in an account that had a higher interest rate and move it to a checking account that had a lower interest rate only when necessary. Under this title the amount insured by the FDIC increased from \$40,000 to \$100,000 for customers. The increase in insured deposits made it easier for customers who were looking to have their deposits insured but were reaching the limit. Previously, customers would need to have their funds placed at multiple banks in an effort to keep their funds insured and avoid the limit. This increase allowed banks to build higher amounts of funds with their customers and develop relationships because many customers would now be able to have all of their accounts at one bank.

The act also made it possible for banks nationwide to offer Negotiable Order of Withdrawal (NOW) accounts. These accounts are deposit accounts that earn interest for the borrower, and the borrower is also able to write checks from this account. The new accounts helped customers open the new type of checking accounts since customers would be able to earn interest while they were using the funds to pay their bills.

Title VI—Truth in Lending Simplification and Reform Act is still in effect today, and it has been strengthened due to problems with banks and other financial institutions lacking clarity with their customers. The Truth in Lending Simplification was aimed at helping customers understand the financial documents to the best of their ability. The title regulated what would be required for disclosure, since many financial institutions were releasing information that was confusing to the customers or was inaccurate. The Truth in Lending Simplification forced banks to use language that was more easily understood by the majority of the public rather than using finance terms that needed to be explained to the customer in order to be understood. The Truth in Lending was mainly aimed at helping customers that were lacking in a financial background. By regulating the disclosures that the bank would give, and how much information it should disclose, this helped to clarify information for the customers.

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See also: Banking; Federal Reserve System; Financial Intermediation; *Vol. 3: Microeconomics:* Banking Trends: Electronic Banking

Further Reading

Fraser Federal Research Archive. n.d. Monetary control act of 1980. Public law 96-221, 96th Congress, H.R. 4986, March 31, 1980. https://fraser.stlouisfed.org/title/?id=1032 (accessed November 30, 2016).

Gilbert, R. Alton. 1986. Requiem for regulation Q: What it did and why it passed away. Federal Reserve Bank of St. Louis. http://research.stlouisfed.org/publications/review/86/02/Requiem_Feb1986.pdf (accessed November 30, 2016).

Robinson, Kenneth J. 2013. Depository institutions deregulation and monetary control act of 1980. Federal Reserve History. http://www.federalreservehistory.org/Events/DetailView/43 (accessed November 30, 2016).

DETROIT BANKRUPTCY, 2013

In 1950, Detroit, Michigan, was the fifth-largest U.S. city, with 1.85 million people. After the General Motors bankruptcy in 2009, only 770,000 people were left; by 2013, there were only 680,000. Those left had the lowest average literacy rate in the nation, if not in the world. Crime and drugs were so bad that police refused to enter many of the city's neighborhoods. In July 2013, Detroit filed for bankruptcy, crushed by the unsecured debt owed to union public employees and by its overall debt of $18 billion. Like most cities of the period of great American prosperity, Detroit's finances became overextended because of promised wages and benefits owed to public employees.

The unions in Detroit resisted any settlement to reduce their pensions and health benefits, unlike the United Auto Workers a decade earlier. Detroit's situation in 2013 illustrates the future of many American cities that now lack the once-plentiful tax base of industry. Detroit learned the hard way that increasing the tax rate on its businesses and citizens only accelerates a city's decline. The state of destruction in Detroit went far beyond the destruction of New Orleans after Katrina, yet the American media has given the city's problems little coverage in comparison. America has never known the crime, devastation, lawlessness, poverty, and hopelessness that existed in Detroit.

One variable associated with the decline of Detroit was the transformation of the automobile industry in America. In 1954, Detroit had the highest per-capita income and the highest rate of home ownership in the United States. As of 2013 it ranked lowest. At its peak in the 1960s, Detroit had more than 290,000 manufacturing jobs, a number that by 2013 had fallen below 27,000. Even in the first few years of the 2000s, the Detroit area lost an additional 150,000 auto industry jobs. In 2009, the unthinkable happened with the bankruptcy of General Motors. Many of those who lost their jobs and other Detroit residents took advantage of state and local retraining programs either for the new automobile industry or for other new jobs in non-auto industries.

In 2013, crime was so bad in Detroit that the police barely tried to deal with most of it, and police response time averaged 58 minutes. Homicides hit 386 in 2012, and 90 percent of the crimes went unsolved. Gangs controlled most of the city. Some neighborhoods were too dangerous for even police patrols. Drug dealers found the area dangerous, too. More than 50 percent of the city's children were classified as poor and illiterate. Less than 40 percent of students graduated from high school, and those who did could barely read. The infant mortality rate of 16 per 1,000 was higher than in the Dominican Republic.

More than 40 percent of the city's streetlights were broken; most were stripped of their copper wiring for drug money. Old houses were broken up and used as firewood by the homeless. The city halted most road and sidewalk repair. More than 30 percent of the ambulances and emergency vehicles did not run. Detroit's crime rate in 2013 was five times that of New York City. Real unemployment was still around 50 percent. At least 30 percent of the buildings were vacant, and many houses sold for less than $500.

The median house price was $6,000. Often only a single house per block had a living occupant. It was hard to sleep in the downtown hotels as the night sounds of sirens and gunfire continued until daybreak. Many Michigan residents would not even drive near Detroit after sunset. City blocks started to revert back to forest. Politicians promoted farming in downtown Detroit. In what were considered their worst days, from 1990 to 2000, the industrial bad neighborhoods of Detroit were Eden compared with 2013's neighborhoods that fell victim to deindustrialization. Detroit still pays the highest tax rates in the state and has the lowest level of public services. Over the decades several efforts were made to save the downtown, but without an industrial base these efforts amounted to corporate welfare. Eventually the decline of General Motors and Chrysler brought an end to even this corporate welfare.

In January 2013, Governor Rick Snyder of Michigan declared a financial emergency and took over the city's operations to restructure its debt. At that time the debt breakdown was $9.5 billion in pension and health care costs, $6 billion in water and sewer debt, and $2 billion in bonds. The emergency financial manager was able to obtain contract concessions from the AFL-CIO, but it was too little too late. Bankruptcy became the only option as Detroit lacked the money to pay for basic services.

Without welfare support, Detroit lacked a stable income source and barely had the infrastructure necessary for people to live. Detroit became a ward of the state of Michigan and of Washington, D.C. Lacking money, and with an illiterate voting population, Detroit has received little support from politicians. Detroit's issues with local government corruption and cronyism added to Detroit's recovery problems. The federal government surprised many by choosing to ignore social service aid to Detroit. People from the city continue to move to the South, reversing the Great Migration of the 1930s, 1940s, and 1950s.

After bankruptcy, Detroit was hit by a new increase in crime as gangs took over some of the city's 80,000 vacant homes. In addition, an estimated 30,000 wild dogs roam the city in packs. The unions, which had negotiated one of the best pension benefits in the nation, received 20 to 30 cents on the dollar.

On December 10, 2014, Detroit declared it was out of bankruptcy. Major business leaders purchased and renovated much of the downtown office spaces, with new occupants and several suburban businesses moving downtown. Detroit's professional sports teams have built new fields and arenas downtown; the city's professional sports have proved to be anchors to a renewal of the downtown area. The downtown river area has been transformed into a park and scenic walkway more than a mile long.

Detroit still has many problems, including a significant drop in population from approximately 2 million to 150,000 city residents, leaving major tracks of vacant land and homes. Condensing Detroit to a city serving only 150,000 as opposed to the historically 1 to 2 million will be legacy issues and challenges that will continue long into the future The larger question is how many American cities face a future like Detroit's?

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See also: Labor Uprisings, 1936–1939; *Vol. 3: Microeconomics:* Subprime Mortgage Bubble and Crisis; Chrysler Bankruptcy, 1979; General Motors Bankruptcy, 2009; Rust Belt, 1980s; *Vol. 4: Global Economics:* Arab Oil Embargo, 1973

Further Reading

LeDuff, Charlie. 2013. *Detroit: An American autopsy*. New York: Penguin Press.
Martelle, Scott. 2012. *Detroit: A biography.* Chicago, IL: Chicago Review Press.

DIGITAL CURRENCY

Digital currencies (or cryptocurrencies) are created with a complex algorithm and are stored electronically. There is no government control or monitoring. All transactions and storage are governed by protocols that are set when these currencies are established. The most popular and largest in valuation is Bitcoin, which was conceptualized by Satoshi Nakamoto (Nakamoto n.d.). When one writer claimed to have found the creator of the popular digital currency, the person cited denied any such association (Goodman 2014). The creators of these digital currencies have a common goal: to use the currencies as method of payment via a peer-to-peer (P2P) network, bypassing financial institutions. However, these digital currencies are not money in the traditional sense. They are more like commodities (such as gold and silver). To understand why these digital currencies are not money, we have to understand what money is.

In economics, money has three essential functions. First, it is used as a unit of accounting (or measurement). Second, it is used as a medium of exchange. Third, it is used as a store of value.

The first function of money is easily fulfilled by digital currencies and by most other commodity monies. For any commodity to be considered “money” in terms of its function as a unit of measurement, all that is needed is some form of agreement on the measurement. This is the main reason why gold and silver have served as commodity monies for most of human history.

The second function is where digital currencies experience a little difficulty gaining mainstream acceptance. Unless digital currencies can be used to meet daily transaction needs, it will be difficult for them to be accepted as money. While there has been efforts to make purchases with digital currencies possible at some online retailers and even some physical stores (via digital price tags), the use of digital currency is largely limited to transactions that are linked to the digital world. Imagine shopping in the fresh food markets in Vietnam, and you can see how well this type of currency would function. The large volatility in price also makes these currencies a poor payment choice for businesses that are increasingly demanding more precision in production and sales planning.

The high degree of variation in value also makes digital currencies a poor store of value. For example, consider Bitcoin’s “price.” Bitcoin started with a value of a few cents, and it skyrocketed to over $1,000 in a matter of a few years. Within a year, the value can fluctuate between a few hundred USD to more than a thousand. Imagine if you work for a company that accepts Bitcoin as payment for the goods and services you provide and your compensation is also in Bitcoin. Because the value of Bitcoin fluctuates frequently, the amount of income available to you also fluctuates widely. Imagine that you go to a restaurant and you have to decide what to order, or whether you have enough money to tip the server, depending on the value of the Bitcoin you have? It is simply impractical. The problem gets worse if you think about long-term planning in the world of highly volatile value. Hyperinflation and deflation are major problems for any economy. Having a highly volatile currency is like having hyperinflation and deflation all the time. The economy would simply stall.

Furthermore, for goods or services to have value, a certain amount of resources have to be put into them. Once those goods and services are created, their value might change depending on the supply and demand for those goods and services. But in general, only goods that can generate more cash flow/value in the future should see their price go up in the future. Goods that have limited supply could see their value increase if the demand for them increases. If many people are bidding on a limited supply of certain goods that generates less value than the selling price, we have a speculative bubble.

We must also note that Bitcoins have a price. So, the value of a Bitcoin still depends on the value of existing currencies. The value of Bitcoins changes based on the last price in which a transaction/exchange has been made at one of the Bitcoin exchanges. If Bitcoin is to replace all other currencies, the value of all goods and services will be measured in Bitcoin—in which case, Bitcoin will become another good with value depending on the relative values of other goods and services. In that scenario, we would be back to a barter system, with Bitcoin serving as the reference value/unit. In a barter system, credits cannot be created easily. The complex capital markets we have today would not be possible under such a system.

Controversies

Due to the nature of how Bitcoin is transmitted, Bitcoin became a tool for illegal drug trades, money laundering, and other illegal activities. The biggest online illegal drug dealer, Silk Road, was shut down by authorities in October 2013. Silk Road used only Bitcoin for transactions and charged commissions in Bitcoin. Silk Road 2, the reincarnation of Silk Road, was shut down for a different reason in February of 2014. Hackers attacked Silk Road 2 and stole all the funds (in Bitcoin). Hacker attacks were also the reason behind the closure of the biggest Bitcoin exchange, Mt. Gox, in February 2014. Another Bitcoin exchange, Flexcoin, also closed in March 2014 for similar reasons. The closure of these exchanges caused large variations in the value of Bitcoin. More importantly, they show that Bitcoin is far less secure than believers claimed. Hacker attacks on the online exchanges or businesses that use Bitcoin are similar to robberies of trains/wagons/banks that carry gold/silver.

Should You Invest in Bitcoin?

Bitcoin is not money or any currency. Instead, it is a speculative asset that varies in value depending on demand and supply. In other words, Bitcoin can be viewed as an alternative asset. The Internal Revenue Service defined it as such in March 2014. The main question is whether the average investor should invest in such an asset. The famed investor Warren Buffett advised investors to stay away from Bitcoin. He may have good reasons for that. There are two main driving forces behind the value of Bitcoin. First, different exchanges have different values for Bitcoin, and the variation in value is not small. The value of gold or silver is fairly standardized, because they have established exchanges, with rules and regulations for setting proper value depending on market transactions. Bitcoin has no such mechanism. Second, demand and supply (or speculations) are the main driving force in variation of value for Bitcoin. The surge in value from 2012 to 2013 was due to a large influx of speculators. Many believe that Bitcoin reached a speculative bubble in late 2013 and since then is likely worth far less. For prudent investors, it is best to stay away from assets that have volatile value. Bitcoin is such an asset.

Conclusion

Digital currency is a new class of speculative asset that has emerged quickly in recent years. While a more efficient payment system might emerge in the future due to this movement, it is at an early stage of its development. Regulatory changes in financial systems around the world will be required in order to make this possible. Until then, the value will continue to fluctuate widely. Because there are many competitors for the title of most dominant digital currency, most of the existing ones will likely have no value once the development stage is settled.

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See also: Monetary Economics; Money

Further Reading

Clinch, Matt, 2014. Bitcoin exchange Mt. Gox closed "for the time being." *NBC News*, February 25. http://www.nbcnews.com/business/markets/bitcoin-exchange-mt-gox-closed-time-being-n37896 (accessed November 30, 2016).

Economist Staff. 2013. The bitcoin bubble. *The Economist,* November 29. http://www.economist.com/news/leaders/21590901-it-looks-overvalued-even-if-digital-currency-crashes-others-will-follow-bitcoin (accessed November 30, 2016).

Goodman, Leah M. 2014. The face behind bitcoin. *Newsweek*, March 6. http://mag.newsweek.com/2014/03/14/bitcoin-satoshi-nakamoto.html (accessed November 30, 2016).

Leger, Donna L. 2014. IRS: Bitcoin is not currency. *USA Today*, March 25. http://www.usatoday.com/story/money/business/2014/03/25/irs-says-bitcoin-is-property/6873569/ (accessed November 30, 2016).

Nakamoto, Satoshi. n.d. Bitcoin: A peer-to-peer electronic cash system. https://bitcoin.org/bitcoin.pdf (accessed November 30, 2016).

Watts, William, 2014. Warren Buffett: Don't dump stocks on China or Ukraine and stay away from bitcoin. *MarketWatch*, March 14. http://blogs.marketwatch.com/thetell/2014/03/14/warren-buffett-dont-dump-stocks-on-china-or-ukraine-and-stay-away-from-bitcoin/ (accessed November 30, 2016).

DISCOURAGED WORKERS

A *discouraged worker* is an individual of working age who is unemployed and is not pursuing a position in the current job market. Usually this person is willing and able to work but has given up finding gainful employment due to a variety of factors. Due to these real or perceived limitations in the job market, these individuals have become "discouraged." Discouraged workers are not included in the unemployment rate, and they are not considered to be in the labor force.

The Bureau of Labor Statistics of the U.S. Department of Labor compiles information on the labor force using the monthly Current Population Survey, or CPS. The CPS assesses data including and pertaining to unemployment, employment, those not in the labor force, and labor force characteristics. Based on a recommendation by the Committee to Appraise Employment and Unemployment Statistics, the CPS began gathering information on people not in the labor force starting in January 1967. Since these individuals were considered neither employed nor unemployed, the CPS sought to gather reasons why they were not in the labor force.

To determine why individuals are not in the labor force, the CPS asks four specific questions to gauge a person's ability to work, desire to work, job search process, and reasons why the person has not looked for work in the previous four weeks. The answers to the questions are then used to decide whether these individuals should be a part of the marginally attached labor force measure. Those who are *marginally attached* to the labor force are available to work, want to work, and have been looking for work within the last 12 months.

Discouraged workers are a subsection of those who are marginally attached to the labor force. The difference between those who are marginally attached to the labor force and discouraged workers is that discouraged workers state that they have not looked for unemployment in the previous four weeks despite wanting to work and being able to work. The CPS has determined four reasons discouraged workers give as to why they are not seeking employment. These reasons include the following:

1. They believe no job is available to them in their line of work or area.
2. They had previously been unable to find work.
3. They lack the necessary schooling, training, skills, or experience.
4. Employers think they are too young or too old, or they face some other type of discrimination.

Discouraged workers are sometimes referred to as the "hidden unemployed" because they are not counted in the total unemployment number since they are not in the labor force. During times of economic growth when businesses are doing well and are hiring workers, discouraged workers are motivated to seek employment. When this happens, the CPS reports slightly higher levels of unemployment, as discouraged workers are then stating they are looking for work. During periods of recession when employers are laying off employees, discouraged workers are even more dejected and the CPS reports even higher levels of unemployment.

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See also: Bureau of Labor Statistics; Department of Labor; Labor Force; Unemployment

Further Reading

AmosWEB GLOSS*arama. n.d. Discouraged workers. http://www.amosweb.com/cgi-bin/awb_nav.pl?s=gls&c=dsp&k=discouraged%20workers (accessed March 15, 2013).

Castillo, Monica D. 1998. Persons outside the labor force who want a job. *Monthly Labor Review* 121 (7): 34–42.

Dr. Econ. 2007. How is unemployment measured and what are different types of unemployment? Also, what are the economic disadvantages associated with high employment? Federal Reserve Bank of San Francisco. http://www.frbsf.org/education/publications/doctor-econ/2007/may/unemployment-employment-disadvantages-types (accessed June 2, 2014).

Flaim, Paul O. 1973. Discouraged workers and changes in unemployment. *Monthly Labor Review* 107 (8): 95–103.

U.S. Bureau of Labor Statistics. n.d. How the government measures unemployment. http://www.bls.gov/cps/cps_htgm.htm (accessed March 15, 2013).

U.S. Bureau of Labor Statistics. n.d. Labor force characteristics: Discouraged workers. http://www.bls.gov/cps/lfcharacteristics.htm#discouraged (accessed March 15, 2013).

DIVIDEND INCOME

A *dividend* is a transfer of part of a company's earnings to its shareholders (stockholders). In general, the dividend is stated in terms of a percent of the current market price. This is referred to as the dividend yield. For example, if a stock is selling for $10 per share and pays a dividend of $.50 per share, the dividend yield would be 5 percent (0.50 × 10).

Investors in mutual funds also receive dividends passed through from the individual stocks and or bonds held within the mutual fund.

Investment Income

When investing in stocks, investors can realize gains in two ways. The first type of gains is called capital gains and is calculated as the difference between the sale price of the stock and the buy price of the stock. In other words, capital gains are realized when the price of stock appreciates and the shares are sold. If the stock price depreciates, the investment in the stock will yield a loss. For example, on January 1, investors buy the stock ABC at $12.00 per share. One month later, they sell the stock at $25.00 per share. The investors' capital gain is calculated as $25.00 – $12.00 = $13.00. They realized a profit of $13.00 per share, or a percentage gain of 108 percent [(25 – 12)/12].

The second type of gain that investors can realize when buying a stock is dividend income. From the investor standpoint, dividend income is an amount of cash received per share of stock held. For instance, if the dividend associated with stock ABC is $2.00 per share, investors will receive $2.00 dollars for every share of stock ABC they hold. The total gain for the investors will be the sum of the appreciation of the stock and the dividend income. Continuing with the same example, if investors realize $13.00 in capital gains and $2.00 in dividend gains, the result is a total of $15.00 of profit for every share of stock they have been holding.

Dividend Income: What Does It Represent?

From an investor's perspective, the dividend income is an additional source of gain when investing in equities. In order to invest in stocks that offer dividend income opportunities, it is important to be familiar with the concept of dividends. A *public corporation* is a firm that has the ability to raise money in the public capital markets by allowing public investors to own shares of its firm called stocks. Dividends are cash payments that public corporations pay to these public investors as a return on their capital investment in the firm.

Investors inject capital in the firm in the form of equity. This capital allows the firm to run its operations and invest in growth opportunities. The firm makes profits in the form of revenues. After subtracting all the operational and financial costs associated with these revenues, the company is left with the final profit—or net income. If the net income is a profit, the company will retain a portion of it. The part of earnings that a corporation keeps and doesn't pay out to shareholders is called retained earnings. The residual amount of net income not retained in the firm will be paid out to investors in the form of dividend payments. The percentage of net income paid out to investors is called the payout ratio.

For example, company ABC realized net income of $200 million this year. The company's management decided to retain 45 percent of the earnings to invest in new projects next year. The amount of retained earnings is $90 million. As a result, the payout ratio is equal to 55 percent, and the amount of dividends paid out to investors is $110 million. The dividends are divided proportionately among all the shareholders. If the company has 55 million shareholders, then each shareholder will receive a $2.00-per-share dividend.

The retained earnings can vary tremendously depending on growth and investment opportunities offered to the firm. If it appears that an investment opportunity will return significant value for the shareholders, management might decide to retain all the earnings instead of paying cash dividends to the investors. Mature companies usually pay more dividends than growth companies do. For investors looking for dividend income as a primary source of investment gains, investing in mature companies with a history of dividend payments could be a good option. Investors need to keep in mind that a history of dividend payments is not a guarantee of future dividend payments.

Valuing a Company Based on Dividend Payments

For mature companies that have been consistently paying dividends to investors, the dividend cash flows can be used to value a company—or, in other terms, to calculate the intrinsic value of the stock. Investors will seek to invest in stocks that are undervalued by the market—that is, stocks that are selling cheaper than their intrinsic value. One way to calculate the intrinsic value is to calculate the preset value of future dividend payments that a company is expected to pay out to investors. To complete this calculation, investors need to forecast future dividend payments based on historical data for the firm. Readers interested in this calculation should consult literature around the dividend discount valuation model.

Taxation of the Dividend Income

Dividends can be taxed either as ordinary income at ordinary income tax rates or at the preferred long-term capital gains tax rate. Readers should consult the IRS website for comprehensive information on the taxation of dividend income. The taxation of dividend income has been criticized because of the double-taxation problem. Indeed, the company pays corporate taxes for profits realized, and the investor pays taxes for dividend gains, which is a double taxation that shareholders have to bear.

Yousra Acherqui

See also: *Vol. 1: Foundations of Economics:* Capital Gains and Losses; Investing; *Vol. 3: Microeconomics:* Income; Interest Rates; Stock Market; Stocks

Further Reading

Damodaran, Answath. n.d. The dividend discount model. http://people.stern.nyu.edu/adamodar/pdfiles/eqnotes/ddm.pdf (accessed April 10, 2014).

IRS. n.d. Topic 404—Dividends. http://www.irs.gov/taxtopics/tc404.html (accessed April 10, 2014).

DODD-FRANK ACT. *See* Financial Reform Act of 2010

DOUBLE-DIGIT INFLATION, 1974

The United States had not experienced double-digit inflation at the rate seen in the 1970s since colonial times. The period from 1972 to 1980 is often called the "Great Inflation." In the United States, the inflation rate peaked at 12 percent in 1974, declined to 6 percent in 1976, and again peaked in 1980 at 13 percent. President Nixon's wage and price controls in 1971 were shorted-lived and did little to remove the underlying price pressures. By 1972, inflation quickly returned after price controls were lifted. The great wave of inflation returned in 1974, fueled by the Arab oil embargo and the Federal Reserve's pushing of the money supply to keep unemployment low. The elimination of the gold standard had freed the Federal Reserve to pump unlimited amounts of money into the U.S. economic system. There was a worldwide run on the dollar, causing it to become devalued. Initially, American consumers showed little fear of inflation; the major fear in the American psyche had always been the deflation experienced in the 1930s. Countries like Germany had learned to fear inflation more.

The American public had a mixed view of inflation. The big unions were protected by automatic cost-of-living adjustments to their wages and salaries, and workers saw large increases in their pay on a monthly basis. Even nonunion workers benefited from the wage inflation. People on fixed incomes or employees lacking cost-of-living adjustments faced a major loss in purchasing power, but they enjoyed the high rate of return on their savings. Most homeowners were pleased with the rise in housing prices, which brought new wealth to homeowners. However, prospective new owners were being priced out of the market. Food and consumer-goods price increases were looked at as a major negative. Food prices rose 30 percent between 1974 and 1975. The nine-month period of food price increases beginning in February 1974 is often referred to as "food shock." Food shock created panic-buying in meat, coffee, and flour. Used car prices rose 38 percent in the peak period of 1973–1976, while new car prices lagged but rose after the peak period. Fuel prices doubled. Strange shortages occurred at times, as goods such as coffee and toilet paper became unavailable. Consumers found new money by cashing in gold and silver goods. Consumers were slowly forced to deal with the problems caused by high inflation as the bills for big-ticket purchases came due or the items needed replacing. Probably those with the real concern were the wealthy, who were stuck with investments in bonds and high-dividend stocks that were being devalued by higher interest rates.

The U.S. government was running large deficits, but the economy was picking up as the Federal Reserve was easing monetary policies. Inflation was causing major problems in international markets as the United States moved off the gold standard. More accurately, there was a de facto gold standard that allowed the Federal Reserve to continue to print money beyond the point where it had 100 percent gold backing. The dollar was losing value, causing Arab oil barons to watch as their petro-dollars were devalued. The gold coverage of the dollar dropped to 22 percent, which created a lack of confidence in the dollar by foreign countries. The dollar was further eroding as foreign countries demanded gold for dollars, and the U.S. Treasury was being drained of gold reserves. Over the decade, Americans adapted to rapid inflation. Many middle-class Americans actually profited from the period, assuming they remained employed.

The bigger problem for the United States became stagflation, a combination of high unemployment and high inflation, which hit the unemployed, citizens on welfare, and those on fixed incomes particularly hard. The government, in an effort to slow inflation, actually moved the country into a recession. During the 1976 presidential campaign, the "misery index" was developed—a measure that combined the unemployment rate and the inflation rate into one gauge of economic misery. Although the causes of stagflation are still being debated, it is considered a relatively modern phenomenon. Certainly, the oil crisis of the 1970s was a major contributing factor. Thus, this type of inflation would also become known as "cost-push inflation," where a rise in the price of natural resources drives inflation higher.

Quentin R. Skrabec Jr.

See also: Colonial Hyperinflation and Currency Deflation, 1749; Currency Deflation and Inflation, 1781; Federal Reserve System; Gold Standard; Inflation; Inflation, Measures of; Monetary Policy

Further Reading

Blinder, Alan S. 1979. *Economic policy and the great stagflation.* New York: Academic Press.

Nelson, Edward. 2004. The great inflation of the seventies: What really happened? Working Paper 2004-001. Federal Reserve Bank of St. Louis. http://research.stlouisfed.org/wp/2004/2004-001.pdf (accessed November 30, 2016).

DROUGHT

Winston Churchill's description of Russia—a riddle wrapped in a mystery inside an enigma—could very well apply to the issue of drought. That is, there is rarely agreement or understanding as to when a drought begins or ends (which is why it is often referred to as a creeping phenomenon), nor is there a single definition that can be agreed upon. Indeed, there are a multitude of definitions, including meteorological droughts, hydrologic droughts, agricultural droughts, and socioeconomic droughts, to name a few. There seems to be universal agreement that drought involves a decrease in precipitation relative to an identified norm over an extended period of time. Yet, even here things are not so clear in that what constitutes a drought differs across regions and seasons. For instance, a two- or three-week period of dryness in an arid region such as California's Imperial Valley may well be within the norm of weather patterns, whereas the same duration and intensity of dryness in Portland, Oregon, or in a tropical region such as Malaysia may trigger serious concerns of drought. Finally, drought is often identified by three characteristics: duration, intensity, and spatial coverage. None of these is known in advance, and past experiences of them are not necessarily good predictors of future events. When coupled with the rarity of drought events within any particular region, the lack of certainty and agreement in what constitutes a drought and its indeterminate impacts pose challenges to planners, particularly with regard to their ability to garner support for adequate planning and preparation for drought.

Despite these challenges, it is easy to find motivation for drought planning in light of the far-reaching and potentially devastating impacts of drought. With respect to the natural environment, the impacts of drought on ecosystems can be dramatic, with the capability to change biotic community composition and markedly alter ecosystem function. From an anthropocentric perspective, arguably the most recognized impact of drought is on agriculture, with images of the 1930s Dust Bowl in the United States as memorialized in the writings of John Steinbeck coming to mind. And while drought can significantly impact industry, municipalities, and residential households, possibly the largest impacts of drought arise from its impact on hydroelectric power and recreation. Given a future that portends more frequent and intense drought worldwide, the motivation and benefits associated with drought planning and preparation should surely rise.

Of course, the necessary amount of planning and preparation for drought—or from an economic perspective, the efficient level of mitigation and adaptation—will depend on the benefits or avoided damages of strategies to mitigate and adapt to drought relative to the costs of such strategies. These strategies, which vary considerably across regions, can be placed into three general categories: water supply augmentation, demand-side adaptation/mitigation, and institutional adjustments.

Water supply augmentation generally consists of modifying the impact of the meteorological event on water supply availability. Historically, and successfully, water supply augmentation has consisted of the development of water storage and conveyance structures that reduce a region's vulnerability to drought by modifying the spatial and temporal distribution of its available water supply. As such, a region's available water supply is a function not only of the precipitation that falls within that region at any particular point in time, but also of past precipitation events whose excess has been stored. Lake Mead and Lake Powell, which combined can store four times the mean annual flow of the Colorado River, serve such a purpose for the Lower Colorado River Basin, including southern California. Such storage and conveyance structures allow water to move to its highest valued use, temporally and spatially, thereby reducing the economic impacts of drought. While ample opportunity for storage and conveyance still exists in many developing countries, many if not most low-cost opportunities have been appropriated in developed countries. The future usefulness of this approach is therefore limited, with one notable exception: the use of aquifers to store excess water, in what is termed conjunctive use. The other historically reliable method to augment supplies has been pumping groundwater. While groundwater will continue to be heavily relied upon, contentious and ill-defined property rights, groundwater overdraft, and increases in groundwater pollution can severely limit its ability to further augment future water supplies in any appreciable manner. Ocean desalinization is an alternative that has met with some success in particular regions worldwide, although widespread adoption is limited by proximity to the coast, energy requirements, and environmental concerns surrounding air emissions and the potential marine impacts arising from water intake and brine disposal. More recent augmentation opportunities being considered and implemented by governments include stormwater capture and wastewater reuse, both of which are viewed as locally reliable and potentially low-cost supply options to reduce drought vulnerability.

Drought planning also can consist of reducing the impacts of drought by increasing resilience and/or decreasing reliance on water. For instance, the development of drought-tolerant crops increases the resilience of agricultural production to drought events by reducing damages on yields. Similarly, agricultural operators and urban residents can implement crop combinations and landscape designs (e.g., xeriscaping) that serve to reduce the effects of drought either directly by reducing impacts on overall farm/landscape production, or indirectly by reducing water requirements. Obviously the change in value associated with altering crop composition or landscape design should be balanced with the benefits such actions provide. In an effort to reduce reliance on water and exposure to drought, water agencies regularly encourage the adoption of water-conserving practices and technologies. Encouragement has often taken the form of subsidies for the adoption of water-efficient technologies such as drip irrigation in the agricultural and landscape settings, or through rebates for the installation of more water-efficient indoor appliances (e.g., shower heads, toilets, and clothes washers). While such nonprice measures have been successful in reducing water use, they can be very costly. As an alternative, agencies increasingly are turning toward water pricing, and tiered-rate pricing in particular, to encourage more efficient water use. A significant benefit of using prices rather than subsidies or rebates for water conservation is that the use of subsidies or rebates typically leads to losses in revenue that agencies rely upon to cover their costs, while the use of prices may actually increase revenues, given that the demand for water has been shown to be price inelastic.

From an institutional perspective, water markets and water banks are two strategies that offer potentially large gains in reducing the economic impacts of drought, because they can facilitate the movement of water toward its highest valued uses. Acknowledgment and awareness of possible third-party effects from water trades should be considered when the overall net benefits surrounding the efficiency of water trading are being calculated. Another equally important development with significant potential from an institutional perspective is the collection and dissemination of real-time information related to drought indictors (for example, precipitation and evapotranspiration, as well as surface, groundwater, and storage supplies). Further development of information systems will allow water users and agencies to have accurate and up-to-date information upon which to monitor their drought risk and base their decisions.

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See also: *Vol. 1: Foundations of Economics:* Environmental Economics; *Vol. 3: Microeconomics:* Water Conservation; *Vol. 4: Global Economics:* Water in Development

Further Reading

Lord, W., J. Booker, D. Gretches, B. Harding, D. Kenney, and R. Young. 1995. Managing the Colorado River in a severe sustained drought: An evaluation of institutional options. *Water Resources Bulletin* 31 (5): 939–44.

Wilhite, D. A. 1993. *Drought assessment, management, and planning: Theory and case studies*. Dordrecht, Neth.: Kluwer Academic.

E

ECONOMIC EMBARGO AND DEPRESSION, 1807

The embargo of 1807 remains a valuable reference tool for economists, politicians, and businesspeople. It offers a study of the effects, both positive and negative, of restrictions on trade, and it clearly demonstrates the interaction of politics, trade, and business. In many ways, the embargo was an extension of the decades-long war between Great Britain and France in the early 1800s.

Starting during the colonial period in America, trade restrictions of one kind or another had plagued the new nation. Although the embargo of 1807 initially created an economic recession and led to depression in 1809, it would launch new American production of textiles, iron, tools, tinplate, glass, hemp, hats, and nails. Overall, while this embargo was in force from 1807 to 1809, American imports dropped from $30 million to $15 million, while exports dropped from $107 million to $22 million.

In the years before the embargo, Europe was struggling with the Napoleonic Wars. France's advantage on land was checked by Britain's advantage on the seas, and Great Britain used blockades and seizures to enforce its naval advantage. British ships blocked key foreign ports, forcing American ships to first go through British ports. In addition, the British navy boarded American ships, looking for deserters. At times, France would also board American ships and take cargo and sailors. This system of impressments of American sailors created a public outcry in the United States. President Thomas Jefferson hoped to avoid war and demonstrate economic alternatives to war. The United States was a major importer of British manufactured goods and an exporter of raw materials such as cotton, furs, pig iron, lumber, farm goods, and tobacco. Still, Jefferson believed he could restrict imports while continuing to export to Great Britain.

In December 1806, Congress passed the Nonimportation Act of 1806, which declared a "Prohibition of the importation of certain goods and merchandise from the kingdom of Great Britain." America depended on Great Britain for such imports as iron nails, tinplate, tin, glass, hats, clothing, silk, paper, wool, hemp, and leather. Initially, Canadian and American smugglers found ways around this embargo. In January 1807, Congress passed a supplementary act to close embargo loopholes that had excluded the whaling, fishing, and coastal boats that were economically important to the New England states.

The act was met with mixed opposition. Dependent on shipping, New England opposed any restriction of trade, as did the South, which exported agricultural goods to Great Britain. New England favored military action. The initial economic impact of the embargo was to move the country into a recession and increase unemployment. Treasury receipts dwindled, wiping out a surplus that had accumulated from the earlier policies of Alexander Hamilton and the Washington and Adams administrations. More than 30,000 seamen were put out of work, creating a true depression on the New England seaboard.

President Jefferson stuck to the policy, believing it was a social experiment on how to avoid war. The Federalists, the party out of power in Washington, rallied political opposition to the embargo and revitalized their party. Meanwhile, the middle states started to benefit from the restrictions on British imports as domestic iron production expanded. Textile manufacturers started to expand in New England as well. Still, overall the embargo had suppressed the U.S. economy further. A bigger problem was that the federal government was dependent on import tariffs for its operating capital. Fewer imports meant a smaller operating budget for the U.S. government.

Reduced tariff receipts meant that Jefferson had no money for federal projects, such as the canals and roads wanted by the Federalists. The reduction in federal spending made the recession worse. Despite these concerns, in March 1808, a new Embargo Act was passed to stop all ships leaving for foreign ports. From the standpoint of restricting trade, the act was successful, and U.S. exports fell from $80 million in 1808 to $22 million in 1809. This worsened economic conditions across the nation.

Poor economic conditions replaced public anger over British impressments as the deciding factor is U.S. elections. In the presidential election of 1808, James Madison of Jefferson's Democratic-Republican Party won the presidency, but the Federalists won the House of Representatives and took it away from Jefferson's party. The economies of the South and New England were hurt badly by these embargos. Both regions considered it America's first depression. Cotton prices dropped from 51 cents a pound to 24 cents. Tobacco prices also fell by 50 percent. The election, with the Federalists replacing the Democratic-Republicans over the issue of the embargo, was one of the first examples of Americans voting their pocketbooks over international affairs.

After Jefferson left office, the Embargo Act was repealed, and the embargo was lifted on all countries with the exception of Great Britain, France, and their possessions. The act was replaced with the Non-Intercourse Act in 1809, which extended the embargo until it was safe for trade. The decision on when to lift the embargo was left to President James Madison as a discretionary authority. The embargo was hurting Great Britain far more than America, as its manufacturing growth was based on exports to America.

One positive side effect of the embargo was the development of domestic manufacturing in the United States. Jefferson played on this success by dressing in homespun clothes for the Fourth of July celebration in 1808. The lack of imported British iron, in particular, caused the startup of America's iron furnaces, which had been dormant for decades. Saltpeter and gunpowder mills were also restarted. American manufacturing was reborn as the foundries and forges of the Revolutionary War opened again. Americans would prove to be adaptive and creative. Textile mills opened in New England to process southern cotton, and a new industry was born. The application of new machinery in American factories would also give the domestic industry a new productivity advantage over British producers. Francis Cabot Lowell would also develop a whole new system of textile manufacture. The success of textile production created a machine industry as well.

New England would ultimately emerge as a more economically balanced region after the embargo. As the War of 1812 approached, the manufacturing Connecticut Valley became America's armory. In the middle states, the iron industry, which was still suffering from the colonial Navigation Acts, started to awaken. In Pittsburgh, nail and tinplate mills were built to supply the growing needs of the west. Iron foundries also started to supply the needs of an industrial boom.

The glass industry came alive in New England and New Jersey. Western Pennsylvania and eastern Ohio opened hundreds of iron smelting furnaces, rolling mills, nail factories, tinplate manufacturers, and forges. Pittsburgh Foundry would become the producer of cannons for the War of 1812. In 1810, Great Britain wisely tried to end the naval problems that had led to the U.S. embargo; but it was too late: the War of 1812 between Britain and the United States was already beginning.

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See also: *Vol. 4: Global Economics:* Tariffs; Trade Policy

Further Reading

Smelser, Marshall. 1968. *The democratic republic, 1801–1815*. New York: Harper & Row.
Spivak, Burton. 1979. *Jefferson's English crisis: Commerce, embargo, and the republican revolution.* Charlottesville: Univ. Press of Virginia.
Temin, Peter. 1964. *Iron and steel in the nineteenth century: An economic inquiry*. Cambridge, MA: MIT Press.

ECONOMIC GROWTH, MEASURES OF

Economic growth is the measure of an economy's productivity. Along with price stability and low unemployment, economic growth is one of the three goals every economic system aims to achieve. Economic growth is measured by several methods. Which method is dominant often depends on the purpose for the measure and what specific measure is important. Each economic growth measure has its own characteristic and personality. While there are several other methods for measuring economic growth of an economy, three measures receive most of the attention: gross domestic product, gross national product, and the personal consumption expenditures.

Gross Domestic Product

Gross domestic product (GDP) is the leading report and is considered the most important indicator on the health of an economy. GDP is considered the best indicator of an economy's achieving economic growth, one of the three major goals of every economy (along with price stability and low unemployment). GDP measured over time (quarter to quarter, year to year) is considered the major indicator of how fast or slow an economy is growing or contracting. In the United States, virtually all participants of the economy are impacted by the GDP reports. GDP is closely related to the other major economic goal of low unemployment. A growing GDP reflects the need for labor, capital, and land resources, which reflects lower unemployment in the future.

GDP measures the final value of goods and services produced within the borders of a nation, irrespective of who produced the good or service. GDP is not a measure of what is sold, but of what is produced within an economy's borders. Toyota, even though a Japanese company, assembles automobiles in the United States. Those Toyota automobiles are counted as part of the U.S. GDP data. Conversely, a Chevrolet automobile the final assembly of which is in Canada is not counted.

Another example of what counts as GDP would be a tire company that has produced eight tires. Four of the tires are shipped to an automobile manufacturer and used in the assembly of an automobile. The other four tires are shipped to a tire company's retail outlet for sale. Only the four tires sold at the tire company's retail outlet are counted toward GDP. If the four used on the automobile were counted at the time they were produced, they would be double-counted, as their value to the economy is counted in the final value of the automobile, assuming the automobile was assembled in the United States. If the automobile was assembled outside the United States, they would not be counted.

In the United States, GDP data are collected, measured, and reported by the Bureau of Economic Analysis, a part of the Department of Commerce. GDP is reported quarterly (at the end of January, April, July, and October) with revisions each month. The monthly revisions report marginal changes—with an annual revision in July, the completed report for a given year. GDP is reported in both nominal dollars (present dollars) and real terms (constant or "chained" dollars).

The Bureau of Economic Analysis collects information and data from thousands of an economy's governments and private companies within its borders—including home purchases, retail sales, and auto sales—to report initial GDP estimates.

GDP is measured in two ways. One measure is the expenditures of an economy in four major areas of the economy's products of goods and services: the personal consumption by households (C) on durable and nondurable goods and services; the gross private investment of businesses, including changes in inventory (I); government's purchases of goods and services and investment (G); and the net trade balance between exports and imports of an economy's foreign participation ($X - M$). This is often shown as GDP = $C + I + G + (X - M)$. GDP measures what is produced, not what is sold. Unsold inventory is a measure of GDP at the time of its production. *Government* is defined as all government entities, including federal, state, and all local governmental entities.

The second measure is the income earned by laborers (w), profits earned from capital (p), interest earned by savers and investors (i), and the rents earned by landowners (r). This is often shown as GDP = $w + p + i + r$. Economists often measure an economy's health based on an equilibrium model of GDP = $C + I + G + (X - M) = w + p + r + i$ and the discrepancy between these two measures.

Gross National Product

Gross national product (GNP) is similar to GDP with one significant distinction. GNP is more concerned with "who" is producing, not with "where." GNP measures a U.S. company's production anywhere in the world that the production occurs. Using the above GDP example, a Toyota automobile produced in the United States is not counted as GNP for the United States because Toyota is a Japanese company; it would be counted for the GNP of Japan. Likewise, the Chevrolet automobile is counted in the U.S. GNP as a product of General Motors, a U.S. company.

Personal Consumption Expenditures

In the United States, the largest component of GDP is personal spending on goods and services. It comprises up to 70 percent of the U.S. GDP. By contrast, China's personal spending as a component of GDP is only about 30 percent. Consumer expenditures are the key dynamic influence of the U.S. economy. If consumers are not purchasing goods and services, businesses are not using resources (including labor) to produce goods and services—and the economy does not grow, or it even regresses. The stock market and other economic indices react to the reports of how much households are spending on goods and services.

As a component of GDP, the reporting of personal consumption expenditures (PCE) is a function of the Bureau of Economic Analysis (BEA). Personal spending is reported monthly, with several months of revisions. The monthly reports are also annualized to reflect yearlong income or expenditure trends. A major revision in data may occur to reflect new reporting and/or data-collecting methodologies. Personal income is measured before taxes are deducted. The BEA measures income from several sources: wages and salaries, rental income, interest and dividend income, income of the self-employed (proprietor's income), transfer payments, and other income. PCE and personal income are reported in nominal dollars (current dollars) and real dollars (adjusted for inflation).

PCE are measured in three major categories: durable goods (goods lasting three or more years), nondurable goods (goods lasting less than three years), and services. Durable goods are major items purchased by households, such as cars, refrigerators, and televisions. Because these are items that households do not purchase often, they account for only 12 to 14 percent of PCE. Nondurable goods, such as food and clothing, account for approximately 30 percent of PCE, as they are purchased more often. Services, the fastest growing component, make up the remaining spending, as much as 60 percent, accounting for purchases of haircuts, movie tickets, medical expenses, etc. Services spending is up from the 1960s, when it was only around 40 percent.

People either purchase goods and services (expenditures) or save income. Personal savings is also calculated from this information. Once all spending is measured, interest on credit cards and car loans is taken into account, and taxes are deducted, leaving disposable income, the remainder is considered personal savings. It has been calculated that over time the average household spends 95 cents of each dollar received and saves 5 cents. This very high percentage of consumption is the key reason the PCE receives attention from the media and economists.

Collecting personal income data is one of the most complicated tasks the BEA undertakes. The BEA collects data from many sources to calculate both personal consumption and personal savings. Wages and salaries are collected from employment reports, and transfer payments are reported by the Social Security Administration along with the Departments of Treasury and Labor. Interest and dividend payments to households are estimated from reports of the Internal Revenue Service (IRS), the U.S. Census Bureau, the reports of corporations that pay dividends, and the Federal Reserve.

Measuring PCE is also complicated and involves many government departments, organizations, and companies. For example, medical expenses come from the Labor Department (a government agency), but expenditures on automobiles involve the manufacturers. Many measures of consumer expenditures are estimates that are reached after many years of data-collecting.

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See also: Bureau of Economic Analysis; Department of Commerce; Department of Labor; Gross Domestic Product; United States Treasury

Further Reading

Baumohl, Bernard. 2008. *The secrets of economic indicators.* 2nd ed. Philadelphia, PA: Wharton School Publishing.

The Economics Network. n.d. Online text and notes in economic growth. http://www.economicsnetwork.ac.uk/teaching/Online%20Text%20and%20Notes/Economic%20Growth (accessed January 15, 2015).

U.S. Bureau of Economic Analysis. n.d. www.bea.gov (accessed January 15, 2015).

U.S. Department of Labor. n.d. www.bls.gov (accessed January 15, 2015).

ECONOMIC OPPORTUNITY ACT OF 1964

On August 20, 1964, President Lyndon B. Johnson signed the Economic Opportunity Act (EOA) into law to fight poverty. The EOA was a key component of President Johnson's Great Society programs and War on Poverty. Although most of the EOA was slowly eliminated, core programs such as Job Corps and Head Start still exist today.

The EOA was not passed to create a wealth redistribution system. It was created to provide people in poverty with decent wages and a basic standard of living. The act provided funding to public outlets to address the community needs of low-income families. The EOA provided resources to community-action organizations for job training, adult education, and small-business loans. A 1964 poll revealed that 20 percent of U.S. families of four had incomes under $3,000 per year. Of special note was that over 50 percent of U.S. non-whites lived in poverty.

The EOA had 11 programs, all of them administered by the Office of Economic Opportunity (EOP):

- Adult Basic Education—education grants for low-income individuals over 18 or adults whose first language was not English
- Assistance for Migrant Agricultural Employees—financial assistance to state and local governments for travelling workers and families for housing, education, and children resources support
- Employment and Investment Incentives—loans under $25,000 for small-business startups
- Financial Assistance to Rural Families—financing of microloans (under $2,500) to low-income families to increase their disposable income
- Job Corps—basic education and work training for young people ages 16 to 21
- Neighborhood Youth Corps—training and employment opportunities for young people ages 16 to 21
- Urban and Rural Community Action—technical and financial assistance to public and private nonprofit groups to develop community action programs
- Voluntary Assistance for Needy Children—an information center to encourage voluntary assistance for needy youths
- Volunteers in Service to America (VISTA Program)—volunteer training for local and state agencies and nonprofit organizations in the United States
- Work Study Programs—education grants to higher education organizations to provide part-time employment for students in low-income families
- Work Experience—financing for trial, demonstration, and experimental projects to expand opportunities for work experience and training of individuals who are unable to support their families

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See also: Great Society; Labor Force; *Vol. 1: Foundations of Economics:* Poverty

Further Reading

CA.gov. n.d. California Department of Community Services & Development: History. www.csd.ca.gov/AboutUs/History.aspx (accessed March 15, 2014).

Economic Opportunity Act of 1964. Public Law 88-452, August 20, 1964. www.gpo.gov/fdsys/pkg/STATUTE-78/pdf/STATUTE-78-Pg508.pdf (accessed March 15, 2014).

Garson, G. David. n.d. Economic Opportunity Act of 1964. wps.prenhall.com/wps/media/objects/751/769950/Documents_Library/eoa1964.htm (accessed March 15, 2014).

Laws.com. n.d. Economic Opportunity Act. business.laws.com/economic-opportunity-act (accessed March 15, 2014).

ECONOMIC POPULISM

The term *populism* refers to taking a stand that is said to reflect the general public or the general populous. Therefore, *economic populism* refers to a position that supports economic measures that fit the needs of the majority in the public. This might include stimulus packages, environmental regulations, universal health care, or any policy or economic measure that represents the people. *Populism* is frequently misused as a term to criticize a public figure for pandering or making general remarks with the intention of appealing to the basic instincts of voters. In this sense, candidates often make hollow promises or undetailed remarks, leading the opposition to label them as populist. Recently, actual populism has gained momentum in politics, specifically in Latin America. Populism is also on the rise in the United States. In 2016, presidential candidate Bernie Sanders ran on a populist platform.

Historically, populism came about during the 1870s when farmers felt unfairly burdened by high costs, debts, and small profits. At the time, the chief antagonist of restrictive policies was the railroads. In 1874, the Granger Laws were passed, creating a price ceiling for costs of freight shipment and making the pricing of railroad rates more favorable to farmers. The Grangers, much like the Masons, were a secret society with local chapters, passwords, and rituals. Around the same time, the Farmer's Alliances came into existence. In 1889, the Farmer's Alliances became involved in politics and gained positions of power in order to represent the needs of the common man.

The emergence of populist arguments had a deep economic connection. Many of the aggrieved had been saddled with debt due to the government's shift to backing money with gold rather than silver. At the time, this contracted the money supply and worked to the benefit of the wealthy. Therefore, farmers and merchants wanted to create inflation in order to recover their debts. Out of these initial organizations rose the Populist Party. This party led the charge in the Free Silver Movement, which attempted to allow money to be backed by both silver and gold, thus increasing the money supply and creating inflation. The Populist Party ran on other political reform platforms as well, such as demanding a graduated income tax that would tax the wealthy more. The party also advocated for affording citizens greater rights in politics, such as the ability to democratically elect senators (at the time, senators were elected by the state legislatures) and the ability to bring forth debate on various social issues.

Historically, Latin America has had large roots in populism. More recently, some Latin American nations are experiencing a rebirth of populism. Frequently, a charismatic dictator represents the populist cause. The common thread of these populist dictators has been their appeal to the masses of people through the promotion of policies that would help the working man. This type of populism has often been seen as a way to strengthen nationalism and fend off the corrosive aspects of capitalism. Latin American populists have often favored inflationary policies and monetary distribution with the goal of quick turnaround growth. With a number of leaders clearly military-backed, many of these forms of populism actually operated more like fascism than populism.

In modern times, populism has taken on a new form in Western politics, where it is seen more as a modern iteration of democratic socialism. Core concepts of "fighting for the little guy" and equitable representation and policies have led the charge. Modern politicians often base their election campaigns on economic populist policies such as raising the minimum wage, increasing Social Security benefits, making college free, and regulating Wall Street.

Recent recessions have made Americans more aware than ever of their social standing. Their perspectives on how government should represent the people have also shifted. Formulating policies and strategies to win votes has been strongly influenced by populist trends. There has also been an evolution in the application of these theories with the growing connectivity of the world. With innovations in communication and trends shifting toward sustainability and responsibility, populism has taken on new forms that include embracing a global society and has shifted farther away from classical nationalism.

Daniel S. Talwar

See also: Hyperinflation; *Vol. 4: Global Economics:* Dependency Theory; Latin America: General Economy; Mexico: General Economy

Further Reading

Atkins, Dante. 2015. It's not just Bernie: Economic populism is on the rise in America. *Attn:*, May 26. www.attn.com/stories/1782/economic-populism-america-bernie-sanders (accessed January 10, 2016).

The Economist Staff. 2006. The return of populism. *The Economist*, April 12. www.economist.com/node/6802448 (accessed January 10, 2016).

USHistory.org. 2014. The growth of populism. *U.S. History Online Textbook*. www.ushistory.org/us/41d.asp (accessed January 10, 2016).

ECONOMIC PROBLEMS OF THE 1970s AND 1980s

The U.S. economy experienced a rapid transformation in the late 1970s and early 1980s, with a shift away from manufacturing and toward an information-based service economy, an increasing participation of women in the labor force, and the emergence of a trade deficit. In addition, inflation proved to be persistent. The economic policies that were adopted to address these issues had long-lasting social implications. An understanding of these periods will help individuals appreciate the nature of contemporary American economy and society.

Economic Problems in Late 1970s and Early 1980s

In the post–World War II years, many Americans enjoyed a period of unprecedented prosperity, characterized by high employment, stable prices, and rising income. This prosperity was interrupted by the food and energy shock in 1973–1974, resulting in a rapid rise of inflation. The Consumer Price Index (CPI), one of the key measures of inflation, rocketed from 3.4 percent in 1972 to 12.2 percent in 1974 (Blinder 1982, 265) and stunned many Americans.

Inflation fell in intervening years, but from 1977 it climbed steadily, before reaching a new height in 1980 at 13.5 percent. Unemployment also rose hand in hand with inflation, puzzling policymakers due to the widespread belief of a trade-off between inflation and unemployment (when inflation is high, unemployment is low, and when unemployment is high, inflation is low). With unemployment reaching 7.4 percent in 1980, America suffered from classic symptoms of stagflation, characterized by both high unemployment and high inflation.

For Americans growing up in the postwar years, accustomed to low inflation rates (less than 2 percent in the first half of the 1960s and about 4 percent in the early 1970s), the rise of inflation to over 12 percent in 1979 and 1980 tainted their economic optimism. By 1980, opinion polls revealed that the American public saw inflation as the problem of greatest concern, and many were willing to tolerate drastic measures to reduce it (Feldstein 1994, 4; Wells 2003, 111).

Factors Contributing to Inflation

One theory traces the rise of inflation in the late 1970s to food prices, which rose 22 percent between 1977 and 1979. Much of the increase is attributed to "meat inflation." Meat prices as measured by the CPI were extraordinarily high and variable during 1978 and 1979, partly because of a sharp drop (over 16 percent) in the total cattle herd (Blinder 1982).

The high oil prices and the energy shock in 1979 ensured a continued acceleration of inflation. The political turmoil in Iran and the downfall of Shah Pahlavi caused disruptions in supply and chaos in the world oil market, resulting in queues at gasoline stations in various locations in the spring and summer months of 1979 (Blinder 1982, 270). Between December 1978 and March 1980, the average cost per barrel of imported crude oil to U.S. refiners rose from about $15 to over $33. As a result, the CPI energy component rose 56 percent (a 43 percent annual rate) between December 1978 and March 1980 (Blinder 1982, 271).

The increase in mortgage rates also fueled inflation. Mortgage interest rates were about 6 percent in the 1960s; throughout 1977 they stood at 9 percent, before increasing dramatically to 10 percent by December 1978 and 12 per cent by 1980.

Interest rates have a huge impact on monthly mortgage payments, and the rising costs of borrowing (in addition to the rapid rise in prices) inflicted economic hardship on many American families in the 1980s as their household budgets were badly squeezed. This had a long-term social impact, forcing many women to enter the labor market to help their families with the rising costs of living. (Women also entered the workforce as part of the women's liberation movement.)

The factors named above do not tell the whole story. Inflation was a persistent problem in the 1970s because, with the Great Depression fresh in people's minds, unemployment had been the government's economic priority. Inflation was tolerated because it was thought that inflation would keep unemployment low. The United States, unlike countries such as Switzerland and West Germany, saw its inflation rates rise significantly in 1979 because it did not make a more determined effort to reduce inflation after the first oil shock in 1973 (Mussa et al. 1994). When the second oil shock came, inflation was already at more than 9 percent; inflation would jump to new peaks during 1979 (Mussa et al. 1994, 93).

President Reagan's Government and Economic Policies

It is generally agreed that the major economic success of President Ronald Reagan's policies (along with those of Federal Reserve Chairman Paul Volcker) lay in their triumphant battle against inflation. The CPI fell from 13.5 percent in 1980 to 3.9 percent in 1982, and it remained at around 4 percent for the rest of Reagan's presidency.

The battle against inflation was won because inflation became the government's number one priority. In dealing with inflation, the government's strategy was influenced by Milton Friedman's theory that sees the control of the money supply as an essential weapon.

From November 1980 (when President Reagan was elected president) and for 21 months until 1982, the Federal Reserve pursued a very tight monetary policy to combat inflation, even at the expense of business activity (Mussa et al. 1994). As a result, the American economy was plunged into a recession in 1981–1982, with an estimated loss of output of more than \$200 billion–\$300 billion (in 1982 dollars). Consequently, unemployment soared to new heights in January 1983, with more than 11.5 million people unemployed, or 10.4 percent.

Taming inflation was only half the battle; higher standards of living required higher productivity. To get the American economy moving again, President Reagan believed it was essential to give people incentives to work, save, and invest by reducing federal expenditure and personal taxes. Social Security spending was cut by \$40 billion, top tax rates were reduced from 70 to 50 percent, and income tax rates were reduced by 25 percent over three years (Wells 2003, 115). During the 1980s 18 million new jobs were created, the economy grew by about 3.5 per cent per year, and real disposable per capita income rose by 18 percent (Sloan 1999, 7). Unemployment, however, remained at 5 percent throughout the 1980s, reflecting structural shifts in the economy.

The sharp appreciation of the dollar from the mid-1980 through to mid-1981 may have helped reduce inflation rate. It also accelerated the decline of manufacturing.

The United States had low savings, and high interest rates were intended to encourage savings—but high interest rates led to the appreciation of the dollar. Between 1980 and 1985, the dollar appreciated by more than 60 percent against other industrial democratic currencies. This made U.S. exports expensive and uncompetitive, and exports fell from 8.1 percent to 5.1 percent of gross domestic product (GDP) in this period. For the first time, the United States became a net debtor. The trade deficit peaked in 1987 at \$152.13 billion (Wells 2003).

Social Consequences—Women in the Workforce and Growing Inequality

There is a general consensus that economic progress in the 1980s was accompanied by a growing inequality in American society. In 1980, there were 4,414 millionaires in America, rising rapidly to 34,944 by 1987 (Sloan 1999, 252). The number of persons living below the official poverty line, on the other hand, increased from 26.1 million in 1979 to 32.5 million in 1987 (Sloan 1999, 100).

The reasons for this are less clear. One theory holds that the enterprise culture of the 1980s, the philosophy of limited government intervention, and low taxes contributed to the growing inequality in U.S. society (Wilber and Jameson 1991, 119) while other theories point to the significant social and economic changes (Wells 2003). Between the 1970s and 1980s, for example, single-parent households became more common and at the same time the rising cost of living encouraged many women to enter the workforce, therefore widening the gulf between single-income and two-income families. The economy was increasingly shifting away from heavy industry toward the information technology sector, thus disadvantaging older workers in the declining industry while richly rewarding those in the growing sector. These changes led many to question American economic power and the ability of the United States to maintain its global role.

From a personal finance standpoint, it's important to understand the economy within a historical context. Although early in the 21st century the United States is experiencing historically low interest rates and high unemployment, these conditions should be viewed in a broader context. By understanding the cyclical nature of the economy—with highs and lows in interest rates, inflation, and employment rates—citizens are better equipped to understand the changing nature of their own economic lives as well as the life of the national economy.

Lien Luu

See also: Deficit; Double-Digit Inflation; Federal Reserve System; Fiscal Policy; Friedman, Milton; Great Society; Gross Domestic Product; Gross National Product; Monetary Policy; Inflation; Taxes; Unemployment; Volcker, Paul; *Vol. 3: Microeconomics:* Interest Rates

Further Reading

Blinder, A. 1982. The anatomy of double-digit inflation in the 1970s. In *Inflation: Causes and effects*, ed. Robert E. Hall, 261–82. Chicago, IL: Univ. of Chicago Press. http://www.nber.org/chapters/c11462 (accessed November 30, 2016).

Feldstein, Martin, ed. 1994. *American economic policy in the 1980s*. Chicago, IL: Univ. of Chicago Press.

Mussa, Michael L., Paul A. Volcker, and James Tobin. 1994. Monetary policy. In *American economic policy in the 1980s*, ed. Martin Feldstein, 81–164. Chicago, IL: Univ. of Chicago Press. http://www.nber.org/chapters/c7753.pdf?new_window=1 (accessed November 30, 2016).

Sloan, John. 1999. *The Reagan effect: Economics and presidential leadership*. Lawrence: Univ. Press of Kansas.

Wells, Wyatt. 2003. *American capitalism 1945–2000: Continuity and change from mass production to the information society*. Chicago, IL: Ivan R. Dee Publisher.

Wilber, Charles K., and Kenneth P. Jameson. 1991. *Beyond Reaganomics: A further enquiry into the poverty of economics*. Notre Dame, IN: Univ. of Notre Dame Press.

EMBARGO ACT OF 1807

The Embargo Act of 1807, signed into law by President Thomas Jefferson on December 22, 1807, was created as an attempt to stop France and Britain, which were at war with each other, from restricting American trade. The purpose of the Embargo Act of 1807 was to introduce a form of nonviolent resistance to British and French interference with U.S. merchant ships. It effectively restrained American trading overseas until March 1809.

The Napoleonic Wars (1803–1815) can be viewed as the origin of the Embargo Act. Emperor Napoleon Bonaparte of France was determined to build a great empire. Beginning in 1803, a series of wars erupted between the French under Napoleon and the British. Each side possessed very different military strengths: With Napoleon's power based on the strength of his land armies, and British strength displayed in its naval fleet, it was difficult for the parties to engage each other in battle. Therefore, the French and the British ventured to inflict damage in another way: by attacking each other's trade and commerce. To illustrate, the British attacked the French by declaring Continental ports closed to commerce. As retaliation against the British, the French declared all British commerce to be unlawful. These circumstances meant that neither British nor European ships could carry on trade.

However, the two enemies' attacks on one another created a rather lucrative situation for American ships. As a result of the French and British policies, the United States could make profits by trading without any competition. Unfortunately, British shipowners were enraged and demanded that the British government put an end to trading with America. Old British laws were resurrected and enforced, and any American ships that violated these laws were to be seized by the British. Both the French and the British would seize any U.S. ship that was caught entering harbor.

Additionally, the British had a long history of using the system of impressment. Similar to what would be the U.S. draft, impressment to the British was the hijacking or conscription of men into military service in order to inflate the ranks of the sailors in the British Navy. British warships began to stop American merchant ships and remove any sailors who looked like Englishmen and were unable to prove their U.S. citizenship. The captured men were then forced to serve in the Napoleonic War. It is said that thousands of American seamen were captured this way and used as forced labor on British warships.

A monumental instance of impressment is known as the Chesapeake–Leopard Affair. (A similar incident, called the Chesapeake Affair, took place in 1863, during the American Civil War.) As time went on, tension between Britain and the United States grew. It was reported that some British deserters joined the ranks of the USS *Chesapeake*. Specifically, three men aboard the British HMS *Melampus* escaped and joined the American ship *Chesapeake*. The Secretary of the U.S. Navy conducted an investigation, and it was reported that the men in question were, in fact, American citizens. Despite this, the British ordered all captains and commanders of all British ships to search the USS *Chesapeake* for the deserters should any of them come in contact with the ship. On June 22, 1807, the *Chesapeake* and the HMS *Leopard* crossed paths, and the captain of the *Chesapeake* refused to allow British seamen to search his ship. The British forcefully boarded the U.S. ship, which resulted in the suspected deserters being removed, three U.S. seamen killed, eight seriously injured, and 10 more suffering severe injuries.

President Jefferson, enraged to hear about the instance, had to decide to declare war on both Great Britain and France. Instead, President Jefferson believed that if the United States refused to trade with France and Great Britain, both nations would be forced to treat American trade and commerce with respect. Thus, Congress passed the Embargo Act in order to ensure the neutrality of the United States in the wars in Europe. The Embargo Act forbade American merchant ships to leave American ports after a specified day and effectively closed all U.S. ports to exports from foreign vessels.

With the embargo in place, American imports and exports both declined significantly. Many parts of the country were hit hard, especially the South, where cotton growers lost the British market and merchants in New England. The law ultimately failed to achieve its objective, and it wound up doing more damage to American merchants than to European governments.

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See also: *Vol. 4: Global Economics:* Embargo; Exports; Imports; Protectionism; Terms of Trade; Trade Policy

Further Reading

American-historama.org. n.d. Evolution era 1801–1828: Embargo act. United States History for Kids. www.american-historama.org/1801-1828-evolution/embargo-act.htm (accessed June 10, 2015).

Digital History.com. 2016. The Jeffersonian era: The embargo of 1807. Digital History ID 2986. www.digitalhistory.uh.edu/disp_textbook.cfm?smtID=2&psid=2986 (accessed June 10, 2015).

Monticello.org. n.d. Embargo of 1807. www.monticello.org/site/research-and-collections/embargo-1807 (accessed June 10, 2015).

ENERGY POLICY

As an essential input into most economic activity and a long-term driver of economic growth, energy commodities are a focus of politicians and other policymakers. When striving to implement energy policy, these policymakers have different objectives, sometimes even conflicting. They also face incentives and institutional contexts that make achieving a coherent national energy policy difficult.

Energy policy is dominated primarily by concerns about production, distribution, and consumption. A country's energy policy typically focuses on the policy environment surrounding the availability and use of nonrenewable and renewable fuel sources, and the economic, social, and political consequences of that use. Such decisions are usually made through private market processes and transactions, so energy policy sits at the intersection of economics, politics, and science. That intersection can often be uncomfortable, because these perspectives can lead to different expectations, time frames, and objectives. Energy policy is further complicated by its intersection with other areas of policy, such as transportation policy, which can create layers of potentially mutually incompatible objectives.

An overarching goal of energy policy is to implement strategic planning regarding future energy use and availability, with a goal of meeting several subsidiary objectives simultaneously: supply security, environmental quality, and future planning for investment and infrastructure construction. These objectives are frequently in conflict with each other. One of the most substantive challenges in energy policy is bargaining among the various policymakers and other stakeholders (such as the firms whose existence or profitability would be affected by the policy specifics) who prioritize the energy policy objectives differently. Not only do interested parties have different priorities, but they also advocate different means of achieving their preferred objectives. In combination with the ability of specific policies to shift revenues and costs, the competing and sometimes incompatible objectives of energy policy mean that the policy process is usually contentious, and lobbying and rent-seeking are likely.

The instruments of energy policy are instruments of policy in other areas as well.·Legislation can enable regulation and its enforcement in an attempt to meet policy objectives (such as Corporate Average Fuel Economy standards for vehicles); it can authorize taxation or tax credits to change the incentives of energy producers and consumers at the margin; and it can enact taxpayer funding to subsidize particular activities that legislators see as compatible with meeting the policy objectives, including research. In international transboundary issues, treaties are often used, with varying degrees of success; well-known examples include the Montreal Protocol for the reduction of chlorofluorocarbons (a success) and the Kyoto Protocol for greenhouse gas reductions (not a success).

Market design can also be a policy instrument, again with varying degrees of success. The Acid Rain Program's success at reducing sulfur dioxide emissions, after the Clean Air Act Amendments of 1990 passed by the Congress, did not translate into a similarly successful market for greenhouse gas emission permits in the European Union's Emissions Trading Scheme.

Energy policy is not solely a 21st-century phenomenon. While energy use has always been associated with economic growth and increased living standards, the role of energy in economic activity changed meaningfully in the 19th century, with industrialization and the growing use of steam power. The English economist William Stanley Jevons wrote his seminal book *The Coal Question* in 1865, arising out of concern that England's accelerating industrial activity would be limited by its coal supply. In the burgeoning days of industrialization, the primary energy policy question was supply availability and supply–demand imbalance as a potential limiter of economic growth (a concern that persists to this day in industrialized and industrializing countries).

In the 20th century, this supply security question took on a geopolitical dimension, as fuel use shifted toward oil and strategic conflicts at the nation–state level led to such dramatic conflicts as the Organization of Petroleum Exporting Countries (OPEC) embargo of 1974, precipitated by the 1973 Yom Kippur War, and the supply restrictions arising from the Iran–Iraq War in 1979. Increasingly, nation–states with substantial oil reserves saw those reserves as a strategic asset in geopolitical interactions, and through organizations like OPEC they started to act strategically, although incentives to cheat and undermine cartel agreements to reduce output and maintain high prices continue to lead to cartel instability. These actions led to an increasing belief, particularly in oil-importing countries, in the need for national-level energy policy to ensure supply security and enable planning for future economic activity in which oil supplies did not create a material constraint.

While these supply security objectives persist in energy policy, environmental objectives now join them more so than in the 20th century. The environmental consequences of fossil fuel use—and ways to manage those consequences using the policy instruments of regulation, taxation, subsidies, or market design—now form a substantial share of the emphasis of energy policy. Thus energy policy in the early 21st century focuses on balancing the potentially conflicting objectives of maintaining supply security while ensuring that the current and future environmental consequences of fossil fuel use are manageable, both through mitigation and through adaptation to global warming. Increasingly, policymakers interested in achieving this balance emphasize promoting and accelerating innovation, whether in production, distribution, consumption efficiency, or environmental harm mitigation.

Energy policy involves producers and consumers and their economic interests, legislators and bureaucrats and their interests, environmental interests, and the scientific process, all interacting in a political environment. Not surprisingly, then, the political economy of energy policy is particularly complicated. The combination of self-interested policymakers and firms attempting to influence legislative and regulatory outcomes can lead to rent-seeking and regulatory capture. The combination of firms trying to raise their rivals' costs through regulation and environmental groups interested in using regulation to achieve their objectives can lead to a "bootleggers and Baptists" dynamic of coalition-formation that may bring regulations into existence that would not pass a benefit-cost analysis. And the presence of concentrated benefits to those interests in combination with diffuse costs of inefficient policies can lead to policies that favor politically powerful groups and do not necessarily achieve one of the general policy objectives outlined earlier. These aspects of the political economy of energy policy can yield persistent unintended consequences and failures to achieve policy objectives of supply security, environmental quality, infrastructure planning, or breakthrough research.

A national energy policy is often presented as a desirable goal, to reduce the extent to which individuals work at cross-purposes toward energy development and environmental objectives. In a complex and dynamic world of diverse individuals and constant technological change, though, achieving a stable, coherent national energy policy is unrealistic, and it may more often lead to unintended consequences. A better approach to national energy policy may be to focus on reducing transaction costs and reducing distorted investment and innovation incentives. General policies may perform better that align economic and environmental incentives in the face of unavoidable uncertainty about the scientific, economic, and political future.

Lynne Kiesling

See also: Regulation; *Vol.* 3: Microeconomics: Alternative Energy; Corporate Average Fuel Economy; Jevons, William Stanley; *Vol. 4: Global Economics:* International Environmental Agreements; Kyoto Protocol

Further Reading

Childs, William. 2011. Energy policy and the long transition in America. *Origins* 5 (2). http://origins.osu.edu/article/energy-policy-and-long-transition-america (accessed June 24, 2013).

Grossman, Peter. 2013. *U.S. energy policy and the pursuit of failure*. Cambridge, UK: Cambridge Univ. Press.

Yergin, Daniel. 2012. *The quest: Energy, security, and the remaking of the modern world*. New York: Penguin.

ENGELS, FRIEDRICH

Born: November 28, 1820, in Barmen, Germany; Died: August 5, 1895, in London, England; Nationality: German; Professional Interests: socialism, Marxist; Major Work: *Manifesto of the Communist Party* (with Karl Marx) (1848).

Friedrich Engels was a 19th-century German philosopher and a founder of Marxist theory. Engels was the main partner of Karl Marx in bringing communism and socialism to the forefront of economic thought. The son of an industrialist, growing up in an upper-class lifestyle, young Engels befriended many of his father's workers and became familiar with their working and living conditions. Writing of these experiences led him to meet Karl Marx, his intellectual soulmate. Engels and Marx worked together to organize workers to join the Communist League in Belgium, Germany, and Prussia. In 1848, Engels and Marx published the *Communist Manifesto*. Engels would later become the main financial support of Marx's later works. Engels died in 1895.

Friedrich Engels was born on November 28, 1820, in Barmen, Germany, the son of a German industrialist who owned a number of textile companies. A rebellious young man, he was writing political tracts by the age of 18. As was required of all young German men, he served his mandatory military enrollment and completed it honorably. While serving in the military in Berlin, he became familiar with the works of Friedrich Hegel and embraced a leftist ideology. It was also here that his agnosticism would grow to militant atheism.

Young Engels persuaded his father to send him to a mill in Manchester, England, in which the elder Engels was a partner. Friedrich told his father that this would help further his knowledge of the family business. The elder Engels saw this as an opportunity to remove his son from exposure to the radical ideas afoot in Germany in 1842, so he gladly sent him. En route, Engels and Marx would meet briefly for the first time. Neither was impressed with the other.

While Friedrich participated in the upper-class lifestyle enjoyed by the Manchester industrialists (he was particularly fond of fox hunting), he pursued his studies of the working men and women who were his employees. He frequented their clubs and their workers' meetings, even developing an ongoing relationship with one of the women who worked in his mill. His tours of the working-class slums and his growing knowledge of their living and working conditions would result in his writing and publishing *The Condition of the Working Class in England* in 1844.

Early that same year, Engels began contributing to a radical journal edited by Karl Marx. Upon leaving the family business to return to Germany, Engels went to Paris to meet Marx and this time found his intellectual soulmate. They began working together, and in January 1845, when Marx was expelled from France for his radical writings and ties to a radical organization, later to become the Communist League, both would end up in Belgium. In Brussels, Marx and Engels worked together to organize workers in Germany, joining the Communist League. The workers' movement was already taking place in England and France, and both men felt it was time for German workers to join ranks. It was while in Belgium that Engels and Marx would work on and publish their most famous collaboration: the *Manifesto of the Communist Party.* However, in 1848 revolution struck France and soon spread across much of Europe. Marx and Engels were expelled from Belgium, again for their radical writings and work with the Communist League. They returned to Germany.

Once back in Prussia, Engels continued working to organize workers and writing with Marx. Marx would lose his Prussian citizenship and again be expelled, but Engels stayed on to take part in fighting against Prussian troops in an uprising against the government. When the Prussian army emerged as the winner, Engels barely managed to escape into Switzerland. From there, he rejoined Marx, this time in England.

While in England, Engels and Marx tried to resurrect the now-defunct Communist League, but their finances were stretched thin and Marx was beginning to work on *Das Kapital.* It is here that Engels would again play a crucial role in the development of economic theory—this time, not as a writer or thinker but as a supporter. Engels went back to work in the Manchester mills, providing funding for Marx and his family, while Marx worked on his major work. Engels also provided insights for Marx on economic and business matters, but his largest contribution was financial. However, despite Engels's support, the Marx family continued to live in relative poverty. In 1869, Engels sold his interest in his business and moved to London to be near Marx. He and Marx worked together for another 14 years, until Marx's death.

Engels continued to be a force in the workers' movement. For the first five years after Marx's death, Engels spent much of his time writing. He wrote *The Origin of the Family, Private Property and the State,* a work in which he claimed that monogamy was a recent invention that kept women in a state of near-slavery. He claimed that with the rise of communism, the institution of monogamy would fall in an era of sexual freedom, and that private property and the state would join monogamy as outmoded ideas. But he also spent much of his time editing the second volume of *Das Kapital.*

Upon completing that work, Engels visited the United States at about the same time that the American edition of *The Condition of the Working Class* was published. While visiting the United States, he did not address workers' groups or tend to organize; instead, he opted to travel quietly, making notes as he traveled from place to place. He likened his visit to New York City to visiting Dante's Inferno.

Engels returned to England and spent much of the rest of his life editing the final volume of *Das Kapital,* which he finished shortly before he died on August 5, 1895, in London.

Timothy P. Schilling

See also: *Vol. 1: Foundations of Economics:* Command Economy; Marx, Karl; Socialism; *Vol. 3: Microeconomics:* Ely, Richard

Further Reading

Carver, Terrell. 1989. *Friedrich Engels: His life and thought.* Basingstoke, UK: Macmillan.

Engels, Friedrich. 1892. *The condition of the working class in England.* Trans. Florence Kelley Wischnewetzky. London: Swan Sonnenschein. (Orig. pub. 1844.)

Engels, Friedrich. 1892. *Socialism: Utopian and scientific.* London: Allen & Unwin.

Engels, Friedrich. 1902. *The origin of the family, private property and the state*. Trans. Ernest Unterman. Chicago, IL: Charles H. Kerr. (Orig. pub. 1844.)

Engels, Friedrich. 1926. *The peasant war in Germany.* New York: International.

Engels, Friedrich, and Karl Marx. 1848. *Manifesto of the communist party.* Moscow: Progress.

Henderson, William Otto. 1976. *The life of Friedrich Engels.* Vol. 1. Portland, OR: Frank Cass.

Henley, J. D. 1991. *The life and thought of Friedrich Engels: A reintroduction.* New Haven, CT: Yale Univ. Press.

Hollander, Samuel. 2011. *Friedrich Engels and Marxian political economy.* Cambridge, UK: Cambridge Univ. Press.

Hunt, Tristram. 2009. *Marx's general: The revolutionary life of Friedrich Engels.* New York: Metropolitan Books.

ENTITLEMENTS

Entitlement is a term used to describe a group of government programs in which recipients satisfy a set of criteria to qualify to receive the benefits of the particular program. If one meets the eligibility requirements for one of these programs, one is "entitled" to receive the benefits the program provides. Examples of federal government programs that fit into this category of programs are Social Security, Medicare, Medicaid, the Supplemental Nutrition Assistance Program (SNAP), and the National School Lunch Program. State government programs include housing assistance, the federal–state partnership for unemployment insurance, and special college tuition programs. Local governments may offer some housing assistance if one qualifies, but generally local governments do not offer programs that can be considered entitlements.

As government programs, entitlements are usually funded through either tax revenues or, in the case of Social Security, a combination of individual and employer contributions. Entitlements are considered automatic government expenditures because receiving the benefits is based on qualifications, not selection. Because increases in benefits are automatic, entitlements are often labeled the “uncontrollable” part of government budgets. Entitlements at both the federal level and the state level are components of their general budgets. Especially at the federal level, entitlement programs have become a significant percentage of the general budget. The government funds certain programs through offering bonds.

The most notable entitlement programs are the federal programs Social Security, Medicare, and Medicaid. Recipients must meet the requirements for each. For Social Security and Medicare, age is the major criteria. To qualify for Social Security, one must be at least 62 years old to qualify for minimum benefits and must have paid into the Social Security System for a minimum of 40 “credits,” or 10 years. Social Security benefits also extend to the family survivors from a death in a family, or if one becomes disabled and cannot work. A second Social Security eligibility requirement is that of paying into the Social Security insurance program for a minimum of eight quarters through one’s employment. For Medicare, one becomes eligible on one’s 65th birthday. Medicaid eligibility is based on a minimum income level. While Social Security and Medicare participation is not limited by income level, Medicaid is a medical insurance program designed to aid low-income individuals and families.

Federal spending on the entitlement programs or Social Security, Medicare, and Medicaid makes up the largest part of the federal budget. These programs are also the fastest-growing. Since the 1990s, entitlement programs have been growing between 7 and 8 percent per year, with Medicare and Medicaid growing the fastest. The Congressional Budget Office projects that entitlement programs—especially Social Security, Medicare, and Medicaid—will continue growing as a percentage of the federal budget as more citizens qualify.

Social Security

Social Security was established in 1935 when the Social Security Act was passed by Congress and signed by President Franklin Roosevelt. When the act was passed, the intent was for Social Security to be a retirement supplement or social safety net for those whose retirement savings were not sufficient. Today, Social Security is not just for older U.S. citizens. In 1956, the law was amended to include benefits for people with disabilities. Social Security benefits also extend to workers who become disabled and the survivors of a family in which either a spouse or a parent has died.

Social Security was originally established to replace approximately 40 percent of one’s income at retirement. Of every Social Security tax dollar, 85 cents is paid to retirees or their dependents, and 15 cents goes to those receiving disability benefits and their families.

How Social Security Works

When an employer participates in the Social Security System, an employee pays taxes into the Social Security System. The money pays the benefits to those who are entitled to receive retirement, disability, or survivor’s benefits from the Social

Security System. All Social Security taxes paid are held in a single federal government trust fund, not in individual accounts. The taxes are used to pay those receiving benefits. As of 2013, Social Security taxes are paid on income up to $113,700.

Employees become eligible to receive Social Security benefits when they have earned a total of 40 “credits” ($1,160 per credit, maximum 4 credits per year). Those 40 credits equate to 10 years of employment and participation to qualify for the Social Security retirement entitlement. Fewer credits are needed to qualify for the disability and survivor benefits.

Medicare and Medicaid

The other two major entitlement programs, Medicare and Medicaid, were signed into law on July 30, 1965, by President Lyndon B. Johnson. Medicaid was originally part of the Social and Rehabilitation Services Administration. In 1977, Medicare and Medicaid were combined into one federal agency: Centers for Medicare and Medicaid Services (CMS). While there have been many changes to the original program since 1965, the most significant change occurred on December 8, 2003, with the signing of the Medicare Modernization Act (MMA) by President George W. Bush. The MMA added several changes, the most significant being the outpatient prescription drug benefit.

Medicare is a federal health insurance program for individuals 65 and older. Younger individuals may qualify due to disability or End-Stage Renal Disease (ESRD). Medicare has four parts: Part A covers hospital, skilled nursing, hospice, and some home health care costs; Part B covers medical costs, including doctor’s services, outpatient care, medical supplies, and some preventive services; Part C covers health maintenance organizations (HMOs), preferred provider organizations (PPOs), or private fee-for-service, special needs, or Medicare medical savings accounts; and Part D covers prescription drugs. Parts C and D are offered by private companies that have contracted with federal government for Medicare services.

Individuals, including the self-employed, pay Medicare taxes on all earned income. Those who work for someone else pay half (6.2 percent) and employers pay half (6.2 percent). Self-employed workers pay the entire 12.4 percent. Medicare taxes go into a trust fund to pay for hospital costs and other medical costs of Medicare recipients. Medicare and Medicaid are managed by the CMS.

States are required by federal law to provide Medicaid health coverage to qualifying individuals with disabilities, seniors, children, pregnant women, and parents who are entitled under income requirements. The entitlement is based on the federal mandate to cover certain population groups, with the states having the option to include other groups. States set the eligibility requirements based on federal minimum income standards. One income eligibility standard is based on a percentage of the federal poverty level (FPL). In 2013, the FPL for a family of four was $23,550; the level is changed annually. Many state minimum eligibility levels exceed the federal minimum. Other nonfinancial criteria, such as U.S. citizenship, immigration status, or residency, are used to determine Medicaid eligibility.

Beginning in 2014, the Affordable Care Act of 2010 expanded Medicaid eligibility. Signed by President Barack Obama on March 23, 2010, the minimum eligibility level nationally became 133 percent of the federal poverty level. In 2011, the poverty level for a family of four was $29,700. While the new guidelines went into effect January 1, 2014, states had the option to accept the federal guidelines earlier if they chose to do so.

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See also: Great Society; Social Security Act of 1935; *Vol. 1: Foundations of Economics:* New Deal; Roosevelt, Franklin D.; *Vol. 3: Microeconomics:* Affordable Care Act Cases

Further Reading

CMS.gov. n.d. Centers for Medicare and Medicaid services: History. http://www.cms.gov/About-CMS/Agency-Information/History/index.html?redirect=/history/ (accessed December 10, 2013).

DeTommaso-Kleinert, D. n.d. For educators: Medicare reform. PBS (Public Broadcasting Service). http://www.pbs.org/now/classroom/medicare.html (accessed December 10, 2013).

JustFacts.com. n.d. Social security. http://www.justfacts.com/socialsecurity.asp (accessed December 10, 2013).

Medicaid.gov. n.d. Eligibility. http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Eligibility/Eligibility.html (accessed December 10, 2013).

Medicare.gov. n.d. What's medicare? http://www.medicare.gov/sign-up-change-plans/decide-how-to-get-medicare/whats-medicare/what-is-medicare.html (accessed December 10, 2013).

Social Security Administration. 2016. Social security: Understanding the benefits. SSA Publication No. 05-10024. http://www.ssa.gov/pubs/EN-05-10024.pdf (accessed December 10, 2013).

EQUATION OF EXCHANGE (QUANTITY THEORY OF MONEY)

The Equation of Exchange is the basis for the demand of money. Developed by Nobel laureate Irving Fisher, the Equation of Exchange is used by monetarists to view the role of money in an economy. Monetarists espouse the view that the quantity of money in an economy directly influences output, gross domestic product (GDP), employment, and prices. Changes in an economy's money supply will influence other economic variables as well. By way of comparison, the Keynesians believed that changes in the money supply influence changes in interest rates directly and employment and output indirectly.

The Equation of Exchange is also known as the Quantity Theory of Money. There are many different views of the Equation of Exchange, but all involve several of the same variables: money supply (M), velocity of money (V), price level (P), and output (Q): $MV = PQ$.

Defining Variables

The *money supply* (M) is the amount of currency and funds immediately available for use in the economy. A checking (demand deposits) account is an example. The funds of a checking account are not currency, but they are funds available for immediate use to purchase goods and services.

The *velocity of money* (V) is the average times that one dollar will circulate throughout an economy in a given year. If $V = 5$, this represents a one-dollar bill circulating throughout the economy five times during a year, or $5 worth to the economy.

The *price level* (P) of an economy times the economy's output (PQ) equals nominal GDP; that is, $P \times Q$ = nominal GDP. This represents how much people spend on goods and services during a given time period. Therefore, for an economy to have enough money to buy the goods and services purchased, represented by (PQ), MV must equal PQ. Because this equality always exists, this is also known as an accounting identity: $MV \cong PQ$.

Output (Q) is the amount of goods and services produced in an economy during a specific period of time.

Classical View

The Classical view emphasizes the microeconomics of an economy and the interaction between buyers and sellers. This is in contrast to the Keynesian and Monetarist views. In the Classical view, the income velocity of money (V), price level (P), and output (Q) are constant and the money supply (M) is fixed. As a result, only a change in the money supply (M) will change price (P). While similar to the Monetarist view, the Classical view is a long-run view only, where all resources are variable and can change with the economy. A second distinction between the Classical and Monetarist views is that the Classical view is based on a currency with a fixed value, such as a currency's value pegged to a gold standard.

Keynesian View

In contrast, the Keynesian view takes a macroeconomics view. This different perspective leads to several distinctions between the Keynesian view and the Classical view, specifically. In a macroeconomic view of the economy as a whole, aggregate output (Q) takes on another meaning. Output under the Keynesian philosophy equates to production of the entire economy, which Keynes's expenditure approach measured as GDP. For Keynes and the macroeconomists, short-run output (Q) became GDP.

The second distinction Keynes asserted was that a macroeconomy in equilibrium needed an income level equal to its production level (its GDP). Keynes's income approach asserted that for an economy to be in equilibrium, aggregate income (Y) needs to equal total output—or, for Keynes, GDP.

Under Keynes, the money supply (M) is fixed. The relationship between price level (P) and real output (real GDP) determines the aggregate demand curve. Keynes's focus was on stimulating the economy through increased aggregate demand, and interest rates are a significant tool for doing so. Changes between price level and real GDP create simultaneous changes in interest rates (R). The velocity of money (V) is a function of interest rates. Real GDP (Q) is changed by holding money supply (M) and income price level (Q) constant, since $V(R)$ is a function of R (interest rates): $M = PQ / V(R)$.

Monetarist View

Like the Keynesian view, the Monetarist view is a macroeconomic perspective of the economy. Again, output (Q) is also a measure of the aggregate output as measured by GDP. Monetarists also accepted an equivalency between macroeconomic output (as measured by GDP) and aggregate income (Y).

In the short run, when the money supply (M) changes it causes real GDP (Q) to change, since price level (P) does not change.

In the long run, when money supply (M) changes it causes only the price level (P) to change, since the relationship between real GDP and income (Y) is determined by other real factors of production.

Income velocity of money (V) is a function of interest rates and asset returns.

Quantity Theory of Money

With the addition of two assumptions using this same equation identity ($MV = PQ$), the Quantity Theory of Money model was developed. The Quantity Theory of Money helps explain the relationship between the price level in the economy (P) and the money supply (M). The first assumption is that over time velocity of money (V) is stable so can be assumed to be constant. The second assumption is that output (Q) is also constant over time. The Classical model also assumed that wages and prices were flexible, so that employment was always at full employment for the output of the economy at the time.

As a result, the Quantity Theory of Money appears as $MV = PQ$ with V and Q constant; money supply (M) is directly proportional to price level (P). Therefore, as the money supply (M) changes, so will the economy's price level—resulting in inflation, disinflation, deflation, or even hyperinflation if the relationship is too severe.

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See also: Deflation; Fisher, Irving; Gross Domestic Product; Inflation; Macroeconomics; Monetary Policy; Money; Money Supply; *Vol. 1: Foundations of Economics:* Classical Economics; Keynesian Economics; *Vol. 3: Microeconomics:* Microeconomics

Further Reading

Econmentor. 2014. Equation of exchange (MV/PQ) / Quantity theory of money. www.econmentor.com/college-macro/macro-topics/money/equation-of-exchange

-mv=pq--quantity-theory-of--money/text/362.html#Equation of Exchange (MV = PQ) /Quantity Theory of Money (accessed February 14, 2016).

Mankiw, N. Gregory. n.d. Macroeconomics Topic 7: Know the equation of exchange and the connection between money and inflation. In *Principles of Macroeconomics*. 2nd ed. Chapter 16. www.csun.edu/sites/default/files/macro7_0.pdf (accessed February 14, 2016).

Parke, William R. 2006. The equation of exchange: MV = PY. Macroeconomics Foundations. www.econmacro.com/foundations/markets/money/eq_of_exchange.htm (accessed February 14, 2016).

EXCESS RESERVES

Excess reserves are the extra money that banks hold beyond the required reserves that the Federal Reserve mandates. When a deposit is made at a bank, the bank must keep a percentage of the deposit as a required reserve, mandated by the Federal Reserve, to ensure the safety of the banking system. With a fractional reserve banking system, the bank has several options: to loan the remainder of the deposit to the public, to purchase bonds, or to keep the excess as cash reserves. Any amount of the deposit that is not kept as a required reserve and loaned to the public or used to purchase bonds is kept as cash and is classified as excess reserves.

There are many reasons why a particular bank or the banking system may have excess reserves. Perhaps the most significant reason is perceived economic instability. A financial institution would fight this negative perception by holding excess reserves to meet the withdrawal demands of its depositors. This would protect the financial institution from a rash of defaulted loans, and would provide financial security. An example of this type of economic instability is depicted in the bank run scene in the classic 1946 movie *It's a Wonderful Life*.

A second reason to keep excess reserves is if the bank is having difficulty finding qualified borrowers to lend their excess reserves.

Interest rates can also have an impact on excess reserves. While extremely low interest rates encourage borrowing, they also discourage lending—and some banks will evaluate their lending practices using cost–benefit analysis. While very low interest rates can be an incentive for borrowers, some banks may view the opportunity cost of lending at low interest rates very high and they choose not to make loans in those circumstances. Some banks choose instead to hold excess reserves until interest rates rise. This would increase their benefit of future loans.

In a fractional reserve banking system, a money multiplier effect is realized when banks loan out available excess reserves. The *money multiplier* is calculated as 1 divided by the reserve requirement (1/rr). For instance, if the reserve requirement is 10 percent, the traditional money multiplier would be 10; thus, (1/.10 = 10). If $1,000 of excess reserves are loaned out, $10,000 of money would be created in the economy ($1,000 × 10 = $10,000).

The multiplier effect can also be used to contract the money supply by increasing the reserve requirement. An increase in the reserve requirement from 10 percent to 20 percent would force financial institutions to hold more in required reserves, and consequently to have less excess reserves to loan.

During times of economic contraction or expansion, the Federal Reserve can increase or decrease excess reserves and the money supply by changing the reserve requirement. If banks choose to hold excess reserves, economic growth will be slower compared with a situation in which banks loan out all available excess reserves.

Consequently, one major concern with respect to economic activity is how to encourage banks to lend out more excess reserves during periods of economic contraction and instability, when it may be in their best interests to keep additional excess reserves. Some economists have suggested that banks could either be fined or pay a tax on excess reserves as a means of providing an incentive for banks to loan out their excess reserves. Many other economists support the belief that the market for loanable funds will cure the problem of banks holding excessive reserves, if interest rates are allowed to adjust to market conditions rather than being held down by the Federal Reserve.

The Federal Reserve can also increase excess reserves through the use of open market operations. The central bank purchases bonds from banks, increasing the money supply with the intent of increasing economic activity. Through the fractional banking system, excess reserves are created that can be loaned to the public. If banks choose to keep excess reserves as cash for financial security rather than loaning them out, the money supply and economic activity will not increase as much as the Federal Reserve had intended.

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See also: Contractionary Monetary Policy; Expansionary Monetary Policy; Federal Reserve System; Fractional Reserve Banking; Greenspan, Alan; Macroeconomics; Money; Money Multiplier; Money Supply; Volcker, Paul; *Vol. 1: Foundations of Economics:* Central Bank; *Vol. 3: Microeconomics:* Demand Deposits; Interest Rates

Further Reading

Dr. Econ. 2010. I noticed that banks have dramatically increased their excess reserve holdings. Is this buildup of reserves related to monetary policy? Federal Reserve Bank of San Francisco. http://www.frbsf.org/education/publications/doctor-econ/2010/march/banks-excess-reserves-monetary-policy (accessed April 9, 2014).

Keister, Todd, and James McAndrews. 2009. Why are banks holding so many excess reserves? Staff Report No. 380. Federal Reserve Bank of New York. http://www.newyorkfed.org/research/staff_reports/sr380.pdf (accessed April 9, 2014).

Moss, David. 2007. *A concise guide to macroeconomics*. Boston: Harvard Business Review Press.

EXPANSIONARY FISCAL POLICY

Expansionary fiscal policy occurs when the government attempts to stimulate the economy by decreasing taxes, increasing government spending, and increasing transfer payments. This policy is used when unemployment is high, when consumer spending is low, or when the economy is in a recession.

There are two conflicting viewpoints on handling the economy when inflation is high. Classical economists believe that the government should not get involved in the economy—that the market will balance out naturally. However, current fiscal policy is based on a theory developed by the British economist John Maynard Keynes: Keynesian economists believe that the government should step in and make policy changes when the economy is not growing—or worse, is in decline—and unemployment is high. This approach calls for the government to lower taxes along with increasing government spending to "prime the pump" of the economy. Expansionary fiscal policy is aimed at stimulating the economy and increasing employment. The most important element of fiscal policy is to maintain and balance the federal budget by examining tax revenues compared to government expenditures. Expansionary fiscal policy is used when the government seeks to increase the budget deficit or when it must decrease the budget surplus.

When enacting an expansionary fiscal policy, economists say that it shifts the aggregate demand curve to the right, which encourages economic output. *Aggregate demand* is the level of demand for goods and services by consumers, businesses, and the government. When an expansionary fiscal policy goes into effect, it works to increase aggregate demand for goods and services. The government uses three main tools to enact an expansionary fiscal policy: decreasing taxes, increasing government spending, and raising transfer payments.

When *decreasing taxes* is an expansionary fiscal policy tool, the government typically focuses only on an individual's personal income tax rates, though it can also include property tax and sales tax. A decrease in taxes can be in the form of either a one-time stimulus payment or an overall decrease in income tax rates. Either way, when taxation decreases, an individual's amount of disposable income is increased. Thus, with an increase in disposable income comes more spending power, which in turn causes increased production of consumer goods. When more production is necessary, businesses hire employees to meet the growing consumer demand. Overall, this causes the economy to grow. The increase in disposable income indirectly causes an increase in aggregate demand when consumers make more purchases of goods and services.

Increasing government spending means raising available funds across several different government agencies, and it can include giving more money for military expenditures, teachers' salaries, and road construction, for example. When these government agencies have increased available funds, they are able to make more purchases; this then increases an agency's income and raises its overall production. Aggregate demand is increased directly when the government spends more money because of increased output.

Raising the amount of transfer payments is also a useful tool of expansionary fiscal policy. Transfer payments are payments made by the government directly to individuals.

Aggregate demand (AD) increases (from AD1 to AD2) when government spending increases (from *x* to *x**)

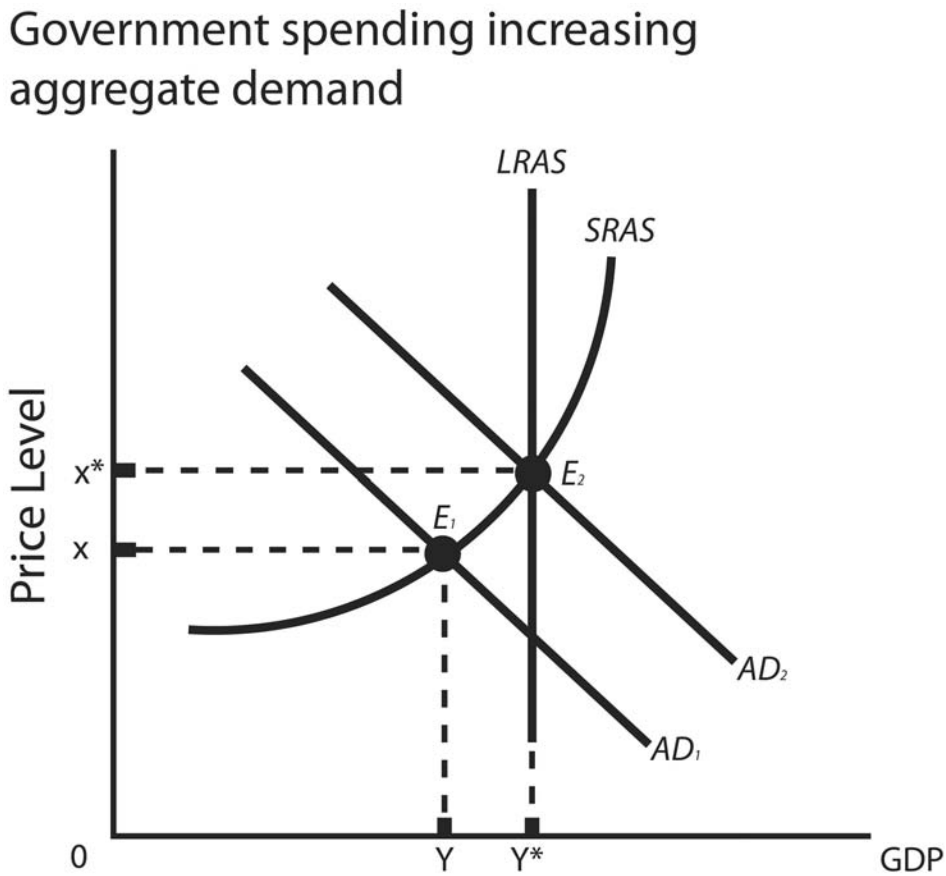

Figure 1. Aggregate demand increases (AD1 to AD2) when government spending increases (x to x*)

Those who receive transfer payments fall into three categories and include the elderly and disabled who are on Social Security, people who are unemployed and receive unemployment benefits, and the poor who are on welfare. Transfer payments can be raised either by increasing the amount of payment that one or two of the categories receive or by applying a blanket percentage increase across the three categories. Increasing transfer payments raises the disposable income of those who receive these benefits. More disposable income, such as when taxes are decreased, leads to an increase in production when people are able to purchase more goods and services. Once again, an increase in production means that more people can be hired to meet increased consumer demands. This also is an increase in aggregate demand indirectly.

One issue with using expansionary fiscal policy is known as the "crowding-out effect." Whenever the government spends its own money to stimulate the economy and borrows money to pay for the stimulus, interest rates go up because of greater demand in the money market. When interest rates go up, people do not invest as much, which means that economic growth slows down. While the crowding-out effect is more evident when the private sector's demand for money is high, it also poses a risk when expansionary fiscal policy tools are used.

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See also: Contractionary Fiscal Policy; Entitlements; Expansionary Monetary Policy; Fiscal Policy; Taxes; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics

Further Reading

AmosWEB. n.d. Expansionary fiscal policy. AmosWEB Encyclonomic WEB*pedia. http://www.amosweb.com/cgi-bin/awb_nav.pl?s=wpd&c=dsp&k=expansionary+fiscal+policy (accessed April 7, 2013).

CliffsNotes. n.d. Fiscal policy. https://www.cliffsnotes.com/study-guides/economics/fiscal-and-monetary-policy/fiscal-policy (accessed April 7, 2013).

EXPANSIONARY MONETARY POLICY

Expansionary monetary policy is a policy in which the central bank of a country decides that it is necessary to increase the monetary supply to prevent recession, decrease unemployment, or increase economic growth. Monetary policy works together with fiscal policy, which is controlled by the government, to ensure economic growth in the economy. The most frequent tool used by a central bank to implement expansionary monetary policy is the buying and selling of government bills, notes, and bonds.

In the United States, expansionary monetary policy is under the direction of the chair of the Federal Reserve. The Board of Governors of the Federal Reserve System decides when expansionary monetary policy is necessary. The Federal Reserve accomplishes expansionary monetary policy using three primary tools: lowering the reserve requirement; lowering the discount rate; or buying government bills, notes, and bonds. This last tool is implemented through the Federal Open Market Committee (FOMC). The FOMC implements expansionary monetary policy by lowering interest rates.

In order to implement the monetary policy decisions of the Federal Reserve Board of Governors, the FOMC carries out open-market operations. To apply expansionary monetary policy, the Federal Reserve buys government bonds. The increase in demand increases the price and decreases the interest rate. The lower interest rate creates incentives for financial institutions to increase loans, which promotes economic growth and reduces unemployment.

The Federal Reserve pays for government bonds by giving a credit to the purchasers in the form of deposits at regional Federal Reserve banks. Commercial banks then use the deposits to make more loans and accept more deposits. If many banks are offering loans, the interest rates on these loans are lowered in order to maintain competition between banks. In this way, the Federal Reserve purchasing government bonds lowers interest rates, which in turn increases monetary supply.

When decreasing the discount rate to accomplish expansionary monetary policy, the Federal Reserve is decreasing the interest rate it charges banks to borrow money directly from the central bank—or, more specifically, one of the 12 regional district banks. This encourages banks to borrow more reserves, increasing the money supply. The increased money supply allows banks to lend more to businesses and households. In summary, decreasing the discount rate increases the money supply, which encourages lower nominal interest rates and brings about increases in business and household borrowing.

Reducing the reserve requirement decreases the amount a bank must have in its end-of-day reserves to satisfy the Federal Reserve's reserve requirement regulations. Reserves include vault cash as well as Federal Reserve deposits. When banks have their reserve requirement decreased, the supply of loanable funds is increased, which lowers nominal interest rate. The lower rate creates the incentive for banks to supply more loans to businesses and households.

A risk in utilizing an expansionary monetary policy is overstimulation of the economy, which leads to inflation. When inflation is high, the purchasing power of money is decreased.

Using open market operations to buy government bonds, decreasing the discount rate, and lowering the reserve requirement are actions that the Federal Reserve can take to increase the money supply and fulfill expansionary monetary policy. Each is key in expansionary monetary policy to prevent a recession and increase economic growth.

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See also: Bernanke, Ben; Federal Reserve System; Greenspan, Alan; Monetary Policy; Volcker, Paul

Further Reading

BusinessDictionary.com. n.d. Expansionary monetary policy. WebFinance, Inc. http://www.businessdictionary.com/definition/expansionary-monetary-policy.html (accessed May 12, 2013).

DeLong, J. Bradford. 2009. *Macroeconomics*. New York: McGraw-Hill Higher Education.

Hetzel, Robert L. 2008. *The monetary policy of the Federal Reserve*. Studies in Macroeconomic History. New York: Cambridge Univ. Press.

Horobin, William. 2013. OECD calls on Europe to loosen monetary policy. *Wall Street Journal*, March 28. http://online.wsj.com/article/SB10001424127887324685104578388000735651838.html (accessed May 12, 2013).

Moffet, Mike. n.d. Expansionary monetary policy vs. contractionary monetary policy: What effects does monetary policy have? About.com Economics. http://economics.about.com/cs/money/a/policy.htm (accessed May 12, 2013).

EXPECTATIONS (RATIONAL AND ADAPTIVE)

Expectations about the future have an influence on practically all economic decisions. Investors, consumers, and firms all form expectations about such variables as income, interest rates and inflation for the purpose of making advantageous choices among available alternatives. Firms, for example, consider which additions to the capital stock and which hiring decisions will be profitable. The outcome in this case depends on the return that the additional resources will generate in the future. All such economic decisions with consequences in the future—according to the dominant theory of expectations—are formed rationally. Although it took more than a decade for the concept of rational expectations to take hold in economics, this notion has now become so ingrained in economists' thinking that many find it difficult to even conceive of an alternative. This difficulty stems from the fact that the notion of rational expectations is simply an extension of maximizing behavior to the formation of expectations. Those who believe that as economic decision-makers we always make the very best of our possibilities find it logical that we also form expectations in an optimizing way.

With respect to expectations or predictions, when we're looking into the future, *optimal* means not only that we use all available information but also that we use this information correctly. Accordingly, believers in rational expectations assume that economic agents understand exactly how past events and current decisions determine future outcomes.

One would expect that such an unrealistic view of human behavior would quickly be disproved by reality. For sure, contradictions between the theory of rational expectations and reality were documented in a large number of empirical studies. However, many studies assuming rational expectations were able to empirically predict stable relationships among observed variables. This begs the question why reality does not show more resistance to such a quixotic assumption. First, it is important to note that prediction is not the same thing as causation. That rational expectations are often consistent with the data does not imply that this theory actually explains the data.

By way of an answer, the following thought experiment should be helpful: Imagine a Martian civilization that wants to understand life on Earth. The technological possibilities and perhaps the physical form of these Martians permit them only to perceive and measure rectangular objects. In their endeavor to study life on Earth, these aliens make quick progress. In meetings at their academies, they listen to presentations about the spatial distribution of a long-living and stationary species (buildings). They have award-winning scientific publications dealing with the issues of whether reproduction of this observed earthly species is sexual or nonsexual and whether the small and quickly moving objects (cars) are excrements, food, or even parasites. According to several criteria, these alien investigations should be considered serious science. Their insights are verifiable and may be used for making predictions. Still, this unworldly science misconceives reality in fundamental ways. It misjudges the organic and inorganic basics of biology on Earth as well as life's potential and limitations. Moreover—thus returning to economics—such fundamental mistakes in understanding lead to misjudgments concerning the possibilities and dangers of interventions into the system thus studied. How can such misjudgments be avoided in economics when investigating expectations?

An answer starts with the detailed empirical study of expectations and decision-making (Simon 1959; Katona 1968). Research relying on survey data of expectations elicited from consumers and firms and laboratory studies has documented that human expectation formation is susceptible to systematical flaws. Inflation expectations, for example, have been documented to underestimate (or overestimate) actual inflation for extended periods of time. Laboratory experiments indicate that people fail to use all of the relevant information. Instead, subjects show a strong tendency to use simple forecasting heuristics. Simple rules of thumb like adaptive (error-learning) expectations or extrapolative expectations (which state that expectations are a weighted mean of past observations) had been considered even before the advent of rational expectations. While these earlier models of forecast heuristics have been largely pushed aside by rational expectations, recent developments like the notion of pattern-based extrapolation have proved to be valuable alternatives and have led to renewed interest in the hypothesis of extrapolative expectations (Rötheli 2011).

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See also: Macroeconomics; *Vol. 1: Foundations of Economics:* Behavioral Economics; Rational Expectations; *Vol. 3: Microeconomics:* Simon, Herbert

Further Reading

Chow, Gregory C. 2011. Usefulness of adaptive and rational expectations in economics. CEPS Working Paper No. 221. Princeton University. https://www.princeton.edu/ceps/workingpapers/221chow.pdf (accessed November 30, 2016).

Katona, George. 1968. Consumer behavior: Theory and findings on expectations and aspirations. *American Economic Review* 58: 19–30.

Muth, John A. 1961. Rational expectations and the theory of price movements. *Econometrica* 29: 315–35.

Rötheli, Tobias. 2011. Pattern-based expectations: International experimental evidence and applications in financial economics. *Review of Economics and Statistics* 93: 1319–30.

Sargent, Thomas J. 1986. *Rational expectations and inflation.* New York: Harper and Row.

Simon, Herbert A. 1959. Theories of decision-making in economics and behavioral science. *American Economic Review* 49: 253–83.

EXTERNALITY

When the market works, the incentives of market participants—that is, consumers and producers—align with those of society as a whole. In this case, a socially optimal allocation of resources is achieved. An *externality* occurs when there is a misalignment of these incentives, or in other words when the incentives that drive the choices of consumers and producers are different from those that affect other members of society. In this case, a third party who is external to the market transaction bears a cost (in the case of a negative externality) or receives a benefit (in the case of a positive externality) from the interaction between the consumer and the producer. Because the market participants fail to account for this external cost or benefit when making their choices, they choose to consume and produce at levels that are not optimal from society's perspective. Thus, an externality represents a market failure. In the case of a negative externality, the market outcome (i.e., the outcome that results from the choices of consumers and producers) results in too much of a good being consumed (and produced). With a positive externality, the market outcome leads to too little of a good being consumed (and produced). Externalities can result from consumption or production activities. A consumption externality occurs when there is a misalignment of incentives on the consumption or demand side of the market, whereas a production externality arises from misalignment on the production or supply side.

Pollution is a classic example of a negative externality. Firms that generate pollution do not set out to do so; rather, pollution is a by-product that results when firms produce other goods and services. How do firms decide how much of a good to produce and therefore, indirectly, how much pollution to generate? When firms seek to maximize profit, they produce at the point where the extra cost of producing one additional unit of a good (the marginal cost) is equal to the additional revenue the firm receives from selling that unit (the marginal revenue). The marginal cost reflects the cost of the materials, labor, etc. that the firm incurs to produce that additional unit of the good. However, from society's perspective, these are not the only costs of producing an additional unit of a pollution-generating good. Air pollution, for example, can lead to adverse health outcomes and poor visibility, among other effects. Water pollution can result in reduced recreational opportunities, negative impacts on aquatic life, and adverse health outcomes. The firm fails to account for these additional external costs when making its production decision to maximize profit and, as a result, chooses to produce too much of the pollution-generating good relative to what would be optimal from society's perspective. The socially optimal outcome involves the firm fully internalizing, or taking into account, these external costs when deciding how much of a pollution-generating good to produce.

How does this story change if firms have objectives other than maximizing profit? Many firms now devote significant resources to reducing the environmental impact of their production activities. The motivation for firms to pursue these activities varies; some firms may do so in response to regulatory pressure, others to consumer demands, or even to the preferences of the firm's owners. While these actions may reduce the magnitude of the negative externality associated with pollution, they are unlikely to completely eliminate the externality. Unless these activities result in the firm fully internalizing the external costs associated with pollution, then the externality will remain.

A flu shot is a useful example of a positive externality, albeit one outside the realm of environmental economics. Have you ever considered getting a flu shot? If so, then you likely weighed the costs and benefits of doing so in making your decision (even if you were unaware you were making this comparison). On the cost side, you may have considered the monetary costs of the flu shot (e.g., your insurance co-payment or the out-of-pocket cost of the shot), the pain you might feel from the injection, the chance of side effects, and perhaps the forgone time (the time you could spend doing something other than getting a flu shot). The most obvious benefit to you of getting a flu shot is your reduced chances of contracting the flu. In making your decision, you may have even recognized and factored into your decision the reduced chances your roommates or family members would face as a result of you getting a flu shot. If you viewed your personal benefits as exceeding your personal costs, then you got a flu shot.

Otherwise, you did not. From society's perspective, the optimal outcome involves flu shots for those individuals for whom the social benefits exceed the social costs. The social benefits of your getting a flu shot include your personal benefits as well as the benefits to all other individuals who face a reduced chance of contracting the flu because you received a shot. Thus, the social benefits of getting a flu shot are likely to exceed the personal benefits. In this case, the market outcome—that is, the outcome that results when people make decisions based on their personal costs and benefits—results in too few people getting flu shots. Like the pollution example discussed earlier, the socially optimal level of flu shots involves people fully internalizing the external benefits of the activity.

Whether positive or negative, stemming from production or consumption activities, an externality results in an inefficient allocation of resources. The inefficiency is corrected and the socially optimal allocation of resources achieved only when market participants fully internalize the external costs or benefits of their actions. Environmental economists recognize two fixes for externalities. The first applies under specific conditions and relies on coordination among market participants and those impacted by the externality. The second involves regulation—specifically, the use of taxes, subsidies, or other instruments—to force internalization of the external costs and benefits. In general, these fixes work by realigning private and social incentives and therefore eliminating the market failure associated with the externality.

Mary F. Evans

See also: Public Goods; Water Pollution; *Vol. 1: Foundations of Economics:* Theory of Public Choice; *Vol. 3: Microeconomics:* Air Pollution; Coase, Ronald; Coase Theorem; *Vol. 4: Global Economics:* Subsidies

Further Reading

Aslanbeigui, Nahid, and Steven G. Medema. 1998. Beyond the dark clouds: Pigou and Coase on social cost. *History of Political Economy* 30 (4): 601–25.

Dahlman, Carl J. 1979. The problem of externality. *Journal of Law and Economics* 22 (1): 141–62.

Demsetz, Harold. 1996. The core disagreement between Pigou, the profession, and Coase in the analyses of the externality question. *European Journal of Political Economy* 12 (4): 565–79.

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FEDERAL DEPOSIT INSURANCE CORPORATION

The Federal Deposit Insurance Corporation (FDIC) is a federal agency created in 1933 under the direction of President Franklin D. Roosevelt. The FDIC was created to insure customer deposits in the event of a bank failure. At first, FDIC insurance covered losses up to $2,500. The amount has grown over time, and is currently at $250,000 per depositor, per insured bank.

During the 1920s, U.S. banks loaned large sums of money to many high-risk businesses. Many of these businesses proved unable to pay back their loans. The October 1929 stock market crash caused many panicked investors to sell their stocks, resulting in the collapse of the stock market. Banks had invested heavily in the stock market, and they lost huge sums. Farmers were also unable to pay back loans due to crop failures and hard times on the nation's farms. Fearful that banks would run out of cash, people rushed to their banks demanding their money. To pay back these deposits, banks had to recall loans from borrowers, but they could not do so fast enough to pay all the depositors.

The combination of the stock market crash, unpaid loans, and bank runs resulted in the failure of thousands of banks across the country. By the early 1930s, the Great Depression had hit the United States. Many people lost their life savings due to bank failures and closings, and the American people lost their faith in the banking industry.

When Franklin D. Roosevelt took office in 1933, he needed to encourage citizens to deposit their money in banks once again and restore confidence in the nation's banking system. On March 5, 1933, Roosevelt declared a national "bank holiday" and closed the nation's banks. The bank holiday was not a time of festivities or celebration, but a desperate last-resort move to restore trust in the nation's financial system. The "holiday" was a time for the banks to replenish their reserves and reestablish a healthy money system. Within a matter of days, sound banks began to reopen. As a result of the many bank failures of the Great Depression, banks were closely regulated from 1933 through the 1960s.

Later in 1933, Congress passed the Banking Act, which established the Federal Deposit Insurance Corporation. Roosevelt was hopeful that with this act citizens would trust the banking industry again and be willing to deposit their money in the nation's banks. The act guaranteed that even if a bank failed, deposits would be guaranteed by the federal government.

Meanwhile, banks became extremely cautious. They made fewer loans and kept enough cash on hand in case depositors all came at once to withdraw their funds. Banks began to hold substantial reserves, far in excess of those required by the Federal Reserve.

The FDIC is an independent agency of the federal government. It employs more than 7,000 people. It is headquartered in Washington, D.C., but it conducts most of its business in six regional offices and field offices throughout the nation. The FDIC is managed by a five-person board of directors, all of whom are appointed by the president and confirmed by the Senate. No more than three can be from the same political party as the president.

In addition to insuring deposits, the agency identifies, monitors, and addresses risks with deposits in participating banks. It directly examines and supervises more than 4,500 banks and savings banks for operational safety and soundness. It also monitors banks to make sure they are in compliance with any consumer protection laws that have been created by the federal government.

To protect insured depositors, the FDIC responds immediately when a bank fails. Failed institutions are generally closed and the FDIC helps to resolve the failure, usually through the sale of deposits and loans to other thriving banking institutions. Customers of the failed institution automatically become customers of the bank that acquired the deposits and/or loans. Most of these transitions are seamless from the customer's point of view. Since the start of the FDIC insurance on January 1, 1934, no depositor has lost a single cent of insured funds as a result of a bank failure.

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See also: Banking Act of 1933 (Glass-Steagall Act); Federal Reserve System; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; Roosevelt, Franklin D.

Further Reading

Bair, Sheila. 2012. *Bull by the horns: Fighting to save Main Street from Wall Street and Wall Street from itself*. New York: Free Press.

Federal Deposit Insurance Corporation (FDIC). 2004. About FDIC. http://www.fdic.gov/about/ (accessed November 30, 2016).

Konstas, Panos. 2005. *Reforming FDIC insurance with FDIC-sponsored deposit self-insurance*. Darby, PA: Diane Publishing Co.

O'Sullivan, Arthur, and Steven M. Sheffrin. 2007. *Economics principles in action*. New York: Pearson-Prentice Hall.

FEDERAL OPEN MARKET COMMITTEE

Following World War I (1914–1918), there was a significant economic contraction in the United States, and a result of this contraction was a significant decrease in reserves in the banking system. To remedy this situation, during the first half of 1922 the Federal Reserve began to purchase government securities from commercial entities to improve the reserves of commercial banks. The Federal Reserve observed that as it purchased bonds, interest rates in the credit market and on loans decreased, which resulted in an increase in economic activity.

The Banking Acts of 1933 and 1935 created the Federal Open Market Committee (FOMC), and active monetary policy as a means to control economic activity was born. The Federal Reserve has a long history of using open market operations to fulfill its dual mandate of controlling inflation and maintaining high levels of employment. However, the power of open market operations by the Federal Reserve was an accidental discovery.

Open market operations is the buying and selling of government securities or bonds by the Federal Reserve, and it is the primary monetary policy tool used to control bank reserves, the money supply, and ultimately interest rates. The Federal Reserve specifically targets the *federal funds rate*, which is the interest rate that banks charge each other to borrow money on a short-term or overnight basis. The Federal Open Market Committee (FOMC) of the Federal Reserve determines the target for the federal funds rate, and the Federal Reserve Bank of New York conducts open market operations (the buying and selling of government securities) to satisfy the federal funds rate target established by the FOMC.

Typically, open market operations are conducted on a daily basis to maintain the federal funds rate target. The federal funds rate can be viewed as the first domino of interest rates, as most other interest rates follow the federal funds rate. The ability to control interest rates provides the Federal Reserve with the power to achieve its dual mandate of stable prices and maximum employment. Low interest rates encourage borrowing and spending while they discourage saving, which increases economic activity and employment in the short run. High interest rates discourage borrowing and spending while they encourage saving, which decreases economic activity and inflation in the short run.

During a business cycle contraction, the FOMC will typically lower the federal funds rate target, requiring the Federal Reserve Bank of New York to purchase of government securities. These purchases directly increase bank reserves, reducing the federal funds rate, and stimulate economic activity. The securities that banks hold represent previous deposits that cannot be loaned to the public because the value of those excessive reserves or deposits is held in the form of bonds. As the Federal Reserve purchases these securities from banks or individuals, the Fed deposits the sale price of the securities into the accounts of the banks or individuals, and the excess reserves that banks hold will increase. As a bank's excess reserves increase, the interest rate incentive encourages banks to loan out their newly acquired excess reserves, which stimulates the money multiplier effect of the fractional reserve banking system—and ultimately it stimulates economic activity. The goal of this expansionary monetary policy is to increase employment.

When the Federal Reserve owns government securities, the interest earned from these securities is ultimately transferred to the U.S. Treasury.

During a business cycle expansion, when inflation increases beyond the desired amount, the FOMC will typically increase the federal funds rate target and will require the Federal Reserve Bank of New York to sell government securities. The sale of these securities directly decreases bank reserves, increasing the federal funds rate, slowing economic activity, and ultimately slowing the rate of inflation. The excess reserves that banks hold come from the deposits made by individuals, and these reserves are used to purchase the securities from the Federal Reserve. A bank's purchase of securities from the Federal Reserve directly reduces the amount of loans that can be made in the banking system, decreasing the money multiplier effect of the fractional reserve banking system and ultimately slowing economic activity to control inflation. The goal of this restrictive monetary policy is to reduce the rate of inflation.

During times of high levels of unemployment and high inflation (stagflation), the Federal Reserve is limited in its ability to fulfill the dual mandate of stable prices and high employment. In times of stagflation, the Federal Reserve must choose to either control inflation or control unemployment.

The ability of the Federal Reserve to control economic activity through open market operations is directly linked to the banking system's treatment of excess reserves and the public's desire to hold cash. If banks do not loan out excess reserves or if the public holds cash rather than depositing their excess cash into banks, the impact of open market operations on economic activity will be limited.

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See also: Banking Act of 1933 (Glass-Steagall Act); Excess Reserves; Federal Reserve System; Inflation; Inflation, Measures of; Monetary Policy; Money Supply; *Vol. 1: Foundations of Economics:* Central Bank; *Vol. 3: Microeconomics:* Business Cycle; *Primary Document*: Banking Act of 1933 (Glass-Steagall Act)

Further Reading

Akhtar, Michael. 1997. Understanding open market operations. Federal Reserve Bank of New York. research.stlouisfed.org/aggreg/meeks.pdf (accessed April 12, 2014).

Burgess, Randolph. 1964. Reflections on the early development of open market policy. Federal Reserve Bank of New York. fraser.stlouisfed.org/docs/meltzer/burref64.pdf (accessed April 12, 2014).

Moss, David. 2007. *A concise guide to macroeconomics*. Boston: Harvard Business Review Press.

Wheelan, Charles. 2002. *Naked economics*. New York: Norton.

FEDERAL RESERVE ACT OF 1913

Popular call for a central U.S. bank began after Americans experienced the severe inflation of Continental currency during the American Revolution. It was not until 1791 that Treasury Secretary Alexander Hamilton helped Congress establish the First Bank of the United States in Philadelphia. The 20-year charter was not renewed when it expired, as some Americans were uncomfortable with the idea of a large, powerful bank. Public opinion later shifted, and in 1816 Congress created the Second Bank of the United States. Congress did not renew this charter when it expired in 1836, however, as Andrew Jackson (elected president in 1828) led the fight against central bank power.

The United States suffered a severe depression in 1893, and again in 1907, after severe banking panics and bank runs arose from a liquidity crisis. New York financier J. P. Morgan stepped in both times, using his vast resources and wealth to stabilize the American economy. Many Americans realized the need for reform of the banking system.

However, debate between the conservative "money trust" financiers of New York City and the "progressives" continued over the necessity of a nation's central bank. The progressive solution, endorsed by William Jennings Bryan, suggested public control of a central bank, while conservatives like Senator Nelson Aldrich of Rhode Island advocated a banker-controlled plan.

In May 1908, Congress passed the Aldrich-Vreeland Act, establishing the bipartisan National Monetary Commission to study central banking and monetary reform. In November 1910, Aldrich and others—including Paul Warburg, Frank Vanderlip, Harry P. Davison, Benjamin Strong, and A. Piat Andrew—traveled to Jekyll Island off the coast of Georgia to create a U.S. banking and currency reform plan known as the Aldrich plan.

The American public elected Democrat Woodrow Wilson president in 1912 before the Aldrich Plan could be enacted into law. Yet it became the foundation for the Federal Reserve Bill, along with another bill that Senator Robert Latham Owen proposed: the Glass-Owen Bill. H. Parker Wills, an economics professor from Washington and Lee University, and Carter Glass, Virginia Democrat in the House of Representatives, worked to create this version of a central banking plan. Glass was later to chair the House Committee on Banking and Finance.

After much deliberation and revision, the 30-section Federal Reserve Act passed the House with 298 yeas to 60 nays, and it passed the Senate with 43 yeas to 25 nays. The Democrats supported the act, while the banker Republicans opposed it. Bankers were concerned because only one of seven members of the board could represent the banking community. On December 23, 1913, President Woodrow Wilson signed the Federal Reserve Act into law.

The Federal Reserve Act called for a central bank that could make decisions it felt were in the best interests of the country, without political or private pressure—a compromise of public and private interests. A second compromise was for there to be at least 8 but no more than 12 private regional Federal Reserve banks, each with its own branches, board of directors, and district boundaries.

The Federal Reserve System required a seven-member Board of Governors consisting of officials appointed by the president and confirmed by the Senate. They would serve 10-year staggered terms to govern the central bank. Two board members would be the Secretary of the Treasury and the Comptroller of the Currency. This was changed in 1922 to become eight members, before a final settlement of seven was again restated in the Banking Act of 1935. The permanent member requirement was later also eliminated, and terms were extended to 14 years.

The act encouraged diversity, as the president was to seek a fair representation of the different commercial, industrial, and geographic divisions of the country when selecting the five remaining board members, none of whom should be selected from any one Federal Reserve district. In addition, two of the members had to have banking or finance experience (although this experience requirement was later dropped).

The president would select the governor and vice-governor of the board—later called the chair and vice-chair of the board—each serving four-year terms. The Federal Reserve Act of 1913 determined that bank assessments would pay the salaries of the board members and that the board would be required to submit an annual report to Congress. In addition, the act specified a 12-member Federal Advisory Committee and a single U.S. currency of the Federal Reserve Note (the U.S. bank notes or bills used today).

Membership was mandatory for all national or federally chartered banks and was optional for state-chartered banks. All nationally chartered banks were required to purchase nontransferable stock in their regional Federal Reserve banks and to keep a specific amount of reserves with their respective banks. Member banks would now be subject to supervision, limited to earning no more than a 6 percent dividend on their stock, and authorized to offer discounted loans.

The act was also later changed to create the Federal Open Market Committee (FOMC), consisting of the seven board members and five representatives from the Federal Reserve Banks, one of which is always from the New York Federal Reserve. They direct all open-market operations of the Federal Reserve banks.

In the 1970s, the act was amended again to promote the goals of maximum employment, stable prices, and moderate long-term interest rates. The chair was now required to report at semiannual hearings to inform Congress of policy objectives and plans concerning monetary policy, economic development, and future prospects.

Today, the Federal Reserve continues to conduct the nation's monetary policy; supervise and regulate member banks; maintain the stability of the financial system and contain systemic risk that may arise in financial markets; and provide financial services to depository institutions, the U.S. government, and foreign official institutions.

Kathryn Lloyd Gustafson

See also: Banking Act of 1933 (Glass-Steagall Act); Bernanke, Ben; Burns, Arthur; Federal Reserve System; Greenspan, Alan; *McCulloch v. Maryland*; Monetary Policy; Volcker, Paul; Yellen, Janet; *Primary Documents*: Banking Act of 1933 (Glass-Steagall Act); Federal Reserve Act of 1913

Further Reading

Board of Governors of the Federal Reserve System. 2005. *The Federal Reserve system: Purposes & functions*. 9th ed. http://www.federalreserve.gov/pf/pdf/pf_1.pdf#page=4. (accessed June 16, 2013).

Board of Governors of the Federal Reserve System. 2013. Federal Reserve act. http://www.federalreserve.gov/aboutthefed/fract.htm (accessed June 16, 2013).

FederalReserve.gov. n.d. History of the Federal Reserve. http://www.federalreserveeducation.org/about-the-fed/history/ (accessed June 16, 2013).

Flaherty, Edward. n.d. A brief history of central banking in the United States. American History from Revolution to Reconstruction and Beyond. http://www.let.rug.nl/usa/essays/general/a-brief-history-of-central-banking/ (accessed June 16, 2013).

Johnson, Roger T. 2010. Historical beginnings… The Federal Reserve. http://www.bos.frb.org/about/pubs/begin.pdf (accessed June 16, 2013).

Smale, Pauline H. 1995. Board of governors of the Federal Reserve system: History, membership, and current issues. Congressional Research Service. http://llsdc.org/attachments/wysiwyg/544/CRS-95-292-1995.pdf (accessed June 16, 2013).

Sprague, O. M. W. 1914. The Federal Reserve act of 1913. *The Quarterly Journal of Economics* 28: 213–54.

Whitehouse, Michael A. 1989. Paul Warburg's crusade to establish a central bank in the United States. Federal Reserve Bank of Minneapolis. http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=3815 (accessed June 16, 2013).

FEDERAL RESERVE AND TREASURY, RELATIONSHIP BETWEEN THE

The U.S. government has a vested interest in the welfare of its economy. The Department of the Treasury and the Federal Reserve work together to maintain U.S. economic stability. To understand the relationship between the Federal Reserve and the U.S. Department of the Treasury, one must first understand the dynamics of each body.

The U.S. Department of the Treasury was established in 1789. The mission of the U.S. Treasury is to create and maintain a strong economy, combating threats and protecting the integrity of the U.S. financial system. Among its many obligations, the department is responsible for advising the president on economic and financial issues and fostering improved management of financial institutions. The department also operates the financial systems that are responsible for the production of coin and currency and for payments made to the U.S. public, as well as for collection of the taxes and revenues needed to operate the federal government. Basic Treasury functions also include managing federal finances, supervising national banks, and enforcing federal finance and tax laws.

Created by the Federal Reserve Act, the Federal Reserve System was established in 1913. The system is commonly referred to as "the Fed," and it has a mixture of public and private elements. The system is overseen by a Board of Governors located in Washington, D.C. The Federal Reserve System comprises a network of 12 regional banks with 25 branches under the oversight of the board. The 12 regional reserve banks are the operating arms associated with the Fed System.

There are more than 8,000 commercial banks in the United States, and about one-third of them are members of the Federal Reserve System. Member commercial banks are investors of the regional reserve banks, and they must hold 3 percent of their capital as stock in their reserve branch.

The Federal Open Market Committee is responsible for managing the nation's money supply. The FOMC is the monetary policymaking body responsible for the creation of policies designed to promote economic growth and stable prices. In short, the Federal Reserve ensures that lenders and borrowers have access to money and credit.

With the common goal of obtaining and maintaining a stable economy, the Fed and the Treasury have plenty of opportunity to work cohesively. When the government needs cash, the Fed and the Treasury work together to borrow money. Working on behalf of the Department of the Treasury, the Fed issues U.S. Treasury securities and conducts Treasury securities auctions. The congressional act governing the Fed specified that securities transactions must take place in the open market. Thus, instead of securities being bought or sold directly with the Treasury, transactions take place between the Fed and a group of primary dealers. Transactions undertaken in an open market, rather than directly with the Treasury, ensure the independence of the central bank when it conducts monetary policy. The prices of new securities are set by the demand and supply conditions of the private market.

Not only does the relationship include organized policymaking, but also it generates a portion of the revenue needed to run the country. The Federal Reserve is a nonprofit organization; once its operating expenses are paid, the remaining profits are paid to the Department of the Treasury. The Treasury uses the funds for spending by the federal government.

Recessions are a natural part of the cyclical economy. When a recession occurs, the Fed and the Treasury work together to formulate and implement economic policies to stimulate the economy. During recession, the optimal response is to reduce interest rates and make money available to banks and consumers. When the government issues rebate checks, the Treasury is responsible for debiting the money from the Federal Reserve System.

When government-sponsored entities and private companies get into trouble, the Fed can discount borrowing rates and provide funds to the companies; in addition, the companies' lines of credit can be increased and the Department of the Treasury can purchase their stocks. Recent bailouts include the financial system during the recession that began in 2008. With the near collapse of Bear Sterns, the Fed and the Treasury worked together to provide J.P. Morgan Chase funds to purchase Bear Stearns. Taxpayer assistance was also given to Chrysler and General Motors during the same time period.

Michael Weck

See also: Federal Reserve System; Federal Open Market Committee; Recession; Treasury Securities; United States Treasury; *Vol. 1: Foundations of Economics:* Banking; *Vol. 3: Microeconomics:* General Motors Bankruptcy, 2009

Further Reading

Board of Governors of the Federal Reserve System. n.d. Why doesn't the Federal Reserve just buy treasury securities directly from the U.S. Treasury? www.federalreserve.gov/faqs/money_12851.htm (accessed November 30, 2016).

Federal Reserve Education.org. n.d. The structure and functions of the Federal Reserve System. www.federalreserveeducation.org/about-the-fed/structure-and-functions/ (accessed November 30, 2016).

Smith, Lisa. 2014. The Treasury and the Federal Reserve. *Investopedia*, September 17. www.investopedia.com/articles/economics/08/treasury-fed-reserve.asp (accessed November 30, 2016).

U.S. Department of the Treasury. n.d. Duties & functions of the U.S. Department of the Treasury. www.treasury.gov/about/role-of-treasury/Pages/default.aspx (accessed November 30, 2016).

FEDERAL RESERVE SYSTEM

Financial panics were frequent occurrences during the 19th and early 20th centuries. These panics led to banking failures and businesses frequently going out of business. The monetary system of the day was highly disruptive to the economy. Banks were often unstable and not able to consistently provide the intermediation services and liquidity necessary for an economy to grow. The financial crisis of 1907 caused Congress to pass the Federal Reserve Act. The act became law when it was signed by President Woodrow Wilson on December 23, 1913.

The idea of a central bank in the United States was a hotly debated political issue at the time of the act's passage. As a result, the Federal Reserve Act of 1913 included a political compromise: While the act established a central bank for the nation, many of the responsibilities of a central bank were to be conducted by a network of regional banks.

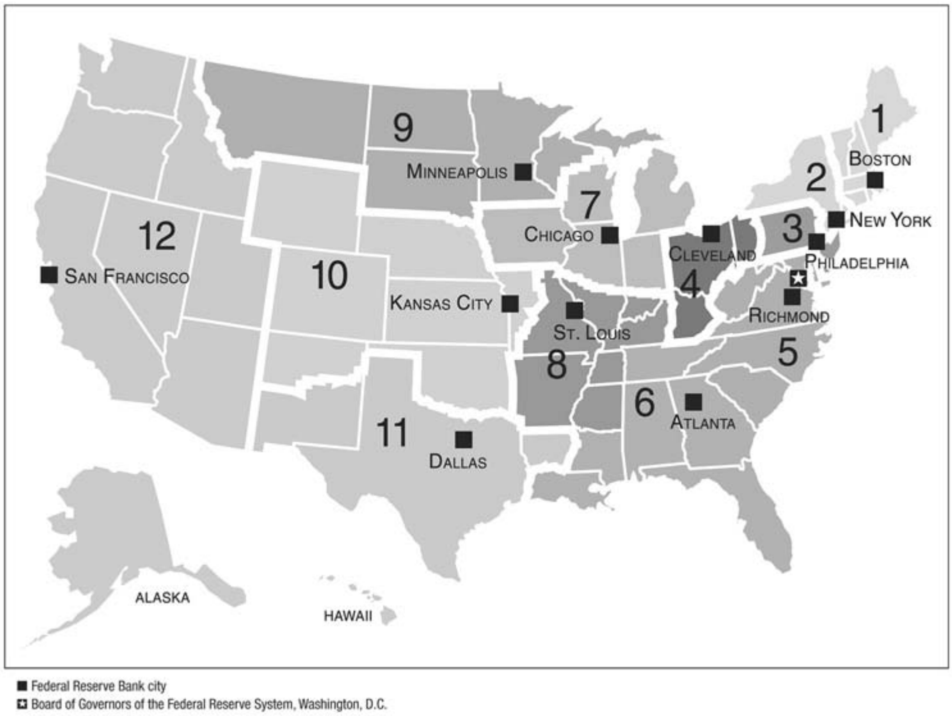
The Federal Reserve (commonly referred to as "the Fed") had two key purposes: to create a more stable central banking system, and to provide the U.S. economy with a stable monetary system. As time has passed, the monetary and banking system duties and responsibilities of the Fed have expanded several times. Today's Federal Reserve System has four major themes: overseeing the nation's monetary policy; supervising and regulating the nation's banks; creating a stable banking system; and providing banking services to the nation's banks—that is, serving as the banks' bank. Economists for the Federal Reserve Board are known for their innovative research on many economic and finance topics and issues, and also for their high-quality research at conferences, published articles in journals, their presentations to many political representatives.

Even though the Fed was created by an act of Congress and signed into law by the president, the Federal Reserve System was established as an independent central bank. The decisions of the Fed are not subject to any approval or rejection by either Congress or any agency of the executive branch, including the president. However, the Fed must still conduct its business within the framework of government and the government's overall financial and policy goals, and the chair of the Federal Reserve Board of Governors does report to Congress. This independence of decision-making has often been the subject of debate within both Congress and the executive branch.

Since 1913, several laws have been enacted to refine, revise, or expand the responsibilities of the Federal Reserve System. First was the Banking Act of 1935, followed by the Employment Act of 1946, and then the Bank Holding Company Act of 1956. The second half of the 20th century saw further revisions of the Fed with the International Banking Act of 1978; the Depository Institutions Deregulation and Monetary Control Act of 1980; the Financial Institutions Reform, Recovery, and Enforcement Act of 1989; the Federal Deposit Insurance Corporation Act of 1991; and the Gramm-Leach-Bliley Act of 1999.

Board of Governors

The Board of Governors of the Federal Reserve System has seven members. The members are appointed by the president and confirmed by the Senate. Each board member is appointed for a 14-year term. The seven terms are staggered so that one term will expire on January 31 during even-numbered years (2010, 2012, 2014, and so on). Board members are appointed for only one 14-year term, and they cannot be reappointed. New members appointed to complete a former member's term may be appointed to their own 14-year term.



Map 1. Federal Reserve regional banks

Current members of the board are eligible to serve as the chair and vice chair of the board. A selection by the president for chair or vice chair may be double-appointed to the board and to chair or vice chair at the same time. These positions are also appointed by the president and confirmed by the Senate. Each chair or vice chair position serves a four-year term and may be reappointed.

The Federal Reserve System is a network of 12 regional banks and their branches; each regional bank is responsible for a specific geographic region, or district. (See Map 1.) The district banks are the operational extensions of the central banking system. These banks are responsible for the duties of a central bank. These duties include maintaining a national payment system, distributing the nation's money supply, and serving as a regulator and supervisor of banks and as the banker for the U.S. Department of the Treasury. Each regional bank also serves its region with various district duties. The district banks also report to Congress.

Each district bank has its own board of directors. The district boards are made up of nine members from outside the bank, representing business, agriculture, labor, banking, and labor sectors of the district bank. Each district board of directors employs a president and first vice-president to serve as chief executives of the district bank.

Federal Open Market Committee

A major component of the Federal Reserve System is the Federal Open Market Committee (FOMC). The FOMC members are members of the Board of Governors and are presidents of four district banks on a rotating basis, excluding the New York district bank (the Federal Reserve Bank of New York president is a continuous member of the FOMC). The FOMC is responsible for the open market operations of the Fed. The Fed uses this monetary policy tool to influence interest rates and money supply.

David A. Dieterle

See also: Bernanke, Ben; Burns, Arthur; Federal Open Market Committee; Greenspan, Alan; Inflation; Inflation, Measures of; Monetary Policy; United States Treasury; Unemployment; Volcker, Paul; Yellen, Janet; *Primary Documents*: Employment Act of 1946; Gramm-Leach-Bliley Act (Financial Modernization Act of 1999)

Further Reading

Board of Governors of the Federal Reserve System. 2011. *21st century guide to the Federal Reserve system: Purposes and functions—detailed look at the structure, responsibilities, and operations of the Fed, monetary policy, America's central bank.* Washington, DC: U.S. Government Printing Office.

The Federal Reserve Board. n.d. The Federal Reserve system: Purposes & functions. http://www.federalreserve.gov/pf/pf.htm (accessed December 10, 2014).

The Federal Reserve Board. n.d. The twelve Federal Reserve districts. http://www.federalreserve.gov/otherfrb.htm (accessed December 10, 2014).

Greider, William. 1989. *Secrets of the temple*. New York: Simon & Schuster.

Hafer, Rik W. 2005. *The Federal Reserve system: An encyclopedia*. Santa Barbara, CA: Greenwood.

FEUDALISM

Most commonly associated with the European Middle Ages, *feudalism* represents the economic, political, and social system that supplanted the empire as a centralized form of governance. Feudalism served to protect the king and subservient high-ranking nobles from uprisings. It also allowed for a system to manage and maintain large expanses of land. The lower classes also gained security and protection from robbers and marauders, while also owning and working small land plots.

Feudalist economics centered on *manorialism*, where lords presided over self-sufficient estates, or fiefs, in exchange for providing services to high lords and the king. These services mainly consisted of fees (taxes) and soldiers. *Manors* consisted of a structured social system where peasants or serfs would be given land within the manor in exchange for service to their lords. This service consisted of taxes paid in the form of crops and military service in wartime. The peasants or serfs were also able to use their crops to pay for use of the mill or for other necessities within the manor. Since manors were self-sufficient, there was very little trade between manors, and serfs were tied to their land—although not explicitly as slaves, since they could not be bought or sold.

The basic concept of nation–states and decentralized power structures arose from feudalism. By bestowing ruling power to separate entities across large spaces, fiefs acted as separate entities with their own laws, but also served the purpose of enforcing the overarching laws of the king. Therefore, precedence of power came from a centralized government, but the feudal system spread this power geographical and ideologically, creating an embryonic version of the nation–states. For example, in the event of war, soldiers would be provided from manors to fight for the central power. Similarly, the United States armed forces serve not only their states, but also the nation as a whole.

Many theorists believe that we are in a state of modern feudalism, termed *neo-feudalism*. The basic concept relies on the majority of the power being in the hands of a few and the delegation of duties being passed down the social ladder. Even though society has progressed from beheadings and antiquated taxing methods, neofeudalism asserts that the basic principle still exists—of protection against rebellion and maintaining a workforce for a centralized gain. One of the main aspects of life in the Middle Ages was the need for crops and labor as an economic force. Today, farming and the food supply are equally as crucial in maintaining the needs of a nation. However, people have greater freedom of choice for employment. Farmers also experience greater control in their products. Similarly, labor is still essential in modern economics.

A counterargument to neofeudalism is represented by democracy. People in general have more power of choice and are more empowered in terms of political, social, and economic issues. Neofeudalism asserts that even within modern structures of labor and economics, major decisions are still controlled by a hierarchy of influential peoples and their subsequent nobles.

Daniel S. Talwar

See also: *Vol. 1: Foundations of Economics:* Mercantilism; Socialism

Further Reading

BizShift-Trends.com. 2014. Mutation of medieval feudalism into modern corporate capitalism: The rise of neofeudalism in corporate governance. *BizShift-Trends*, August 13. http://bizshifts-trends.com/2014/08/13/mutation-medieval-feudalism-modern-business-capitalism-rise-neofeudalism-corporate-governance/ (accessed September 2, 2015).

Brown, Elizabeth A.R. 2014. Feudalism: Social system. *Encyclopaedia Brittanica*. http://www.britannica.com/topic/feudalism (accessed September 2, 2015).

Sager, Josh. 2014. Neo-feudalism captures the United States. *The progressive cynic*, May 13. http://theprogressivecynic.com/2014/05/13/neo-feudalism-captures-the-united-states (accessed September 2, 2015).

Sau, Ranjit. 1979. Review of *An economic theory of the feudal system: Towards a model of the polish economy, 1500–1800*, by Witold Kula. *Economic and Political Weekly* 14 (18): 809–12. http://www.jstor.org/stable/4367569?seq=1#page_scan_tab_contents (accessed September 2, 2015).

Watkins, Jeffrey. n.d. Global history: Economic systems: Middle ages. Regents exam prep center. http://www.regentsprep.org/regents/global/themes/economic/mid.cfm (accessed September 2, 2015).

FINANCIAL INTERMEDIATION

Financial intermediation is the process performed by banks of taking in funds from a depositor and then lending the funds out to a borrower. It essentially paints the picture of what banks are purposed to do, yet it can be observed on a much more complex scale. In contrast to financial intermediation, *direct finance* refers to savers and borrowers meeting directly in financial markets; *indirect finance* involves the use of a financial intermediary. While the stock and bond markets play a most important and indispensable role in this allocation of funding, it is evident that in the United States and many other countries indirect financing is much more important.

Financial intermediation plays five major roles that make it much more relative than direct financing. First, financial intermediaries pool the resources of small savers. This refers to the fact that many borrowers rewire large sums, while many savers offer small sums. Banks pool a multitude of small deposits and use this pool to be able to make large loans. Second, banks provide safekeeping, accounting, and payment mechanisms for resources. Services are standardized and automated on a larger scale, so transaction costs are minimized. Third, financial intermediaries provide liquidity by making it easy to transform various assets into a means of payment through ATMs, checking accounts, debit cards, etc. The fourth and fifth functions are diversifying risk and collecting and processing information.

The banking business thrives on the process of financial intermediation's abilities. Financial institutions lend out money at comparatively high rates of interest, while receiving money on deposits at relatively low rates of interest. Since the loans offered by banks tend to be of longer maturity than the liabilities that fund those loans, the spread is indicative of the marginal profitability of an extra dollar of loans on intermediaries' balance sheets.

While central banks expand their balance sheets, the market price of risk falls. "Expanding a balance sheet" is another term for *quantitative easing*: infusing fresh capital into the financial system by using newly printed money to purchase loans from commercial banks. In exchange, the commercial banks receive cash, which appears as an increase in reserves on their own balance sheets. As a result, the ratio of reserves to loans increases, as does the ratio of reserves to deposits, better enabling the commercial bank to bear losses on any nonperforming loans and still meet depositor demands. In turn, the commercial bank can now make new loans to businesses and individuals, thereby stimulating the overall economy.

Conversely, despite their importance, financial markets are often described as being among the least efficient of all markets. This is due to the fundamental fact that the lender and debt/stock issuers know much more about their likelihood of success than potential borrowers and investors do. This unbalanced information causes one group with better information to use this advantage at the expense of the less-informed group. If not controlled, asymmetric information can cause markets to function very inefficiently or even to break down completely.

Lauren Major

See also: Banking Act of 1933 (Glass-Steagall Act); *Vol. 1: Foundations of Economics:* Banking; *Vol. 3: Microeconomics:* Banking Trends: Electronic Banking; Credit Unions; Subprime Mortgage Bubble and Crisis; *Vol. 4: Global Economics:* International Financial Institutions; *Primary Document*: Banking Act of 1933 (Glass-Steagall Act)

Further Reading

Adrian, Tobias. 2011. *Changing nature of financial intermediation and the financial crisis of 2007–09*. Darby, PA: DIANE Publishing.

Mayer, Colin, and Xavier Vives. 1995. *Capital markets and financial intermediation*. Cambridge, UK: Cambridge Univ. Press.

Thakor, Anjan V., and Arnoud Boot. 2008. *Handbook of financial intermediation and banking*. New York: Elsevier.

FINANCIAL MODERNIZATION ACT OF 1999.

See Gramm-Leach-Bliley Act

FINANCIAL REFORM ACT OF 2010 (DODD-FRANK ACT)

The Financial Reform Act of 2010 was an effort to reform financial regulation and avoid a financial crisis similar to the crisis of 2008. President Barack Obama signed the act into law on July 21, 2010. The law is also known as the Dodd-Frank Wall Street Reform and Consumer Protection Act, or simply "Dodd-Frank," in reference to the significant work of Senator Christopher J. Dodd (D-Conn.) and Representative Barney Frank (D-Mass.) to create and pass the bill through their respective chambers of Congress. Dodd-Frank is one of the most extensive financial reforms since the Banking Act of 1933 (Glass-Steagall Act), which was created after numerous bank failures due to excessive speculative investment ventures.

Specifically, it ends the possibility of taxpayers being asked to write a bailout check to failing businesses. Dodd-Frank, also known for its massive length, establishes new agencies and reorganizes the roles and responsibilities of others to preempt future large-scale financial woes. The act established the Financial Stability Oversight Council, consisting of a chair (the Secretary of the Treasury), along with 10 voting members (federal financial regulators, and an independent member) and five nonvoting members (OFR, FIO, state banking, insurance, and securities regulators). The council's purpose is to identify risks for U.S. financial stability from financial and nonfinancial organizations, promote market discipline, and respond to emergency risks to the U.S. financial system.

The Orderly Liquidation Authority and Fund monitors companies that have been deemed "too big to fail" and assists in the liquidation of failing companies to prevent widespread economic problems. The tough new capital and leverage requirements make it undesirable to be too big.

The new Office of Financial Research, headed through presidential appointment and Senate confirmation, works within the Department of the Treasury to support the council's work collecting financial data and conducting economic analysis. It monitors emerging risks to the economy and makes information public in reports and testimony to Congress. The director reports to and testifies before the Senate Committee on Banking, Housing, and Urban Affairs and the House Committee on Financial Services of the House of Representatives.

The Federal Insurance Office, working within the Department of the Treasury, serves to monitor the insurance industry for gaps in regulation that could cause systemic risk, gaps in access to affordable insurance for underserved communities, and in other insurance matters.

The act also creates the “Volcker Rule,” named for Paul Volcker—former chair of the Federal Reserve and proposer of the rule. The Volcker Rule restricts the trading that financial companies can do with their own accounts and limits their ability to take excessive risks. It restricts financial companies with regard to owning, investing, or sponsoring hedge funds, private equity funds, or proprietary trading for their own profit. Some have considered the Volcker Rule as a semi return to the banking regulations that were in effect under the Glass-Steagall regulations, while others claim that the Volcker Rule did not go far enough.

The new Consumer Financial Protection Bureau, housed and funded within the Federal Reserve, consolidates the functions of many different agencies. It works to write rules, supervise companies, and enforce federal consumer financial protection laws. It also serves to promote financial education and monitor financial markets for new risks to consumers. In addition, it works to enforce laws that outlaw discrimination and other unfair treatment in consumer finance. Its director is appointed by the president and confirmed by the Senate, and it has an independent budget paid for by the Federal Reserve. New rules for the Federal Reserve allow it to provide systemwide economic support (but not for individual firms) and to establish uniform standards and supervision for the management of risk. It also creates a vice-chair for supervision—a member of the Board of Governors—to develop policy recommendations regarding supervision and regulation for the board, reporting to Congress semiannually.

The act requires the Securities and Exchange Commission (SEC) or the Commodity Futures Trading Commission (CFTC) to regulate credit-rating agencies to avoid overrating such risky derivatives as credit default swaps.

To streamline bank regulation and oversight, the act eliminates the Office of Thrift Supervision.

Kathryn Lloyd Gustafson

See also: Banking Act of 1933 (Glass-Steagall Act); Bernanke, Ben; Federal Reserve System; Securities and Exchange Commission; United States Treasury; Volcker, Paul; Yellen, Janet; *Primary Documents*: Banking Act of 1933 (Glass-Steagall Act); Financial Reform Act of 2010 (Dodd-Frank Act)

Further Reading

Dennis, Brady. 2010. Congress passes financial reform bill. *Washington Post*, July 16. www.washingtonpost.com/wp-dyn/content/article/2010/07/15/AR2010071500464.html (accessed November 30, 2016).

The Economist. 2012. The Dodd-Frank act: Too big not to fail. *The Economist*, February 18. www.economist.com/node/21547784 (accessed November 30, 2016).

Frank, Barney, and Christopher J. Dodd. 2010. Dodd-Frank Wall Street reform and consumer protection act. H.R. 4173, July 21. www.sec.gov/about/laws/wallstreetreform-cpa.pdf (accessed November 30, 2016).
Jackson, Jill. 2010. Wall Street reform: A summary of what's in the bill. *CBS News*, June 25. www.cbsnews.com/8301-503544_162-20008835-503544.html (accessed November 30, 2016).
Rowland, Kara. 2010. Historic Wall Street reform bill signed. *Washington Times*, July 21. www.washingtontimes.com/news/2010/jul/21/obama-signs-financial-reform-law/ (accessed November 30, 2016).

FISCAL POLICY

Fiscal policy is a government's intentional use of spending and tax policy to influence the economy. Fiscal policy is the responsibility of the federal and state governments. Government's involvement in an economy, using the tools of fiscal policy, was first suggested by John Maynard Keynes in his 1936 classic, *The General Theory on Interest, Money, and Employment*. Keynes suggested the use of fiscal policy during two economic periods. One was during economic recessions, when government should serve as a third partner in a market economy and stimulate demand, increasing incentives of individuals and businesses to consume and invest. The second period was during times when an economy is "overheating" (demand was outstripping supply), and government should implement fiscal policy to slow down the economy. The primary tools of fiscal policy are government spending and taxes. Which tool to use is determined by the incentives that government would like to promote and the economic problem that needs to be solved.

To address a lack of consumer spending, government would likely implement a reduction in taxes to stimulate consumer spending and business investment. If the government would like to decrease unemployment, it would increase its spending on public structures such as roads, bridges, dams, and schools. This was a popular use of fiscal policy by President Franklin Roosevelt. Many of his New Deal initiatives involved government spending on the public's infrastructure.

Fiscal policy has its greatest influence during times of recession or when economic expansions are moving too fast for the economy to absorb. During times of recession, government can implement fiscal policies using one or both tools. A government could increase its spending, enabling more people to be employed and resulting in households having more money to buy goods and services. A second option for the government would be to cut taxes, increasing the amount of people's take-home pay to spend on goods and services.

However, if the economy is growing too fast, that threatens inflation. The government can decrease government spending, leaving fewer opportunities for jobs and thereby decreasing people's ability to buy goods and services. If taxes are used as the fiscal policy tool, the government would increase taxes, leaving people with less money to spend on goods and services.

The main problems of fiscal policy deal with time lags between identification, implementation, and the time between identifying and the effects of a fiscal policy solution impacting the economy. The first time lag occurs in recognizing that an economic problem needs to be addressed. This leads to the time lag created by the political process in approving a fiscal policy solution: the implementation time lag. As a result of fiscal policy being determined through the political process and with different economic philosophies of fiscal policy represented in the Congress or a state legislature, this lag can be significant. Once a need for a fiscal policy solution is identified, a proposed solution needs to pass through the legislative process quickly enough to be effective. This implementation lag time may lead to a fiscal policy solution being implemented after the crisis that required it has passed.

The time taken during the implementation lag leads to a third lag: the impact or effect lag. Beyond recognizing the problem and implementing a solution, and the solution impacting the economy, this lag may make the fiscal policy solution worsen the economic crisis or create a new economic problem.

As part of fiscal policy responsibility, Congress has instituted automatic stabilizers for an economy. These are programs that automatically go into effect when the state of the economy warrants it. Two programs that automatically impact the economy without actions from either Congress or the president are unemployment benefits and the progressive tax structure for income taxes.

David A. Dieterle

See also: Contractionary Fiscal Policy; Expansionary Fiscal Policy; *Vol. 1: Foundations of Economics:* Keynesian Economics; Keynes, John Maynard; New Deal; Roosevelt, Franklin D.

Further Reading

Hansen, Bent. 2008. *The economic theory of fiscal policy*. London: Routledge.
Kopcke, Richard W., Geoffrey M. B. Tootell, and Robert K. Triest. 2005. *The macroeconomics of fiscal policy*. Cambridge, MA: MIT Press.

FISCHER, STANLEY

Born: October 15, 1943, in Lusaka, Northern Rhodesia (now Zambia); Nationality: American and Israeli; Professional Interests: development economics, monetary policy; Major Work: *IMF Essays from a Time of Crisis* (2004).

Stanley Fischer became governor of the Bank of Israel in May 2005. From 2002 to 2005, Fischer served as vice-chairman of Citigroup and president of Citigroup International. From 1994 to 2001, Fischer served as first deputy managing director of the International Monetary Fund (IMF), and was special adviser to the managing director of the IMF in 2001 and 2002. In academia, Fischer was the Killian Professor and department chair of economics at Massachusetts Institute of Technology (MIT). He also served the World Bank as vice-president for development economics and chief economist, from 1988 to 1990. On May 28, 2014, Fischer was appointed to the Federal Reserve Board of Governors, with his term to last until 2020. He was sworn in as vice chairman of the Board of Governors on June 16, 2014. His term as vice chairman expires on June 12, 2018.

Stanley Fischer was born October 15, 1943, in Northern Rhodesia (Zambia). He earned his bachelor's and master's degrees in economics at the London School of Economics from 1962 to 1966. In 1969, he earned his PhD in economics at MIT. He began his professional career at the University of Chicago as an assistant professor of economics. Fischer was a professor at the University of Chicago until 1973, when he returned to the MIT Department of Economics. He earned full professorship in 1977. Fischer also held visiting professor positions at the Hebrew University in Jerusalem and Stanford's Hoover Institution.

As an author, Stanley Fischer has been widely published in development economics. He is also the coauthor of several textbooks and editor of several professional collections. In the market of college textbooks, he is the coauthor with Rudiger Dornbusch and Richard Startz of *Macroeconomics*. He is also the coauthor of *Lectures in Economics* with Olivier Blanchard. With Rudiger Dornbusch and Richard Schmalensee, he coauthored *Economics* for McGraw-Hill.

Fischer has been editor for several selections of essays: *Securing Peace in the Middle East* in 1994 and *IMF Essays from a Time of Crisis* in 2004. He also authored *Indexing, Inflation, and Economic Policy* in 1986. From 1986 to 1994, Fischer served as editor of the *NBER Macroeconomics Annual*.

Fischer is a fellow of the Econometric Society and the American Academy of Arts and Sciences; a member of the Council on Foreign Relations, the G-30, and the Trilateral Commission; a Guggenheim fellow; and a research associate of the National Bureau of Economic Research. He has served on the boards of the Peterson Institute for International Economics (PIIE), Women's World Banking, and the International Crisis Group, as well as on the international advisory board of the New Economic School, Moscow.

On May 28, 2014, Stanley Fischer was appointed to the Federal Reserve Board of Governors to complete an unexpired term. In June of 2014 he became Vice Chairman of the Board of Governors. His Vice Chairman term expires in 2018 and his Board of Governors term expires in 2020.

David A. Dieterle

See also: Bernanke, Ben; Federal Open Market System; Federal Reserve System; Friedman, Milton; Greenspan, Alan; Monetarist Economic Thought; Monetary Economics; Monetary Policy; Money Supply; Volcker, Paul

Further Reading

BIS (Bank of International Settlements). 2006. Stanley Fischer: The Israeli economy. http://www.bis.org/review/r060620c.pdf (accessed January 2, 2011).

Blanchard, Olivier, and Stanley Fischer. 1989. *Lectures on macroeconomics*. Cambridge, MA: MIT Press.

Fischer, Stanley. 1986. *Indexing, inflation, and economic policy*. Cambridge, MA: MIT Press.

Fischer, Stanley, ed. 1994. *Securing peace in the Middle East*. Cambridge, MA: MIT Press.

Fischer, Stanley. 2004. *IMF essays from a time of crisis*. Cambridge, MA: MIT Press.

Fischer, Stanley, Rudi Dornbusch, and Richard Startz. 2010. *Macroeconomics*. 11th ed. New York: McGraw-Hill.

IMF (International Monetary Fund). Stanley Fischer. http://www.imf.org (accessed January 2, 2011).

PIIE (Peterson Institute for International Economics). n.d. Stanley Fischer. http://www.iie.com/fischer/index.html (accessed January 2, 2011).

FISHER, IRVING

Born: February 27, 1867, in Saugerties, New York; Died: April 29, 1947, in New York City; Nationality: American; Professional Interests: money, monetarism, inflation, interest, econometrics, index numbers; Major Works: "The Equation of Exchange, 1896–1910" (1911), "The Debt-Deflation Theory of Great Depressions" (1933).

Irving Fisher fundamentally shaped the profession of economics. Early on, Irving showed a proclivity for mathematics and invention. His interest in mathematics was instrumental in making the study of economics more quantitative, with a stronger mathematical foundation. Fisher developed and designed some of the first economic indexes—including the first weekly newspaper publication of a wholesale price index. His inventiveness was manifested by his invention of a rotary index card system, the Rolodex. Fisher died in 1947.

Irving Fisher was born on February 27, 1867, in Saugerties, New York. His father was a teacher and minister. Fisher went to Yale and studied a variety of topics, including science and philosophy. But his greatest concentrations were in mathematics and economics. He received his BA in mathematics in 1888. Despite there being no economics department at Yale, in 1891 Fisher was the first Yale student to receive a PhD in economics. As part of his dissertation, Fisher actually developed a price machine that used water and levers to show the circulation of money and capital throughout an economic system. Fisher remained a member of the Yale faculty until he retired in 1935.

It was Fisher's interest in mathematics that helped shape the economics profession. Through Fisher's influence, the study of economics became more quantitative, with stronger mathematics-based research. Fisher is perhaps best known and remembered for two simple equations.

The first is the equation of exchange, which linked money supply to prices. It was well known that too much money led to rising prices. The relationship had been observed, commented on, and even exploited for centuries. What was missing was a sense of why and of what constituted too much. Fisher provided answers for those questions with his equation of $MV = QP$: money supply (M) multiplied by velocity (V) equals transactions (Q) times price level (P). The equation tied the supply of money and its circulation to the production side of the economy—the exchange of goods and services at a price level. This equation has become instrumental in the development of modern central banking, and it provides a foundation for the modern monetarist school.

Fisher's second important equation is the one that bears his name. The Fisher equation states that the nominal interest rate (the interest rate charged consumers or paid savers) is affected by the rate of inflation. By deducting the inflation rate from the nominal rate of interest, one can arrive at the real rate of interest to be paid. This is a truer measure of interest, as it shows the amount of forgone real consumption that is necessary to service a debt. Thus, only when inflation is zero is the nominal interest rate the same as the real interest rate. More importantly, this equation offers insights into how unanticipated inflation or deflation can impact the debtor-creditor relationship. Accelerating inflation can actually lower real interest rates below zero on longer-term debt bearing a fixed interest rate—effectively transferring wealth from the lender to the borrower. Likewise, a significant reduction in inflation can result in the debtor paying a higher real rate of interest than was originally anticipated in an agreement. It is the combination of the two equations that links price-level changes to the perceived return on financial assets. This in turn becomes a factor in the boom-bust cycle.

This connection manifested itself in his debt-deflation theory. Fisher's debt-deflation theory was one of the first theories offered as a cause of the Great Depression. It would be discredited and discarded in favor of Keynes's view of the economy. Nevertheless, it is gaining favor once again as a tool for explaining the Great Recession that followed the collapse of the housing bubble in 2007.

Despite these important ideas, unfortunately Fisher is remembered for some of his failures. Prior to the 1929 stock market crash and the onset of the Great Depression, Fisher was one of the best known and sought-after economists in the United States. His pronouncements were as widely circulated as those of any other economist of his day. However, a few days before the crash, Fisher was assuring investors that stock prices were not overinflated but rather had reached a permanently high plateau. After the October crash, Fisher spent the next few years trying to return a sense of confidence in the market, to no avail. He lost a fortune, and when he went broke he had to sell his home to Yale University and rent it back from the school.

An early bout of tuberculosis made Fisher a lifelong advocate of healthy lifestyles. He was a vegetarian and a backer of Prohibition. He also dedicated significant energy to the study and promotion of eugenics as well as being active in the movement.

Fisher was a cofounder of the American Econometrics Society in 1931 and was its first president in 1932.

Irving Fisher died on April 29, 1947, in New York City.

Timothy P. Schilling

See also: Debt; Fiscal Policy; Macroeconomics; Equation of Exchange (Quantity Theory of Money); Tobin, James; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; *Vol. 3: Microeconomics:* Becker, Gary; Stigler, George; Veblen, Thorstein

Further Reading

Allen, Robert Loring. 1993. *Irving Fisher: A Biography*. Hoboken, NJ: Wiley-Blackwell.
Fisher, Irving. 1906. *The nature of capital and income.* New York: Macmillan.
Fisher, Irving. 1907. *The rate of interest.* New York: Macmillan.
Fisher, Irving. 1911. The equation of exchange, 1896–1910. *American Economic Review* 1.
Fisher, Irving. 1912. *Elementary principles of economics.* New York: Macmillan.
Fisher, Irving. 1912. An international commission on cost of living. *American Economic Review* 2 (1), Supplement: 92–101.
Fisher, Irving. 1912. Will the present upward trend of world prices continue? *American Economic Review* 2 (3): 531–58.

Fisher, Irving. 1912. A remedy for the rising cost of living: Standardizing the dollar. Papers and Proceedings of the Annual Meeting, Volumes 24–26 (20–28). American Economic Association.

Fisher, Irving. 1916. *The purchasing power of money: Its determination and relation to credit, interest and crises.* New York: Macmillan.

Fisher, Irving. 1928. *The money illusion.* New York: Adelphi.

Fisher, Irving. 1930. *The theory of interest: As determined by the impatience to spend income and opportunity to invest it.* New York: Macmillan.

Fisher, Irving. 1933. The debt-deflation theory of great depressions. *Econometrica* 1 (4): 337–57.

Fisher, Irving Norton. 1956. *My father, Irving Fisher.* Chicago, IL: Comet Press Books.

Formaini, Robert L. 2005. Irving Fisher: Origins of modern central bank policy. Federal Reserve Bank of Dallas. *Economic Insights* 10 (1). http://www.dallasfed.org/assets/documents/research/ei/ei0501.pdf (accessed November 30, 2016).

Thaler, Richard H. 1997. Irving Fisher: Modern behavioral economist. *American Economic Review* 87 (2): 439–41. http://faculty.chicagobooth.edu/richard.thaler/research/pdf/IrvingFisher.pdf (accessed November 30, 2016).

FRACTIONAL RESERVE BANKING

Banks serve an economy as intermediaries, bringing together savers and borrowers. Banks take in money from the savers and loan out money to borrowers for homes, cars, business expansion, and other mostly durable goods. *Fractional reserve banking* is the banking practice in which banks need to retain only a small portion (a fraction) of the money they take in as reserves, allowing them to loan out most of the money they take in. This expands an economy's money supply through extending additional credit in an economy.

Historically, the story on the origin of fractional reserve banking is considered by some to be more folklore and myth than fact. As one story goes, many eras ago precious metals such as gold were stored in vaults by goldsmiths. The goldsmiths figured out they could loan or invest the gold to gain a rate of return on the gold. They could make a profit and then return the gold to the vaults, with the owners none the wiser. This story is probably myth, or folklore, but it does exemplify the point that anything of value stashed under a mattress or in a vault or a hole in the backyard does not have any value for the economy.

As banks and their role in an economy evolved, the banks came to understand this concept—that money sitting in a bank vault was not being put to work to expand and grow an economy. Fractional reserve banking as a banking practice uses the money that sitting in the vault just waiting for a customer. Putting this money to use expands the money supply through the expansion of credit. The following example shows how fractional reserve banking does this.

A customer deposits \$100 into a checking account at the bank. That bank credits the \$100 to the customer's checking account. Since the checking account is a demand deposit, the customer essentially can go back to the bank, write a check, or use a debit card the next day and withdraw that same \$100. The customer can "demand" (this the term *demand deposit*) the use of the \$100 at any time. So far, the economy has the customer's $100, so there is $100 in the economy. In the practice of fractional reserve banking, the bank now has a choice. With that $100, the bank can do one of three things: (1) do nothing, and leave the $100 in the bank until the customer uses it; (2) deposit the entire $100 into the Federal Reserve, so the Fed credits that bank with reserves of $100; or (3) apply the rules of the fractional reserve banking system to make loans to other bank customers.

Enter fractional reserve banking. If the bank chooses option (3), the fractional reserve banking practice provides to the bank with a set of different rules. Under fractional reserve banking, the bank is required to maintain only a fraction of the $100 on its books. If the requirement is 10 percent, then the bank books $10, freeing up $90 to be loaned to other customers. The $10 is required reserves and the $90 is excess reserves. The bank loans the excess reserves to another customer, and the economy just grew by $90. The original customer still has access to the $100, while the new customer now has $90. The economy now has $190: an increase of 90 percent. The second customer spends the $90 at a store, and that store deposits the money in a second bank.

The process continues, and new money is created for the economy each time a deposit is made and the accepting bank uses the rules of fractional reserve banking. How much money is added to the economy in total? That can be calculated by using the money multiplier:

$$1 / (1/\text{reserve requirement}) = \text{money multiplier}$$

Using our example above, with a reserve requirement of 10 percent, the money multiplier is equal to 1 divided by (1 divided by 10% = 0.1), or 1/.1 = 10. Starting with the first customer's $100 and using the money multiplier, it can be calculated that an additional $1,000 can potentially be added to the economy.

The alternative to fractional reserve banking is full reserve, or 100 percent reserve, banking. With full reserve banking, deposits are to remain fully with the bank or financial institution. In essence, the money is held as if in a trust for the customer. The funds could be loaned by the first bank in the example above, but only after a significant holding period. In the short run, with 100 percent reserve banking the story essentially ends with the first customer's $100 and an economy of $100, or it grows only after a lengthy holding period. Compare this to the $1,000 of new money created in the short run through the fractional reserve banking practice.

Fractional reserve banking has been criticized with economic arguments as well with moral and ethical ones. It has been likened to a Ponzi scheme, as it allows early depositors to gain at the expense of and using later depositors' money. The moral and ethical arguments mostly stem from the idea that several people have a claim on the same money. Fractional reserve banking has been termed "embezzlement" by some economists (mostly adherents to Austrian Economic Thought). One economic argument is that it twists and blurs the capitalist notion of the property rights of money. This claim rebukes the system, claiming that no two people can own the same money at the same time.

David A. Dieterle

See also: Federal Open Market Committee; Federal Reserve System; Financial Intermediation; Monetary Policy; Money Multiplier; *Vol. 1: Foundations of Economics:* Banking; *Vol. 3: Microeconomics:* Subprime Mortgage Bubble and Crisis

Further Reading

Classroom Economist. n.d. Fractional reserve banking—An economist's perspective (Transcript). Federal Reserve Bank of Atlanta. www.frbatlanta.org/education/classroom-economist/fractional-reserve-banking/economists-perspective-transcript (accessed November 30, 2016).

Learning Markets. n.d. Understanding the fractional reserve banking system. www.learningmarkets.com/understanding-the-fractional-reserve-banking-system/ (accessed February 28, 2016).

Rothbard, Murray N. 1995. Fractional reserve banking: Part II—Bankers helped cartelize their industry through the central bank. Foundation for Economic Education. fee.org/articles/fractional-reserve-banking-part-ii/ (accessed November 30, 2016).

FREE RIDER

A *free rider* is anyone who benefits from a public good or service without paying for it. In economic terms, free riders are considered beneficiaries of a market failure. Economists view free riders as beneficiaries of market failure, because in many instances, no one can be excluded from using the public good and everyone can enjoy the good without taking it away from someone else.

The free rider problem stems from the use of public goods and services. Street lights, police services, and national defense can all be considered public goods and services. At one time or another, everyone will need the use of these goods and services, but the problem lies in the fact that not everyone who benefits from their use actually contributes to paying for their cost. Unlike private goods and services, which can be used only by the person who purchased them, public goods and services are available to everyone, and one person using those goods and services does not stop another person from enjoying those same goods and services at the same time.

For example, streetlights that illuminate a neighborhood at night are a public good used by everyone who lives in or visits the neighborhood. Everyone within the neighborhood benefits from having the streetlights, regardless of whether they live in the neighborhood or are just visiting. Yet only those who live in the neighborhood have paid the taxes to provide the streetlights. Everyone else within the boundaries of the neighborhood benefitting from the streetlights is a free rider, as they have not paid for the streetlight.

No one can stop people from using the streetlights, regardless of who pays the taxes that supply them. For one person to the streetlight does not mean that others in the neighborhood cannot use it. If the electrical company tried to get money from residents on the street based on their consumption of the benefit provided by the streetlights, the company would be unable to see who used the lights the most and who used them the least.

All public goods, including national public goods such as national defense, have a free rider problem. The military defends the nation in times of need, and everyone in the nation enjoys the benefits of this defense. The military receives its pay from the government, which in turn taxes citizens in order to pay for these costs. The free rider problem occurs when those who do not pay taxes enjoy the benefits of national defense alongside those whose taxes go toward funding the cost of this protection.

Ekaterini Chrisopoulos-Vergos

See also: Externality; Public Goods; *Vol. 3: Microeconomics:* Market Failure

Further Reading

O'Neill, Ben. 2007. Solving the "problem" of free riding. Auburn, AL: Ludwig von Mises Institute. http://mises.org/daily/2769 (accessed May 21, 2013).

Tuck, Richard. 2008. *Free riding*. Cambridge, MA: The President and Fellows of Harvard College.

VanFossen, P. 2010. Market structures and market failures. Econ alive! The Power to Choose. Teachers Curriculum Institute. https://www.teachtci.com/programs/high-school/econ-alive-textbook/the-power-to-choose/ (accessed May 21, 2013).

Wolf, Sebastian. 2004. Obstacles to strong democracy: Prisoner's dilemma and free rider effect—Seminarpaper. GRIN. http://www.grin.com/search?searchstring=Obstacles+to+Strong+Democracy%3A+Prisoner%E2%80%99s+Dilemma+and+Free+Rider+Effect+Seminar+Paper&product=ebook&source_type=document (accessed May 21, 2013).

FRIEDMAN, MILTON

Born: July 31, 1912, in Brooklyn, New York; Died: November 16, 2006, in San Francisco, California; Nationality: American; Professional Interests: monetary policy, price theory, public policy, monetary history, Nobel Prize (1976); Major Works: "The Methodology of Positive Economics" (1953), *A Theory of the Consumption Function* (1957), *Capitalism and Freedom* (1962), *A Monetary History of the United States, 1867–1960* (with Anna J. Schwartz) (1971), *Free to Choose: A Personal Statement* (with Rose Friedman) (1980).

For his ability to explain and defend the merits of free markets and individual freedom, Milton Friedman is considered one of the most influential economists of the 20th century. Friedman was also considered the embodiment of the Chicago school of economics, with an emphasis on monetary policy, free markets, and less government intervention. He was instrumental in the economic policies of President Ronald Reagan and Prime Minister Margaret Thatcher. Milton Friedman won the Nobel Prize in Economics in 1976, and President Reagan honored him with the Presidential Medal of Freedom in 1988. Friedman died in 2006.

Milton Friedman was born in Brooklyn, New York, on July 31, 1912. Growing up in New Jersey in the home of immigrant Hungarian parents, Milton graduated from the local public high school when he was 15, a month before his 16th birthday. He was destined for college, but the untimely death of his father during his senior year of high school narrowed his college direction to Rutgers University. Financing his own education, along with a small scholarship, Friedman graduated from Rutgers University in 1932. Originally a mathematics major planning on becoming an actuary, he became interested in economics. Friedman graduated from Rutgers with majors in both mathematics and economics.

Encouraged to pursue graduate work in economics, Friedman accepted a scholarship to the University of Chicago. His early experiences at the University of Chicago framed his economics and research philosophies. During this time there, he met the woman who would become his wife and lifelong working professional partner, Rose. After one year at the University of Chicago, Friedman received a fellowship to Columbia University. Even though he returned to the University of Chicago after only one year at Columbia, he received his PhD in economics from Columbia in 1946.

In 1935, Friedman was recruited by his friend W. Allen Wallis to join him on the National Resources Committee in Washington, D.C. Friedman s role on the committee was to continue earlier work on a consumer budget study. It was this work on the consumer budget study that became the basis for one of the two key components for his later groundbreaking work, *Theory of the Consumption Function.*

In 1937, Friedman accepted a position with the National Bureau of Economic Research (NBER). At NBER he worked with Simon Kuznets, publishing *Incomes from Independent Professional Practice*. Kuznets and Friedman introduced the concepts of permanent and transitory income. They also initiated a debate among Washington bureaucrats by asserting that the incomes of physicians were higher than those of dentists due to the monopoly power of physicians. For Friedman, this study also provided the second key component of his own later work on the consumption function.

Friedman continued his work in Washington during World War II. From 1941 to 1943, Friedman directed his efforts on tax policy at the U.S. Treasury. In 1943, he joined his friend Wallis again, this time at Columbia University, applying his mathematical and statistical expertise on military tactics, design, and metals. After teaching at the University of Minnesota for a year, Friedman returned to the University of Chicago in 1946. He remained at the University of Chicago until he retired from active teaching in 1977. Another close friend, Arthur Burns, who was directing NBER, persuaded Friedman to rejoin NBER. Friedman remained with NBER until 1981.

In 1953, Friedman wrote "The Methodology of Positive Economics," in which he argued that the validity of economic theories should be based on their ability to predict human behavior. He followed this in 1957 with his classic, A *Theory of the Consumption Function.* Friedman's case was that it was necessary to think of individuals making rational spending and saving decisions over a lifetime. The basis was a return to his earlier work with Kuznets and the permanent-income hypothesis. His thesis in *A Theory of the Consumption Function* was also a return to classical economic thinking, which had been replaced in the middle of the 20th century by the economic philosophies of John Maynard Keynes.

Friedman's launching of the Money and Banking Workshop at the University of Chicago set the academic and research foundation for his next target in economic research: monetary policy. The research and publications that originated from the workshop highlighted the Chicago school of economics' emphasis on the role of monetary policy as the key determinant to inflation and business cycles.

Friedman's work explaining the role of the money supply and monetary policy on an economy earned him an international reputation. His monetary policy theories were highlighted in 1969 with *The Optimum Quantity of Money and Other Essays*. The workshop provided the environment for many contributors and researchers to generate significant work on monetary policy. Through his work with the workshop and NBER, Friedman began a collaboration with economic historian Anna J. Schwartz. In 1971, they wrote the classic *A Monetary History of the United States, 1867–1960*.

Another groundbreaking accomplishment in economic theory for Milton Friedman came when he suggested that the popular inflation-unemployment rate trade-off was not necessarily a long-run trade-off as most assumed. In 1967, while he acknowledged a short-run trade-off, he asserted that government intervention to keep inflation high to promote low unemployment would eventually fail, with ultimately both unemployment and inflation rising. This argument would later be proven correct in the 1970s and the ensuing period with the economic condition that became known as stagflation.

In 1976, Milton Friedman was awarded the Nobel Prize in Economics for his scientific work on consumption, monetary history, and stabilization policy. In 1988, he received both the Presidential Medal of Freedom from President Reagan and the National Medal of Science. Earlier in 1986 he had received the Japanese government's Grand Cordon of the First Class Order of the Sacred Treasure.

After his retirement from active teaching, he became involved in public affairs and public policy. He assisted presidential candidates Barry Goldwater, Richard Nixon, and Ronald Reagan as an economic adviser during their campaigns. He would later serve as an economic adviser to both presidents Nixon and Reagan. He also began writing columns for the popular news magazine *Newsweek*, promoting the virtues of individual freedom and markets unfettered from government intervention.

In 1981, he served on President Reagan's Economic Policy Advisory Board. Friedman is given significant credit for the economic philosophies of President Reagan and Prime Minister Margaret Thatcher in the later decades of the 20th century. Friedman was viewed as the opposition to the popular theories of John Maynard Keynes that dominated economic thought and political economic policy from post–World War II through the 1970s.

Milton Friedman's popularity with the general public reached its pinnacle in 1980 with the release of the popular 10-part television series, *Free to Choose*. Coauthored with his wife Rose, the series was accompanied by a book of the same name. The book was the nonfiction bestseller in 1980, a rare occurrence for someone with the high academic stature of Milton Friedman. Since its release, the series and book have been translated into 14 languages, and the series can be seen in many foreign countries.

Milton Friedman concluded his career at the University of Chicago as the Paul Snowden Russell Distinguished Service Professor Emeritus of Economics. He also served the Hoover Institution at Stanford University as a senior research fellow.

Milton Friedman died on November 16, 2006, in San Francisco, California.

David A. Dieterle

See also: Burns, Arthur; Equation of Exchange (Quantity Theory of Money); Monetarist Economic Thought; Monetary Economics; Monetary Policy; Schwartz, Anna; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Nobel Prize in Economics

Further Reading

Ebenstein, Lanny. 2007. *Milton Friedman: A biography.* Basingstoke, UK: Palgrave Macmillan.

Ebenstein, Lanny. 2012. *The indispensable Milton Friedman: Essays on politics and economics.* Washington, DC: Regnery.

Friedman, Milton. 1957. *A theory of the consumption function.* Princeton, NJ: Princeton Univ. Press.

Friedman, Milton. 1962. *Capitalism and freedom.* Chicago, IL: Univ. of Chicago Press.

Friedman, Milton. 1966. *Essays in positive economics.* Chicago, IL: Univ. of Chicago Press.

Friedman, Milton. 1969. *The optimum quantity of money and other essays.* New York: Macmillan.

Friedman, Milton. 1976. *Price theory.* Piscataway, NJ: Aldine.

Friedman, Milton. 1991. *Money mischief: Episodes in monetary history.* Reprint ed. Orlando, FL: Harcourt Brace.

Friedman, Milton, and Rose Friedman. 1980. *Free to choose: A personal statement.* Orlando, FL: Harcourt.

Friedman, Milton, and Rose Friedman. 1984. *The tyranny of the status quo*. Orlando, FL: Harcourt.

Friedman, Milton, and Rose Friedman. 1998. *Two lucky people: Memoirs.* Chicago, IL: Univ. of Chicago Press.

Friedman, Milton, Leonard J. Savage, and Gary Becker. 2007. *Milton Friedman on economics: Selected papers.* Chicago, IL: Univ. of Chicago Press.

Friedman, Milton, and Anna Jacobson Schwartz. 1971. *A monetary history of the United States, 1867–1960.* Princeton, NJ: Princeton Univ. Press.

Lindbeck, Assar, ed. 1992. *Nobel Lectures: Economics 1969–1980*. Singapore: World Scientific.

NobelPrize.org. 1976. Milton Friedman—Biographical. http://nobelprize.org/nobel_prizes/economics/laureates/1976/friedman-autobio.html (accessed March 20, 2011).

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GALBRAITH, JOHN KENNETH

Born: October 15, 1908, in Dunwich Township, Ontario, Canada; Died: April 29, 2006, in Cambridge, Massachusetts; Nationality: American; Professional Interests: general economics, economic policy; Major Works: *American Capitalism: The Concept of Countervailing Power* (1952), *The Great Crash of 1929* (1954), *The Affluent Society* (1958).

John Kenneth Galbraith was quite possibly the most widely read economist of the mid-20th century. He authored over 30 books. His most widely read, *The Affluent Society*, published in 1958, became popular with the general population as well as academics. Galbraith is credited with penning economics phrases that are now part of the economics and political lexicon, including "conventional wisdom," "countervailing power," and of course "the affluent society." Galbraith was known for his writing style of addressing the economics topics and issues of the day as part of everyday life and not as an esoteric science. Galbraith died in 2006.

John Kenneth Galbraith was born on October 15, 1908, in Ontario, Canada, and raised on a small farm in Dunwich Township in Ontario. Of Scottish descent, his father was a farmer and schoolteacher who had a major influence on his son's early views of politics and his liberal philosophy. The young Galbraith attended Ontario Agricultural College (OAC), taking courses to be a farmer. While at OAC, he became more interested in the economics of farming than in farming itself. He completed his undergraduate work at the University of Toronto and went on to complete his master's and doctorate in agricultural economics at the University of California, Berkeley, in 1934.

Galbraith's writing notoriety started early in his academic career, while he was at the University of California, Berkeley. This early success led him to Harvard University, where he joined the faculty as an instructor in 1934. In 1937, he received a fellowship to attend Cambridge University in England and study under John Maynard Keynes. During the Depression, the theories of Keynes were dominating both the economic and political landscapes. This one year under Keynes was to be the turning point in Galbraith's career. Yet he admits that his economic philosophy was also influenced by Thorstein Veblen.

Returning to Harvard from Cambridge, he remained at Harvard only one more year. In 1939, Galbraith joined the economics faculty at Princeton University. He also became an American citizen. With the outbreak of World War II, Galbraith joined President Roosevelt's administration, becoming an administrator in the Office of Price Administration. As administrator of wage and price controls, he gained a contentious reputation with industry. He resigned his post in 1943.

After holding various positions both in and out of government, including a brief term as a writer for *Fortune* magazine—which introduced the United States to both John Maynard Keynes and his U.S. protégé, John Kenneth Galbraith—he returned to Harvard in 1949. This began what was to become his period of famous lectures and even more famous writings.

In 1952, Galbraith wrote *American Capitalism: The Concept of Countervailing Power.* In *American Capitalism,* he submitted the idea that U.S. economic power was concentrated between corporations on one side and unions on the other. These countervailing forces kept the U.S. economy in equilibrium. Also in 1952, Galbraith wrote *A Theory of Price Control.* In 1954, Galbraith wrote *The Great Crash of 1929,* suggesting that the same errors made in 1929 were being made in 1955. He went so far as to testify to the U.S. Senate that another “crash” was likely to occur.

His influence reached its zenith in 1958 when *The Affluent Society* was published. With *The Affluent Society,* Galbraith became a global success. He suggested that U.S. businesses had overproduced, leading consumers to overspend without thought to solving the social issues of the day. He went on to predict inflationary and recessionary dynamics, with the overemphasis on private goods and with public goods being the trade-off.

One area where Galbraith was ahead of his time was in thinking about economic progress and its impact on the environment. He blamed advertising for frivolous spending at the expense of addressing environmental concerns as well as the social benefits to society. Along with several other writers of the 1950s, Galbraith began to change the public views of an economic system that would best suit a postwar United States.

Beyond his work in the Roosevelt administration, John Kenneth Galbraith had a significant influence in the later political arena. An avowed political liberal, he was influential in shaping the ideas and views of the Democratic Party in the 1950s and 1960s. He advised presidential candidate Adlai E. Stevenson and eventual president John F. Kennedy on the Keynesian view of how to best deal with the economy. He was also instrumental in devising and promoting President Lyndon Johnson’s Great Society program. During this period he was also a speechwriter for Roosevelt, Kennedy, and Johnson. Galbraith served as ambassador to India under President Kennedy.

John Kenneth Galbraith was not without his critics. As popular as he was with the general public, the economic academic community regarded his writings as often too simplistic to be highly regarded. Others regarded his blatant liberal political views as interfering with his economic objectivity. One area where his ideas were later disputed was advertising. As he submitted in *The Affluent Society*, he blamed advertising as the cause of an overly consumption-oriented economy. This notion was later countered by Nobel laureates Gary Becker and George J. Stigler, using mathematical proofs that advertising was indeed informative to consumers and was not leading them to undesired consumption.

In 1967, in *The New Industrial State*, Galbraith called for a new class of policy decision-makers. In 1973, he wrote *Economics and the Public Purpose*, in which he called for an increase in central planning, socialism, increasing tax progressivity, and more public housing and medical care, along with a move to nationalize some corporations that serve the federal government. In 2004, at the age of 95, Galbraith published *The Economics of Innocent Fraud,* a short book that questioned much of standard economic wisdom.

John Kenneth Galbraith received many awards, the most prestigious of which was the Presidential Medal of Freedom, which he received twice, first in 1946 from President Harry Truman and again in 2000 from President Bill Clinton. In 2001, Galbraith received India's second-highest civilian award, the Padma Vibhushan. In Canada, he was conferred the Officer of the Order of Canada in 1997, and in Dutton, Ontario, the library was renamed the John Kenneth Galbraith Reference Library. In 2010, posthumously, he was the first economist to have his popular works included in the Library of America series.

John Kenneth Galbraith died on April 29, 2006, in Cambridge, Massachusetts.

David A. Dieterle

See also: Becker, Gary; Fiscal Policy; Macroeconomics; Samuelson, Paul; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; Nobel Prize in Economics; *Vol. 3: Microeconomics:* Stigler, George; Veblen, Thorstein

Further Reading

Galbraith, John Kenneth. 1952. *American capitalism: The concept of countervailing power.* Boston: Houghton Mifflin.
Galbraith, John Kenneth. 1952. *A theory of price control*. Cambridge, MA: Harvard Univ. Press.
Galbraith, John Kenneth. 1954. *The great crash of 1929*. New York: Houghton Mifflin.
Galbraith, John Kenneth. 1958. *The affluent society*. Boston: Houghton Mifflin.
Galbraith, John Kenneth. 1964. *The scotch*. New York: Houghton Mifflin.
Galbraith, John Kenneth. 1967. *The new industrial state*. Boston: Houghton Mifflin.
Galbraith, John Kenneth. 1981. *A life in our times*. Boston: Houghton Mifflin.
Galbraith, John Kenneth. 1996. *The good society*. New York: Houghton Mifflin.
Parker, Richard. 2005. *John Kenneth Galbraith: His life, his politics, his economics*. New York: Farrar Straus & Giroux.
Stanfield, J. R. 1996. *John Kenneth Galbraith*. London: Macmillan.
Stanfield, J. R., and J. B. Stanfield. 2004. *Interviews with John Kenneth Galbraith*. Jackson: Univ. Press of Mississippi.

GEITHNER, TIMOTHY

Born: August 18, 1961, in New York City; United States; Nationality: American; Major Work: U.S. Secretary of Treasury, 2009–2013.

Timothy Geithner's most notable role may be his appointment as U.S. Secretary of Treasury under President Barack Obama, but he has held several noteworthy positions throughout his career.

Timothy Geithner was born August 18, 1961, in New York City. His father Timothy was a U.S. government representative for international development, and his mother Deborah was a professional pianist. Due to his parents' occupations, he lived in several foreign nations during his youth, including Zimbabwe, India, and Thailand. Exposure to so many different areas of the world from such a young age grew his interest in international affairs. While attending high school at the International School of Bangkok, he pursued an interest in photography. Through opportunities presented at his high school he was able to travel to Cambodia and take photographs of refugees.

While attending Dartmouth College he continued to pursue his love of photography and worked as an event photographer. At Dartmouth, his professors noticed he had a natural talent for language—learning Mandarin and Japanese. He graduated from Dartmouth in 1983 with a B.A. in government and Asian studies.

After earning a bachelor's degree from Dartmouth, Geithner continued his passion for international affairs at Johns Hopkins School of Advanced International Studies. While pursuing his master's degree, he met his wife, Carole Marie Sonnefeld. He was awarded his master's degree in International Economics and East Asian Studies in 1985.

After graduation, Geithner worked as a consultant for Kissinger and Associates. He continued his consulting work until 1988, when he began his political/civil servant career with the Treasury Department. He held different positions within the department, including financial attaché and advisor and eventually a member of the executive branch's senior team.

He worked under Treasury leaders Robert Rubin and Lawrence Summers during the Clinton administration. He joined the International Monetary Fund (IMF) in 2001 as the director of the Policy Development and Review Department.

Geithner joined the Federal Reserve Bank of New York as its president and chief executive officer in 2003. His role as CEO of the New York Federal Reserve Bank included serving as vice-chairman and permanent member of the Federal Open Market Committee (FOMC), which develops monetary policy strategies for the country and determines the interest rate. During his time at the Federal Reserve Bank of New York, he worked closely with Federal Reserve Chairman Ben Bernanke and Treasury Secretary Henry Paulson to respond to the U.S. financial crisis of 2008. He assisted in the highly controversial rescue of Bear Stearns (one of the largest investment banks and brokerage firms) and collapse of Lehman Brothers.

President Obama nominated Geithner to be 75th Secretary of the Treasury, confirmed by the Senate in January 2009. Geithner stepped into the position in the midst of the greatest economic downturn since the Great Depression. The programs he developed assisted in shaping the financial system and reviving the economy during the Great Recession. The Treasury was able to successfully return profits to taxpayers from the investments they made during the emergency financial programs that resulted from the financial crisis.

Secretary Geithner established a mix of short-term tax cuts and public investments, followed by longer-term spending and tax reforms to help sustain the fiscal position of the United States. He was the main advocate of the Dodd-Frank Act (Wall Street Reform and Consumer Protection Act), aimed at restructuring and reforming the financial system. The comprehensive Dodd-Frank Act protected investors and consumers with the creation of the Consumer Financial Protection Bureau. These efforts were much needed to assist in the recovery of the nation's financial system and overall consumer confidence.

Geithner was a significant participant and leader during the European financial crisis and in U.S. economic relations with China. He was instrumental moving China to a more flexible exchange rate system. U.S. agreements with developed and emerging economies were strengthened under Geithner.

He resigned his position and left the Obama administration in January of 2013. He wrote a memoir about his time as Secretary of the Treasury, titled *Stress Test: Reflections on Financial Crises* (2014).

Geithner was the first former member of the Treasury's career civil service to become Secretary of the Treasury. Geithner now serves as president and managing director of the private equity firm Warburg Pincus. He and his wife Carole have two children.

Amber Thomas

See also: Federal Reserve System; Financial Reform Act of 2010 (Dodd-Frank Act); Paulson, Henry M., Jr.; United States Treasury

Further Reading

Biography.com. n.d. Timothy Geithner Biography: Civil Servant (1961–). http://www.biography.com/people/timothy-geithner-391494#other-notable-roles (accessed November 30, 2016).

Federal Reserve Bank of San Francisco. 2015. What Is the Fed: Structure. http://www.frbsf.org/education/teacher-resources/what-is-the-fed/structure (accessed November 30, 2016).

U.S. Department of the Treasury. n.d. About Timothy F. Geithner (2009–2013). http://www.treasury.gov/about/history/Pages/tgeithner.aspx (accessed November 30, 2016).

GENERAL EQUILIBRIUM ANALYSIS

General equilibrium analysis is the study of equilibrium price and quantity in multiple or all markets in the economy. The analysis of supply and demand on equilibrium price and quantity in a single market ignoring events in other markets is referred to as *partial equilibrium analysis*. While partial equilibrium analysis can be very useful, there are times when it is necessary to analyze the impact a change in one market has on other markets. General equilibrium analysis has developed through the work of such economists as Léon Walras, William Stanley Jevons, Kenneth Arrow, and Gérard Debreu.

General equilibrium analysis looks at the interdependence of markets. There are two common relationships between markets: the spillover effect and the feedback effect. The *spillover effect* refers to a change in equilibrium in one market having an effect in other markets. The *feedback effect* is when the change in equilibrium in one market (A) causes a change in another market (B) and that change in Market B will result in a change in equilibrium in Market A. The following scenario will help to illustrate these effects.

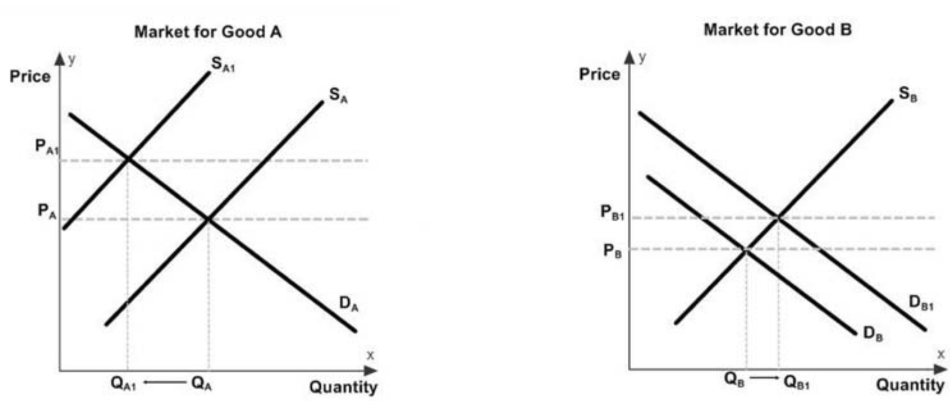

Figure 1. General equilibrium analysis A

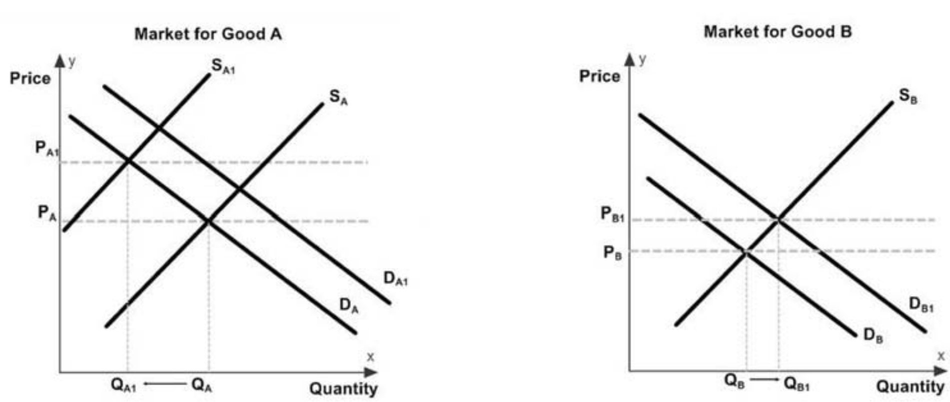

Figure 2. General equilibrium analysis B

There are two interdependent competitive markets, Market A and Market B. Both markets start in equilibrium. Assume that a tax is placed on Good A. This tax results in a decrease in supply, which is represented by the shift from S_A to S_{A1}. The price has increased from P_A to P_{A1}, and the quantity has decreased from Q_A to Q_{A1}. The changes in the Market for Good A have a spillover effect into the Market for Good B. Since the goods are substitute goods, the higher price of Good A initially increases the demand for Good B with the shift from D_B to D_{B1}. D_{B1} represents the demand for Good B when the price of Good A is P_{A1}. The price will increase from P_B to P_{B1} and the quantity will increase from Q_B to Q_{B1}.

Analysis of the markets does not end here. The change in Market B has a feedback effect on Market A. The tax in Market A led to a higher price for Good B. Since the price for Good B has increased, the demand for the substitute good, Good A, will increase. The feedback effect is shown by the shift from D_A to D_{A1}.

General equilibrium analysis shows the interdependence of markets by including not only the spillover effect but also the feedback effect. Partial equilibrium analysis and general equilibrium analysis are both useful tools for economists. Typically, partial equilibrium analysis is sufficient if the change in the market primarily affects one market. General equilibrium analysis is more appropriate when the change affects many markets at the same time.

Annie Klein

See also: *Vol. 3: Microeconomics:* Demand; Markets; Microeconomics; Supply

Further Reading

Browning, Edgar K., and Mark A. Zupan. 2004. General Equilibrium Analysis and Economic Efficiency. In *Microeconomics: Theory and applications*. 8th ed., 519–23. New York: Wiley.

Levin, Jonathan. 2006. General Equilibrium. https://web.stanford.edu/~jdlevin/Econ%20202/General%20Equilibrium.pdf (accessed November 30, 2016)

GI BILL. *See* Servicemen's Readjustment Act of 1944

GIBBONS V. OGDEN

Gibbons v. Ogden, 22 U.S. 1, is an 1824 Supreme Court case that gives the federal government the ability to maintain uniform and equal rule of law within the whole of the United States. The Court addressed the issue of monopoly in transportation. In addition, it addressed the issue of states' responsibility versus the authority of the federal government to make laws regarding business and commerce, specifically interstate transportation. As on many occasions throughout history, this case was also a case of creative destruction, as technology was changing the face of an industry, in this case the transportation industry. *Creative destruction* is an economic concept allowing old methodologies of manufacturing, production, or distribution to be replaced with new methodologies.

Economic Summary

In the late 1700s, the introduction of steam to drive boats spurred a rush of innovation. A race began to build a better engine—from which someone could develop a profitable industry from this new power source. Among the many entrepreneurs and inventors in this race was Robert Fulton; in 1807, he was the first to make steamboating a commercial success. Between 1807 and 1814, the *North River Steamboat* (also known as the *Clermont*) operated as a commercial transportation vessel on the North River (now known as the Hudson River). This commercial success was due in part to Fulton's partner, the former chancellor of New York, Robert R. Livingston (1746–1813), who negotiated with the state legislature to pin down the legal details that would give Livingston and Fulton exclusive rights to operate steamboats on waters within the state of New York—in other words, a monopoly.

Fulton and Livingston sold franchises to rivals who wanted a part of the industry. Aaron Ogden bought a license from them in 1815, and Ogden's business associate, Thomas Gibbons, began operating steamboats between Elizabethtown, New

Jersey, and New York City. In 1818, much to Ogden's annoyance, Gibbons began an independent steamboat line.

To stop Gibbons, Ogden sued him in a New York court and won. Gibbons appealed to the United States Supreme Court. The greatest questions in this case were how to interpret the commerce clause and the boundaries to the supremacy clause of the U.S. Constitution. Finally, in an era of invention and growth of industry, what is the responsibility of the state and federal government to make laws regarding business, industry, and commerce?

The Court addressed these questions, and Chief Justice John Marshall clarified commerce and supremacy.

Case Summary

Robert R. Livingston was one of the committee of five who wrote the Declaration of Independence. As the chancellor of New York, he held the highest judicial position in the state and swore in George Washington as the first president of the United States. With this political clout, it was not a stretch for Livingston to secure for his partner, Robert Fulton, the exclusive authority to navigate the waters of New York with steam-powered engines. This created a legal monopoly of navigation by steam on all waterways in and around New York.

Establishing rule of law and property rights in a free enterprise system is fundamental. Early in the history of the United States, the Articles of Confederation allowed such laws and rights to be maintained by state legislatures. In the federal system established by the U.S. Constitution, the question of states granting legal monopolies for commerce between states was brought forth. *Gibbons v. Ogden* solved the dilemma of who was the legitimate authority to regulate interstate commerce.

Thomas Gibbons was a former Tory (colonist who was loyal to the British King during the Revolutionary War), lawyer, businessman, and mayor of Savannah, Georgia. In 1801, Gibbons left Georgia for New Jersey, where he went into business with Aaron Ogden. Aaron Ogden was a former Revolutionary War hero and governor of New Jersey who, after a license fee, secured from Livingston and Fulton a franchise to operate a steamboat business between Elizabethtown, New Jersey, and New York City.

By 1818, Gibbons and Ogden were at odds with one another. Gibbons started his own steamboat business with a license obtained from Congress under a 1793 law that pertained to the regulation of trade along the coastline. Gibbons partnered with Commodore Cornelius Vanderbilt to operate a steamboat from New Jersey to New York. Ogden sued Gibbons in a New York State court to stop him. The state court held that securing navigational rights to waterways was a concurrent power, not one expressly given in the Constitution to the federal government. Gibbons's lawyer, Daniel Webster, argued that the Constitution did in fact give the power to regulate trade between the states explicitly to the federal government and that this state law conflicted with the U.S. Constitution.

The New York court ruled in favor of Ogden, perpetually enjoining Gibbons from navigating the waters of the state of New York with steamboats the *Stoudinger* and the *Bellona*. Gibbons appealed this case to the Supreme Court.

The Supreme Court heard arguments in February 1824. By this time, Fulton and Livingston were deceased, while Ogden was heading to debtors' prison and Gibbons was determined to succeed. The appellant maintained that the laws allowing a state to regulate interstate commerce were in opposition to the U.S. Constitution.

The state of New York disagreed, contending that New York was the legitimate authority in such business matters. New York defined *commerce* as traffic and the buying and selling of commodities. Chief Justice Marshall defined *commerce* differently. The Court's definition of *commerce* included navigation and the power to regulate the vessels of one state into the port of another state to engage in buying or selling or barter. This was the definition the writers of the Constitution had intended when they expressed this power in Article I, Section 8. Consequently, New York argued that regulation of the coastal waters surrounding the state was a concurrent power.

The Supreme Court disagreed with this as well. Chief Justice Marshall's opinion stated that concurrent powers were such that by their practical operations, they needed to reside in different levels of government. For example, the power to lay and collect taxes is essential to maintaining government function at any level and therefore is concurrent. By contrast, the power to regulate commerce is appropriate in the hands of the federal government for the purpose of maintaining a more perfect union and securing domestic tranquility within the nation. However, the Court did recognize that there would be gray areas where states may pass laws that interfere with or are contrary to an act of Congress.

The framers of the Constitution foresaw this collision of powers and provided for it in Article VI of the U.S. Constitution, declaring the supremacy not only of the Constitution, but also of the laws made in pursuance of it. Finally, New York laws pertained only to vessels with steam engines, not to vessels with sails. The Supreme Court expressed the opinion that steam-propelled vessels were entitled to the same privileges and protections as vessels with sails. The rule of law includes a level playing field for innovation in a free enterprise economy. Hence, requiring only steam-powered vessels to obtain a license from private citizens who possessed exclusive legal monopolies on certain technologies was construed as a hindrance.

This case established the federal government as the legitimate authority to determine regulation of commerce among the states and the U.S. Constitution as the supreme law of the land. On March 2, 1824, a unanimous opinion of the Court reversed and annulled the decree of the Court of New York, ruling in favor of Gibbons. This case illustrates the supremacy clause of the Constitution, which gives the federal government the ability to maintain uniform and equal rule of law within the whole of the United States.

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See also: Property Rights; *Vol. 1: Foundations of Economics:* Creative Destruction; Entrepreneurship; Private Property; *Vol. 3: Microeconomics:* Commodities; Monopoly

Further Reading

Chicago-Kent College of Law at Illinois Tech. n.d. *Gibbons v. Ogden*. Oyez. https://www.oyez.org/cases/1789-1850/22us1 (accessed November 30, 2016).

Cox, Thomas H. 2009. *Gibbons v. Ogden, law, and society in the early republic*. Athens: Ohio Univ. Press.

Johnson, Herbert Alan. 2010. *Gibbons v. Ogden: John Marshall, steamboats, and the commerce clause*. Lawrence: Univ. Press of Kansas.

Levinson, Isabel Simone. 1999. *Gibbons v. Ogden: Controlling trade between states*. Berkeley Heights, NJ: Enslow Publishers.

Ourgovernments.gov. n.d. *Gibbons v. Ogden (1824)*. http://www.ourdocuments.gov/doc.php?flash=true&doc=24# (accessed November 30, 2016).

GLASS-STEAGALL ACT. *See* Banking Act of 1933

GOLD STANDARD

England adopted a de facto gold standard in 1717 after the master of the mint, Sir Isaac Newton, overvalued the guinea in terms of silver, and the nation formally adopted the gold standard in 1819. The United States, although formally on a bimetallic (gold and silver) standard, switched to gold de facto in 1834 and de jure in 1900 when Congress passed the Gold Standard Act.

In 1834, the United States fixed the price of gold at $20.67 per ounce, where it remained until 1933. Other major countries joined the gold standard in the 1870s. The period from 1880 to 1914 is known as the classical gold standard. The gold standard is a fixed exchange rate system, with gold being pegged as the basis for the exchange rate.

The gold standard was abandoned in the 1930s during the Great Depression. Research shows that the first countries to end the gold standard were the ones that escaped the Great Depression. After World War II, Western economies adopted a modified gold standard under the Bretton Woods exchange rate system (1947–1971); this too was abandoned, in the early 1970s. Under a pure gold standard, nations keep gold as their international reserve. Gold is used to settle most international obligations, and nations must be prepared to trade it for their own currency whenever foreigners attempt to "redeem" the home currency they have earned by selling goods and services. The nation's money is backed by gold.

There are three rules a country must follow in order to maintain a fixed gold exchange rate system. The first rule is that the country must fix its currency unit in terms of gold. This fixes the exchange rate. For example, under the modified gold standard of the Bretton Woods exchange rate system, the U.S. dollar was fixed at $35 per ounce and the British pound was set at £12.5 per ounce. Because both currencies were fixed in terms of gold, they were implicitly set in terms of each other: $35 = one ounce of gold = £12.5, or 2.80 dollars per pound.

The second rule of the gold standard is that nations must keep the supply of their domestic money fixed in some constant proportion to their supply of gold.

This requirement is necessary to ensure that the domestic money supply does not grow beyond the capacity of the gold supply to support it.

The third rule of a gold standard is that nations must stand ready and willing to provide gold in exchange for their home country currency. Instead of holding currency in the reserve, in a pure gold standard currency system countries hold gold in reserve. As countries sell their gold reserves, there are two outcomes: (1) the demand for gold is satisfied and the pressure on the currency eases, or (2) the country began to run out of gold. If the country runs out of gold, the country may be forced into a devaluation, which is accomplished by changing the price of its currency. For example, if the dollar is fixed at $35 per ounce of gold, devaluation would shift the price of gold to something more than $35—say, $50—and each ounce of gold sold by the United States would buy back a greater quantity of dollars.

Adrian Williams

See also: *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; Roosevelt, Franklin D.; *Vol. 4: Global Economics:* Currency Appreciation and Depreciation; Currency Devaluation and Trade

Further Reading

Bordo, Michael D. n.d. Gold standard. In *The concise encyclopedia of economics*. Library of Economics and Liberty. http://econlib.org/library/Enc/GoldStandard.html (accessed March 15, 2015).

Eichengreen, Barry J., and Harold James. 1992. *International monetary cooperation since Bretton Woods*. New York: Oxford Univ. Press.

Gerber, James. 2014. *International economics*. 6th ed. New York: Pearson Economics.

GOVERNMENT BAILOUTS OF PRIVATE COMPANIES

Government bailouts in the United States have been around for almost as long as the United States has been a sovereign nation. Some of the most costly and famous bailouts in American history took place in the past several years, due to the Great Recession of 2007–2009. Government bailouts of private companies have been spread across many industries.

Bailouts in the United States can be dated back to the Panic of 1792, when the federal government bailed out the 13 states, which were overwhelmed with debt stemming from the Revolutionary War.

The Great Depression that followed the stock market crash of 1929 is one of the best-known economic disasters in world history. When President Franklin D. Roosevelt took office, the U.S. unemployment rate was near 25 percent. Combating the drastic times called for drastic measures. The Roosevelt administration enacted many precedent-setting government bailouts, with the goal of easing the economic disaster that had taken over. One of the primary government bailout efforts of the Depression was handled through the Home Owners' Loan Corporation (HOLC). The HOLC refinanced mortgages by purchasing defaulted mortgages from banks.

Because there wasn't another market for package mortgages, the government held the mortgages until they were paid off.

Following World War II, a national group of fiscally conservative lenders helped stimulate the housing boom by creating savings and loan associations (S&Ls). Government oversight on S&L lending was nearly non-existent. Their investments were reckless, and many S&Ls ended up going bad, leading to one of the most costly bailouts of all time. Almost half of America's S&Ls failed, and loan default totaled billions of dollars. Congress enacted the Financial Institutions Reform, Recovery and Enforcement Act in 1989 to address this crisis, which ended up injecting the industry with nearly $293 billion.

All previous bailouts were surpassed in size and scope by hundreds of billions of dollars thanks to the Emergency Economic Stabilization Act of 2008. The U.S. Treasury bought risky and nonperforming debt in the form of mortgages, auto loans, college loans, and other types of loans. It was hoped that this bill, along with a $250 billion cash infusion into the banking system, would spur interbank lending and cause a trickle-down effect in the economy—all the way down to small businesses and consumers. The U.S. government planned to borrow some of the money by issuing Treasury bonds and bills. The government also planned to print additional currency to help pay for the plan.

The subprime mortgage fiasco of 2007–2008 caused the giant investment bank Bear Stearns to collapse. In 2008, J. P. Morgan Chase was given $29 million to buy the financially troubled firm. The government predicted disaster and economic devastation if the United States allowed one of the largest securities companies in the world to go bankrupt.

In 2008, the U.S. government committed $200 billion in taxpayer money to Fannie Mae and Freddie Mac to protect the two mortgage lenders from collapse. Both of these giant companies were brought down by the subprime mortgage crisis. They issued mortgage loans to unqualified borrowers, and when borrowers defaulted on the loans, Fannie and Freddie experienced great financial trouble. Eventually the federal government bailed them out.

One of the world's largest insurance companies, American International Group (AIG), was taken over by the U.S. government and guaranteed a loan of $85 billion when private lenders declined to assist. The government took an equity position in the company. AIG's assets, its hefty insurance revenues, were collateralized by the government, which diminished the government's risk in the company. The loan was conditioned with the requirement that AIG sell many of its unprofitable businesses to shed some of its nonperforming debt. This marked the first time in history that the federal government took over a private insurance firm.

During the same period, the three major automobile companies in the United States asked the government for a $50 billion bailout. The auto companies stated that they feared their demise would push the economy further into recession. During the vetting process it was determined that Ford really didn't need a bailout; in truth, Ford was worried it wouldn't be able to compete with government-subsidized companies. Initially, Congress declined to assist, stating that the industry had created its own problems. Finally, in 2009, Chrysler and General Motors were allotted $23.4 billion. In return, the companies were required to fast-track environmentally friendly vehicles and consolidate operations, along with other requirements specific to each of the companies.

General Motors pledged to cut its debt and sell stock ownership to the government. The bailout led to a managed bankruptcy in which GM emerged as two separate companies. One company held the assets and the other held the liabilities. A few years later, on two separate occasions, the government sold its shares of the company. Chrysler also went through a managed bankruptcy. It emerged partly owned by Fiat and partly owned by the United Auto Workers Retirement Medical Benefits Trust. Intense negotiations eventually led the United Auto Workers Trust to relinquish its ownership in the company. Today, Chrysler has a new identity: Fiat Chrysler Automobiles. Five years after the bailout, the government had recouped nearly 70 percent of the money it spent on the auto industry bailout, mostly by selling it shares of General Motors. Chrysler repaid its debt to the government six years ahead of schedule.

Many economists believe the U.S. government is overextending itself with the numerous bailouts. Rescuing private companies has led to trillions of dollars in debt; resources to pay off the debt are limited, and there are few resources available to fund future bailouts. The most recent round of bailouts was also politically unpopular, as many people believe the government shouldn't interfere with the free market. With the most recent regulatory legislation and stringent oversight, it's possible that bailouts of the size seen in 2008 may not be necessary again.

Michael Weck

See also: Government Failure; Great Recession, 2009; Panic and Global Depression, 1873; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; Theory of Public Choice; *Vol. 3: Microeconomics:* General Motors Bankruptcy, 2009; Microeconomics

Further Reading

Amadeo, Kimberly. n.d. Auto industry bailout (GM, Ford, Chrysler): Why the Big 3 needed a bailout and what it cost the U.S. taxpayer. TheBalance.com. https://www.thebalance.com/auto-industry-bailout-gm-ford-chrysler-3305670 (accessed March 20, 2015).

Davis, Marc. 2014. Top 6 U.S. government financial bailouts. *Investopedia*, September 13. www.investopedia.com/articles/economics/08/government-financial-bailout.asp (accessed March 20 2015).

GOVERNMENT FAILURE

When markets fail to provide the right amount of a good or service or when they provide too much of a bad thing, that is, an externality—in other words, when a market failure occurs—citizens expect the government to step in and provide the remedy. Consumers expect government to supply the desirable quantity of a good or service or protect the consumer/citizen from harm or economic hardship caused by others. Often, government will interfere with those markets successfully.

There are times, however, when a government interferes with a market and the expected outcome is not the one achieved. These consequences are known as government failures. Even though people usually think of government failures as occurring at the national level, government failures occur at the state and local levels of government as well.

Government failures occur for many reasons. Some are the result of the influence and political self-interest of special interest groups, the self-interest of political and civil servants attempting preserve programs or jobs, or government intervention that results in overregulation at the expense of consumers. Government actions often create disincentives or cause avoidance activity by businesses or consumers, or sometimes a government action falls victim to the law of unintended consequences.

When government failures occur, several consequences may arise. One consequence is that the economic costs of a government decision outweigh the economic benefits realized. Many times, the components of the economic costs and economic benefits of an activity are estimated and fairly subjective, leading to disagreements about whether a government action was a failure, a success, or some of both.

Trade policies that are intended to protect an industry or a special interest group are one example of this type of government failure. On the one side, consumers would view the protectionist policy of the sugar tariff as a government failure, because it makes consumers pay a higher price for sugar and other food items. For the consumer, the economic costs outweigh the economic benefits. Yet the corn industry would view this government action quite differently, as the industry receives significant economic benefits from higher corn prices, relative to the production of corn-based ethanol versus sugar-based ethanol.

Another type of government failure occurs when a government action to change behavior does not produce the desired change of action. For example, a government may act to curtail pollution through fines and penalties. While the governmental unit may impose the fine or penalty on a polluting company, if the fine or penalty is not severe enough to alter the company's behavior, the company will be inclined to pay the fine and continue polluting. While the government may collect the fine, it did not accomplish the purpose of the fine by altering the company's polluting activity. If the fines and penalties are too heavy, the penalized company may close its facility and move elsewhere. While the closed or moved company would certainly not pollute anymore, the negative economic impact on the locale would most definitely be a heavy and unwanted consequence of the government action.

There are times when government failure occurs because the regulations being imposed are outdated. In those cases, it is up to the government to update or eliminate its policies. Sometimes this occurs through the government itself taking action, as happened when the federal government deregulated the airline industry and eliminated the Civil Aeronautics Board. At other times, the courts have imposed actions on the government to take, as with the communications industry and the federal government giving monopoly power to AT&T (see 1994 Supreme

Court case *MCI Telecommunications Corp. v. American Telephone and Telegraph Co.*). This type of government failure is also seen at the local level, as communities grow, or shrink, and current local policies either inhibit growth or prevent a community from addressing a changing demographic or geographic disparity. Many Midwest communities—such as Detroit, Michigan, and Dayton, Ohio—have experienced this type of government failure as they have tried to transform themselves for the future economy.

Interestingly, there have also been times in history when government action can be seen as a government failure through government interfering and regulating a market that did not exist. The famous Yak Fat Caper of the Interstate Commerce Commission (ICC) is one example. While it could be considered a government failure, there were no serious consequences to the action outside of some embarrassing moments for the ICC.

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See also: Externality; *Vol. 1: Foundations of Economics:* Crony Capitalism; Market Capitalism; *Vol. 3: Microeconomics:* Market Failure; *MCI Telecommunications Corp. v. American Telephone and Telegraph Co.*; *Vol. 4: Global Economics:* Protectionism

Further Reading

Economics Online. n.d. Government failure. http://www.economicsonline.co.uk/Market_failures/Government_failure.html (accessed May 11, 2014).

Hertzmark, Donald. 2009. Rent seeking, crony capitalism, and U.S. energy politics: Who wins from the racket? *Master Resource*, August 5. http://www.masterresource.org/2009/08/rent-seeking-crony-capitalism-and-us-energy-politics-who-wins-from-the-racket/ (accessed May 11, 2014).

Lee, Dwight R., and J. R. Clark. 2013. Market failures, government solutions, and moral perceptions. *Cato Journal* 33 (2): 287–97. http://object.cato.org/sites/cato.org/files/serials/files/cato-journal/2013/5/cj33n2-10.pdf (accessed May 11, 2014).

GOVERNMENT FINANCE, STATE AND LOCAL

Without taxes, state and local governments would not have the revenue to provide public goods and services. With no money, state and local governments could not function and provide the goods and services that are used every day.

Public goods and services are important components of every economy at every level. All governments—federal, state, or local—need money to function and to provide the public goods a society has entrusted a government to provide. To finance public-sector activities, state and local governments have these sources of funding available: user fees, taxes, and borrowing.

One revenue source that is implemented by most state and local governments is user fees. These are fees that citizens pay directly to the government for the use of public facilities, including highway tolls, fines, public golf course green fees, fishing and hunting licenses, and state and local park entrance fees. While all of these are important to financing government activities, they do not bring in a very large part of the overall funding that state and local governments need to operate.

A more effective method of funding is taxation. In fact, taxation is the most common source of funding for state and local governments. Every tax has a tax base; there are three of them: consumption (sales tax); current income (income tax); and accumulated wealth, or property (property tax). The primary tax bases for *state* governments are current income (income tax) and consumption (sales tax), while the primary tax base for *local* governments is property (property tax). Some major cities also use current income (income tax) and some consumption (sales tax) to generate revenue.

A third source of public funding for state and local governments is to borrow through the financial markets. Often, a state or local government or governmental entity (for example, the public school system) will want to build a new building or add infrastructure such as new roads or bridges. To fund such a large project would not be possible through normal annual budget channels. The governmental unit will offer a bond (a loan) to the public through the financial markets to generate additional revenue for the construction of the public infrastructure. Both citizens and other countries may loan the state or local governmental unit money by purchasing the bonds. A bond is a loan, and it must be paid back with interest, so borrowing is only a temporary solution to be used for special circumstances. All money borrowed must be returned eventually, and at an even greater expense.

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See also: Public Debt; Public Finance; Public Goods; Taxes

Further Reading

Internal Revenue Service. n.d. *Understanding taxes*. apps.irs.gov/app/understandingTaxes/index.jsp (accessed June 23, 2016).

Seater, John J. 2008. Government debt and deficits. In *The concise encyclopedia of economics*, ed. David R. Henderson. N.p.: Library of Economics and Liberty. econlib.org/library/Enc/GovernmentDebtandDeficits.html (accessed June 23, 2016).

U.S. Census Bureau. n.d. American factfinder. factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk#none (accessed June 23, 2016).

U.S. Census Bureau. n.d. State and local government finance. www.census.gov/govs/local (accessed June 23, 2016).

GRAMM-LEACH-BLILEY ACT

The Gramm-Leach-Bliley Act (GLB Act, or GLBA), also known as the Financial Modernization Act of 1999, is a federal law enacted in the United States to control the ways in which financial institutions handle the private information of individuals. In its entirety, the act consists of three sections: the "Financial Privacy Rule," which regulates the collection and disclosure of private financial information; the "Safeguards Rule," which guarantees that financial institutions must implement security programs to protect such private information; and the "Pretexting Provisions," which prohibits the practice of accessing private information under false pretenses. Additionally, the act requires financial institutions to give customers a written privacy notice that details all aspects of the institution's information-sharing practices.

Historically, the GLB Act can be traced to the separation of banks, brokerage companies, and insurance companies. In 1933, after the financial failures of the Great Depression, Congress passed the Glass-Steagall Act, which prohibited national and state banks from affiliating with securities companies. Then, in 1956, Congress passed the Bank Holding Company Act, which prohibited banks from controlling nonbank companies. This act was amended in 1982, when Congress forbade banks from partaking in general insurance underwriting or agency activities. This changed in 1999, when the GLB Act repealed different sections of these prior acts, ultimately allowing banks to engage in a wide range of financial services.

The problem with such mergers had to do with significant privacy risks. With these mergers being permitted, new financial institutions would gain access to an enormous amount of customers' personal information with virtually no restrictions upon its use. To illustrate, prior to the GLB Act, the finance company that maintained ones' health records was distinct from the bank that mortgaged ones' house, or the stockbroker that traded ones' stocks. Yet after the GLB Act, these institutions would be able to consolidate the private, personal information of their customers, in addition to being able to analyze and sell that personal information. As a result of these potential privacy risks, the GLB Act contains several elements that protect the personal data of individuals.

Because of the GLB Act, financial institutions are required to develop safeguards to ensure the security and confidentiality of customer records and information, to protect against any potential threats or hazards to the security or integrity of personal records, and to protect against unauthorized access or use of such private records or information that could result in harm or inconvenience to a customer. This regulation is required, whether financial institutions choose to disclose personal information or not.

Also because of the GLB Act, financial institutions are required to provide customers with notice of the institution's sharing policy. The notice should outline the details of the institution's policies on disclosing nonpublic personal information (NPI) to third parties, disclosing NPI after the customer relationship is terminated, and protecting NPI. *NPI* is described as all information on applications to obtain financial services and all information on account histories, as well as the simple fact that the individual was a customer.

The GLB Act gives consumers the right to opt out from a limited amount of NPI sharing. Specifically, a customer has the right to direct the financial institution to not share information with unaffiliated companies. However, customers have no right under the GLB Act to stop institutions from sharing NPI among affiliates. An *affiliate* is any company that controls, is controlled by, or is under common control with another company. Under this jurisdiction the individual consumer has no control over the trading of personal information among these related entities.

Financial institutions are also prohibited from disclosing access codes or account numbers to any nonaffiliated third party for the purpose of telemarketing, direct mail marketing, or other marketing through electronic mail. Even if a customer fails to "opt out" of a financial institution's transfers, personal information such as credit card numbers, PINs, or other access codes cannot be sold.

The GLB Act prohibited specific types of pretexting. *Pretexting* is the practice of collecting personal information under false pretenses. As an example, a pretexter would be an individual posing as an authority figure—such as a law enforcement agent, a social worker, or a potential employer—and attempting to lure people with fictitious stories in order to obtain personal information about the person. The GLB Act prohibits the use of false, fictitious, or fraudulent statements or documents to get customer information either from a financial institution or from the individual customers themselves. The GLB Act also prohibits the use of forged, counterfeit, lost, or stolen documents to get customer information from a financial institution or from individual customers of the financial institution.

The GLB Act prohibits asking an individual to retrieve someone else's information using false, fictitious, or fraudulent documents.

Lauren A. Drum

See also: Financial Intermediation; *Vol. 1: Foundations of Economics:* Banking; *Primary Documents*: Banking Act of 1933 (Glass-Steagall Act); Gramm-Leach-Bliley Act (Financial Modernization Act of 1999)

Further Reading

EPIC.org. n.d. The Gramm-Leach-Bliley act. Electronic Privacy Information Center. https://epic.org/privacy/glba/ (accessed June 7, 2015).

Federal Trade Commission. n.d. Gramm-Leach-Bliley act. https://www.ftc.gov/tips-advice/business-center/privacy-and-security/gramm-leach-bliley-act (accessed June 7, 2015).

GRANT'S RECESSION, 1869

Grant's recession, named after President Ulysses S. Grant, was one of America's mildest recessions. Some of it was the result of the natural contraction in the economy after the Civil War, but it is best remembered for the first "Black Friday," when the gold market in New York crashed on September 24, 1869. The crash was the result of an economic scam and a political scandal. The stock market plummeted 20 percent, and agricultural products plummeted 50 percent. The crash caused a short but severe disruption in the economy. The railroad industry slowed as well, in part due to overexpansion and railroad industry's role in the gold market. Grant's recession would eventually lay the groundwork for the panic of 1873.

The crisis of 1869 was rooted in the expansion of credit to finance the Civil War. The North had large gold reserves before the war, but these were quickly used up in the first two years of the war. In 1862, the Legal Tender Act permitted the use of paper money and took the government off the gold standard. The act authorized the printing of more than $150 million in paper money, known as "greenbacks," issued with little gold or silver backing. Such a rapid expansion of credit created massive inflation as the war ended. After the war, greenback dollars dropped in value to 35 cents in equivalent gold. The low gold value of the greenback gave the government an opportunity to use its remaining gold to pay off the war debt.

The Grant administration decided to start using gold for a debt payback plan. Because the government controlled most of the gold market, it, in turn, controlled the price. However, speculators could make money if they could discover when the government planned to sell. The government's general plan for selling gold was far from secret, but speculators such as railroad barons James Fisk and Jay Gould had an insider in the administration, financier Abel Corbin, who was Grant's brother-in-law and was close to him. Fisk and Gould arranged that Corbin would, in Grant's presence, argue against the government selling gold. Corbin also persuaded Grant to appoint his friend Daniel Butterfield assistant treasurer of the United States. Butterfield then plotted with Fisk and Gould to corner the gold market by tipping them off when the government was to sell gold. Quietly, Fisk and Gould proceeded to corner the gold market by buying massive amounts.

By the end of August 1869, the government payback plan had proven very successful. The money supply and the price of gold remained steady as $50 million of the national debt was reduced. The government varied its moves in the market, believing, based on the market indicators, they had held off speculation. Fisk and Gould, however, with their inside information, were sitting on a mountain of low-priced gold. It was only with the rapid rise in the gold price in late September that the government became aware of their scam. One tip-off was the brazen attempt to include more government officials in the scam.

As Grant implemented his payback plan, gold had started to drop in value. Fisk and Gould would move in and buy at these low prices, which reached $130 an ounce. Prices started to rise as the Fisk and Gould group hoarded gold. The government had hoped to sell about $4 million of gold, but the total gold market was small, around $15 million. Fisk and Gould had gained control of the market. They could now drive the price of gold up, making a huge profit.

Slowly the price of gold started to rise, with the aid of hoarding by speculators. By late in the year, a Double Eagle $20 gold piece was worth $26 in gold. In September, gold hit a high of $162 an ounce (a high that would take 100 years to hit again). Once the government fully realized (or discovered) what was happening, Grant ordered $4 million of gold to be sold. As the government gold hit the market, a selling panic set in. The price plummeted in a few minutes, destroying many uninformed speculators. Grant's brother-in-law went bankrupt, though Fisk and Gould were able to escape with little harm. The stock market followed with its own crash, spreading the harm to innocent investors. A large number of brokerage houses were pulled into bankruptcy.

The crash of the gold market caused a major decline in wheat prices. In 1869, the American harvest had been bountiful, and farmers had hoped to sell wheat in Europe at high prices. Instead, farmers found a depressed wheat market that resulted in major financial losses for many of them. As the stock market crashed, industrial orders were canceled, and industry would be paralyzed until the start of 1870. Because the underlying foundation of the economy was strong, however, industry returned to production once the stock market also returned to normal.

The railroads, however, were severely slowed in their expansion. In addition, the government corruption would hurt the ability of the United States to get cheap money for its rebuilding after the war.

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See also: Gold Standard; *Vol. 1: Foundations of Economics:* Civil War Economics, Shortages, and Inflation, 1861–1865

Further Reading

Longacre, Edward G. 2006. *General Ulysses S. Grant: The soldier and the man.* Cambridge, MA: Da Capo Press.

Waugh, Joan. 2009. *U. S. Grant: American hero, American myth.* Chapel Hill: Univ. of North Carolina Press.

GREAT RECESSION OF 1896

The great recession of 1896, better known as the Panic of 1896, was a slight economic depression pre–World War I, caused by the drop in gold reserves and the market concerns about the effects the drop would have on the gold standard. During the panic, business activity declined across the economy and unemployment rates increased. The panic dated from December 1895 to June 1897.

The panic can be characterized as a slowing rate of increase of the world's stock of gold, an increase in the number of countries on the gold standard, and a higher growth rate of total economic output. These several factors resulted in a deflationary period from 1875 to 1896. Additionally, the growth rate on real output was greater than the growth rate of the money supply during this period, which resulted in pressures on the nominal price.

Prior to the deflationary period, the United States was under a *bimetallistic* standard, a monetary standard established as a fixed rate of exchange using both gold and silver. However, the Coinage Act of 1873 demonetized silver, and the Resumption Act of 1875 further established the gold standard. During this deflationary period, political movements urging departure from the gold standard were increasing, as the United States needed an increase in the money supply in order to stop deflation. As farmers started to become unable to pay their debts without lower prices, and silver producers were hit by lower silver prices, people formed the People's Party and the National Silver Party. As the Treasury's gold reserve continued to drop, the public began to worry about the maintenance of the gold standard, established by the Sherman Silver Purchase Act of 1890. This resulted in even more pressure on the gold reserves.

In July of 1986, the Democratic Party nominated William Jennings Bryan as its candidate for the 1896 presidential election. This nomination further intensified the movement toward silver because of Bryan's "free coinage of silver" position. After Bryan's nomination, the demand for foreign exchange increased as dollar holders wanted to convert their dollars to gold first, resulting in more pressure on gold reserves. The election simply made matters worse and accelerated the net gold outflows.

Another differing theory on the cause of the panic is the fluctuations in the cotton harvest due to such external variables as weather. The poor cotton harvest of 1896 caused a decrease in the export of cotton and a decline in the inflow of gold. Therefore the cotton harvest could have contributed to the panic through the decrease in reserves and stock price decline. The revenue resulting from the export of cotton accounted for a large portion of the country's total merchandise export revenue, so it could very well be one of the factors that changed the business cycled and resulted in the panic.

Ultimately, in order to stop the gold outflows, a group of gold-shipping and foreign exchange houses agreed to blow the outflows of gold. The group borrowed funds in foreign currencies and exchanged it with the American investors wanting foreign currency. People transferred their other currencies without first converting them to gold, and the decline in the gold reserves was managed. Additionally, when the cotton harvest came to an end in 1896, crop export season started and resulted in an inflow of gold.

Lauren A. Drum

See also: Gold Standard

Further Reading

Enjar. 2014. History: Panic of 1896. *Economics 411: Monetary and Financial Theory*. https://econ411w14.lsa.umich.edu/economic-history-panic-of-1896/ (accessed November 30, 2016).

Loerzel, Robert. 2008. Another banking crisis: Chicago's panic of 1896. *The Huffington Post*, November 10. http://www.huffingtonpost.com/robert-loerzel/another-banking-crisis-ch_b_133334.html (accessed November 30, 2016).

GREAT RECESSION, 2009

The stock market crash of 2008 was driven by the collapse of subprime mortgage investments throughout the world. The next few years would be known as the "Great Recession." The Great Recession would rival the Great Depression of the 1930s in many aspects. It has produced misery approaching the levels of the 1930s, and a full analysis of the causes will continue for years. Still, the origins and effects of the Great Recession have many similarities to those of previous recessions.

The official start of the Great Recession has been tagged as December 2007 after a real estate bubble evolved into a financial crisis. But for Main Street America, it was the crash of the stock market in November 2008 that signaled the recession's start. The full accounting of negative effects of the recession is not complete; but based on the drop in U.S. gross national product, it is the greatest recession since the 1930s. The unemployment rate would approach 9 percent, and other measures of unemployment and underemployment saw rates at Depression levels. Although the analysis of the causes and effects is incomplete, the place of the Great Recession in history is ensured.

The stock market hit a record high of 14,164 on the Dow Jones Average on October 11, 2007, before starting its decline. In October 2008 the stock market continued to slide and bank failures increased. In November 2008, the crisis came to Main Street as unemployment claims jumped to a seven-year high. The decline in market value by as much as 40 percent or more had small investors with individual retirement accounts in shock. Declines in housing and the stock market had slowed consumer spending to a trickle. AIG and other financial companies needed more money to prevent bankruptcy, and Congress was looking at loans for American carmakers facing potential bankruptcy. Citigroup needed a government loan of $20 billion to keep it from going under. The carmakers got their loans in December, and Citigroup was forced to merge with Morgan Stanley.

The stock market declined in 2009, plunging below 7,000 on the Dow. Runs at money market mutual funds required the government to insure them. The Federal Reserve used all its tools to flood cash into the system. Congress passed the Economic Recovery and Reinvestment Act in February 2009, and it was signed by President Obama. The cost was more than $800 billion and spread money in various directions. Some of the largest spending, more than $100 billion, went to education; health care received more than $150 billion and renewable energy more than $70 billion. Infrastructure, which focused on job creation, directly received more than $47 billion. Another $50 billion targeted aid to low-income and unemployed workers. Total spending exceeded $520 billion. Tax changes accounted for another $270 billion.

In addition, the Federal Reserve moved to push interest rates to near zero by putting more money in circulation and buying Treasury bonds. Many suggest that the movement of money via the Federal Reserve and government spending prevented the economy from going over the cliff. European countries had to implement similar plans and bailouts. This huge influx of government funds into the system was based on the lessons of the Great Depression, when the government had been slow to react.

Most agree, however, that the stimulus did little to prevent the Great Recession. The total damage of the Great Recession to employment has eluded traditional measures. Employment losses to college graduates and American youth far exceeded those of the 1930s. The basic calculations were changed, and the large number of workers who gave up job-hunting or took Social Security early was not fully accounted for in the figures. Many other workers escaped the unemployment rolls by filing for disability or welfare payments, both of which saw dramatic increases during the recession. The unemployment rate did not bounce back quickly, as it had in earlier recessions, but behaved more like unemployment in the 1930s. Some of that resistance to improvement was that America was operating in a global market and the recession drove consumers to buy cheaper imported durable goods instead of American-made products. Globalization and deindustrialization had greatly reduced the resiliency of the American economy.

The problems of the recession would continue even as the banking system was stabilized. *Bloomberg News* estimated that more than $14 trillion of global company value was eliminated in 2009. Although the recession continued worldwide into 2010, China, South Korea, and India appear to have avoided recession. Iceland suffered a total collapse of its banking system. The United States lost more than 4 percent of its total gross domestic product (GDP). Europe was hit much harder, with GDP losses in excess of 6 percent. One feature of the prerecession problems was the rise of a worldwide housing bubble.

Quentin R. Skrabec Jr.

See also: Federal Reserve System; Gross Domestic Product; Panic and Global Depression, 1873; Stock Market Crash of 1929; Stock Market Crash of 1987; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; *Vol. 3: Microeconomics:* Subprime Mortgage Bubble and Crisis; Stock Market; Stocks

Further Reading

Hetzel, Robert L. 2012. *The great recession: Market failure or policy failure?* Cambridge, UK: Cambridge Univ. Press.

Rosenberg, Jerry M. 2012. *The concise encyclopedia of the great recession 2007–2012.* Lanham, MD: Scarecrow Press.

GREAT SOCIETY

There are moments in history when time seems to stand still. For people who are old enough to remember, those moments are etched in their memory—exactly where they were and what they were doing. The day President John F. Kennedy was assassinated—November 22, 1963—was one of those days. History took a turn with that fateful event. With the assassination of President Kennedy, Lyndon Baines Johnson became president of the United States. The new president began to implement his agenda for civil rights, urban renewal, and lifting the general welfare of U.S. citizens. The Great Society is commonly seen as the most far-reaching agenda of domestic legislation since the New Deal. The beginnings of this new agenda can be found in speeches President Johnson gave in 1964 at Ohio University and the University of Michigan.

The 1964 election was a definite choice between different approaches to government's participation in the U.S. economy. President Johnson's Great Society initiatives and Barry Goldwater's promise to reduce the size and reach of the federal government in the 1964 presidential election were both ideologically and pragmatically polar opposites. The voters' choice was clear. Johnson won 46 states, capturing 61 percent of the popular vote. Johnson was secure with such a margin of victory; he had a mandate and the support of the American people. In his 1965 State of the Union address, he proposed his plans for a Great Society. With a cooperative Congress, his plans moved quickly, and many new government programs were legislated. Roosevelt had introduced society to the New Deal; Johnson introduced it to the Great Society. First, however, he completed the legacy of President Kennedy with the passing of the Civil Rights Act in 1964.

As expected, many aspects of U.S. life were impacted by the programs Johnson launched in the name of the Great Society. Foremost was the Economic Opportunity Act of 1964. The act created two new agencies to address the economic and social needs of those in poverty. The Job Corps and Volunteers in Service to America (VISTA) were created to fight poverty at home. The Job Corps was initiated to help young people ages 16 to 24 receive vocational training. VISTA had the look of President Kennedy's Peace Corps, only with a domestic agenda, as young people were trained and placed in the poverty-stricken urban and rural areas of the United States to assist with uplifting the living standards regarding the most basic human needs. The Economic Opportunity Act of 1964 also made loans available to farmers, small businesses, and community programs to fight poverty.

A second major area of American life impacted by the Great Society was the entire educational spectrum—from primary to secondary to higher education. At the preschool level, Head Start was launched as a preschool summer program to prepare low-income children for school, with focus on such areas as basic early childhood education, the importance of parental involvement, health, hygiene, and nutrition. In 1965, the Elementary and Secondary Education Act funded federal programs for the first time in elementary and secondary education. The Higher Education Act provided financial assistance to those wishing to pursue a college education. The private sector had the Job Corps; education now had the National Teacher Corps through the Higher Education Act.

In the 1960s, the United States was changing from an urban society to a suburban one. The civil rights movement was having an impact on the nation's urban areas. A third area addressed by the Great Society was urban renewal and conservation. With the signing of the Housing and Urban Development Act of 1965, Johnson created the Department of Housing and Urban Development (HUD). This act greatly increased federal funding for public housing in urban areas and addressed the needs of blighted urban areas. On the conservation side, Johnson increased federal funding to regulate water and air quality with the Highway Beautification Act.

Access to health care was another endeavor of the Great Society, especially for two specific groups: low-income families and senior citizens. For many, these two groups were one and the same. For the low-income population, the Great Society provided Medicaid, and for senior citizens it provided Medicare. Medicaid and Medicare made medical care both accessible and affordable for these two groups. In the case of Medicare, all evidence through the years has shown that it has positively impacted the standard of living of senior citizens.

The architect for much of Johnson's Great Society was Republican John Gardner. Gardner was selected by Johnson to lead the Department of Health, Education, and Welfare. President Johnson had the vision and ideas for the Great Society. John Gardner, as head of Health, Education, and Welfare, had the implementation know-how.

Many of the programs started during the Johnson administration as part of the Great Society are still operational federal programs. Programs such as Medicare and Medicaid, Head Start, and the Elementary and Secondary Education Acts are government programs that are part of the American fabric. Of course, many of these programs, as with any government program, have their critics, who believe government is overreaching into these areas of our life. But their impact on American life since the mid-1960s cannot be denied.

Maura Donnelly
David A. Dieterle

See also: Entitlements; Government Failure; Public Goods; *Vol. 1: Foundations of Economics:* New Deal; Poverty

Further Reading

Andrew, John A. 1998. *Lyndon Johnson and the great society*. Chicago, IL: I. R. Dee.

Cake, Brad. 2012. LBJ's great society lesson plan & documents. LBJ Presidential Library. http://www.lbjlibrary.org/assets/uploads/education/GreatSociety_LessonPlan.pdf (accessed December 10, 2013).

DeWisconsin, Henry. 2010. *Great society: A dark comedy*. Bloomington, IN: AuthorHouse.

Discovery Education. n.d. Lesson Plan Library: Lyndon B. Johnson. http://www.discoveryeducation.com/teachers/free-lesson-plans/lyndon-b-johnson.cfm (accessed December 10, 2013).

Helsing, Jeffrey W. 2000. *Johnson's war/Johnson's great society: The guns and butter trap*. Westport, CT: Praeger.

Milkis, Sidney M., and Jerome M. Mileur, eds. 2005. *The great society and the high tide of liberalism*. Amherst: Univ. of Massachusetts Press.

Sowell, Thomas. n.d. Central historical question: Was the great society successful? Stanford History Education Group. Great Society Lesson Plan. http://sheg.stanford.edu/upload/Lessons/Unit%2012_Cold%20War%20Culture%20and%20Civil%20Rights/Great%20Society%20Lesson%20Plan1.pdf (accessed December 10, 2013).

GREENSPAN, ALAN

Born: March 6, 1926, in New York City; Nationality: American; Professional Interests: monetary policy, chairman of the Federal Reserve System, 1987–2006; Major Works: *The Age of Turbulence: Adventures in a New World* (2007), *The Map and the Territory 2.0: Risk, Human Nature, and the Future of Forecasting* (2014).

Alan Greenspan served an unprecedented five terms as chairman of the Federal Reserve System ("the Fed"). While chairman, he experienced the stock market crash of 1987, fallout from the savings and loan (S&L) scandal, a record increase in the market, and finally the bursting of the dot-com and housing bubbles. He is a fiscal conservative, believing in free-market economics. He believes in creative destruction—that is, allowing some companies to fail, freeing resources for newer companies.

Alan Greenspan was born in Washington Heights, New York City, on March 6, 1926. He received training at the Juilliard School in 1943 (clarinet) before enrolling at New York University (NYU) in 1944, receiving his bachelor of science (1948) and master of arts (1950). His pursuit of a PhD from NYU was interrupted by his work experience, but he would earn the degree in 1977.

Greenspan began his career in 1950 with the National Industrial Conference Board. He gained political attention for his research of the Defense Department's use of metal, twice published in the *Business Record.* In 1953, he formed a partnership with William Townsend called the Townsend–Greenspan Company. During this time, he met Objectivist and author Ayn Rand, and he was greatly influenced by her views. He wrote several articles in the 1960s for Rand's *The Objectivist Newsletter*, and she included essays by him in her collection called *Capitalism: The Unknown Ideal.*

Greenspan's first political post was in 1967, working as a volunteer economic and domestic policy adviser for Richard Nixon's 1968 presidential campaign. He worked on the Commission on an All-Volunteer Armed Force that worked to abolish the draft in 1970. Just before President Nixon resigned in 1974, Greenspan became chairman of the Council of Economic Advisers, serving as an economic adviser to the president. He remained on the council through Gerald Ford's administration, helping to devise policies to fight inflation and unemployment. In 1980, he helped Ronald Reagan's campaign. He served on the Economic Policy Board and later worked to overhaul Social Security.

When President Reagan appointed him chairman of the Fed in 1987, Greenspan inherited a national situation that had seen vast increases in the stock market and a tripling of the federal deficit under Reagan, plus an increase in inflation, measured by the Consumer Price Index (CPI). When Greenspan increased interest rates in September 1987, the stock market experienced its largest single-day drop (508 points)—on Black Monday, October 19, 1987. The Fed responded by buying billions of dollars of Treasury securities (increasing liquidity), encouraging lending by the Fed's member banks. The markets began to stabilize by November, and growth resumed in the first quarter of 1988.

Greenspan continued his role as chairman of the Fed into the George H. W. Bush administration, though his relationship with the president was more strained under a difficult economy. Greenspan worked with the Resolution Trust Corporation to resolve issues with the savings and loan (S&L) scandals of the late 1980s, which resulted in the federal government being saddled with about $87 billion in losses, less than expected. The recession continued into the 1990s despite the Fed lowering interest rates. The administration wanted rates cut lower, but Greenspan believed that the short-term benefit would quickly lead to a long-term inflation problem. Bush reappointed Greenspan as chairman of the Fed in 1991.

Under President Clinton, Greenspan encouraged passage of a 1993 budget that would begin to reverse the trend of steadily rising national debt. Greenspan believed this was necessary to encourage businesses to invest more, and he allowed the Fed to lower rates to sustain long-term growth. Under pressure from Congress to allow more transparency, Greenspan agreed to announce immediate moves of the Federal Open Market Committee. The Fed raised interest rates a quarter point in 1994 as a preemptive strike against inflation, the first increase in five years. The stock market grew amid the dot-com boom of the late 1990s, and Greenspan warned of irrational exuberance in investing. He believed the boom would not last long. Clinton reappointed Greenspan in 1996 and 2000 under a strong economy. As the dot-com bubble was bursting in 2000, Greenspan believed that the growing surplus of the federal budget should be used to pay down the national debt, and that "triggers" should be implemented to prevent a reversal in the surplus.

Under George W. Bush, following the attacks on the United States on September 11, 2001, and in response to recession, the Fed cut interest rates several times to stimulate the economy. Greenspan disagreed with the president's plans to continue to cut taxes to stimulate the economy, figuring it was more important to control the deficit, and he was displeased with the president's unwillingness to veto spending bills.

Greenspan is often criticized for politicizing the Fed. Despite being a libertarian Republican, he often praised both parties when they acted in a fiscally conservative manner. He also received criticism for the economic downturn of the 2000s, with many claiming his monetary policy was too lax. Since finishing his record fifth term as Fed chairman, Greenspan has accepted some responsibility for the problems related to the economy that could be linked to the Fed.

Joseph Lee Hauser

See also: Bernanke, Ben; Federal Open Market System; Federal Reserve System; Fischer, Stanley; Friedman, Milton; Monetarist Economic Thought; Monetary Economics; Monetary Policy; Money Supply; Volcker, Paul

Further Reading

Greenspan, Alan. 2004. *A history of the Federal Reserve, 1913–1951*. Vol. 1. Chicago, IL: Univ. of Chicago Press.

Greenspan, Alan. 2007. *The age of turbulence: Adventures in a new world*. New York: Penguin.

Greenspan, Alan. 2014. *The map and the territory 2.0: Risk, human nature, and the future of forecasting*. New York: Penguin.

Kahaner, Larry. 2000. *The quotations of chairman Greenspan: Words from the man who can shake the world.* Holbrook, MA: Adams Media.

Martin, Justin. 2001. *Greenspan: The man behind the money.* Cambridge, MA: Perseus Books.

Sheehan, Frederick. 2010. *Panderer to power: The untold story of how Alan Greenspan enriched Wall Street and left a legacy of recession.* New York: McGraw-Hill.

Woodward, Bob. 2000. *Maestro: Greenspan's Fed and the American boom*. New York: Simon & Schuster.

GRESHAM'S LAW

Simply put, *Gresham's Law* states that if a new coin is assigned the same face value as an older coin whose contents contain a larger amount of precious metal, then the new coin or "bad money" will be used in circulation while the old coin or "good money" will be saved and will vanish from circulation.

Sir Thomas Gresham lived from 1518/19 to 1579 as an English merchant and financier. Although Gresham was not the first to discover the "good" and "bad" money instability, he was responsible for informing Queen Elizabeth I of the principle, and thus, the law has been associated with him. Gresham worked for the English government; it is believed that he provided intelligence, smuggled precious metals, and negotiated with England's foreign creditors. Gresham operated a foreign-exchange market in England to relieve exchange fluctuations caused when the country repaid its loans and interest to foreign creditors. The government has the power to affect the exchange rate, and Gresham might have been ahead of his time in understanding that power.

To understand this rationale, we must first examine the history of coins as money. Coins were originally made from precious metals such as gold and silver. This is how they received their value. However, it was realized that these precious metals have a much higher value in their natural state than they have when they are contorted into coins.

Money isn't just a medium of exchange; it is also used as a commodity and a store of value. Given money's intrinsic dual role, if a particular kind of money is worth more due to its precious metal content, that money will be set aside and used as a store of value as opposed to a medium of exchange.

In today's society, an example of Gresham's Law can be seen in the U.S. nickel. The coin has a nominal value worth five cents. However, the value of the amount of nickel used to produce that five-cent coin in 2010 was actually valued at six cents. To combat this difference, the U.S. government was expected to alter the composition of the nickel. Ultimately they used less nickel and more of another metal, copper, to prevent Gresham's Law from taking over the currency.

In the 2001 U.S. budget, a provision was established to address the composition of coins and to prevent the application of Gresham's Law. While the law was not referred to directly, the provision authorized the Department of the Treasury to research and analyze new materials considered to be less expensive, in order to create a coin with real value at a cost-effective price to the government.

Michael Weck

See also: Department of Treasury; Gresham's Law; Inflation; Money; Money Supply

Further Reading

Editors of Encyclopedia Britannica. n.d. Gresham's law. *Encyclopedia Britannica*. www.britannica.com/EBchecked/topic/245850/Greshams-law (accessed March 1, 2015).

Editors of Encyclopedia Britannica. n.d. Sir Thomas Gresham: English financier. *Encyclopedia Britannica*. www.britannica.com/EBchecked/topic/245848/Sir-Thomas-Gresham (accessed March 1, 2015).

Investopedia Staff. Gresham's Law. *Investopedia*. www.investopedia.com/terms/g/greshams-law.asp (accessed March 1, 2015).

20s Money Staff. 2010. What Is Gresham's Law? 20's money: How bullish is your future? 20smoney.com/2010/04/28/what-is-greshams-law/ (accessed March 1, 2015).

Zielinski, Michael. 2010. Obama's proposed 2011 budget allows coin composition changes. Coin update: Daily coin and collecting news. news.coinupdate.com/obamas-budget-includes-coin-composition-changes-0138/ (accessed March 1, 2015).

GROSS DOMESTIC PRODUCT

Gross domestic product (GDP) is the main measurement of the size of a nation's economy. It represents the market value of all final goods and services produced within a country in a given year. It is an important economic indicator that measures the total economic output of a country. In general, a growing GDP is considered a sign of positive economic health.

In the United States, the job of calculating GDP falls to the Bureau of Economic Analysis (BEA), within the Department of Commerce. The BEA publishes its findings quarterly, and its comprehensive report is closely watched by the chief architects of both fiscal and monetary policy, as well as by the business sector. The economists who measure GDP can do so through an income method, a value-added approach, and an expenditure method.

In the *income* approach, GDP is measured as the sum of the incomes earned and the costs incurred in production. In the *value-added* approach, economists add the "value added" at each stage of the production process (equivalent to the total sales minus the value of the intermediate inputs).

In the *expenditure* method—the most common of the three methods—GDP is calculated by adding together the final value of goods and services in the four main sectors of the economy: household consumption (C), business investment (I), government purchases (G), and the net of exports minus imports (NX): GDP = $C + I + G + (NX)$.

Only "final" products are calculated: goods or services that are at the last stage before consumption, rather than intermediate goods, which are inputs in the production process. If intermediate goods were included in the GDP calculation, it would overstate the value of production by counting products several times before they reached their final form in the market. So economists rely on the final value of goods and services only. The calculation results in a figure known as nominal, or "current dollar," GDP, which reflects the output of the economy in current prices, demonstrating the purchasing power of dollars in the year they are spent.

Nominal GDP does not take inflation into account, so it is impossible to know, when comparing nominal GDP from year to year, how much of the growth is a result of inflation and how much is an increase in real output. To compensate for the effects of inflation, the BEA also calculates real GDP, which shows the value of an economy's output in constant dollars. Real GDP allows economists to compare GDP from year to year to show the rate of growth. For example, the Commerce Department's report for the second quarter of 2013 showed that real GDP increased at a rate of 2.5 percent. This means that even accounting for inflation of the dollar, there was growth in the overall size of the U.S. economy from the first quarter of the year to the second quarter. Each GDP report also explains the reasons for the growth or decline by identifying the segment(s) of the economy that changed the most, such as business investment, consumer spending, or government expenditures. Real GDP is the best measurement for showing economic growth over time.

It is also important to note that GDP includes only those goods produced within the United States. It includes the output of foreign companies producing within the United States, but it does not include the output of U.S. companies producing in foreign countries.

Economists can also adjust the GDP for population, which allows them to compare the economies of individual countries. Per capita GDP takes population into account by counting GDP "per person," rather than the total amount for the country as a whole. This calculation involves taking a country's real GDP and dividing it by the population. This calculation is often used to determine a nation's standard of living. It is the most accurate measurement when comparing the GDPs of various countries, because it averages it out over the number of people living in that country. An example: China's GDP may seem significant at over $8 trillion (2012), but when that number is dividing up over the substantial number of people living in China, it averages to a per capita GDP of $6,188. When compared to the total GDP of the United Kingdom, which is $2 trillion, China's GDP might appear larger, but upon calculating the U.K.'s per capita rate of $38,000, China's GDP is considerably lower (see http://data.worldbank.org/).

While GDP is a widely accepted calculation for determining a country's economic health, there are limitations to GDP as an economic indicator. For instance, GDP does not take all productive activity into account. Economic activity that is not completed in the market, such as a homeowner's work on his or her personal home or an unpaid volunteer's work, is not included in the calculation. It also does not include leisure time, which is indicative of the overall well-being and satisfaction within a nation. Thus, GDP is understated. GDP also does not include the underground, or black market, economy—such as the activities of gamblers, smugglers, or drug dealers—in its calculations. Additionally, GDP does not take into account improvements in product quality over time. It does not consider the by-products of increased production, such as environmental harm. The calculation also does not identify how the output is actually distributed, so even per capita GDP fails to indicate the size of the gap between the wealthy and the poor.

It is commonly noted that as per capita GDP increases, so too do other factors associated with a higher standard of living, including the literacy rate and life expectancy. The infant mortality rate also tends to decrease as GDP increases.

GDP varies throughout the phases of the business cycle. It increases during periods of growth, stops increasing at the peak of economic growth, decreases during periods of contraction, and stops decreasing at the trough. If GDP falls for more than six months (two consecutive quarters), economists define that as a recession. Periods of depression tend to be identified with an even more substantial plunge in real GDP.

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See also: Bureau of Economic Analysis; Department of Commerce; Economic Growth, Measures of

Further Reading

Bureau of Economic Analysis. n.d. National economic accounts: Gross domestic product. www.bea.gov/national/index.htm#gdp (accessed November 30, 2016).

FRED Economic Data. n.d. Gross domestic product (GDP). Federal Reserve Bank of St. Louis. research.stlouisfed.org/fred2/series/GDP (accessed November 30, 2016).

The World Bank. n.d. Data. http://data.worldbank.org/ (accessed November 30, 2016).

The World Bank. n.d. GDP (current US$). http://data.worldbank.org/indicator/NY.GDP.MKTP.CD (accessed November 30, 2016).

GROSS NATIONAL INCOME

Gross national income (GNI) is the broadest measure of national income. The GNI, previously called the gross national product (GNP), is the people's total income derived from domestic and foreign sources. Thus, GNI includes gross domestic product (GDP) plus the net receipt of income from abroad. The *net receipt of income* is the difference between income inflows and income outflows each year. The cross-border income flows stem mainly from wages or salaries, and property income. The GNI per capita states people's average annual income by dividing the GNI by the country's population. Since 2000, the World Bank has used the GNI and GNI per capita to classify countries, to assess the relative size and economic well-being of countries, and to determine eligibility for loans or other assistance. The gross domestic product (GDP) and GDP per capita measurements are also widely used to determine the relative size of economies and the economic well-being of people.

The World Bank classifies the world's 208 economies by GNI per capita. This classification scheme identifies four categories of countries: low-income, lower middle-income, upper middle-income, and high-income. GNI per capita is not the sole criterion for determining a country's development status. Other development criteria include the size and sophistication of a nation's economic system. In 2004, all low-income and middle-income economies were classified as "developing countries or other emerging market economies." Some high-income economies, such as Bahrain, Brunei, Kuwait, Monaco, Qatar, Slovenia, and the United Arab Emirates, were also identified as developing countries or other emerging market economies, because their economies lacked the size or sophistication to be considered advanced. Just 29 high-income economies out of 208 total economies were classified as advanced.

Measuring income inequality in the global economy is a tricky business. Measurements that use the traditional exchange rate GNI per capita show that people in high-income economies ($38,352) had nearly 7 times the average income of people living in the upper middle-income countries ($6,247), 20 times the income of people in lower middle-income countries ($1,716), and 63 times the income of people living in the low-income countries ($526).

Measurements of GNI per capita on a purchasing power parity (PPP) basis narrow the income gap between rich and poor nations. PPP accounts for differences in money's buying power around the world. The PPP GNI per capita shows that people living in high-income countries ($38,392) were just 3 times richer than people living in upper middle-income countries ($6,247), 5 times richer than people in lower middle-income countries ($5,640), and 14 times richer than people in low-income countries ($2,260).

The GNI per capita offers a basis for national comparisons of economic well-being. Yet, there are limitations to this approach to national income accounting. First, national income data ignore most business activity in the informal sector. As a result, official GNI data often understate national income. Second, income data are often unreliable. In recent years, the International Monetary Fund (IMF), World

Bank, and other multilateral organizations have extended technical assistance to strengthen data collection and analysis in the developing world. Third, GNI per capita does not assess the actual distribution of national income. The uneven distribution of income within nations is especially severe in African and Latin American countries.

David E. O'Connor

See also: Gross Domestic Product; *Vol. 1: Foundations of Economics:* Human Capital; Poverty; *Vol. 4: Global Economics:* Developing Countries; Emerging Market Economies; International Monetary Fund; Least Developed Countries; Sustainable Economic Development; World Bank

Further Reading

Bourguignon, Francois, Francisco H. G. Ferreira, and Nora Lustig. 2004. *The microeconomics of income distribution dynamics in East Asia and Latin America.* New York: World Bank Publications.

Firebaugh, Glenn. 2003. *The new geography of global income inequality.* Cambridge, MA: Harvard Univ. Press.

Gerber, James. 2014. *International economics*. 6th ed. New York: Pearson.

United Nations Conference on Trade and Development. 2004. *Human development report 2004.* New York: Oxford Univ. Press.

Wolfensohn, James D., and Rodrigo de Rato. 2004. *Global monitoring report 2004: Policies and actions for achieving the millennium development goals and related outcomes.* New York: World Bank Publications.

The World Bank. 2004. *World development report 2005: A better investment climate for everyone.* New York: The World Bank and the Oxford Univ. Press.

GROSS NATIONAL PRODUCT

Gross national product (GNP) is the measurement of all the final goods and services produced by the companies of a country regardless of where the goods and services are produced. There are several differences between GDP (gross domestic product) and GNP. It is important to understand why GNP is such an important factor for a country's economy purposes. GNP measures the total output of a nation's economy regardless of geography. GDP measures total output within a nation's borders. A Ford car built in England counts toward U.S. GNP because Ford is a U.S. company. However, that same car built in England does not count toward GDP because it was built outside the borders of the United States. Conversely, a Honda built in the United States counts toward U.S. GDP but not GNP because Honda is not a U.S.-headquartered or U.S.-based company. GNP is more concerned with the "by whom" and GDP more concerned with the "where."

Although they both measure the amount of final goods and services that are being produced, GDP and GNP are different concepts in the way that each infers what constitutes an economy. GDP focuses on levels of domestic measurements, while GNP focuses more on how much the companies of a country produce. GNP is often referred to as the national output count. Depending on a country's comparable measure between the domestic and foreign manufactures, occasionally GNP will change between being higher or lower than GDP. Although GDP is more commonly used to measure the goods and services, GNP is also important because it shows the country's overall economy.

GNP is usually measured once a year, at the same time each year. It measures all of the goods and services that were produced within that year. There are two options for taking that measure. First, there is the buyer's point of view, also known as the aggregate demand (AD). This method adds the following: consumption (C), investment (I), government purchases (G), and net exports ($X - M$) where X are exports and M are imports.

The second method, also known as the income approach, is from the seller's side. The major components include employee compensation (w), rental income (r), corporate profits (p), and interest income (i). This is based on payments due to labor, and an estimated 60 percent of U.S. employees are included in this.

Finally, GNP is a lot more valuable than most people think. The main point of GNP is that it shows the overall health of a country's economy. It shows the size and growth of a country's economic system. It is one of the most accurate indicators of whether a country's economic system is functioning well. It also is a way to compare one nation's economy with the economies of other nations. This could benefit some countries that are struggling, as they could seek advice from the countries with a healthy GNP. It helps economists find solutions to factors such as poverty or identify causes for low points in economic systems, such as inflation or deflation. Governments can cooperate with each other to improve the economic conditions of each country.

Meredith Sheatzley
David A. Dieterle

See also: Bureau of Economic Analysis; Economic Growth, Measures of; Gross Domestic Product

Further Reading

Baumol, Bernard. 2008. *The secrets of economic indicators*. 2nd ed. Upper Saddle River, NJ: Pearson, Wharton School of Publishing.

Investopedia Staff. 2015. What is the functional difference between GDP and GNP? *Investopedia*. www.investopedia.com/ask/answers/030415/what-functional-difference-between-gdp-and-gnp.asp (accessed February 2, 2016).

Study Points Blog. 2011. Importance of GNP. studypoints.blogspot.com/2011/05/importance-of-gnp_3854.html?m=1 (accessed February 2, 2016).

H

HAZLITT, HENRY

Born: November 28, 1894, in Philadelphia, Pennsylvania; Died: July 8, 1993, in Fairfield, Connecticut; Nationality: American; Professional Interests: economics, literary criticism; Major Works: *A New Constitution Now* (1942), *Economics in One Lesson* (1946), *The Failure of the "New Economics": An Analysis of the Keynesian Fallacies* (1959).

Henry Hazlitt was a journalist, writer, public intellectual, and determined supporter of free market and Austrian economics. Over his career, he wrote for several of the United States' leading newspapers and magazines, proving to be an eloquent expositor of the sometimes arcane arguments of his classical liberal heroes. Henry Hazlitt was a rare personality in the field of economics, having never earned a college degree. Nevertheless, he had an amazing talent for clearly and persuasively communicating complex ideas. Hazlitt died in 1993.

Henry Stuart Hazlitt was born November 28, 1894, in Philadelphia, Pennsylvania. His father, Stuart Hazlitt, died shortly after Henry was born. He was sent to Girard College, which was (and still is) a home and school for disadvantaged children. His mother remarried when he was nine, and the family moved to Brooklyn, New York. Henry sought to attend university to become a psychologist, but financial considerations led him to attend night classes at City College. Though the tuition was free, taking classes came with an opportunity cost. When his mother's second husband died, he quit college to support her.

Initially, Hazlitt went from job to job, unable to stay employed. In 1915, at the age of 20, he got a job with the *Wall Street Journal* as a stenographer. At about the same time, he wrote his first book, *Thinking as a Science*. In 1916, he joined the *New York Evening Post*. He served in World War I with the Army Air Services, and when the war ended he went back to being a newspaper columnist.

Hazlitt's most enduring work is *Economics in One Lesson*. The lesson itself is only five pages long and is explained in the chapter "The Lesson." He asserts that economics can be reduced to a single sentence. The art of economics consists in looking not merely at the immediate but at the longer effects of any act or policy, tracing the consequences of a policy to the consequences to all groups. The rest of the book proceeds to show how a lack of thinking through the side effects of policies impacts all kinds of real-life situations. He was critical of minimum wage laws, government price fixing, protectionism, stimulus spending, and make-work programs. He goes on to explain the role of prices and profits in coordinating economic activity, writing that the economy is like a giant machine made up of thousands of smaller machines. Each machine has its own self-correcting mechanisms, and tampering with the machine risks jamming or breaking it.

As an adherent of the Austrian School of economic thought, he deplored inflation. He became friends with Ludwig von Mises, who was a fugitive from Nazi-dominated Austria. Mises had experienced the post–World War I hyperinflation in Austria firsthand, and he promoted the view that inflation was a greater evil than unemployment—an opinion that was difficult to sell in an era when the United States was suffering from the Great Depression and the accompanying deflation. Hazlitt was one of Mises's few supporters at the time. Through Hazlitt, Mises's anti-Keynesian, anti-inflation, and pro–free market views appeared in the nation's newspapers every week.

Hazlitt's uncompromising support for free enterprise occasionally got him into trouble with his editors. Throughout the 1930s, Hazlitt used his column to criticize the New Deal. In the 1940s, his target became the Bretton Woods conference, a post–World War II effort to create a global money system based on the U.S. dollar. He regarded it as inflationary, and wrote as much in the *New York Times*. His editor indicated that Hazlitt was embarrassing the *Times* by writing against Bretton Woods when 43 governments were in favor of it. Hazlitt departed soon after this incident for employment at *Newsweek*.

By the end of his life, Hazlitt had written and edited for the *New York Evening Mail*, the *New York Sun, The Nation*, the *New York Times*, and *Newsweek*. He was also instrumental with start-up journals such as *The American Mercury* and *The Freeman*. He was a prolific author, writing 18 books over the course of his life in addition to thousands of newspaper and magazine articles. Not limiting himself to economics, he also wrote book reviews and literary critiques.

Henry Hazlitt died on July 8, 1993, in Fairfield, Connecticut, at the age of 98.

Stephen H. Day

See also: *Vol. 1: Foundations of Economics:* Austrian Economic Thought; Capitalism; Hayek, Friedrich von; Mises, Ludwig von

Further Reading

Greaves, Bettina Bien. 2004. Remembering Henry Hazlitt. Foundation for Economic Education. http://www.thefreemanonline.org/features/remembering-henry-hazlitt/ (accessed April 12, 2012).

Hazlitt, Henry. 1916. *Thinking as a science.* New York: Dutton.

Hazlitt, Henry. 1922. *The way to will-power.* New York: Dutton.

Hazlitt, Henry. 1932. *A practical program for America.* Binghamton, NY: Books for Library Press.

Hazlitt, Henry. 1942. *A new constitution now.* New York: Whittlesey House, McGraw-Hill.

Hazlitt, Henry. 1946. *Economics in one lesson.* New York: Harper & Brothers.

Hazlitt, Henry. 1959. *The failure of the "new economics": An analysis of the Keynesian fallacies.* Princeton, NJ: Van Nostrand.

Hazlitt, Henry. 1960. *What you should know about inflation.* Princeton, NJ: Van Nostrand.

Hazlitt, Henry. 1964. *The foundations of morality.* Princeton: NJ: Van Nostrand.

Hazlitt, Henry. 1969. *Man vs. the welfare state.* New Rochelle, NY: Arlington House.

Hazlitt, Henry, and Donald J. Boudreaux. 1984. An interview with Henry Hazlitt. *Austrian Economics Newsletter* 5 (1). http://mises.org/journals/aen/aen5_1_1.asp (accessed February 2, 2012).

LewRockwell.com. 1993. Henry Hazlitt. http://archive.lewrockwell.com/archives/fm/9-93.html (accessed April 12, 2012).

Rockwell, Llewellyn H., Jr. 2007. Biography of Henry Hazlitt (1894–1993). Mises Institute. http://mises.org/page/1453/Biography-of-Henry-Hazlitt-18941993 (accessed February 12, 2012).

Uchitelle, Louis. 1993. Henry Hazlitt, 98, a journalist who concentrated on economics. *New York Times*, July 10. http://www.nytimes.com/1993/07/10/obituaries/henry-hazlitt-98-a-journalist-who-concentrated-on-economics.html (accessed April 12, 2012).

HECKMAN, JAMES

Born: April 19, 1944, in Chicago, Illinois; Nationality: American; Professional Interests: labor economics, econometrics, Nobel Prize (2000); Major Works: *Handbook of Econometrics* (2007), *Longitudinal Analysis of Labor Market Data* (2008), *Giving Kids a Fair Chance* (2013).

James Heckman is another in a long line of University of Chicago professors who were recipients of the Nobel Prize in Economics, winning the prize in 2000. Earlier, Heckman also received the John Bates Clark Medal in 1983. Heckman is one of the preeminent econometricians in economics. His economic models focus on a variety of economic topics: life cycle skill, inequality, behavioral, labor, social programs, income distribution, and regulation.

James Joseph Heckman was born on April 19, 1944, in the Hyde Park area of Chicago. Growing up in Chicago and Kentucky, Heckman attended high school in the Lakewood area of Denver, Colorado. While in high school he was introduced to the distinguished experimental physicist Frank Oppenheimer. A cattle rancher in Colorado, Oppenheimer introduced Heckman to physics, experimental science, and linking theory and evidence. Heckman has credited this relationship and these early experiences as a major experience in his intellectual development. Even though he chose economics over physics, his ability to bring theory and evidence was to serve him well in the field of econometrics.

Heckman's interest in economics was spawned at Colorado College, where he read the works of Adam Smith and David Ricardo and Paul Samuelson's *Foundations of Economic Analysis*. Heckman completed his doctoral work at Princeton University in 1971 and began his career at Columbia University. While at Columbia, Heckman was invited to join the National Bureau of Economic Research (NBER). Heckman was in his intellectual element at NBER, surrounded by a group of high-powered empirical scholars. The empirical environment was very exciting to a young Heckman. At NBER he was able to hone his econometric skills; data and theory were the priority for all the scholars at NBER. Heckman's research career and topics were formed during his time at NBER and Columbia.

In 1973, Heckman left Columbia and returned to his birthplace, Chicago, where he joined the faculty at the University of Chicago. Heckman found the environment at the University of Chicago intellectually stimulating and demanding.

During his career there, he developed a prestigious list of collaborators for both research and publishing, directing the University of Chicago's Economics Research Center and the Center for Social Program Evaluation at the Harris Graduate School of Public Policy Studies. Heckman also holds the Henry Schultz Distinguished Service Professor in Economics endowed chair. In addition, Heckman is the professor of science and society in University College Dublin and a senior research fellow at the American Bar Foundation. In 1991, the American Bar Foundation approached Heckman to research the impact of law on the economy.

While Heckman's research extends to a number of areas, one area that received public attention was his work on early childhood education. At NBER, Heckman took a special interest in researching the investments in early childhood programs and the impact of such programs. He determined that early intervention can make a difference in the life skills development of young children. Heckman's focus was on noncognitive skills of determination, social skills, and motivation, which lead to success.

Heckman devoted his career to the development of scientific foundations to evaluate economic policies. Specializing in models that focused on individuals and disaggregated groups, he was able to create new econometric models to address the special topics of his research. Heckman is especially recognized for his work in labor economics, as well as his work on the effectiveness of early childhood education programs. Policymakers have new understandings in areas of education, labor markets, civil rights, and job training because of the econometric modeling developed by Heckman.

Beyond receiving the 2000 Nobel Prize in Economics, Heckman is one of most honored and prized economists of the late 20th century. He won the prestigious John Bates Clark Medal in 1983. In 2005, Heckman was honored with the Jacob Mincer Award from the Society of Labor Economists and the Ulysses Medal from the University College Dublin. He has been granted prestigious fellow status of the Econometric Society, American Statistical Association, Society of Labor Economists, International Statistical Institute, and American Association for the Advancement of Science.

David A. Dieterle

See also: Labor Force; Macroeconomics; Samuelson, Paul; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; Nobel Prize in Economics; Smith, Adam; *Vol. 3: Microeconomics:* Stigler, George

Further Reading

Cassidy, John. 2010. Interview with James Heckman. *The New Yorker*, January 14. www.newyorker.com/online/blogs/johncassidy/2010/01/interview-with-james-heckman.html (accessed December 23, 2010).

Heckman, James. 1993. Assessing Clinton's program on job training, workfare, and education in the workplace. Working Paper 4428. National Bureau of Economic Research. http://www.nber.org/papers/w4428.pdf (accessed December 23, 2010).

Heckman, James J. 2003. Microdata, heterogeneity and the evaluation of public policy. In *Nobel Lectures: Economics 1996–2000*, ed. Torsten Persson, 25–318. Singapore: World Scientific.

Heckman, James. 2004. *Law and employment: Lessons from Latin American and the Caribbean.* Chicago, IL: Univ. of Chicago Press.
Heckman, James. 2008. Schools, skills, and synapses. *Economic Inquiry* 46 (3): 289–324.
Heckman, James. 2013. *Giving kids a fair chance*. Cambridge, MA: MIT Press.
Heckman, James, and Alan B. Krueger. 2004. *Inequality in America: What role for human capital policies?* 1st ed., Vol. 1 (Alvin Hansen Symposium Series on Public Policy). Cambridge, MA: MIT Press.
Heckman, James J., and Edward E. Leamer, eds. 2007. *Handbook of econometrics.* 1st ed., Vol. 6A (Handbooks in Economics 2). Amsterdam: Elsevier.
Heckman, James, and Burton Singer, eds. 2008. *Longitudinal analysis of labor market data.* Cambridge, UK: Cambridge Univ. Press.
Nobelprize.org. 2000. James Heckman—Biographical. http://nobelprize.org/nobel_prizes/economics/laureates/2000/heckman-autobio.html (accessed December 23, 2010).
Vane, Howard R., and Chris Mulhearn, eds. 2009. *Trygve Haavelmo, James J. Heckman, Daniel L. McFadden, Robert F. Engle and Clive W. J. Granger (Pioneering Papers of the Nobel Memorial Laureates in Economics)*. London: Edward Elgar.

HELLER, WALTER

Born: August 27, 1915, in Buffalo, New York; Died: June 15, 1987, in Seattle, Washington; Nationality: American; Professional Interests: Keynesian, Council of Economic Advisers (1961–64); Major Work: *Monetary vs. Fiscal Policy* (with Milton Friedman) (1968).

Walter Heller is best known from his time working on the Council of Economic Advisers under presidents John F. Kennedy and Lyndon B. Johnson, from 1961 to 1964. He also was influential in the reconstruction of the West German economy after World War II while working as a tax adviser to the U.S. military government in Germany in 1947 and 1948. Heller returned to an earlier post with the University of Minnesota's Economics Department and retired a year before his death. Heller died in 1987.

Walter Wolfgang Heller was born on August 27, 1915, in Buffalo, New York, to German immigrant parents. His family moved to Washington State, before settling in Milwaukee, Wisconsin, when he was six. Heller received his BA in economics from Oberlin College in Ohio in 1935. He completed both an MA degree in 1938 and a PhD in 1941 at the University of Wisconsin, studying finance and taxation. He focused on state income tax laws for his dissertation, which he researched by touring 31 states, the District of Columbia, and Canada over the course of a year.

Heller spent the next 20 years varying his experience between government work and the education field, while becoming an expert on taxation. Between 1941 and 1945, he worked in tax research as a senior analyst in the Department of the Treasury. From 1945 until 1960, he was an associate professor at the University of Minnesota, missing time on occasion to perform various government jobs. In 1947, he spent a year in West Germany as chief of finance for the U.S. military government in West Germany, and he spent another year in West Germany in 1951 studying West German fiscal problems.

Heller's work in the 1950s acquainted him further with the U.S. government. During Eisenhower's administration, Heller appeared before Congress on several occasions to encourage more federal spending on education and other programs, while also encouraging Congress to raise taxes. In 1952, he began to consult the United Nations on issues of encouraging growth and development of underdeveloped countries. From 1955 to 1960, he was an economic adviser and consultant to the governor of Minnesota and that state's Department of Taxation. In a 1957 article, he criticized the Committee for Economic Development's plan to create flexible tax rates and expenditures to adjust for inflation and deflation as a plan that failed to adequately consider short-run economic forecasts. In 1960, he assisted the nation of Jordan in reforming its taxation and fiscal policies.

Heller was sought out by President-elect Kennedy in 1960 to become the chairman of the Council of Economic Advisers. One of Heller's main tasks would be to implement strategies to help the country get out of a slight recession that it had been in for about six months, though Heller linked the problem to a recession in 1957–1958 that the nation had not fully recovered from. Kennedy's main focus was to use the Employment Act of 1946—which stated that the federal government should enact fiscal policy to maintain high employment and which also created the Council of Economic Advisers—to its fullest potential.

Heller viewed the problem of recession was that an economy was not recovered until the nation's gross national product continued to rise above previous levels—and not just bounce back to what it was before. To do this, he was not concerned with a balanced budget but rather wanted to see more economic growth and unemployment down to around 4 percent, as opposed to the 7 percent in March 1961. One way he sought to attack this problem was by adjusting tax rates to eliminate loopholes and tax advantages for certain groups and lowering the tax range from 20–91 percent to 14–60 percent.

While working with Kennedy, Heller believed it was important to use forecasting tools to estimate how the economy was going to work. He also believed in the federal government's power to correct small problems with inflation and unemployment by spending more. He supported cutting taxes in 1962 to pick up the lagging economy, a measure that was also supported by Kennedy, who promised that it would be enacted as necessary. The actual cut in taxes did not occur until February 1964, after Kennedy's assassination.

Heller maintained his position initially as Lyndon Johnson finished Kennedy's term, but he resigned by the end of 1964. Early in the year, when Heller realized that cutting taxes was leading to higher inflation, he reversed his position and called for a tax increase, especially as U.S. involvement in Vietnam increased. Johnson did not take his advice. Heller's decision to leave his post, however, has been attributed more to his personal circumstances and not his disagreement with Johnson. He returned to teaching at the University of Minnesota.

One of Heller's best-known books, *Monetary vs. Fiscal Policy*, is a record of his debate with Milton Friedman at New York University in 1968: a friendly give-and-take between a supporter of monetary policy and a Keynesian. Heller also contributed to the *Wall Street Journal* and *Time* magazine. His ideas about the use of tax cuts to stimulate the economy would be embraced by Republicans in the 1980s, specifically by Ronald Reagan and "supply-side economists." He had been called an "educator of presidents."

Walter Heller died on June 15, 1987, in Seattle due to a heart attack at the age of 71.

Joseph Lee Hauser

See also: Council of Economic Advisors; Fiscal Policy; Friedman, Milton; Macroeconomics; *Vol. 1: Foundations of Economics:* Keynes, John Maynard

Further Reading

Heller, Walter. 1966. *New dimensions of political economy.* Cambridge, MA: Harvard Univ. Press.

Heller, Walter, ed. 1968. *Perspectives on economic growth.* New York: Random House.

Heller, Walter. 1976. *The economy: Old myths and new realities.* New York: Norton.

Heller, Walter W., and Milton Friedman. 1969. *Monetary vs. fiscal policy.* New York: Norton.

Kilborn, Peter T. 1987. Walter Heller, 71, economic adviser in 60's, dead. *New York Times*, June 17. http://www.nytimes.com/1987/06/17/obituaries/walter-heller-71-economic-adviser-in-60-s-dead.html (accessed September 11, 2011).

Moritz, Charles, ed. 1962. Heller, Walter W(olfgang). In *Current biography yearbook, 1961 edition.* New York: H. W. Wilson.

Stein, Herbert. 1969. *The fiscal revolution in America.* Chicago, IL: Univ. of Chicago Press.

HELVERING V. DAVIS

In *Helvering v. Davis*, 301 U.S. 619 (1937), the Supreme Court upheld the constitutionality of the Social Security Act of 1935. In upholding the Social Security Act, the case also expanded the role of the federal government into economic areas previously reserved for states and local and private entities.

The case must be viewed through the lens of the Great Depression. The devastation of this extreme market collapse brought social as well as economic and political changes to the fabric of American life. President Roosevelt offered the nation a "New Deal." Congress passed the Social Security Act of 1935, which provided income to the elderly, blind, unemployed, widowed, or orphaned, and launched other state health initiatives. Funds were appropriated that originated from employee income taxes as well as employer excise taxes. As a shareholder of a corporation subject to these taxes, Davis opposed them, claiming that they were in conflict with the 10th Amendment to the Constitution. Whether or not Social Security is the best remedy for business cycle aliments in a free market economy remains to be seen, but the constitutionality of the issue was resolved. This case set the stage for cooperative federalism and a new era in government involvement in the economy.

Case Summary

Historically, the city of Boston has not been a stranger to citizens who stand up to defend their property from governments that are eager to tax. George P. Davis may be a footnote in history, but his stand as a citizen to defend his property from what he believed was an unconstitutional tax is reminiscent of the Sons of Liberty dumping tea into Boston Harbor. In 1936, Davis owned a small number of stock shares in Edison Electric Illuminating Company in Boston, Massachusetts. Although he lacked large amounts of wealth, what assets he did possess he tended with diligence. At a time when many Americans sought governmental assistance to deal with the desperate consequences of the Great Depression, Davis was focused on keeping his equities clear of government encroachment.

In January 1937, Davis knew that Edison Electric was preparing to accommodate the employers' share of the payroll tax to fulfill its responsibility to the Social Security Act of 1935. This additional expenditure would diminish the company's bottom line—and Davis's equity. His objection to this tax was based on the Tenth Amendment to the Constitution, which reserves powers not delegated to the federal government to the states.

It was Davis's opinion that taking care of the elderly in a financial capacity was the domain of the state, and that therefore a federal excise tax was beyond the scope of the national government's powers.

Meanwhile, back in Washington, D.C., Congress and President Franklin Roosevelt were fighting to keep New Deal legislation alive. The president's landslide reelection signaled public support for Roosevelt's new economic policies. However, the Supreme Court, insulated from the necessity to respond to public opinion, continued to rule legislative reforms unconstitutional. In 1935, the Court declared the National Industrial Recovery Act and the Frazier-Lemke Farm Bankruptcy Act void. In 1936, the Court struck down the Agricultural Adjustment Act, stating on the same judicial principle that the federal government had overstepped its constitutional boundaries as set by the Framers.

Regardless of these setbacks, President Roosevelt proposed that Congress pass legislation that would give it the power to provide direct aid to states for the "general welfare." The 74th Congress passed the Social Security Act in an effort to assist indigent elderly, abandoned wives and children, and people suffering from the effects of extremely high unemployment and health issues, at both an individual and a public level. The plan included augmenting incomes and matching state monies with equal or greater federal assistance to alleviate hardships and stimulate a stagnant economy.

In summary, the Social Security Act looked like this: Title I covered grants for old-age assistance. Title II set up an account within the National Treasury to handle the monthly payments to qualified recipients. Title III spelled out details of the unemployment compensation. Title IV granted state aid to children who were abandoned or orphaned. Title V gave assistance to states for the health and welfare of crippled children. Title VI provided states money to set up public health facilities and to train workers. Title VII established a three-member Social Security Board, appointed by the president and confirmed by the Senate, to carry out the spirit of the law. Title VIII explained the Employee Income Tax and the Employer Excise Tax. It also detailed several jobs that are exempt from these taxes. Title IX explained the payroll exemption for employers with fewer than eight employees, or who employ their family. Title X granted assistance to blind people. Title XI defined all the terms of the act and included Alaska, Hawaii (both not yet states), and Washington, D.C. It also defined the separability of the act, whereby if any one part is found invalid it doesn't invalidate the other parts.

Until the Great Depression, with the exception of veterans' benefits, most of the aforesaid economic programs were the prerogative of state, local, or private endeavors. In 1936, the judiciary under the leadership of Chief Justice Charles Hughes adhered to a strict constitution doctrine (James Madison's idea of limiting federal usurpation of state powers). However, these were extraordinary times, and President Roosevelt proposed that Congress add one justice to the Supreme Court for every justice currently serving who had reached the age of 70. Increasing the Court from 9 justices to 15 would swing the balance in the president's favor. This proposal was met with bipartisan suspicion and indignation.

In the meantime, George Davis filed suit in district court to stop Edison Electric from paying the employer payroll tax and void the act. The government intervened on Edison's behalf, and Guy Helvering, commissioner of the Internal Revenue Department, took the case. The district court upheld the tax, and Davis appealed. The Federal Court of Appeals for the First Circuit reversed the district court, and Helvering requested that the Supreme Court take the case in order to establish the validity of the tax. The Court granted *certiorari* (request for a lower court to send the records of the case to the Supreme Court) and heard the case in May 1937.

In *Helvering v. Davis*, it was the responsibility of the Supreme Court to determine whether Social Security taxes were valid exercises of the taxing power in Article I, Section 8; whether providing the benefits was valid under the general welfare clause; and if Titles II and VIII of the Social Security Act were a valid use of the taxing power granted to Congress in the Constitution. Title II established the parameters for the payment of benefits for old-age assistance. Title VIII describes an income tax on employees and an excise tax on the employers that will fund the old-age assistance. Both taxes are with respect to income from wages for workers and having people in their employment and are measured by wages. Both taxes are paid to the U.S. Treasury and into the general revenue. No funds are earmarked. There are penalties for nonpayment. The federal government argued that the nation could not solve current complex issues facing the economy if it remained in 1789. Flexible interpretation of the Constitution allows the nation to progress and provide for the general welfare. New to the previous discussions advocating old-age assistance was the clarification by the government that these were indeed true taxes, and therefore valid exercises of Congress's power to tax. In addition, it concluded that the desperate situation of the elderly at this time was a problem too big for private charity or the state, and therefore needed to be addressed by the federal government to fulfill its obligation to promote the general welfare.

The respondent countered with the argument that if these taxes were truly intended to raise general revenue, taxing the lowest wage earners and stopping at an income of only $3,000 seemed counterintuitive. In addition, leaving out several categories of wage earners—for example, agricultural and domestic workers, government workers, and those who worked for charitable organizations—segregated the laborers who would be eligible to receive benefits. Furthermore, because the Tenth Amendment clearly reserves the power of the states to cover what is not expressly given to the federal government or denied to the states, the respondents concluded this was an unconstitutional power grab by Congress in violation of states' rights.

In a 7–2 vote, the Hughes Court broke from its previous conservative judicial philosophy. The Court disagreed with the respondent that Title II violated the Tenth Amendment. Congress is charged with maintaining the general welfare, and what defines that is apt to fluctuate with current events. More importantly, the Great Depression of the 1930s had created a national situation that demanded a national solution, and the wisdom of Congress, which heard testimony and reviewed evidence, should be deferred to. Justice Cardozo wrote the majority opinion, and Justice McReynolds and Justice Butler dissented.

Whether or not the Court acquiesced to Roosevelt's political arm-twisting due to the court-packing initiative is open to debate. Regardless, the decision ushered in the era of cooperative federalism, in which national, state, and local governments interacted collectively to solve problems. New Deal programs increased the flow of federal money to the states for a variety of purposes. These matching funds or grants of large sums of money often pulled states away from their priorities and made the national agenda more of a reality. This new relationship between the federal government and state governments that was ushered in with the New Deal and Social Security Act can be viewed through either a lens of coercion or one of cooperation. It remains to be seen if one lens is more accurate, or if indeed either has merit.

Kathleen C. Simmons

See also: Banking Act of 1933 (Glass-Steagall Act); Entitlements; Social Security Act of 1935; Taxes; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; New Deal; Roosevelt, Franklin D.; *Primary Documents*: Banking Act of 1933 (Glass-Steagall Act); Social Security Act of 1935

Further Reading

Chicago-Kent College of Law at Illinois Tech. n.d. *United States v. Butler*. Oyez. https://www.oyez.org/cases/1900-1940/297us1 (accessed November 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. *42 U.S. Code Chapter 7—Social Security*. http://www.law.cornell.edu/uscode/text/42/chapter-7 (accessed November 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. *Helvering v. Davis (No. 910) 89 F.2d 393, reversed.* (Cardozo, J., Opinion of the Court.) http://www.law.cornell.edu/supct/html/historics/USSC_CR_0301_0619_ZO.html (accessed November 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. *Helvering v. Davis (No. 910) 89 F.2d 393, reversed.* (Syllabus.) http://www.law.cornell.edu/supct/html/historics/USSC_CR_0301_0619_ZS.html (accessed November 30, 2016).

Downey, Kirstin. 2009. *The woman behind the new deal: The life of Frances Perkins, FDR's secretary of labor and his moral conscience*. New York: Nan A. Talese.

Levy, Robert A., and William H. Mellor. 2008. Promoting the general welfare. In *The dirty dozen: How twelve Supreme Court cases radically expanded government and eroded freedom*, 19–36. New York: Sentinel.

Seidman, J. S. 2003. *Seidman's legislative history of federal income tax laws, 1938–1861*. Clark, NJ: Lawbook Exchange Ltd. http://www.worldcat.org/title/seidmans-legislative-history-of-federal-income-tax-laws-1938-1861/oclc/51059052/viewport (accessed November 30, 2016).

Ourgovernments.gov. n.d. Social Security act (1935). http://www.ourdocuments.gov/doc.php?flash=old&doc=68 (accessed November 30, 2016).

HYPERINFLATION

Hyperinflation does not mean just an increase in the supply of money. Hyperinflation occurs when a nation's increase in the money supply accelerates at an abnormal rate. The domestic currency loses significant value in a short amount of time. The loss of value impacts households buying power, value of savings and retirement accounts, and the real value of assets, such as homes and businesses, minimizes the amount each household is able to hold.

Hyperinflation occurs when a government significantly increases the money supply by borrowing money from its central bank or printing new money and investing the new money into the domestic economy. The new money is created when the bank buys bonds from the government, giving the central bank more money for the government to spend.

As the money supply of the country continues to increase, hyperinflation becomes real when citizens' holdings lose significant value. This constant movement of currency and increasing levels of pricing force the government to attempt to stabilize the country's economy. To stabilize the economy, most governments resort to printing more physical currency. Mismanagement and fraud within a government cause the cycle to continue until the currency has lost virtually all its usable value.

A 21st-century example of a country in the grips of hyperinflation is Zimbabwe. Zimbabwe's inflation is currently unlike inflation anywhere else in the world. Zimbabwean President Mugabe continued to print money to pay for his political promises. In 2008 the inflation rate was as high as 79,600,000,000 percent. One U.S. dollar is equivalent to nearly two and one-half billion Zimbabwean Kwacha. President Mugabe used the power of printing money to fulfill campaign promises such as land reform programs and war funding. In addition to these expenditures, the country's economic management was extremely poor, leading to a famine and the plummeting of foreign exchange profits.

Zimbabwe ultimately eliminated the Zimbabwean Kwacha and adopted the U.S. dollar. Later Zimbabwe also adopted the euro and the Chinese yuan for domestic economic transactions. The situation in Zimbabwe continues to be a monetary and fiscal challenge. Its official unemployment rate is in the area of 20 percent, its life expectancy is the lowest in the entire world, and the spread of HIV and malaria in Zimbabwe is increasing rapidly. The effects of hyperinflation create complete economic collapses.

David A. Dieterle

See also: Inflation; Inflation, Measures of; Monetary Policy; *Vol. 1: Foundations of Economics:* Central Bank; *Vol. 4: Global Economics:* International Debt; International Economics; International Monetary Fund

Further Reading

Huchu, Gladys. n.d. Effects of hyperinflation in Zimbabwe. What next? Financial system recovery options. www.academia.edu/6071567/Effects_of_hyperinflation_in_Zimbabwe_What_next_Financial_system_recovery_options (accessed October 30, 2015).

Mohan, Mithun. 2013. What factors contributed to the hyperinflation of the Zimbabwean dollar? https://www.quora.com/What-factors-contributed-to-the-hyperinflation-of-the-Zimbabwean-Dollar (accessed October 30, 2015).

Pettinger, Tejvan. 2011. Hyperinflation in Zimbabwe. Economics.Help: Helping to Simplify Economics. www.economicshelp.org/blog/390/inflation/hyper-inflation-in-zimbabwe (accessed October 30, 2015).

Trading Economics. n.d. Zimbabwe inflation rate, 2009–2015. http://www.tradingeconomics.com/zimbabwe/inflation-cpi (accessed October 30, 2015).

I

INFLATION

Inflation is an important measure for investors, because the risk-free rate is approximately the sum of real growth rate and inflation rate. So, inflation rate will play a large role in determining the rate of return for investments.

The broad definition of *inflation* in economics is increases in general price level. With increases in price level, the purchasing power of the same unit of money/income/wealth diminishes. In other words, inflation can be viewed as either an increase in price level or a decrease in purchasing power. Thus, it is important to understand some of the basic issues on the construction of the price level index and how changes in the construction will affect purchasing power differently. Also important to this is hyperinflation and the impact of hyperinflation on productivity.

In the United States, inflation is measured by changes in the Consumer Price Index (CPI). The CPI is produced by the Bureau of Labor and Statistics (BLS). It is based on a theoretical basket of possible goods and services that best represents an average household based on 1990 U.S. Census data (1990 was the base year set by the BLS; this date changes infrequently). Each item in the basket has a point value, and changes in a particular item's price level multiplied by its point value will result in the effect of price change in that particular item.

The content of the basket is determined by a survey of two-week purchasing habits of 7,000 families in the United States over two years. The BLS recognizes the following broad categories:

- Food and beverages (e.g., breakfast cereal, milk, coffee, chicken, wine, full-service meals, snacks),
- Housing (e.g., rent of primary residence, owners' equivalent rent, fuel oil, bedroom furniture),
- Apparel (e.g., men's shirts and sweaters, women's dresses, jewelry),
- Transportation (e.g., new vehicles, airline fares, gasoline, motor vehicle insurance),
- Medical care (e.g., prescription drugs and medical supplies, physicians' services, eyeglasses and eye care, hospital services),
- Recreation (e.g., televisions, toys, pets and pet products, sports equipment, admission to entertainment venues),
- Education and communication (e.g., college tuition, postage, telephone services, computer software and accessories), and
- Other goods and services (e.g., tobacco and smoking products, haircuts and other personal services, funeral expenses).

It is important to note that not every item on the basket is purchased by every family in the survey; in fact, some families will never purchase any of those items, so price increases in some of those items will have very little impact on the rest of the population. College education provides one such example: The cost of attending college has been increasing at a rate more than twice the general level of CPI increases. Thus, the cost of a college education will have no impact on a family that has no one attending college during this period, while a family with two children in college will likely feel a large impact of college tuition increases.

Other BLS categories will also affect individual families differently; For example, the cost of a new vehicle, gasoline, and automobile insurance will have little impact on someone who lives in an urban setting with convenient public transportation and therefore has no need to own a car. In contrast, most low-income families spend a large portion of their income on food and other basic necessities, so price increases in basic necessities and food will have a much higher impact on those families than on families with higher income levels.

So, depending on a family's consumption habits, inflation will affect one family's purchasing power differently than another family's. Most families do some form of price comparison and make changes to their consumption habits by substituting lower-price items for similar, higher-priced ones. To be responsive to this, the BLS created what is known as the Chained CPI, which takes the substitution effect into account and results in a lower inflation rate. Some entitlement programs are considering using Chained CPI as the basis for adjustment. A new measure called the Cost of Living Index (COLI), which is more reflective of actual cost of living, is being proposed as a substitute. But the COLI has its shortcomings as well. It is based on the relative cost of living for typical mid-management households in more than 300 U.S. cities, but midmanagement households are no longer the norm in the United States. So both the Chained CPI and the COLI are facing criticism.

Moderate Inflation versus Hyperinflation

A moderate level of inflation is generally seen as a good thing for the economy. Producers will produce more goods and services only if they know they can sell those goods and services for higher prices in the future. A moderate level of inflation—around 3 percent—will encourage production growth. If inflation is too low or is in the negative territory (deflation), the monetary authority will generally relax monetary policy to induce a higher level of inflation.

Hyperinflation, where the price level increases at a rapid rate, hinders economic activity. Since inflation reduces purchasing power, in a hyperinflationary period the income and wealth of households declines rapidly. During a period of hyperinflation, one of the key functions of money (as a store of wealth) is essentially gone, so consumers will try to spend their money as quickly as possible, exchanging their income for food and other basic necessities as soon as they receive a paycheck. Not only does this place a constant demand on people's time (from consumers waiting in line to buy goods to store owners constantly changing the prices on all the items), but also it increases the velocity of money. According to the Quantity Theory of Money, an increase in velocity results in a higher price level—creating a vicious cycle.

For an extended period after World War I, Germany had an inflation level of more than 2 billion percent a year. The money was not worth the paper it was printed on, and the economy was basically destroyed. Images of people pushing around a cartload of paper money, looking for bread to buy, still bring chills to people from older generations. A more recent example can be taken from the 1980–1997 Brazilian economy. The CPI went from 4 to 5,080,300,000,000! Something that cost 1 Brazilian real (BRL) in 1980 would cost 1 trillion BRL in 1997!

By late 1997, inflation was under control in Brazil and the economy started to recover very quickly. With modern knowledge about the effect of monetary policies on inflation, periods of hyperinflation like those experienced by Germany and Brazil are likely not going to occur again in developed countries.

Inflation is an important piece of data in that it tells investors the lowest level of return they must obtain in order to maintain the purchasing power of their wealth/income. Inflation, however, affects purchasing power differently across demographics and consumption habits. While hyperinflation is bad for the economy, a low level of inflation—or *deflation*—is also bad. Since the risk-free rate is tied to the inflation rate, knowing the inflation rate will help consumers understand the real rate of return for various risky investments. Having a better understanding of this important piece of data will help ensure smarter investment decisions.

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See also: Bernanke, Ben; Bureau of Labor Statistics; Deflation; Economic Problems of the 1970s and 1980s; Expansionary Fiscal Policy; Expansionary Monetary Policy; Federal Reserve System; Fiscal Policy; Friedman, Milton; Greenspan, Alan; Gross Domestic Product; Gross National Product; Inflation, Measures of; Monetary Policy; Money Illusion; Volcker, Paul; *Vol. 3: Microeconomics:* Retirement Accounts; Risk

Further Reading

Bureau of Labor Statistics. n.d. Consumer price index. http://www.bls.gov/cpi/ (accessed November 30, 3016).

Heakal, Reem. n.d. What is the quantity theory of money? *Investopedia*. http://www.investopedia.com/articles/05/010705.asp (accessed November 30, 3016).

Margolin, Emma, 2013. How the “chained CPI” works—and why critics call it a benefits cut. *MSNBC*, April 5. http://www.msnbc.com/hardball/how-the-chained-cpi-works-and-why-critics (accessed November 30, 3016).

Reed, Stephen B., and Darren A. Rippy. 2012. Consumer price index data quality: How accurate is the U.S. CPI? *Beyond the Numbers* 1 (12). http://www.bls.gov/opub/btn/volume-1/pdf/consumer-price-index-data-quality-how-accurate-is-the-us-cpi.pdf (accessed November 30, 3016).

INFLATION, MEASURES OF

Inflation is the general rise of prices in an economy—and the number one issue in many economies. Inflation reduces the real value of an economy. It depreciates the value of a currency, reducing the confidence of holding the currency. Very high inflation, or hyperinflation, can destroy an economy and be a catalyst for civil and political unrest.

There are three key measures of inflation: the Consumer Price Index, the Producer Price Index, and the Personal Consumption Expenditures. Each measure provides a separate picture of the economy. When taken together, these key measures provide a broad measure of an economy's price level. Other measures that economists study for inflation indicators include import prices, unit labor costs, and the gross domestic product (GDP) deflator.

Consumer Price Index

The most watched and most popular measure of inflation is the Consumer Price Index (CPI). The CPI data are collected, analyzed, and presented by the Bureau of Labor Statistics (BLS), an agency of the Department of Labor. The CPI is reported monthly, and unlike the GDP measure, there are no monthly revisions. There are, however, annual revisions that can revert back five years. There are many versions of the CPI for different geographical areas. While the CPI is used to determine the "cost of living" index to determine increases in Social Security and other government entitlement programs, the best use of the CPI is to view price trends and to measure retail prices over time.

The BLS constructs a market basket of goods and services by surveying over 20,000 retail outlets in over 85 urban areas. It collects prices on 80,000 goods and services, from medical and dental services to computers, beer, and rental housing. The data collected on 200 categories of goods and services are divided into eight major categories, each weighted to reflect its impact on a household:

1. Housing, which includes shelter, utilities, household furnishings, and operations, is weighted at 42.2 percent.
2. Transportation is the second most weighted category, at 17.4 percent. This category includes new vehicles, motor fuel, maintenance and repair, and used cars and trucks. It also includes the use of public transportation.
3. Food and beverages are a third category, accounting for 15 percent.
4. Medical care is weighted at 6.2 percent.
5. Just below medical care is education and communication, at 6 percent.
6. Recreation is 5.6 percent of the market basket.
7. Apparel is weighted at 3.8 percent.
8. Other goods and services, such as tobacco and smoking products, are 3.5 percent.

The CPI is an index, and therefore it uses a base year upon which to measure growth over time—usually a period of one year. The current CPI base year is the time frame from 1982 to 1984, which has a value of 100. Each month, the CPI is calculated and measured against the base year (1982–1984) along with the previous year; if in a current year, the CPI is calculated at 150, the general price level of the market basket of goods and services has risen 150 percent of the 1982–1984 price level (150/100 = 1.5 × 100 = 150%). So based on the CPI, if an item cost $1.00 in 1982, it would cost $1.50 today. Of course, the CPI is only an average, so some items may have fallen in price, while others may have risen more than 50 percent. If in the following year the measured CPI is 155, the annual inflation rate would be 25 percent (155 – 150 = 5/150 = 0.033 × 100 = 3.3%).

The BLS computes several measures of CPI. One measure is CPI-W, which measures the price index for wage earners and clerical workers. A second measure is the CPI-U, which measures the price index for urban professionals, including the self-employed, managers, and technical workers. The BLS measures the price index for 14 specific geographic areas as well. The BLS also takes into account seasonal factors, such as specific growing seasons, that impact a product's price—for example, oranges.

The BLS press releases also identify a CPI in two versions: "headline inflation" and "core inflation." *Headline inflation* is the inflation measure using all items in all categories, as described above. *Core inflation*, however, is the CPI measure minus the food and energy categories; the core inflation measure was invented in the high-inflation 1970s to minimize the high prices of the two volatile categories of food costs and energy costs.

Producer Price Index

First used officially in 1902, the Producer Price Index (PPI) is the oldest of the government's measures. It is the first monthly measure announced by the BLS. The PPI measures changes in the prices that businesses pay for the intermediate goods they use in producing goods and services. The PPI is announced by the BLS monthly, often several weeks after the month being measured. It is updated four months after the initial release, and updated annually in February from the January measure.

The Department of Labor requests prices on approximately 100,000 products from approximately 30,000 companies nationally. The weighting of each product is based on its value to the economy. The products are reweighted every five years based on changes in the economy. Imported goods are excluded from the PPI, as are services. Like the CPI, the PPI has an established baseline. The PPI baseline year is 1982.

The PPI is actually a combination of indexes. The PPI measures the price level of three separate goods in production: commodity prices, intermediate goods, and finished goods just prior to being sent for retail. *Commodities* are the natural resources used in the production process. *Intermediate goods* are the manmade goods used in the production of final goods and services, such as machinery. *Finished goods* are the final product, ready to be sold to consumers. This last measure is the one most publicized in the news and of interest to investors and businesses. The finished goods measure is determined by the other two and it makes them a leading indicator of finished goods prices. Because the PPI measures these early prices and costs in the production process, it is a leading indicator of future retail inflation, as businesses are inclined to pass along cost increases to consumers.

The PPI for crude goods measures the cost of raw materials, such as agricultural products; oil and copper are examples of commodities. These product prices are often based on the supply of the product, making them subject to significant changes in such variables as weather, labor costs, or political uprisings. The PPI for intermediate goods includes the price changes in items just before final production, such as automobile parts, cotton, flour, or machine parts. These two components make up approximately 40 percent of the total PPI measure.

The PPI for finished goods includes prices in 11 categories, including automobiles, groceries, fuels, and clothing. This component is similar to the CPI components. The components for the finished goods PPI make up approximately 75 percent of finished consumer goods (20 percent finished consumer foods and 55 percent finished consumer goods), with 25 percent finished capital equipment. As with CPI, a core PPI of finished goods is measured removing food and energy costs. This removes the volatility of weather and geopolitical situations in the inflation predictors.

Economists and investors are especially interested in price changes as they occur—from crude products to intermediate products to finished products. Price changes through this process are key signals of what sectors of an economy are experiencing inflation. Knowing where the inflation is originating allows economists and investors to know which stage inflation is present and which sectors and businesses can predictably experience inflation in the future.

Economists often claim that there is no relationship between the PPI and the CPI. Experience during the 1970s and 1980s does not often support that claim; measures during the end of the 20th century were not as consistent. Most economists agree that in the long term the two measures will ultimately converge.

Personal Consumption Expenditures

In the United States, the largest component of GDP is personal spending on goods and services, or personal consumption expenditures (PCE), which accounts for up to 70 percent of the U.S. GDP. By contrast, China's personal spending as a component of its GDP is only approximately 30 percent. Consumer expenditures are the key dynamic influence of the U.S. economy. If consumers are not purchasing goods and services, businesses are not using resources (including labor) to produce goods and services, and the economy does not grow or even regresses. The stock market and other economic indices react to the reports of how much households are spending on goods and services.

As a component of GDP, the reporting of PCE is a function of the Bureau of Economic Analysis (BEA). The PCE is also a critical component of the Federal Reserve's inflation calculations. Personal spending is reported monthly with several months of revisions. The monthly reports are also annualized to reflect yearlong income or expenditure trends. A major revision in data may occur to reflect new reporting and/or data-collecting methodologies. Personal income is measured before taxes are deducted. BEA measures income from several sources: wages and salaries, rental income, interest and dividend income, income of the self-employed (proprietor's income), transfer payments, and other income. PCE and personal income are reported in nominal dollars (current dollars) and real dollars (adjusted for inflation).

PCE are measured in three major categories: durable goods (goods lasting three or more years), nondurable goods (goods lasting less than three years), and services. Durable goods are major items purchased by households, such as cars, refrigerators, and televisions. Because they are items that households do not purchase often, they account for only 12 to 14 percent of PCE. Nondurable goods, such as food and clothing, account for approximately 30 percent of PCE, as they are purchased more often. Services make up the final 40 percent, accounting for the purchases of haircuts, movie tickets, medical expenses, and so on.

One either purchases goods and services (expenditures) or saves income. Personal savings is also calculated from this information. Once all spending is measured, interest on credit cards and car loans is taken into account and taxes are deducted, leaving disposable income; this remainder is considered personal savings. It has been calculated that over time the average household spends 95 cents of each dollar received and saves 5 cents. This very high percentage of consumption is the key reason the PCE receives attention from the media, economists, and, as mentioned earlier, the Federal Reserve Board of Governors. Measuring PCE is also complicated, and it involves many government departments, organizations, and companies.

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See also: Bureau of Economic Analysis; Bureau of Labor Statistics; Deflation; Department of Labor; Economic Growth, Measures of; Inflation

Further Reading

Baumohl, Bernard. 2008. *The secrets of economic indicators*. 2nd ed. Philadelphia, PA: Wharton School Publishing.

Bureau of Labor Statistics. n.d. Consumer price index. www.bls.gov/cpi (accessed October 10, 2013).

Bureau of Labor Statistics. n.d. Producer price indexes. www.bls.gov/ppi (accessed October 10, 2013).

Federal Reserve Bank of Atlanta. n.d. Inflation resources. http://www.frbatlanta.org/edresources/classroomeconomist/inflation_resources.cfm (accessed October 10, 2013).

THE IRAQ WAR'S IMPACT ON THE U.S. ECONOMY, 2003–2011

The Iraq war began in 2003 when President George W. Bush launched an invasion of Iraq. After the September 11, 2001, attacks, the United States was determined to retaliate. The war was initiated due to the belief (which was later disproved) that Iraq possessed nuclear weapons of mass destruction. The Iraqi leader Saddam Hussein had killed many of his own people and was considered one of the worst dictators, further fueling the desire to remove him from power. The war officially ended in December 2011, although the country still suffers from conflict and unrest. Further, the United States is still feeling the economic repercussions of the Iraq war.

This entry will focus less on the war itself and more on its economic impact. There is a widely held belief that fighting a war and increasing military spending will improve a county's economy. According to Dean Baker from the Center for Economic and Policy Research, military spending diverts resources from more fruitful uses and in the end decreases employment and slows economic growth.

Problems Calculating the Cost of the Iraq War

Many sources explain that it is difficult, if not impossible, to accurately tabulate the economic costs of the Iraq war for the United States. In 2008, Fred Foldvary of Econ Journal Watch attempted to quantify the costs. As of 2008, the United States was estimated to have spent $3 trillion on the war in Iraq. The dollar amount is just one input into the economic costs of the war to the nation. The additional economic costs are far-reaching and include both tangible and intangible economic costs.

An exceptionally difficult cost to quantify is the costs for the returning military. Returning military personnel experience tremendous reentry issues, and those costs impact the country through medical, psychiatric, and employment damages.

The government has also been accused of poor accounting and reporting with regard to the Iraq war, making it difficult to calculate the cost of the war. Unlike prior wars, this war did not have a separate account, and the war payments were mixed in with other types of spending. The war was funded through many emergency allotments, not factored into the government's budgets. There was no specified budget category for Iraq war spending, so a complete accounting of all financial war costs is exceedingly difficult.

Opportunity Costs of War

Opportunity cost is an economic term that refers to the cost of the choice that was not made. When one choice is made, the decision-make must forgo other choices, and those are called the "opportunity costs." Spending on the war meant that many other projects had to remain unfunded due to lack of resources. For example, if the United States had not spent money on the Iraq war, those funds could have been directed to reduce the federal debt, cut taxes, and/or increase funding for domestic programs.

For 10 years, trillions of dollars went to fund the war. It is difficult to calculate how those dollars—had they been spent on, for example, other domestic programs, debt, or tax relief—would have affected the economy of the country. This is an example of an intangible economic cost of the war.

Costs to U.S. Citizens

The military, military contractors, and their families have felt the war costs most directly. The federal budget deficit grew significantly due to the Iraq war. This reality excludes the fact that the budget was already in a deficit at the start of the war. When the budget deficit increases, all citizens ultimately have to pay for those increases, usually through higher future taxes. Additionally, when foreigners buy U.S. Treasury bonds, they are in effect funding the U.S. government, putting United States in debt to international debt buyers.

Economically, war always diverts production away from domestic goods and toward war-related products. More military weapons means less domestic production and investment in technologies and new corporate capital projects. This creates a chain reaction that diminishes the investment in our country, leading to lower domestic growth, less development, and lower living standards in the future.

The costs of war not only impact the current generation, but also have long-term effects on future generations: Future generations will pay the bills incurred by the war today. Since money is borrowed for war through the issuance of Treasury securities, that money will be paid back by taxes assessed on future workers.

Stiglitz and Bilmes (2008), authors of *The Three Trillion Dollar War: The True Cost of the Iraq Conflict*, allege that the war in Iraq influenced higher oil prices. The authors present a direct correlation between the start of the war and an increase in oil prices. During the war, Iraqi oil production was halted. Additionally, the military used substantial amounts of oil. This does not mean oil prices would have remained stable if the United States had not gone to war with Iraq, but only that the war furthered the increase in oil prices by curtailing of the supply that the war created.

Costs to the Military and Related Population

The costs to the military and their families are immeasurable. A military class of citizens is returning to this country with severe physical and mental problems. These soldiers return to an economy with high unemployment, leading to underemployment or no employment for many them. While the social costs of war cannot be measured in dollars and cents, these costs have a tremendous impact on our financial and social economies. Returning veterans who do not have employment create financial expenses for our social service systems, as well as immeasurable emotional costs to a valuable segment of the population.

It is reported that almost 4,500 U.S. troops were killed and more than 32,000 were wounded. No dollar amount can be allocated to those losses.

Regardless of whether one believes the war was just or successful, there are both tangible and intangible economic costs from the 10-year long war in Iraq. The costs to the U.S. economy for this war span the current generation and future generations. There are individual financial costs to the soldiers and their families as well as broad economic costs to the United States.

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See also: Debt; National Debt versus Deficit; Taxes; Treasury Securities; Unemployment; *Vol. 1: Foundations of Economics:* Human Capital; Opportunity Cost; *Vol. 4: Global Economics:* Stiglitz, Joseph E.

Further Reading

Baker, Dean. 2007. The economic impact of the Iraq war and higher military spending. Center for Economic and Policy Research http://www.cepr.net/documents/publications/military_spending_2007_05.pdf (accessed November 30, 2016).

Foldvary, Fred E. 2008. Uncovering the costs of the Iraq war. *Econ Journal Watch* 5 (3): 373–79. http://econjwatch.org/articles/uncovering-the-costs-of-the-iraq-war (accessed November 30, 2016).

NPR Staff. 2013. The Iraq war: 10 years later, where do we stand? *National Public Radio*, March 16. http://www.npr.org/2013/03/16/174510069/the-iraq-war-10-years-later-where-do-we-stand (accessed November 30, 2016).

Stiglitz, Joseph E., and Linda J. Bilmes. 2008. *The three trillion dollar war: The true cost of the Iraq conflict*. New York: Norton.

Trotta, Daniel. 2008. Iraq war hits U.S. economy: Nobel winner. *Bonds News/Reuters*, March 2. http://www.reuters.com/article/2008/03/02/us-usa-economy-iraq-idUSN29215274200803022 (accessed November 30, 2016).

J

JUILLIARD V. GREENMAN

The Legal Tender cases were a series of cases filed during and after the Civil War, culminating in *Juilliard v. Greenman*, 110 U.S. 421 (1884). The Civil War brought an economic urgency to the United States. In 1862, Congress passed the Legal Tender Act, allowing U.S. notes to be printed to help finance the war debt. Paper money depreciates in terms of gold and silver, which were used prior to its issuance. Cheap money chases out expensive money, and old debts were soon paid with controversial paper. During Reconstruction, the Legal Tender cases challenged the authority of Congress to print paper money—beginning with *Hepburn v. Griswold* in 1870, where the Supreme Court said paper currency was unconstitutional, and ending in 1884, with the *Juilliard v. Greenman* case stating the opposite interpretation. Article I, Section 8, of the Constitution grants Congress the power to coin money, but gold and silver are the metals mentioned. Whether the framers of the Constitution could have fathomed "plastic" as a method of payment is open to speculation; however, some argue that if their prohibition on paper money had been implemented, the American economy would have been sent into disarray at best, and at worst, would have ceased to exist. This case settled once and for all the constitutional disputes between paper money and a currency limited to gold and silver.

Case Summary

Augustus D. Juilliard was a Frenchman who made his wealth in New York textiles. His skills as a businessman proved beneficial to the arts, as upon his death in 1919, he bequeathed a large amount of money to establish the Juilliard School of Music. In all these endeavors he was a winner, but in the Supreme Court he was a loser. This is not to say that the United States did not benefit from his loss.

Juilliard v. Greenman was a case that grew out of fear and hard times. There was a fear of cheap money (money without intrinsic value or backed by gold or silver) combined with insecurities about government. American political stability had been tested by the Civil War, the assassination of the president, and a financial panic in 1873 (which was referred to as the "great depression" until the depression of the 1930s took the title). This sad constellation of events did very little to encourage trust in the federal government's greenbacks (the first noninterest-bearing notes printed by the government to pay for the war debt).

In 1879, Juilliard sued Thomas S. Greenman of Connecticut to secure payment of a private debt. Greenman had purchased 100 bales of cotton from Juilliard, who expected a payment of $5,122.90 upon delivery. Greenman paid $22.90 in gold and silver coin and offered U.S. paper notes (paper money issued by the U.S. government without intrinsic value or backed by gold or silver), also known as greenbacks (because the back is printed in green), for the remainder of the bill. Juilliard refused the paper currency. Greenman took the $5,000 note and the $100 note into court to prove his intent to pay, whereupon the plaintiff demurred (made an objection or delay) on the grounds that the defendant's response to being sued was to produce the same evidence that had caused the action and therefore was without legal significance. The Circuit Court of the United States for the Southern District of New York disagreed, and ruled in favor of the defendant.

Juilliard filed a writ of error (a directive to a trial court to send the records of a case to the appellate court to be examined for potential procedure errors) to the Supreme Court with two assertions. First, the act passed by Congress on May 31, 1878, allowing U.S. bank notes to be paid out and reissued did not make those notes legal tender (a currency that is recognized by law as legal and must be accepted in payment of debts). Second, to construe that this act did make the notes legal tender is unconstitutional because Congress does not have the power to make such a law. The case was submitted to the Supreme Court in January 1884.

Juilliard's legal representative argued that the Constitution had intended for gold and silver to be the monetary base of the new country. James Madison and other framers remembered the debacle of the continentals (bills of credit that states had issued that depreciated and lost their value) during the Revolutionary War under the Articles of Confederation and had every intention of correcting that mistake in the new Constitution. The plaintiff claimed that Article I, Section 8, of the Constitution established the federal government as sole possessor of the power to coin money. However, wartime measures revisited the U.S. Treasury in 1861, bringing back a reliance on greenbacks, which were very similar to continentals. The legal tender clauses of the acts passed in 1861, 1862, and 1863 were wartime measures enacted to preserve the Union. They were police powers that could not be justified as constitutional without the context of an extreme emergency, which did not exist in 1879, and therefore were void in peacetime. Furthermore, they concluded, printing paper money and declaring it legal tender by statute gave the Congress the ability to change the Constitution without abiding by Article V (the constitutional requirement that amendments have a two-thirds vote of both houses of Congress to propose an amendment and three-fourths of the states to ratify such proposals).

The defense stated that the defendant had followed the full faith and credit of the government. It argued forcibly that Congress had the power to make notes issued by legislative statute into legal tender without contradicting the Constitution; Article I, Section 8, Clause 18, grants Congress the power to do what is necessary and proper to ensure the functioning of the government. The defense found no error of procedure and viewed the Court's decision as necessary to establish the constitutionality of the acts in question. The responsibility of the Supreme Court in *Juilliard v. Greenman* was to determine whether or not acts of Congress issuing paper currency considered legal tender for private and public use during wartime could be considered legal tender during peacetime as well.

The Supreme Court decided this case on March 3, 1884. Justice Gray wrote the majority opinion. All the judges agreed that this case could not be separated in principle from the previous legal tender cases of *Dooley v. Smith* (1871), *Railroad Co. v. Johnson*, and *Maryland v. Railroad Co.*, which established the power of Congress to make notes of the U.S. legal tender in payment of private debts. However, Justice Field dissented for the same reasons that he had in the previous cases. Justice Gray revisited John Marshall's opinion in *McCulloch v. Maryland*, where the powers of the government are limited but not to the point where the government cannot execute its duties set forth in the Constitution. Therefore, Congress has the power to make all necessary and proper laws that are conducive toward those legitimate ends. The rule of interpretation thus laid down is what is deferred to in this case. There are no enumerated powers granting the establishment of banks or creating corporations, as these are among the powers implied in the Constitution. The Court affirmed the ruling and upheld once and for all the constitutionality of paper currency as legal tender.

When the framers left out the phrase "and emit bills" from the prohibited powers of Congress, they left it up to future generations to determine whether the power to issue paper money was best for the nation. If they found it important enough to eliminate titles of nobility, certainly they did not overlook a prohibition on printing paper currency. The men at the Philadelphia convention may not have foreseen plastic money, but they included flexibility into the Constitution to provide for a means of exchange that can adapt to it whatever the future may bring.

Kathleen C. Simmons

See also: Bureau of Engraving and Printing; Money; *Vol. 1: Foundations of Economics:* Supreme Court; United States Mint

Further Reading

Cornell University Law School, Legal Information Institute. n.d. "The legal-tender cases." *Juilliard v. Greenman, 110 U.S. 421* (4 S.Ct. 122, 28 L.Ed. 204). http://www.law.cornell.edu/supremecourt/text/110/421 (accessed November, 2016).

Newcomb, Simon. n.d. Lesson VI: The value of paper money. In *The ABC of Finance* [1877]. The Online Library of Liberty. http://oll.libertyfund.org/?option=com_staticxt&staticfile=show.php%3Ftitle=307&chapter=140189&layout=html&Itemid=27 (accessed November, 2016).

United States Supreme Court. n.d. *Juilliard v. Greenman*, 1884. https://supreme.justia.com/cases/federal/us/110/421/case.html (accessed November, 2016).

U.S. Department of the Treasury. n.d. About 1800–1899. http://www.treasury.gov/about/history/Pages/1800-1899.aspx (accessed November, 2016).

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KAHN, ALFRED

Born: October 17, 1917, in Paterson, New Jersey; Died: December 27, 2010, in Ithaca, New York; Nationality: American; Professional Interests: regulation and deregulation; Major Works: *The Economics of Regulation: Principles and Institutions* (1970), *Lessons from Deregulation: Telecommunications and Airlines after the Crunch* (2004).

Alfred Kahn led the U.S. economy of the late 20th century into the era of deregulation. Kahn's career was highlighted by his efforts to deregulate what he considered the anticonsumer regulated industries of the U.S. economy. Appointed by President Jimmy Carter to head the Civil Aeronautics Board, Kahn was instrumental in deregulating the airline industry. Kahn's deregulation of the airline industry transformed air travel into a form of mass transportation with discount prices affordable to most everyone. Kahn was known for continually extolling the virtues of simpler wording to explain the law or economics. Kahn died in 2010.

Alfred Edward Kahn was born on October 17, 1917, in Paterson, New Jersey. The son of Russian Jewish immigrants, Kahn graduated from New York University when most people his age (18) were graduating from high school. He continued his graduate studies in economics, beginning at New York University and ending at Yale, where he earned his doctorate in 1942. Kahn began his career in public service in the U.S. Justice Department, Antitrust Division. He served in the army during World War II.

Following World War II, he served as chair of the Economics department at Ripon College, before moving on to Cornell in 1947. At Cornell he returned to the department chair role for the Economics department. He eventually became dean of the College of Arts and Sciences and a member of the Cornell board of trustees.

Kahn authored many books and articles in his academic career. His classic work was *The Economics of Regulation: Principles and Institutions*—a two-volume set in which he brought economics to the forefront of exploring the costs and benefits or regulation. Many of his works focused on the deregulation of industries.

Kahn reentered public service in 1974 when he chaired the New York Public Service Commission. Alfred Kahn was responsible for utility companies charging different rates for different times or seasons. Using marginal analysis theory, utility companies changed their rate charge practices in order to charge higher rates during peak times when costs were higher. This created incentives for customers to pursue alternatives and to use power during off-peak times when rates were lower. As a result, the utility companies earned revenues based on costs and consumers saved by using utilities during lower-cost, and consequently lower-priced, periods. Kahn is also credited with the telephone industry eliminating free telephone directory assistance. He also served the private sector as an expert on regulations and deregulation in the electricity, transportation, telecommunications, and utility industries.

His notoriety as a public servant reached national status when he joined the Carter administration as President Carter's economic adviser on inflation in 1978. With inflation rates as high as ever in the United States, President Carter appointed Kahn to head his Council on Wage and Price Stability. Tabbed the "inflation czar," Kahn called the job thankless and in 1980 he resigned after only 15 months in the position. He had even lamented that the only reason he was not fired was that no one else would take the job.

President Carter appointed Kahn as head of the Civil Aeronautics Board (CAB) in 1977. At the time of his appointment, the airlines industry was regulated from prices and routes down to the meals that would be served on a flight. This structure of the airline industry was viewed as very much to benefit the airlines at a cost to the consumers. Kahn put his experience in economics and deregulation to work on the industry. During 1977 and 1978, Kahn and the CAB deregulated the airline industry, freeing up routes, carriers, and prices.

Under Kahn's leadership, the CAB did such a good job in deregulating the airline industry that in 1978 the board ceased to exist. Kahn has been labeled the "father of the airline deregulation," a label he did not cherish.

While Kahn took his work very seriously, he was noted for the quick quip or quote. He once used the word "depression" when describing a potential scenario for the U.S. economy. Being ever the economist and not the politician, he was admonished for using the "d" word. So when the same topic came up again, he changed the "d" word to "banana." However, after objections from the banana industry, addressing the same issue a third time he changed "banana" to "kumquat." He was also known for sarcastically asking if an economic or law statement could be made more complicated. This attitude played directly into his continual efforts to have legal and economic policies explained in simple, understandable language.

In 1980, Kahn returned to Cornell, continuing his role as dean of Cornell's College of Arts and Sciences. He was also the Robert Julius Thorne Professor Emeritus of Political Economy. In 1997, he received the L. Welch Pogue Award for Lifetime Achievement in Aviation.

Alfred Kahn died on December 27, 2010, in Ithaca, New York.

David A. Dieterle

See also: Fiscal Policy; Galbraith, John Kenneth; Macroeconomics; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; Marginal Analysis; *Vol. 3: Microeconomics:* Becker, Gary; Stigler, George

Further Reading

Kahn, Alfred. 1970. *The economics of regulation: Principles and institutions.* Cambridge, MA: MIT Press.

Kahn, Alfred. 1993. *Great Britain in the world economy.* Surrey, UK: Ashgate.
Kahn, Alfred. 1998. *Letting go: Deregulating the process of deregulation: Temptation of the kleptocrats and the political economy of regulatory disingenuousness.* East Lansing: Michigan State Univ. Institute of Public Utilities.
Kahn, Alfred. 2002. *Whom the gods would destroy, or how not to deregulate.* Washington, DC: American Enterprise Institute for Public Policy Research.
Kahn, Alfred. 2004. *Lessons from deregulation: Telecommunications and airlines after the crunch.* Washington, DC: Brookings Institution Press.
Land, Susan. 2010. Economist Alfred Kahn, "Father of airline deregulation" and former presidential adviser, dies at 93. *Cornell Chronicle*, December 27. http://news.cornell.edu/stories/Dec10/KahnObit.html (accessed March 15, 2011).
McCraw, Thomas K. 1984. *Prophets of regulation: Charles Francis Adams, Louis D. Brandeis, James M. Landis, Alfred E. Kahn.* Cambridge, MA: Harvard Univ. Press.
Russell, George. 1986. Flying among the merger clouds. *Time*, September 29. http://www.time.com/time/magazine/article/0,9171,962408-3,00.html (accessed March 15, 2011).
Swardson, Anne. 2010. Alfred Kahn, father of 1970s airline deregulation, dies at 93. *Bloomberg News*, December 10. www.bloomberg.com/news/2010-12-28/alfred-kahn-who-oversaw-airline-industry-break-up-for-carter-dies-at-93.html (accessed March 15, 2011).

KALDOR, NICHOLAS

Born: May 12, 1908, in Budapest, Hungary; Died: September 30, 1986, in Papworth Everard, Cambridgeshire, England; Nationality: Hungarian, naturalized English citizen; Professional Interests: political economy, Keynesian economic theory, development economics; Major Work: *An Expenditure Tax* (1955).

Nicholas Kaldor was one of the leading economists of the Cambridge School, a school of thought that promoted the Keynesian economic philosophy. He was also one of the few economists who changed views at the height of his career. Once an Austrian at the London School of Economics, he converted to Keynesian economic theory once the general theory emerged. While a proponent of the Austrian School he was a contributor to equilibrium theory and capital, but focused on welfare economics. Once a Keynesian, he altered his efforts to rates of interest and dynamics of speculation and the business cycle. Kaldor was known for his debate with Friedrich von Hayek. Kaldor died in 1986.

Nicholas Kaldor was born on May 12, 1908, in Budapest, Hungary, and attended the Model Gymnasium in Budapest. He began his study of economics at the University of Berlin. He graduated from the London School of Economics in 1930. In 1934, Kaldor became a naturalized citizen of England. He began his career as a lecturer at the London School of Economics in 1938. Kaldor moved his family to Cambridge during World War II and began a tenure with the National Institute of Economic and Social Research. In 1947 he moved once again, this time to Geneva, Switzerland, to direct research and planning at the Commission of Europe. In 1949, he returned to England to take a position of lecturer in the economics faculty at King's College of the University of Cambridge, where he remained until his retirement as professor in 1966.

Kaldor began his economics studies at the London School of Economics and the Austrian School. However, once John Maynard Keynes published his general theory, Kaldor became one of the theory's most ardent supporters, both in his development of economic theory and in his publications. He created the growth theory that became the main approach of the Cambridge School of economic thought. Kaldor's growth approach was the foundation of future economic philosophy for the neo-Ricardian and neo-Keynesian economic philosophies. As a leading voice for the new economic philosophy, Kaldor's focus shifted to the areas of growth theory and Thorstein Veblen's theory of accumulation, and he was an unwavering critic of neoclassical economics.

Kaldor developed or was very influential in the development of several postwar economic theories. Following World War II, Kaldor shifted his professional focus once again to the development of developing countries and postwar reconstruction. As a consultant to several developing countries, Kaldor concentrated on growth, monetarism, equilibrium theory, and taxation. In 1955 Kaldor wrote *Expenditure Tax,* the early efforts proposing a value-added tax. His tax structure was implemented by two of his clients: India and Sri Lanka. Kaldor's tax plan was the basis for a value-added tax. In England, Harold Wilson's Labour government implemented such a tax under the term "selective employment tax." This tax was designed to tax service-sector employment to subsidize the manufacturing sector. While the tax did not survive political scrutiny, it set the stage for future efforts to create a value-added tax base. Kaldor was also an economic policy adviser to the United Nations.

He was well known for the Kaldor-Hicks efficiency theory he developed with John Hicks in 1939, comparing the welfare of other countries. He was credited with the term "convenience yield" relative to commodity markets. In 1964, he addressed the issue of reserve currency with "commodity reserve currency" with Hart and Tinbergen. While his contributions to economics were in several different fields, his legacy is in his contributions to developing the Cambridge School and the later post-Keynesian and neo-Ricardian schools of economic thought.

In 1974, Kaldor was awarded a peerage as the City of Cambridge's Lord Kaldor of Newham. Kaldor retired in 1975, although he continued to lecture and provide advice on economic matters.

Nicholas Kaldor died on September 30, 1986, in Papworth Everard, Cambridgeshire, England.

David A. Dieterle

See also: Robinson, Joan; Taxes; *Vol.1: Foundations of Economics:* Hayek, Friedrich von; Keynes, John Maynard; Keynesian Economics; *Vol. 3: Microeconomics:* Veblen, Thorstein

Further Reading

Harcourt, G. C. 1988. Nicholas Kaldor, 12 May 1908–30 September 1986. *Economica* 55: 159–70.

Kaldor, Nicholas. 1955. *An expenditure tax.* London: Allen & Unwin.

Kaldor, Nicholas. 1960. *Essays on economic stability and growth.* Tampa, FL: Free Press.
Kaldor, Nicholas. 1960. *Essays on value and distribution.* Tampa, FL: Free Press.
Kaldor, Nicholas. 1966. *Causes of the slow rate of economic growth of the United Kingdom: An inaugural lecture.* Cambridge, UK: Cambridge Univ. Press.
Kaldor, Nicholas. 1978. *Further essays on applied economics*. Teaneck, NJ: Holmes & Meier.
Kaldor, Nicholas. 1982. *The scourge of monetarism.* Oxford, UK: Oxford Univ. Press.
Kaldor, Nicholas. 1983. Keynesian economics after fifty years. In *Keynes and the modern world*, David Worswick and James Trevithick, eds., 1–48. Cambridge, UK: Cambridge Univ. Press.
Kaldor, Nicholas. 1985. *Economics without equilibrium: Arthur M. Okun memorial lectures, Yale University.* Armonk, NY: M.E. Sharpe.
Kaldor, Nicholas. 1996. *Causes of growth and stagnation in the world economy*. Cambridge, UK: Cambridge Univ. Press.
Kaldor, Nicholas, A. G. Hart, and J. Tinbergen. 1964. The case for a commodity reserve currency. United Nations Conference on Trade and Development (January).
King, John Edward. 2009. *Nicholas Kaldor.* Hampshire, UK: Palgrave/Macmillan.
Nicholas Kaldor Memorial Issue. 1989. *Cambridge Journal of Economics* 13 (1).
Setterfield, Mark. 1997. History versus equilibrium: Nicholas Kaldor on historical time and economic theory. *Cambridge Journal of Economics* 21(3): 365–78.
Targetti, F. 1992. *Nicholas Kaldor: The economics and politics of capitalism as a dynamic system.* Oxford, UK: Clarendon Press.
Thirlwall, A. P. 1987. *Nicholas Kaldor.* New York: New York Univ. Press.
Turner, Marjorie Shepherd. 1993. *Nicholas Kaldor and the real world.* Armonk, NY: M. E. Sharpe.

KALECKI, MICHAL

Born: June 22, 1899, in Lodz, Poland; Died: April 18, 1970, in Warsaw, Poland; Nationality: Polish; Professional Interests: macroeconomics, political economy; Major Work: *Proba teorii koniunktury* [An essay on the theory of the business cycle] (1937).

Michal Kalecki is referred to as one of the unsung heroes of macroeconomics. He predated Keynes by three years in writing about the principles commonly known as the Keynesian theory. Both economists worked independently but came to the same conclusion—that the capitalist economy is demand determined—and both of them advocated government intervention to prevent down cycles in the economy. Kalecki did not receive earlier recognition, because his essay was published in Polish and not immediately translated to English. Consequently, the English-speaking world was unaware of his writings. Kalecki died in 1970.

Michal Kalecki was born June 22, 1899, in Lodz, Poland. Kalecki was a self-taught economist. He finished a bachelor's degree in 1917 and entered the University of Warsaw to study civil engineering, completing only one year because of military duty from 1918 to 1921. Upon leaving the military, he entered the Polytechnic of Gdansk and continued there until 1924. Negative family financial circumstances forced him to leave the Polytechnic before finishing his degree.

After five years of using his mathematical genius at private companies and writing for newspapers on topics in economics, in 1929 Kalecki began work as an economist with the Research Institute of Business Cycle and Prices (RIBCP). It was at the RIBCP in 1933 that Kalecki wrote his most famous paper concerning the theory of the business cycle. In 1937 he quit the RIBCP and left Poland.

From 1940 to 1945 during World War II, Kalecki was employed bythe Oxford Institute of Statistics (OIS) in England, writing reports for the British government. After leaving the OIS, he traveled and worked in Paris and Montreal. In July 1946, he returned to Poland to head the Central Planning Office of the Ministry of Economics but left after several months. He then was employed by the United Nations Secretariat in the economics department. He again returned to Poland in 1957, becoming the chairman of the Committee for Perspective Planning. His input was basically rejected, and he left the position in 1959.

After 1959, he focused on research and teaching, particularly on the economies of developing countries. His teaching career included appointments at the University of Oxford, the University of Cambridge, the London School of Economics, and the Warsaw School of Economics. Michal Kalecki was an adviser to the governments of Cuba, India, Israel, Mexico, and Poland.

In his 1933 work, *Proba teorii koniunktury* [An essay on the theory of the business cycle], Kalecki arrived at conclusions similar to those that John Maynard Keynes put forth in *The General Theory of Employment, Interest and Money* in 1936. Kalecki published three years before Keynes.

Much like Keynes, Kalecki was an advocate of full employment and a more equitable distribution of wealth. However, he disagreed with Keynes's view that capitalist economies are able to realize these goals. Kalecki held to a democratic, decentralized socialism. As a political economist, he developed a model of a "political business cycle." He favored central planning rather than laissez-faire capitalism. He was a reformer who favored socialism, including government involvement in economic planning.

Kalecki and Keynes came from different schools of economic thought but arrived at the same conclusion. Kalecki's theory was based on Marxism. Keynes's theory was based on Marshallian theory. Both economists began their investigations seeking the cause of massive unemployment during the Great Depression. Kalecki's contributions helped create American post-Keynesian theory.

Kalecki was not fully appreciated by his fellow economists during his lifetime. There has been a renewal of interest in his writings, with more of them being translated into English and published. By the time of his death in 1970, Kalecki's contributions to economic theory were enormous, although it appears that even Kalecki himself did not fully appreciate his contributions to macroeconomic theory. In fact, he once stated that his influence was limited only to Israel, which did exactly the opposite of what he recommended.

Michal Kalecki died on April 18, 1970, in Warsaw at the age of 70.

Jean Kujawa

See also: Macroeconomics; Unemployment; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; Keynes, John Maynard; Marx, Karl

Further Reading

Feiwel, George. 1975. *The intellectual capital of Michal Kalecki: A study in economic theory and policy.* Knoxville: Univ. of Tennessee Press.

Kalecki, Michal. 1937. *Proba teorii koniunktury* [An essay on the theory of the business cycle]. Warsaw: Research Institute of Business Cycles and Prices.
Kalecki, Michal. 1937. A theory of the business cycle. *Review of Economic Studies* 4 (2): 77–97.
Kalecki, Michal. 1939. *Essays in the theory of economic fluctuations.* New York: Farrar & Rinehart.
Kalecki, Michal. 1972. *Essays on developing economies.* Brighton, UK: Harvester Press.
Kalecki, Michal. 1972. Introduction to the theory of growth in a socialist economy. In *Selected essays on the economic growth of the socialist and the mixed economy*, 1–118. Cambridge, UK: Cambridge Univ. Press.
Kalecki, Michal. 1972. *Selected essays on the economic growth of the socialist and the mixed economy.* Cambridge, UK: Cambridge Univ. Press.
Kalecki, Michal. 1976. The problem of financing economic development. In *Essays on developing economies,* 1–22. Brighton, UK: Harvester Press.
Kalecki, Michal, and Jerzy Osiatynski. 1993. *Collected works of Michal Kalecki.* Vol. 5, *Developing economies.* Oxford, UK: Clarendon Press.
Kalecki, Michal, and Ignacy Sachs. 1966. Forms of foreign aid: An economic analysis. *Social Science Information* 5 (1): 21–44.
Robinson, Joan. 1976. Michal Kalecki: A neglected prophet. *New York Review of Books*, March 4. http://www.nybooks.com/articles/archives/1976/mar/04/michal-kalecki-a-neglected-prophet/ (accessed September 30, 2011).
Sadowski, Zdzislaw, and Adam Szeworski. 2004. *Kalecki's economics today*. New York: Routledge.
Sawyer, Malcolm. 2000. *The legacy of Michal Kalecki.* Northampton, MA: Edward Elgar.

KELO V. CITY OF NEW LONDON, CONNECTICUT

In the United States, it is customary to think that home ownership is secure. Private property rights give good reason to trust in this assurance. In *Kelo v. New London*, 545 U.S. 469 (2005), however, the question of how secure individuals are in their right to ownership of private property was brought into question. In this case, the government's power to take private property through eminent domain was granted to a private corporation, which in turn condemned individuals' homes and leased the property to private businesses with the intended purpose of economic revitalization for the area at large.

The Supreme Court's responsibility in this case was to determine whether the reason private property was taken from individuals was within the meaning of the Fifth Amendment to the U.S. Constitution. In a close vote, the Court indicated that, indeed, New London did not violate the takings clause of the Fifth Amendment.

The majority opinion interpreted economic development as a traditional and accepted function of government. Quoting precedent cases, the majority of justices embraced acquiescence to local government—that is, the ability to have pragmatic knowledge of what was appropriate to area economies—rather that courts having such insight. However, much can be inferred from the minority opinion as well. Justice Sandra Day O'Connor foreshadowed why this case was destined to have such a lasting imprint on the American free enterprise system and its underlying premise of private property and rule of law. She warned that the ghost of condemnation would haunt all property, and that not much would prevent a government entity from replacing a single home, farm, or small business with a larger, more prosperous and tax-generating strip mall or manufacturing plant. It is one thing to give property to a railroad or utility that will be used by the public, but to give it to another private entity to create jobs and pay higher amounts of taxes is another thing altogether.

Case Summary

New London is a city in Connecticut midway between Boston and New York. It was once the second-largest whaling port in the world, and currently it is home of the United States Coast Guard Academy. New London experienced significant economic decline during the 1980s and 1990s. During this time, the government closed the Naval Undersea Warfare Center, a submarine industry that employed a large number of the area's working population. In 1990, a state agency declared New London a distressed municipality.

In 1998, a pharmaceutical company announced the development of a global waterfront research facility within the area of New London. In 2000, acting through a nonprofit private entity called the New London Development Corporation (NLDC), the city of New London adopted a wide-ranging redevelopment plan. The plan focused on a 90-acre development area adjacent to the new global waterfront research facility. The NLDC purchased the majority of the land from property owners. However, 15 property owners did not want to sell. Therefore, by means of the authority granted by the city of New London and state law, NLDC used the power of eminent domain (the ability to take private property for public use) to acquire the remaining property.

The NLDC began taking these properties through condemnation (the process of taking private property through the power of eminent domain), which is generally understood to be for public use, such as building a school, road, or a utility. The power of eminent domain allows governmental entities to take properties from homeowners as long as the homeowners are granted due process and just compensation. The Fifth Amendment to the U.S. Constitution, as well as the Connecticut State constitution, authorizes the power of eminent domain. Condemnation is not unusual where the property being taken is deteriorated or in poor condition. This was not the case in New London. Instead, these maintained homes were to be taken by the NLDC, a private entity, for the benefit of private developers in an effort to create jobs and increase tax revenue for the city of New London. The NLDC would own the land within the development area and would contract leases with private developers, which would be required to comply with the development plan that had been approved by city and state governments. In summary, the government's power to take private property was in the hands of a private corporation, which then leased this property to private businesses for them to carry out a plan with the intention of benefiting the public at large.

Susette Kelo was among the owners whose property was condemned by the NLDC. These property owners sued New London in state court to stop the city from seizing their property. The petitioners alleged that the taking of their properties violated the public use requirement of the Fifth Amendment. They argued that an economic redevelopment project does not qualify as public use, because private parties will own most of the condemned property. The Connecticut Supreme Court held that economic development was a valid "public use" because the local legislature, when granting the power of eminent domain, determined the "taking" was reasonably necessary to implement a plan that increased tax revenue and created jobs, and would improve the neighboring economy. The Connecticut Supreme Court upheld the legislature's rationale and ruled in favor of New London. The homeowner petitioners appealed to the U.S. Supreme Court and were granted *certiorari* (a request by the Supreme Court to the lower court for the files of the case to be sent up for review).

The petitioners claimed that the decision by the Connecticut Supreme Court to uphold the NLDC's use of eminent domain as public use could not include the development of land for private economic purposes. Furthermore, the petitioner argued that because the character of these takings would not produce immediate public benefit, the Court should establish a more inquiring test that entailed some degree of realistic assurance that the condemned properties would actually be put to public use. This could be demonstrated through contracts or state guarantees, among other things.

In 2004, *Kelo v. City of New London* was argued in the U.S. Supreme Court. In 2005, the Rehnquist Court returned a 5–4 opinion delivered by Justice John Paul Stevens in favor of New London. The majority held that the city's taking of private property to sell for private development qualified as a "public use" within the meaning of the takings clause of the Fifth Amendment. The Court held that New London was not taking the land to benefit a certain group of private individuals, but rather to benefit the community as a whole. As long as a clear economic development plan was followed, the process did not violate the Constitution. The majority opinion stated that this expansive interpretation of public use as public purpose was inferred in the Fifth Amendment and did not require a literal interpretation. The majority opinion explained that among other things, promoting economic development is a time-honored and accepted function of government.

In the minority opinion, Justice Sandra Day O'Connor stated that the Fifth Amendment's takings clause was violated in the New London case. She said there was no interpretation except the literal application of the words "public use." In addition, the minority opinion expressed the belief that taking a private citizen's property to sell to private investors was not for "public use" but rather for corporate profit. In Justice O'Connor's opinion, by the Court ruling in favor of New London, the citizen lost any effectual check on the power of eminent domain.

Kathleen C. Simmons

See also: Property Rights; Public Goods; Taxes

Further Reading

Benedict, Jeff. 2009. *Little pink house: A true story of defiance and courage*. New York: Grand Central Publishing.

Bill of Rights Institute. 2005. *Kelo v. New London* (2005). http://billofrightsinstitute.org/resources/educator-resources/lessons-plans/landmark-cases-and-the-constitution/kelo-v-new-london-2005/ (accessed November 30, 2016).
Chicago-Kent College of Law at Illinois Tech. n.d. *Kelo v. New London* (Audio of oral arguments and majority opinion of the case). Oyez. http://www.oyez.org/cases/2000-2009/2004/2004_04_108#chicago (accessed November 30, 2016).
Chicago-Kent College of Law at Illinois Tech. n.d. *Kelo v. New London* (Transcript of majority opinion and oral arguments of the case). Oyez. http://www.oyez.org/cases/2000-2009/2004/2004_04_108#chicago (accessed November 30, 2016).
Cornell University Law School, Legal Information Institute. n.d. *Kelo v. New London*. http://www.law.cornell.edu/supct/html/04-108.ZS.html (accessed November 30, 2016).
Stevens, John Paul (SC Justice, Ret.). 2011. Albritton Lecture: Kelo, Popularity and Substantive Due Process. Univ. of Alabama School of Law, Tuscaloosa, November 16. http://www.supremecourt.gov/publicinfo/speeches/1.pdf (accessed November 30, 2016).
United States Supreme Court. n.d. *No. 04-108, Susette Kelo, et al., Petitioners v. City of New London, Connecticut, et al*. Proceedings and Orders. http://www.supremecourt.gov/Search.aspx?FileName=/docketfiles/04-108.htm (accessed November 30, 2016).
United States Supreme Court. n.d. *Susette Kelo, et al. Petitioners v. No. 04-108 City of New London, Connecticut, et al*. (Transcripts of oral arguments of the case). http://www.supremecourt.gov/oral_arguments/argument_tran scripts/04-108.pdf (accessed November 30, 2016).

KYDLAND, FINN

Born: December 1, 1943, in Algard, Norway; Nationality: Norwegian; Professional Interests: business cycles, monetary policy, fiscal policy, labor economics, Nobel Prize (2004); Major Works: *Inflation Persistence and Flexible Prices* (2001), "Argentina's Recovery and 'Excess' Capital Shallowing of the 1990s" (2002), "Inflation Persistence and Flexible Prices" (with Robert D. Dittmar and William T. Gavin) (2005).

Finn Kydland is a notable economist whose primary interests are business cycles, monetary and fiscal policies, and labor economics. Kydland was awarded the 2004 Nobel Prize in Economics with his former adviser and fellow colleague, Edward C. Prescott. Their work in macroeconomics, particularly the time consistency of economic policy and the driving forces behind business cycles, has influenced the monetary and fiscal policies of several governments, including the United Kingdom and New Zealand, and has helped to encourage the independence of many central banks.

Finn Erling Kydland was born on a farm in Algard, Rogaland County, Norway, on December 1, 1943. He was the only pupil in his elementary school full of farm children to go past elementary school. At 15, he left for Bryne and rented a room to go to Rogaland, the closest high school. He received high grades, but originally the Norwegian School of Economics and Business Administration (NHH) rejected him. He taught mathematics to sixth and seventh graders while studying for a supplementary exam in economics, law, and business correspondence in English, German, and French. The following year, he attended NHH, receiving his BS in 1968.

He then attended Carnegie Mellon University in Pittsburgh, where he obtained his PhD in 1973. Kydland served as a professor of economics at NHH until 1978. In 1978, he taught at the Tepper School of Business of Carnegie Mellon University until 2004.

Kydland completed his earliest works, on economic fluctuations, while a student at the Graduate School of Industrial Administration (GSIA). There he studied under future Nobel laureate Robert Lucas Jr., who received the Nobel Prize for "Expectations and the Neutrality of Money," a paper he developed while teaching a class Kydland had taken. Kydland's first paper, "Duality in Fractional Programming," combined shipbuilding and mathematical programming and was published in *Naval Research Logistics Quarterly*. His second paper continued on with dual prices in conjunction with hierarchical linear programs and was published in *Management Science*. Kydland claimed that if the right instruments were assigned to the right targets, the economy would function quite well. If the target was incorrect, then problems would result and the economy would not function properly.

In Kydland's view, fiscal and monetary policymakers have different goals and as a consequence the target variables of the objectives function with different relative weights. Kydland saw fiscal policymakers as leaders and monetary policymakers as secondary. His theory was innovative because it was an alternative to the symmetric noncooperative solution developed earlier by John F. Nash. The theory laid the foundations for his future work with Prescott.

Together, Kydland and Edward C. Prescott shaped dynamic economics by explaining how supply shocks are leading reasons for economic fluctuations. They were also able to show why the best government economic policies are often not implemented consistently over time. This helped them to explain microeconomic, supply-side influences on the business cycle, integrating theories of business cycles and of long-term economic growth. Kydland and Prescott showed, for example, that political commitments to keep inflation low can lead investors to expect low inflation and unemployment rates. If policymakers decide, to the contrary, to reduce interest rates in order to take advantage of short-term gains in employment rates and general prosperity, they risk losing credibility. In fact, economic conditions may even worsen because of the discretionary policy.

Kydland's "Inflation Persistence and Flexible Prices" was published in 2005. His thesis is that when central banks follow an interest rate rule, then inflation will likely persist, even when prices are fully flexible. He argues that inflation persistence may result from any shock, whether persistent or not. Hence, in equilibrium, the real driver behind the dynamics of inflation is the evolution of the spread between the real interest rate and the central bank's target.

Finn Kydland has been a fellow in the Econometric Society since 1992. He received the John Stauffer National Fellowship from Hoover Institution in 1982–1983 and the Alexander Henderson Award of Carnegie Mellon in 1973. He is a member of the Norwegian Academy of Science and Letters, and he received the 2004 Nobel Prize in Economics. Since 2004, Kydland has served as a faculty member of the University of California, Santa Barbara, and has founded the Laboratory for Aggregate Economics and Finance. He is a senior research fellow at the IC2

Institute at the University of Texas, Austin, and is an adjunct professor at the NHH. Kydland also has served as a research associate for the Federal Reserve Banks of Dallas, Cleveland, and St. Louis.

Samantha Lohr

See also: Fiscal Policy; Inflation; Lucas, Robert, Jr.; Monetary Policy; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics; *Vol. 3: Microeconomics:* Business Cycle; Labor Economics; Nash, John

Further Reading

Backus, David, Patrick J. Kehoe, and Finn E. Kydland. 1992. Relative price movements in dynamic general equilibrium models of international trade. Working Paper 4243. National Bureau of Economic Research. http://www.nber.org/papers/w4243.pdf (accessed November 30, 2016).

Badge, Peter. 2008. Professor Dr. Finn E. Kydland. In *Nobel Faces: A Gallery of Nobel Prize Winners*. New York: John Wiley & Sons.

Dittmar, Robert D., William T. Gavin, and Finn E. Kydland. 2005. Inflation persistence and flexible prices. *International Economic Review* 46 (1): 245–61.

Kydland, Finn E. 1995. *Business cycle theory.* London: Edward Elgar.

Kydland, Finn E., and Edward C. Prescott. 1977. Rules rather than discretion: The inconsistency of optimal plans. *Journal of Political Economy* 85: 473–91.

Kydland, Finn E., and Edward C. Prescott. 1982. Time to build and aggregate fluctuations. *Econometrica* 50: 1345–70.

Kydland, Finn E., and Edward C. Prescott. 1994. Business cycles: Real facts and a monetary myth. In *The rational expectations revolution: Readings from the front* line, ed. Preston J. Miller, 307–34. Cambridge, MA: MIT Press.

Kydland, Finn E., and Carlos Enrique Zarazaga. 2002. Argentina's recovery and "excess" capital shallowing of the 1990s. Federal Reserve Bank of Dallas. http://dallasfed.org/assets/documents/research/claepapers/2002/lawp0201.pdf (accessed April 12, 2012).

NobelPrize.org. 2004. Finn E. Kydland—Biographical. http://www.nobelprize.org/nobel_prizes/economics/laureates/2004/kydland-autobio.html (accessed April 12, 2012).

Vane, Howard R. and Chris Mulhearn. 2010. *James Tobin, Franco Modigliani, Finn E. Kydland and Edward C. Prescott (Pioneering Papers of the Nobel Memorial Laureates in Economics)*. Cheltenham, UK: Edward Elgar.

L

LABOR FORCE

The *labor force* is made up of persons at least 16 years of age who are willing and able to work. It excludes those who are incapable of working and those not looking for work, as well as those in the armed forces or those who are institutionalized. The labor force is directly affected by the economy and economic conditions.

During the Great Depression, the unemployment rate was as high as 25 percent, as millions of people were out of work. Yet they continued to seek employment, and so they were counted as part of the labor force. Many workers had given up and stopped looking for work. They were labeled "discouraged workers," and because they stopped looking for employment they were not counted as part of the labor force. The involvement of the United States in World War II increased the demand for workers, stimulated the economy, and increased the size of the labor force, as many people began looking for employment again.

One significant impact on the U.S. labor force was the baby boom generation coming of age. In the 1970s, there was a marked increase in the labor force as the baby boomers reached working age and began to look for work. In the 2000s, the United States experienced a reversal and decline in the labor force with the aging of the baby boomer population. As the baby boomers retire, there will be significant effects on the labor force and a marked decrease in the growth of the labor force. It is estimated by the year 2020, people 55 years of age and older will account for less than 25 percent of the labor force (Toossi 2006).

The number of women in the labor force has also fluctuated over the years. In the 1950s, the percentage of women in the labor force was significantly low. Men had returned from World War II, and as a result, women went back into the home after working in factories producing war-related goods. Women's labor participation rates increased steadily in the 1970s and 1980s and led to a growth in gross domestic product (GDP). Women's labor force rates had leveled off by the end of the 1990s and fluctuated around 59 to 60 percent. It is anticipated that in the future, this rate will continue to decline and will be lower than that of men.

Those aged 24 to 54 have the highest labor participation rates (Toossi 2006), and are considered prime-aged workers. This group generally has labor force rates of 80 percent or higher, and it is expected that this trend will continue in the future. (Labor participation rate is a measure of the labor force as a percentage of the total population at least 16 years of age.)

The increasing ethnic and racial diversity of the United States is expected to account for increases of these groups within the labor force. In the future, Asians and Hispanics are expected to increase the population, as well as the labor force and labor participation rate. Both Asians and Hispanics have high labor participation rates that will add to the labor force in the coming years. Blacks will also continue to add to the labor force with higher birth rates and high participation rates among women.

The Bureau of Labor Statistics (BLS) publishes labor force projections every two years, assuming full employment at 5 percent unemployment (or 95 percent employment). These reports estimate labor force participation rates based on the age, race/ethnicity, and gender of the population. Demographics and changes within the population affect the labor force as well as the types of unemployment the economy is experiencing. It appears that changes within the labor force are a direct result of a changing population. The BLS also analyzes the growth rate of the civilian noninstitutional population, which seems to have maintained a steady growth rate of around 1 percent.

In the 1980s, the term *discouraged worker* was revised to mean someone who has stopped looking for work because the person believes no jobs are available. Discouraged workers are not counted in the nation's unemployment rate; if they were, unemployment rates would be slightly higher than the published rates provided by the BLS. Age, gender, and race play a factor in how long a person remains a discouraged worker before trying to reenter the workforce.

The business cycle and cyclical changes within the economy also impact the labor force. As the economy expands, the labor force increases, and as the economy declines, the labor force decreases.

Today, the labor force is still an indicator of economic health and growth. In the future, the labor force participation rate is expected to decrease due to the retirement of the baby boomers, lower fertility rates, and a decrease in immigrants.

Angela M. LoPiccolo

See also: Bureau of Labor Statistics; Discouraged Workers; Gross Domestic Product; Unemployment

Further Reading

Bureau of Labor Statistics. n.d. Databases, tables, & calculators by subject. http://www.bls.gov/data/ (accessed November 30, 2016).

Castilo, Monica D. 1998. Persons outside the labor force who want a job. *Monthly Labor Review* 121: 34–42.

Fullerton, Howard N., Jr. 1999. Labor force participation: 75 years of change, 1950–98 and 1995–2025. *Monthly Labor Review* 122: 3–12.

Toossi, Mitra. 2006. A new look at long-term labor force projections to 2050. *Monthly Labor Review* 129: 19–39.

Toossi, Mitra. 2011. A behavioral model for projecting the labor force participation rate. *Monthly Labor Review* 134: 25–42.

Toossi, Mitra. 2012. Projections of the labor force to 2050: A visual essay. *Monthly Labor Review* 135: 3–16.

LABOR FORCE PARTICIPATION RATE

The *labor force participation rate* (LFPR) measures the active portion of people in an economy's labor force. The *participation rate* refers to the group of individuals who are of working age and are either currently employed or actively seeking work. This is the civilian noninstitutional population that is ages 16 and over and is working or looking for work. This element is critical to the calculation of the unemployment rate, as it captures those workers who are steadily trying to obtain employment but are unable to secure a job. The *unemployment rate* is the ratio of the number of unemployed people to the sum of the number of employed and unemployed people, according to the Bureau of Labor Statistics survey.

The *labor force* is the compilation of both employed and unemployed persons. *Employed* persons are people who work for pay or profit, people who did at least 15 hours of unpaid work in a family-operated enterprise, and people who were temporarily absent from their regular jobs due to illness or vacation, or for other personal reasons. People are considered *unemployed* if they do not have a job, have actively looked for work in the prior four weeks, and are currently available for work. Unemployed workers also include those who may have been temporarily laid off from a job and are waiting to be recalled to that job. Just because someone receives Unemployment Insurance (UI) does not necessarily mean that person a part of the Unemployed classification.

Individuals not in the labor force include retirees, students, those who are the primary caregivers of children or other family members, and everyone else who is not working or not seeking work. An important category of Unemployed to consider when determining the LFPR is *discouraged workers*. These individuals are not in the labor force although they are available for work but they may or may not want to do so. These workers have looked for a job sometime within the past 12 months but were not counted as unemployed because they had not searched for work in the 4 weeks leading up to the survey responsible for reporting this data. This group of individuals is growing, as many college graduates finish college but spend quite some time looking for a job that uses their newly acquired skills.

Since the Great Recession of 2008, and the slow recovery afterward, there has been a sharp decline in the labor force. Some of the decrease may be a result of long-term demographic trends and other factors that had an impact on the LFPR prior to 2007. There has been a significant withdrawal of prime-age workers from the labor market that is unprecedented and may indicate a cyclical component that could reverse as the labor market recovery continues. If these workers return, it may offset some long-term effects and increase the participation rate. This could lead to an increase in the number of job-seekers and temporarily increase the of the unemployment rate. The LFPR had fallen to its lowest rate since 1978 at 62.7 percent.

The labor force decline was attributed mainly to the retirement rate of baby boomers and the expansion of social programs. Researchers believe the drop in the LFPR disguises exactly how many people are unemployed and are not accurately represented in the unemployment rate.

Amber Thomas

See also: Bureau of Labor Statistics; Labor Force; Unemployment; *Vol. 3: Microeconomics:* Labor Economics

Further Reading

Bengali, Leila, Mary Daly, and Rob Valletta. 2013. Will Labor force participation bounce back? *FRBSF Economic Letter*, May 13. Federal Reserve Bank of San Francisco. http://www.frbsf.org/economic-research/publications/economic-letter/2013/may/will-labor-force-participation-bounce-back/ (accessed November 30, 2016).

Bureau of Labor Statistics. 2015. Labor force statistics from the current population survey: Labor force characteristics. http://www.bls.gov/cps/lfcharacteristics.htm (accessed November 30, 2016).

Investopedia Staff. n.d. Participation rate. *Investopedia*. http://www.investopedia.com/terms/p/participationrate.asp (accessed November 30, 2016).

Peterson, Kim. 2014. Why are people leaving the workforce? *CBSMoneywatch*, October 6. http://www.cbsnews.com/news/why-are-people-leaving-the-workforce/ (accessed November 30, 2016).

LABOR PRODUCTIVITY

Labor productivity is considered to be a major economic indicator and a key determinant in defining a business or economy's success. *Labor productivity* is the measurement of output in relation to labor hours used in the production of a given output. Labor productivity measures the amount of real gross domestic product (GDP) produced by an hour of work. In more simple terms, labor productivity measures how efficient workers are relative to their output. Labor productivity is viewed from both a business standpoint and in terms of macroeconomy. To determine labor productivity, total output is divided by total productive hours.

GDP is generally used as the measure of total output. Labor productivity has been an accurate measurement of the U.S. economy's performance, remaining low during depressions and recessions and high during periods of economic growth. Interestingly, during the Great Recession labor productivity actually rose while GDP dropped significantly.

The Bureau of Labor Statistics produces labor productivity and costs measures for sectors of the U.S. economy. The Major Sector Productivity publishes both quarterly and annual measures of output per hour and unit labor costs for these sectors: U.S. business, nonfarm business, manufacturing, durable manufacturing, nondurable manufacturing, and nonfinancial corporate. These measurements are commonly used and cited by national media.

Businesses use labor productivity to justify the amount of money workers are earning to perform a job in relation to their output. From a business perspective, these measurements are used to make sure the business is performing at a rate that is competitive relative to its competition. This measurement can be useful for pinpointing a company's weak areas in terms of revenue and profits. Labor productivity can sometimes be improved through better equipment and technology. Increasingly popular methods of raising worker productivity are for companies to offer ongoing training and education and better work environments to increase overall performance. These offerings increase employee morale and make employees more committed to the company. Increased human capital through education, technology advances, and improved physical equipment increase labor productivity.

Labor productivity data is a key measure of output efficiency and standard of living. It is also used by countries to measure economic growth and to determine the amount of goods and services that can be anticipated from one hour of labor. A country's labor productivity is a function of technological innovation, labor resources, and capital investment.

Amber Thomas

See also: Labor Force; Labor Force Participation Rate; *Vol. 3: Microeconomics:* Labor Economics; Productivity

Further Reading

Bureau of Labor Statistics. n.d. Labor productivity and costs. http://www.bls.gov/lpc/ (accessed November 30, 2016).

Lister, Jonathan. n.d. What is productivity of labor? Chron. http://smallbusiness.chron.com/productivity-labor-17636.html (accessed November 30, 2016).

McGrattan, Ellen R., and Edward C. Prescott. 2012. The labor productivity puzzle. Working Paper 694. Federal Reserve Bank of Minneapolis. https://www.minneapolisfed.org/research/wp/wp694.pdf (accessed November 30, 2016).

LABOR UPRISINGS, 1936–1939

The 1930s was a decade of economic turmoil in the United States on all fronts. The National Labor Relations Act, or Wagner Act, named after Senator Robert Wagner of New York, was the cornerstone of President Franklin D. Roosevelt's New Deal social legislation. This act changed the very landscape of labor in the United States in hopes of avoiding widespread social unrest during the Great Depression. Roosevelt also hoped that higher wages would improve the economy, which had slipped into recession in 1936. The Wagner Act would usher in a wave of unionization in the steel, automotive, rubber, mining, and electrical industries. At the start of the 1930s, less than 10 percent of America's labor force was unionized; after the 1935 passage of the Wagner Act, the decade ended with 35 percent of the labor force unionized. The act changed the role of government in labor policy. The act declared that democracy must apply in the workplace and that the means to this democracy was the right of workers to organize and bargain collectively through employee representatives. The act established a National Labor Relations Board (NLRB) to implement and oversee the Wagner Act.

The labor movement had been stalled by 1935 when the Committee for Industrial Organization (CIO) was formed to take on U.S. companies. The CIO was in its embryonic stages of bringing together eight international unions under the guidance of John Lewis. It was clear that unions would have to move from a crafts model to an industrial model. Skilled and unskilled laborers would have to unite under one union. Solidarity was needed, which required opening membership to all workers of all races. Unions had rallied under Roosevelt in 1933, but strikes proved unsuccessful except against the mining industry. After much blood and violence, the miners won recognition for their union by the mining companies. They came together in solidarity, offering the core model to expand the CIO.

The highly concentrated rubber industry in Akron, Ohio, offered the best hope for unionization under the new Wagner Act. By the end of January 1936, small sit-down strikes hit Firestone, Goodrich, and Goodyear. Small victories were won on a departmental basis. By February, the union was ready for a more traditional strike at the heart of the anti-union movement: Goodyear. If Goodyear fell, so would the whole industry. The strike this time blew up at Goodyear Plant No. 2, where hundreds of picketers blocked the gates and prevented management replacements and supporters from entering and continuing production.

The new union lacked structure and discipline, but the strike dragged on for five weeks. Akron police tried to avoid violence but could do little else in the face of thousands of workers. Shanties were set up and called "Fort Roosevelt." Fistfights were common as replacement workers tried to cross picket lines, and the local police were overwhelmed by the daily fights that broke out. Both sides seemed to use force when they felt it necessary. Food was brought in by U.S. Postal trucks sent by management to feed strikebreakers, as only government vehicles were allowed through the picket lines.

Eventually, government negotiators broke the standoff, and the union claimed victory but did not achieve real recognition of the union. The five-week struggle ended with mixed results. The union did win a six-hour day, which was cause for much celebration in the streets of Akron. The strike had also destroyed support for the Industrial Assembly company union. The union victory at Goodyear boosted the membership in the United Rubber Workers union throughout Akron, and the union strengthened its resources by joining the CIO that summer. The battle for unionization moved to the Gadsden, Alabama, Goodyear plant, which became the next focus of the union fight. The CIO was strengthened, however, and would gain recognition in the rubber industry by 1940.

Within a year of the rubber strike, the Steel Workers Organizing Committee (SWOC) of the CIO evolved. On January 1, 1937, United States Steel accepted a one-year contract with the SWOC that included union recognition, a 40-hour workweek, time-and-a-half pay for overtime, holiday pay, a week's vacation, and a $5-a-day wage. Other industrialists thought United States Steel was selling out, and a national strike against the other companies raged in 1937. The strike reached a peak at Republic Steel's South Chicago Plant, where in one day 10 workers were killed (seven shot in the back) and more than 50 wounded by police; overall, 16 people died in the strike, 10 workers and 6 police. Strikers also died at plants. This bloody strike (far bloodier than the 1937 Homestead strike had been) ended in acceptance of the United Steel Workers union throughout the steel industry. Thus, in 1937, the first industrial union was fully developed.

The key to the union's success was a secret ballot to decide whether to unionize under the auspices of the NLRB. Since the passage of the Wagner Act, there have been more than 360,000 secret ballot elections. Initially, the NLRB had five members appointed by the president with Senate oversight. Early on, employers and the American Federation of Labor, which argued that CIO unions were favored, questioned the neutrality of the NLRB. Neutrality has proved difficult over the years. The Wagner Act had many critics; but in the end, the Supreme Court upheld it as constitutional in 1937 in *NLRB v. Jones & Laughlin Steel*. The argument over individual choice on whether to join the union continued, and President Roosevelt attempted to counterbalance the actions of some of the extreme activist union supporters who wanted to expand the intent of the act.

Quentin R. Skrabec Jr.

See also: National Labor Relations Act of 1935 (Wagner Act); National Labor Relations Board; National Labor Unrest, 1894; Taft-Hartley Act, 1947; *Vol. 1: Foundations of Economics:* Roosevelt, Franklin D.; *Vol. 3: Microeconomics:* Great National Railroad Strike, 1877; National Steel Strike, 1959; *Primary Document*: National Labor Relations Act of 1935 (Wagner Act)

Further Reading

Edsforth, Ronald. 2000. *The new deal: America's response to the great depression.* London: Blackwell.

Morris, Charles J. 2004. *The blue eagle at work: Reclaiming democratic rights in the American workplace.* Ithaca, NY: Cornell Univ. Press.

LAFFER, ARTHUR

Born: August 14, 1940, in Youngstown, Ohio; Nationality: American; Professional Interests: fiscal policy, political economy; Major Works: *Foundations of Supply-Side Economics* (with Victor A. Canto, Douglas H. Joines, Paul Evans, Marc A. Miles, and Robert I. Webb) (1983), *End of Prosperity: How Higher Taxes Will Doom the Economy—If We Let It Happen* (with Stephen Moore and Peter J. Tanous) (2008), *Return to Prosperity* (with Stephen Moore) (2010).

Arthur Laffer is one of the few economists whose work became a namesake and foundation for a whole school of economic thought. The supply-side philosophy of economics laid the foundation for what was to become the Reaganomics of the 1980s. Supply-side economics underscored that lower tax rates would generate higher tax revenues. With this thesis, Laffer influenced business, government, and academic worlds. Laffer served the United States in several positions, including consultant to Treasury Secretaries William Simon and George Shultz, chief economist for the Office of Budget and Management for George Shultz, and consultant to President Reagan's Economic Policy Advisory Board. Laffer was a founding member of the Congressional Policy Advisory Board. Arthur Laffer held academic positions at Pepperdine University, University of Southern California, and the University of Chicago.

Arthur Betz Laffer was born on August 14, 1940, in Youngstown, Ohio. After receiving his BA with a major in economics from Yale in 1963, he earned an MBA from Stanford University in 1965 and a PhD from Stanford in 1972. In 1967, he began his academic career by joining the faculty at the University of Chicago. In

1976, Laffer left for the University of Southern California where he was the Charles B. Thornton Professor of Business Economics. In 1984, he joined the faculty of Pepperdine University where he remained till 1987.

Laffer's career in the political arena began in 1970 when he served as chief economist for the Office of Budget and Management under U.S. Secretary of the Treasury George Shultz, a colleague of his at the University of Chicago. From 1972 to 1977, he served as a consultant to Treasury Secretary George Shultz as well as to U.S. Secretary of Treasury William Simon and Defense Secretary Ronald Rumsfeld. In the 1980s, Arthur Laffer's economic-political influence heightened when he served on President Reagan's Economic Policy Advisory Board from 1981 to 1989. His association with President Reagan began in 1980 as a member of then presidential candidate Ronald Reagan's Executive Advisory Committee. During the 1980s, he was also a consultant to U.K. Prime Minister Margaret Thatcher.

Using the Laffer curve illustration as a teaching tool in his classes, he showed that at some level of tax rates, government would generate less revenue by creating disincentives to be productive through labor and more incentives to barter, participate in an underground economy, or just enjoy leisure. Consequently, these disincentives would then reduce tax revenues.

While this relationship between tax rates and tax revenues has become known as Laffer curve, Laffer himself never made any claim that the tax rates-tax revenues relationship was an original insight. He credited Ibn Khaldun and John Maynard Keynes as early architects. In the mid-1770s, both Adam Smith and David Ricardo made similar arguments.

Acceptance of the Laffer curve premise has not been universal. While there has been some research to identify tax rate ranges at which the tax rate-tax revenue relationship turns negative, there is also significant criticism of Laffer's illustration. Nobel laureates John Kenneth Galbraith and Paul Krugman both criticized Laffer's approach on the basis of equity and fairness. Others have criticized Arthur Laffer's description as too simplistic, while others attacked the theoretical, claiming the economy and consequently tax revenues would not totally be eliminated at a tax rate of 100 percent. Regardless of the criticisms, supply-side economics was the basis for the Kemp-Roth Tax Cut of 1981 and both the Economic Growth and Tax Relief Reconciliation Act of 2001 and Jobs and Growth Tax Relief Reconciliation Act of 2003 (the "Bush tax cuts").

Arthur Laffer has authored several books and many articles on business economics and the political economy. In 1971 Laffer authored *Private Short-Term Capital Flows*. In 1983 Laffer—with Victor Canto, Douglas Joines, Paul Evans, Marc Miles, and Robert Webb—laid the foundations for supply-side economics with *Foundations of Supply Side Economics: Theory and Evidence*.

As an author Laffer is noted more for his recent works: *End of Prosperity: How Higher Taxes Will Doom the Economy—If We Let It Happen* (2009) with Stephen Moore and *Return to Prosperity* (2010) with Stephen Moore and Peter Tanous.

Laffer received many awards and honors during his career. In 1999 he was recognized as one of "The Century's Greatest Minds" for the Laffer curve. He received several Graham and Dodd Awards from the Financial Analyst Federation, the National Association of Investment Clubs Distinguished Service Award, and the Adam Smith Award.

David A. Dieterle

See also: Galbraith, John Kenneth; Supply Side Economics; *Vol. 1: Foundations of Economics:* Capitalism; Hayek, Friedrich von; Keynes, John Maynard; Ricardo, David; Smith, Adam; *Vol. 3: Microeconomics:* Markets; *Vol. 4: Global Economics:* Krugman, Paul

Further Reading

Canto, Victor A., Douglas H. Joines, Laffer, Arthur B., Marc A. Miles, and Robert I. Webb. 1983. *Foundations of supply-side economics: Theory and evidence.* New York: Academic Press.

CNBC. n.d. Arthur Laffer. CNBC Profiles. http://www.cnbc.com/id/24732335 (accessed April 12, 2012).

Laffer, Arthur. 1986. The ellipse: An explication of the Laffer curve in a two-factor model. In *The financial analyst's guide to fiscal policy*, ed. Victor A. Canto, Charles W. Kadlec, and Arthur B. Laffer, 1–35. New York: Praeger.

Laffer, Arthur. 2004. The Laffer curve: Past, present, and future. Heritage Foundation. http://www.heritage.org/research/reports/2004/06/the-laffer-curve-past-present-and-future (accessed April 12, 2012).

Laffer, Arthur B. 2009. We're all Keynesians now. *Tennessee's Business* 18 (3): 15–16. http://capone.mtsu.edu/berc/tnbiz/stimulus/laffer.pdf (accessed April 12, 2012).

Laffer, Arthur B., and Stephen Moore. 2010. *Return to prosperity: How America can regain its superpower status.* New York: Threshold Editions.

Laffer, Arthur B., Stephen Moore, and Peter J. Tanous. 2008. *The end of prosperity: How higher taxes will doom the economy—If we let it happen.* New York: Threshold Editions.

The Laffer Center. n.d. Arthur Laffer. http://www.laffercenter.com/the-laffer-center-2/ (accessed April 2012).

Wiggin, Addison, and Kate Incontrera. 2008. *I.O.U.S.A: One nation. Under stress. In debt.* Hoboken, NJ: Wiley.

LAFFER CURVE

Supply-side economists often use the Laffer curve, named after the economist Arthur Laffer (b. 1940), to illustrate the effects of tax rates on tax revenue. The Laffer curve shows the relationship between the tax rate set by the government and the total tax revenue that the government collects. The total revenue depends on both the tax rate and the health of the economy. The Laffer curve illustrates that high tax rates may not bring in much revenue if these high tax rates cause economic activity to decrease.

Suppose the government imposes a tax on the wages of workers. If the tax rate is zero, the government will collect no revenue. However, with no taxation, the economy will prosper. As the government raises the tax rates, it starts to collect some revenue. According to Laffer, as the tax rate increases, government revenue will also increase to a certain point, known as the revenue maximizing point.

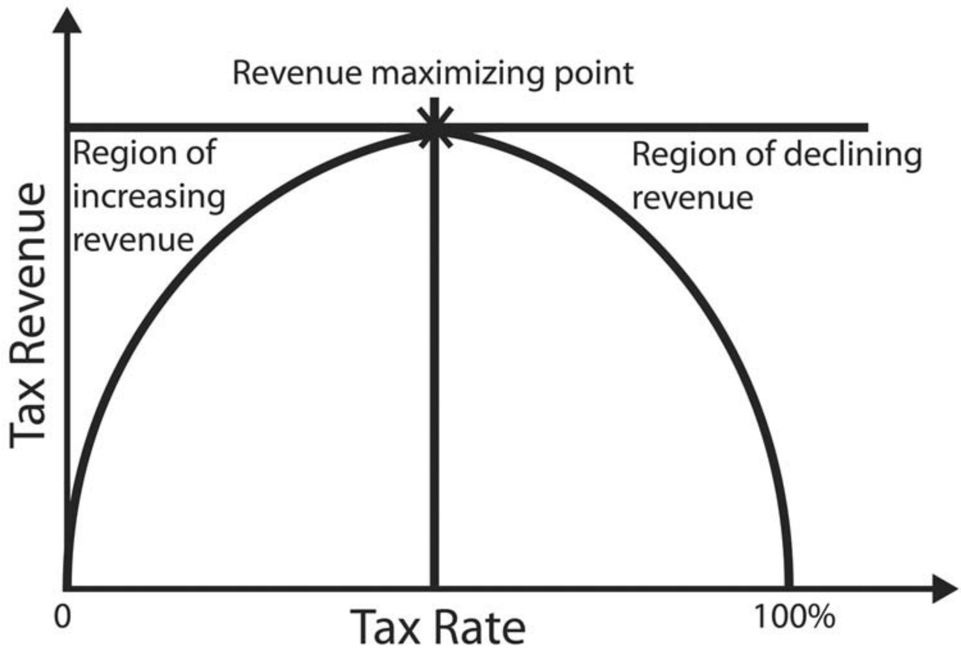

Figure 1. With the Laffer curve, Arthur Laffer proposed that high tax rates will result in lower government revenue

Even though higher tax rates do discourage some people from working as many hours as possible, the net effect of a higher tax rate and a slightly lower tax base is an increase in revenue to a certain point. However, any point along the curve to the right of the revenue-maximizing point illustrates the negative effects of increased taxation. Once the tax rate surpasses the revenue-maximizing point, the decrease in workers' efforts is so large that the higher tax rate actually decreases total tax revenue. Another effect of the higher tax rates is on companies and their unwillingness to invest and increase production due to more spending on taxation. In effect, the high rates of taxation will eventually discourage so many people from working and businesses from investing that the tax revenues will fall sharply. In the most extreme case, at a 100 percent tax rate, no one would want to work and the government would collect no revenue.

Laffer Curve in Practice

Arthur Laffer's theory has not been widely accepted by economists, even though the relationship between tax rates and tax revenues he proposed appeared logical in theory. One major issue that economists point to is the ability to actually find the extreme levels of tax rates Laffer suggests (i.e., the highest point on the curve in which tax revenues begin to decline as tax rates increase). From 1945 to 1960, the top marginal income tax rates were in the 90 percent range. From 1965 to 1980, they were lower, but still high—in the 70 percent range.

By 1980, Arthur Laffer's curve had caught the attention of presidential candidate Ronald Reagan. An integral component of candidate Reagan's platform was cutting tax rates, à la the Laffer curve. Candidate Reagan campaigned on the issue that the current high income tax rates discouraged employment. His remedy was to follow the ideas of Laffer and lower tax rates to provide incentives for employment, and by extension increase human dignity and government revenues. Between Laffer's economic focus and Reagan's political focus on increasing the incentives by which individuals would participate in the labor force and the supply side of the economy, the theory became the basis for what would become supply-side economics.

Even though debates continue over the economic theories of the 1980s and the Laffer curve, the general consensus is that the implementation of major income tax cuts is favorable overall. To evaluate Laffer's theory would be impossible, since one would need to rerun history without the tax cuts to see if tax revenues would have been higher or lower.

However, most economists agree that a relationship between tax rates and government revenues exists, and it's likely that additional government revenues are generated when tax rate cuts occur for those in the highest tax brackets. The Laffer curve also creates a standard measurement of tax rates throughout the world, and nations can use it to increase or decrease their income tax rates accordingly.

Tracy L. Ripley

See also: Laffer, Arthur; Supply-Side Economics; Taxes; *Vol. 1: Foundations of Economics:* Reagan, Ronald

Further Reading

Cochran, John P. 2013. President Coolidge and the Laffer curve. Auburn, AL: Ludwig von Mises Institute. http://mises.org/daily/6381/ (accessed November 30, 2016).

Laffer, Arthur. 2004. The Laffer curve: Past, present, and future. The Heritage Foundation. http://www.heritage.org/research/reports/2004/06/the-laffer-curve-past-present-and-future (accessed November 30, 2016).

Mankiw, N. Gregory. 2014. *Principles of microeconomics*. 7th ed. Cincinnati, OH: Cengage Learning.

O'Sullivan, Arthur, and Steven M. Sheffrin. 2007. *Economics: Principles in action*. Upper Saddle River, NJ: Pearson Prentice Hall.

LEADING ECONOMIC INDICATORS

A business cycle occurs because of fluctuations in an economy, and it demonstrates periods of expansion and contraction. Understanding business cycles is essential to discerning where the economy is and where it is heading. When the economy is in an unfavorable position or heading toward one, fiscal or monetary policy tools are sometimes implemented to change its course. Economists are able to determine the health of the economy, or the future economy, by examining economic indicators.

There are three classifications of economic indicators: coincident indicators, lagging indicators, and leading indicators. Coincident indicators run in sync with the business cycle and include indicators such as gross domestic product (GDP), industrial production, and personal income. Lagging indicators follow changes in the business cycle and include indicators such as average duration of unemployment, ratio of consumer debt to personal income, changes in labor costs, and short-term interest rates. Leading indicators indicate or signal future changes in the economy and are therefore the most widely followed.

Leading economic indicators are statistics published by government agencies, nonprofit organizations, and private agencies that predict recessions and expansions in the business cycle. Statistics are used by investors, businesses, and government agencies in anticipating the future condition of the economy. Investors analyze indicators in creating investment strategies. Business leaders analyze indicators to make staffing decisions, plan inventories, evaluate new business opportunities, and forecast the price and availability of raw materials. Government officials use indicators to guide economic policy decisions. The main statistical reporting agencies in the United States are the Bureau of Economic Analysis, the United States Census Bureau, and the Bureau of Labor Statistics.

The Conference Board (a global, independent business membership and research association) publishes composite averages for 10 of the published indicators in The Conference Board Leading Economic Index (LEI), which is designed to signal future peaks and troughs in the business cycle. The index is constructed by averaging its individual components in order to smooth out the volatility found in the individual data. In theory, three consecutive months of declines of Leading Economic Indicators signals an upcoming recession.

The Conference Board LEI has 10 components:

1. average weekly hours of manufacturing workers,
2. average weekly initial claims for unemployment insurance,
3. manufacturers' new orders for consumer goods and materials,
4. vendor performance diffusion index,
5. manufacturer's new orders for nondefense capital goods,
6. building permits for new private housing units,
7. stock prices and S&P 500 common stocks,
8. the Leading Credit Index,
9. interest rate spread (10-year Treasury bonds less federal funds), and
10. the Index of Consumer Expectations.

Average weekly hours of manufacturing workers is a measure of labor demand and shows how employers respond to the business cycle. It measures time on the job, including straight and overtime hours, of all full and part-time workers. If demand is beginning to slow down, employers will reduce worker's hours before making layoffs. If the slowdown deepens, employers will be forced to lay off workers, which will show a more significant trend of reduced production and increased unemployment. If the economy is expanding, employers generally will increase hours of current workers prior to hiring new ones. This signals a trend toward increased output. Average weekly hours (manufacturing) data is published monthly by Bureau of Labor Statistics.

Average weekly initial claims for unemployment insurance is a measure of applications for state jobless benefits made by unemployed individuals, which signals a trend toward future layoffs. This indicator is considered highly sensitive to business conditions compared with other employment data. When using this indicator for the LEI, the Conference Board reverses the value from positive to negative because the relationship between initial claims and job loss is inverted. The data is a good indicator of the health of the U.S. labor market and is released weekly by the U.S. Department of Labor.

Manufacturers' new orders for consumer goods and materials measures changes in orders for consumer goods, which indicate changes in actual production. If orders decrease, then future production will decrease as well, which indicates future trends in output and unemployment. The Bureau of Economic Analysis uses this data to estimate future GDP. The Federal Reserve Board and the Department of the Treasury use the data to formulate monetary policy. The index is reported monthly by the U.S. Census Bureau and includes 4,300 reporting companies with $500 million or more in shipments and a sampling of smaller companies.

Vendor performance diffusion index measures the amount of time it takes vendors to deliver inputs to industrial companies. Deliveries taking longer indicate an increase of demand for production goods. When this index increases, it indicates that future production will also increase. The data is gathered through a survey from the National Association for Purchasing Managers and is reported monthly.

Manufacturers' new orders for nondefense capital goods is the counterpart to Manufacturers' new orders for consumer goods, and it includes orders for capital goods used by firms in production. This data is reported monthly by the U.S. Census Bureau.

Building permits for new private housing units provides data on the amount of new housing authorized, but not started. This data provides an indication of future construction activity. The Federal Reserve Board uses this indicator to analyze economic conditions, the Department of Housing and Urban Development uses it to evaluate housing needs and programs, and financial institutions use it to forecast future mortgage demand. The index is published monthly by the U.S. Census Bureau.

The *Standard & Poor's 500* is an index of publicly traded stocks that is designed to measure changes in stock prices. It measures the nation's stock of capital and it can indicate confidence levels of businesses and consumers. A growth of the index may indicate growth of business investment and consumer spending. A declining index may indicate reduced spending on the part of both business and consumer. Information on the index is available in real time from financial news organizations and is published by Standard and Poor.

The Leading Credit Index is compiled from six financial indicators:

1. The 2-year Swap Spread measures the creditworthiness of banks.
2. The LIBOR 3 month less 3 month Treasury-Bill spread measures liquidity and funding conditions of banks.
3. The Debit balances at margin account at broker dealer measures the willingness and ability of speculators to leverage their bets on financial markets.

4. The AAII Investors Sentiment Bullish (%) less Bearish (%) measures how much risk a retail investor is willing to take.
5. The Senior Loan Officers C&I loan survey-Bank tightening credit to large and medium firms indicates the availability of credit.
6. The Security Repurchases from the Total Finance-Liabilities section of the Federal Reserve's flow of fund report is an indicator of activity in the shadow-banking industries (institutions that carry out banking functions outside the traditional banking system).

The Leading Credit Index measures the availability and cost of credit and institutions' willingness to borrow or lend. As the availability of credit in the market decreases, so does growth and investment.

The *interest rate spread* is the difference of interest rates on long-term investments (10-year Treasury bonds) and short-term investments (federal funds rate). This index gives some indication of the stance of the monetary policy due to the fact that the Federal Reserve Board has some control of the federal funds rate and it rises when short-term rates are low and falls when short-term rates are high. A rise in this index indicates that the economy may be expanding, and a fall indicates when the economy will be contracting. This index is a strong indicator of future recession when it is negative.

The Index of Consumer Expectations is compiled from the Consumer Expectations for Business Conditions 6-months ahead survey of 5,000 households, conducted by the Conference Board, and Consumer Expectations for Economic Conditions 12-months ahead, conducted by Reuters/University of Michigan. This index measures consumers' confidence in the future of the economy, which demonstrates spending and saving activity.

Heather Isom

See also: Bureau of Economic Analysis; Bureau of Labor Statistics; Conference Board; Economic Growth, Measures of; Inflation, Measures of; Unemployment; *Vol. 1: Foundations of Economics:* United States Census Bureau; *Vol. 3; Microeconomics:* Interest Rates

Further Reading

Baumohl, Bernard. 2012. *The secrets of economic indicators: Hidden clues to future economic trends and investment opportunities*. Upper Saddle River, NJ: FT Press.

Karabell, Zachary. 2014. *The leading indicators: A short history of the numbers that rule our world.* New York: Simon & Schuster.

Lahiri, Kajal, and Geoffrey H. Moore. 1993. *Leading economic indicators: New approaches and forecasting records*. New York: Cambridge Univ. Press.

LECHMERE, INC. V. NATIONAL LABOR RELATIONS BOARD

Private property is fundamental in a free enterprise economy. *Lechmere, Inc. v. National Labor Relations Board*, 502 U.S. 527 (1992) is about balancing the private property rights of employers with the rights of their employees in the process of deciding to join a union. In a capitalist system, when private property rights are secure, competition is defined by peaceful means and guided by the rule of law.

In 1935, to maintain this balance, Congress passed the National Labor Relations Act (NLRA). Section 7 of the act established an employee's right to join a union and take part in collective bargaining, as well as establishing an administrative board (the National Labor Relations Board, or NLRB) to enforce all requirements thereof. Congress deferred any ambiguity within the act to the NLRB for final resolve. In the *Lechmere* case, the Supreme Court changed this default setting from the rule of deference to Court-based adjudication favoring the protection of private property rights.

Case Summary

In the United States, property rights are considered human rights. In the Declaration of Independence, Thomas Jefferson referenced this thought as people's right to life and freedom and to be secure in their property. *Lechmere, Inc. v. National Labor Relations Board* (NLRB) was concerned with balancing the private property rights of employers with the rights of their employees in the process of deciding to join a labor union. This balancing act is key if there is to be equity on both sides of the bargaining table. Nonetheless, there remains inequality in a free market economy. In the view of Adam Smith, a few owners could combine much more easily to gain an advantage in bargaining power in the marketplace over the multitude of workers. The result is inequality of bargaining power. This delicate balance is critical in perpetuating a healthy marketplace for both owners and laborers.

The Cohen family started Lechmere, Inc., in 1913 in the Boston area. One of the first large discount stores, Lechmere grew rapidly in the 1950s and 1960s. In the late 1980s, it opened a retail store in a shopping mall in Newington, Connecticut. The company owned part of the parking lot and 4 feet of the 46-foot grassy barrier between the parking lot and the Berlin Turnpike. The store had more than 200 employees, most of whom parked in that lot. Lechmere maintained a no-soliciting policy that pertained to everyone from Salvation Army bell ringers to the Girl Scouts.

In June 1987, the United Food and Commercial Workers International Union (UFCW) began a campaign to organize the workers at Lechmere. While the history of the UFCW began in 1979, the history of the retail industry organizing in the United States began much earlier. In the late 19th century, retail employees earned perhaps $10 per week, and 80-plus-hour workweeks were not uncommon. Toward the turn of the century, the Retail Clerks National Protective Union joined with the American Federation of Labor, later to become the UFCW. The UFCW struggled for better working conditions with fair hours and equal pay. It was the first to establish the principle of overtime pay for anything over 63 hours worked in a week.

The UFCW's campaign to organize Lechmere's retail store in Newington included using strategies to communicate meeting times and union information to employees. The parking lot allowed the union organizers within 4 feet of the employees' vehicles. It also allowed nonemployee organizers to picket in the grassy area with signs indicating union meetings. Furthermore, union organizers recorded the license plates of workers' vehicles to obtain addresses for mailing information. The nonemployee organizers placed ads in *The Courant*, a local newspaper. From the union's point of view, all of these attempts were not enough.

Union organizers circulated handbills in the parking lot to reach employees more directly. Lechmere company representatives asked the organizers to leave; when they returned, Lechmere called the police to enforce the city's no-soliciting law. In response, the UFCW filed an unfair labor practice charge with the NLRB, claiming that Lechmere violated Section 7 of the NLRA, which establishes an employee's right to join a union and participate in collective bargaining activities. The NLRB joined the union as correspondent in an appeal to an administrative law judge, who held that the co-petitioners could not be banned from the parking lot. Lechmere appealed to the U.S. Court of Appeals for the First Circuit. When the appellate court affirmed the NLRB's ruling, Lechmere appealed to the Supreme Court and was granted a hearing on certiorari (a request by the Supreme Court to the lower court for the files of the case to be sent up for review).

The *Lechmere* case was argued before the Supreme Court in November 1991. The petitioner stated that the question was whether an employer could prohibit nonemployee union organizers from trespassing on its private property in an attempt to organize its employees when other reasonable ways to reach them were available. Stopping this trespass did not constitute unfair labor practice; rather, it was a consistent policy that applied to everyone. Furthermore, Lechmere argued that it was not access on which union organizers based their unfair plea, but instead on how effectively their persuasion was through the various means they had available to reach the employees. Robert Joy, attorney for Lechmere, cited *NLRB v. Babcock & Wilcox Co.* (1956) as the precedent that held that an employer may indeed exclude the union to preserve private property rights when reasonable means were available.

The NLRB countered that Congress had charged it with implementing the policy legislated in the NLRA, and as such, it would know the best interpretation. The respondents used the *Babcock* case as well. They claimed that *Babcock* established that some circumstances might warrant the right of the union to distribute literature on private property, and that although in *Babcock* those circumstances did not exist, in *Lechmere* they did. In addition, Michael Dreeben, attorney for the NLRB, argued that *Hudgens v. National Labor Relations Board* (1976) set an additional precedent. In the *Hudgens* case, the employer prohibited the trespass during a lawful strike by employees of a shoe company. There could be scores of circumstances to consider when determining whether or not the employer's property rights and the employee's rights under Section 7 of the NLRA were balanced. *Babcock* established that they should be considered; *Hudgens* established that it was the primary responsibility of the NLRB to make those interpretations. Furthermore, it was argued that in each case the NLRB had historically and consistently used the criterion whereby rights were balanced with the least amount of damage of one so as to maintain the other.

The Supreme Court decided the case on January 27, 1992, in a 6–3 decision in favor of Lechmere, Inc. Justice Clarence Thomas wrote for the majority. He reasoned that private property rights could not be denied the owners where there were alternatives short of trespass to communicate effectively. In this case, there were signs held in petition, mailings, phone calls, home visits, and newspaper ads. The majority opinion stated that because the union had failed to establish the existence of any special impediments that frustrated access to Lechmere's employees, the NLRB erred in concluding that Lechmere committed an unfair labor practice by barring the nonemployee organizers from its property. This defense of private property reversed the judgment of the First Circuit and denied enforcement of the NLRB's order.

The opposite view was expressed in the dissenting opinion. Justice White wrote the opinion and was joined by Justice Blackmun. They agreed that the Court should follow a policy of deferment, keeping the role of the judiciary narrow. It was their opinion that the NLRB had made its decision on reasonable information and rational logic. Justice Stevens wrote a separate dissent. The current interpretation of the *Babcock* decision, Stevens wrote, is open to question. The majority opinion errs in establishing inflexible judicial rules where Congress has delegated authority to the NLRB to deal with ambiguous matters such as the issue of Section 7 and private property rights. Again, Justice Stevens deferred to the judgment of the NLRB.

Between 1935 and 1992, much changed in the bargaining power between owners and employees. Government intervention in the affairs of the market weighed heavily on the side of labor unions and collective bargaining. In an effort to swing the pendulum back toward equilibrium, the *Lechmere* case placed a heavier burden on the NLRB to supply evidence that the employees' statutory rights supersede the owner's fundamental natural right to control access to its private property. It is also a reminder that Congress cannot defer to a bureaucratic agency something that is not clearly articulated, given the fact that the judiciary has the final word.

Kathleen C. Simmons

See also: Labor Uprisings, 1936–1939; National Labor Relations Act of 1935 (Wagner Act); National Labor Relations Board; Property Rights; *Vol. 1: Foundations of Economics:* Market Capitalism; Supreme Court; *Vol. 3: Microeconomics:* Labor Market Regulation

Further Reading

Chicago-Kent College of Law at Illinois Tech. n.d. *Lechmere Inc. v. National Labor Relations Board*. Oyez. http://www.oyez.org/cases/1990-1999/1991/1991_90_970 (accessed November 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. *Lechmere Inc., Petitioner v. National Labor Relations Board, 502 U.S. 527* (112 S.Ct. 841, 117 L.Ed.2d 79) No. 90-970. (Opinion, Justice Thomas.) http://www.law.cornell.edu/supremecourt/text/502/527#writing-type-1-THOMAS (accessed November 3, 2011).

Cornell University Law School, Legal Information Institute. n.d. *Lechmere Inc., Petitioner v. National Labor Relations Board, 502 U.S. 527* (112 S.Ct. 841, 117 L.Ed.2d 79) No. 90-970. (Dissent, Justices White and Blackmun.) http://www.law.cornell.edu

/supremecourt/text/502/527#writing-type-16-WHITEBLACKMUN (accessed November 3, 2011).

Cornell University Law School, Legal Information Institute. n.d. *Lechmere Inc., Petitioner v. National Labor Relations Board, 502 U.S. 527* (112 S.Ct. 841, 117 L.Ed.2d 79) No. 90-970. (Dissent, Justice Stevens.) http://www.law.cornell.edu/supremecourt/text/502/527#writing-type-16-STEVENS (accessed November 3, 2011).

Justia U.S. Supreme Court. 1991. *Lechmere, Inc. v. NLRB 502 U.S. 527* (1992). https://supreme.justia.com/cases/federal/us/502/527/case.html (accessed November 30, 2016).

National Labor Relations Board. 2010. *Decisions and orders of the National Labor Relations Board, V. 353, September 8, 2008, through April 20, 2009*. (665, 1274–1276).

LENDER OF LAST RESORT

Lender of last resort is a macroeconomic tool used by central banks and in the international community for financial crises. It is the place where a nation can borrow funds after all other funding sources, such as commercial sources, have disappeared.

In a macroeconomy, this role is usually filled by a central bank. A central bank becomes the lender of last resort to commercial financial institutions during times of financial crisis. The financial crisis may be brought on by an economic downturn; by bad business decisions, which would lead to major macroeconomic consequences, or a by natural disaster, such as a hurricane or a flood, where the local financial institutions need financial support to provide all the necessary financial assistance to aid the effected region.

In the international community, the International Monetary Fund (IMF) fills this role with the support of high-income countries like Germany and the United States, among others. When nations reach their crisis point financially—meaning that they cannot convert their currency into another currency due to lack of international reserves, and they cannot make payments on their international loans—the lender of last resort is asked to intervene.

Financial crises bring about a dilemma for policymakers. There is a societal need to keep the financial sector functioning, even if that means using public funds to bail out the banks. This creates a moral hazard, or the incentive for those in the financial sector to withhold information, take on excessive risk that they otherwise wouldn't, and behave in a manner that generates costs to the society. The problem of moral hazard is unavoidable if there are policies that protect any financial system from collapse.

Moral hazard is the reason why the lender of last resort is worrisome to many observers, who believe that last resort lenders should cease to exist. The problems of moral hazard can expand when managers of failing firms use the certain prospect of a bailout as reasoning to gamble on high-risk ventures; the bailout will cover all of their losses if the high-risk gamble does not work.

To combat moral hazard, many who support the idea of a lender of last resort stress the importance of regulation in the financial sector. If financial firms risk a substantial loss as a result of their risks, they would be less likely to take excessive risks.

Another issue regarding the lender of last resort is the size of the loans distributed by the lender. Countries pay a quota to the IMF. The size of the quota depends on the strength and size of the economy. The quota determines multiple circumstances within the IMF. The size of the quota determines the amount of money a country can borrow during a normal crisis. The quota also determines how many votes the country has in setting the policies of the IMF. Generally, the countries are supposed to receive up to 300 percent of their quota. However, precedent has been set and history has shown that the IMF is willing to pay whatever amount the country needs at the time and not a predetermined number. Examples include the 1994 Mexican peso crisis as well as the 1997 Asian financial crisis. Some observers argue that borrowing limits need to be greatly increased, while others argue that circumstantial information regarding the size and scope of the crisis should be taken into consideration. For example, does the crisis have a high probability of spreading, or is it contained to a single country.

Before dispensing funds to nations in crisis, the lender of last resort, the IMF, sets a number of conditions related to the bailout. *Conditionality* refers to the changes in economic policy that nations are required to make if they wish to receive loaned funds from the lender of last resort. Deficits are the number one target of the conditions set by the lender. These conditions usually involve policies with the goal to reduce or eliminate trade deficits as well as budget deficits. The goal is to reduce expenditures by the government and raise revenue in order to set a plan in place to pay back the loans. The lender of last resort makes its loans to the country in installments. Each installment payment is contingent upon completion of the set conditionality. These conditions are often the subject of criticism due to their attack on national sovereignty and their macroeconomic contractionary policies.

The lender of last resort macroeconomic tool is subject to international debate. Many observers believe that the moral hazard tendency surrounding a lender of last resort is reason enough to disband the policy, while others believe that tighter restrictions are needed. However, there are already restrictions in place, called conditionality. These conditionalities are thought to impede national sovereignty. What's certain is that the lender of last resort is a highly debatable subject around the globe. Nations in the international community are almost certain to face some sort of financial crisis at some point in time.

Michael Weck

See also: Macroeconomics; Moral Hazard and Behavioral Economics; *Vol. 1: Foundations of Economics:* Central Bank; *Vol. 4: Global Economics:* International Monetary Fund

Further Reading

Gerber, James. 2014. Chapter 2: International Economic Institutions since World War II, 30–31; and Chapter 12: International Financial Crises, 279–80 and 288–90. In *International economics*. 6th ed. New York: Pearson.

Goodhart, Charles, and Gerhard Illing, eds. 2003. *Financial crises, contagion, and the lender of last resort: A reader*. Oxford, UK: Oxford Univ. Press.

Humphrey, Thomas M., and Robert E. Keleher. 1984. The lender of last resort: A historical perspective. Working Paper 84-3. Federal Reserve Bank of Richmond. https://www.richmondfed.org/-/media/richmondfedorg/publications/research/working_papers/1984/pdf/wp84-3.pdf?WT.si_n=Search&WT.si_x=3 (accessed November 30, 2016).
Oliver, Jeanne, and Charles Wyplosz. 2001. The international lender of last resort: How large is large enough? Working Paper 8381. National Bureau of Economic Research. http://www.nber.org/papers/w8381.pdf (accessed November 30, 2016).

LEONTIEF, WASSILY

Born: August 5, 1905, in Munich, Germany; Died: February 5, 1999, in New York; Nationality: Russian-American; Professional Interests: macroeconomics, input-output analysis, Nobel Prize (1973); Major Work: *Structure of American Industry, 1919–1929* (1941).

Wassily Leontief, a Russian-American economist, led the criticism of John Maynard Keynes's general theory during the 1930s. Leontief is associated with developing models of equilibrium and input-output analysis. Leontief's input-output model distinguished the many components of an economy and their interdependence on each other. His models broadened how the circular flow of economics was used to describe the relationships between inputs (land, labor, capital) and outputs (goods and services) in an economy. Wassily Leontief won the Nobel Prize in Economics in 1973 for his input-output modeling efforts. He was honored with awards from around the world. Leontief died in 1999.

Wassily Wassilyovich Leontief was born on August 5, 1905, in Munich, Germany. Wassily was a second-generation economist, following his father, Wassily Sr., in the profession. Wassily Jr. enrolled in the University of Leningrad at the age of 15, earned his master's degree at age 19, and completed his PhD at the University of Berlin in 1928. The topic of his PhD dissertation was the circular flow of economic activity.

Leontief began his professional career in the Soviet Union at the University of Kiel, working at the Institute of World Economics. In 1930, he moved on to serve as an adviser for the Chinese Ministry of Railroads for a year, before immigrating to the United States to join the National Bureau of Economic Research. He joined Harvard University in 1932. When World War II broke out, Leontief was a consultant to the U.S. Office of Strategic Services. In 1946, he began a new era of his career with his appointment as professor at Harvard University.

At Harvard, Leontief established the Harvard Economic Research Project and was its director till 1973. He then established the Institute of Economic Analysis at New York University in 1975. Continuing the work he began in his dissertation, Leontief was most noted for his study of input-output analysis. He was expanding on the work of François Quesnay (*Tableau Économique*) and Leon Walras (*Elements of Pure Economics*), both of whom had developed earlier versions of the circular flow. Leontief's contribution was his ability to simplify and quantify the components of the circular flow.

The circular flow in its more complex form is an input-output model of general equilibrium analysis. Leontief's input-output analysis models show how the components of an economy are interrelated. His models exhibit the dynamics of how a change in one sector of the economy will impact other sectors. This interdependence of economic sectors became a crucial component in understanding the consequences of policy decisions by governments. In 1941, continuing his efforts on the national accounting of an economy and input-output analysis, Leontief wrote his major work, *Structure of American Industry, 1919–1929*.

At the U.S. Bureau of Labor Statistics, Leontief was able to identify 500 different sectors of the economy. He created a quantitative measure for each one, thus creating a quantitative input-output analysis model for the entire economy. He is credited with being one of the first to use computers for mathematical modeling.

Wassily Leontief s contributions to economics go beyond his input-output models. In the area of international trade, in 1953 he founded what became known as the Leontief paradox. The Leontief paradox surmised that the United States was exporting labor-intensive goods rather than capital-intensive goods. The significance of this finding was that it was a reversal (a paradox) to a widely held international trade theory of the time: that countries should produce and trade based on the relative scarcity of their resources. Yet the United States as a capital-intensive economy was trading internationally those goods that were labor-intensive.

In 1973, Wassily Leontief was awarded the Nobel Prize in Economics for his novel work on the input-output tables. Given specific assumptions, the tables he created can be used to approximate the changes necessary in the resources (inputs) needed when there is a change in the production of a final good. As stated before, Leontief's input-output tables showed how changes in one sector of the economy will influence changes in another sector, making an economy's sectors interdependent to each other.

An ardent and vocal critic of John Maynard Keynes's general theory, in the 1930s Leontief participated in debates on Keynes's general theory. Leontief was particularly critical of Keynes's methodology and definitions, criticizing Keynes's definitions of *aggregate demand* and *aggregate supply curves*. Leontief's most serious criticism was that Keynes was proposing simplistic remedies for an interdependent, intricate, and complicated economy. Leontief also questioned Keynes's labor supply curve and "liquidity preference," arguing that it prevented expansionary monetary policy for attaining full employment. Leontief expressed his doubts about Keynes's ideas in an article titled "Implicit Theorising: A Methodological Criticism of the Neo-Cambridge School."

Along with the Nobel Prize in Economics in 1973, Wassily Leontief received many awards and honors, including many honorary doctorates from universities around the world. He was awarded the French Legion of Honor in 1968, the West German Bernhard-Harms Prize in Economics in 1970, and the Japanese Order of the Rising Sun in 1984. In 1980, Leontief was inducted into the Russian-American Hall of Fame, and in 1989 he was honored with the Society of the Optimate by the Italian Cultural Institute in New York. In 1995, the International House of New York honored Leontief with the Harry Edmonds Award for Life Achievement.

One particular award is named in his honor: Each year, Tufts University's Global Development and Environment Institute awards an individual Leontief Prize in Economics.

Wassily Leontief died in New York City on February 5, 1999, at the age of 93.

David A. Dieterle

See also: *Vol. 1: Foundations of Economics:* Circular Flow of Economic Activity; Keynes, John Maynard; Nobel Prize in Economics; Quesnay, François; *Vol. 3: Microeconomics:* Walras, Leon; *Vol. 4: Global Economics:* Absolute Advantage; Comparative Advantage; Terms of Trade

Further Reading

Dietzenbacher, Erick, and Michael L. Lahr, eds. 2004. *Wassily Leontief and input-output economics.* Cambridge, MA: Cambridge Univ. Press.

Economy Watch Staff. 2009. Wassily Leontief—Father of the input-output analysis model, *Economy Watch*, September 4. www.economywatch.com/economist/nassily-leontief.html (accessed September 20, 2011).

Leontief, Estelle. 1987. *Genia and Wassily: A Russian-American memoir.* Brookline, MA: Zephyr Press.

Leontief, Wassily. 1941. *The structure of the American economy, 1919–1929*. Cambridge, MA: Harvard Univ. Press.

Leontief, Wassily. 1951. *Input-output economics.* New York: Freeman.

Leontief, Wassily. 1953. *Studies in the structure of the American economy: Theoretical and empirical explorations in input-output analysis.* White Plains, NY: International Arts and Sciences Press.

Leontief, Wassily. 1966. *Essays in economics: Theories, theorizing, facts, and policies.* Piscataway, NJ: Transaction.

Leontief, Wassily. 1977. *Essays in economics: Theories, facts, and policies.* Vol. 1. White Plains, NY: M. E. Sharpe.

Leontief, Wassily, Ann P. Carter, and Peter A. Petri. 1977. *The future of the world economy: A United Nations study.* Oxford, UK: Oxford Univ. Press.

Leontief, Wassily, and Faye Duchin. 1986. *The future impact of automation on workers*. New York: Oxford Univ. Press.

Surhone, Lambert M., Mariam T. Tennoe, and Susan F. Henssonow, eds. 2011. *Wassily Leontief*. Beau-Bassin, Mauritius: Betascript Publishing.

LONDON INTER-BANK OFFER RATE

Intercontinental Exchange London Inter-Bank Offer Rate (ICE LIBOR), previously known as British Bankers' Association LIBOR (BBA LIBOR), is a benchmark rate that is used by financial companies around the world. LIBOR is the average rate that LIBOR contributor banks, which are banks that are active in the London financial market, would charge each other to borrow unsecured funds for a given period in a particular currency.

LIBOR was designed to reflect the short-term funding costs of major banks that are active in London, considered one of the world's most important financial markets. LIBOR is a polled rate that is calculated by having a panel of representative banks—11 to 18 banks, depending upon the currency—submit the rate at which they would be able to borrow funds of a reasonable market size from another bank.

The rate is calculated by using the *trimmed arithmetic mean*, which is the average of the rates after the highest and lowest rates submitted by LIBOR contributor banks are removed from the calculation. ICE LIBOR rates are calculated for the U.S. dollar (USD), the euro (EUR), the British pound sterling (GBP), the Japanese yen (JPY), and the Swiss franc (CHF). For each currency, LIBOR quotes maturities for overnight, one week, and 1, 2, 3, 6, and 12 months. The rates are published with a one-day delay at 11:45 a.m. GMT, because this is the most active part of the business day in London. The rates are all quoted based on an annualized interest rate in keeping with market convention. The "reasonable market size" that is mentioned when banks report their rates is intentionally unquantified, due to the fact that it would need to be constantly monitored and changed frequently. ICE LIBOR quotes rates in five currencies and seven maturities, which could vary greatly and lead to considerable confusion.

The LIBOR index is widely used in the financial markets for a variety of different financial instruments, because the rate is used in multiple currencies that have a variety of maturities. This allows LIBOR to be used globally as an index, since it can be easily used for many financial markets. LIBOR is often used in private loan contracts such as mortgages, student loans, and car loans. These are usually set up so that the interest rate is LIBOR plus a set number of percentage points. Financial derivatives such as interest rate swaps compare fixed interest rates to LIBOR, because LIBOR can vary from day to day. Futures exchanges use LIBOR for contracts in the marketplace. The individual submissions of the representative banks are not published until three months after the submission date. This is one of the changes after LIBOR was moved from the British Bankers' Association (BBA) to the Intercontinental Exchange. It helped to preserve the integrity of the rate by making it more difficult for banks to set their rates in line with other banks rather than with their own funding costs. It also protects banks from negative signaling effects caused by the market's perceptions of a bank's financial stability. This helps to prevent banks from submitting a false rating to understate their true borrowing costs so that they appear more financially stable than they actually are. Keeping the rates confidential enables the banks to submit their rates with less concern that they will be affected negatively. The one-day delay of publishing rates and the delay of publishing the individual data of the contributing banks also help to prevent banks from profiting from changes in the interest rate.

The BBA was a private trade association that was responsible for administering LIBOR (the data was published by Thomson Reuters on a daily basis), until LIBOR was handed over to the ICE Benchmark Administration on February 1, 2014. Before that date, BBA LIBOR had quoted rates for the additional currencies of the Australian dollar (AUD), Canadian dollar (CAD), Danish krone (DKK), New Zealand dollar (NZD), and Swedish krona (SEK) in many other maturities than are currently offered; the practice was discontinued in 2013. The administration for the LIBOR index was moved from the BBA to ICE after a number of scandals related to multiple banks and other financial institutions attempting to fix the LIBOR index for their own benefit. Some of the banks involved in the scandal were reporting false rates to benefit their derivatives trading positions, or to protect their bank's reputation in the marketplace. Another issue that came to light with the LIBOR scandal is that some of the banks and financial institutions were colluding to have false rates submitted by banks so that the LIBOR index could be fixed to benefit both companies. The scandal led to multiple investigations in the United States and Europe, and the investigations led to many changes to protect the LIBOR index from being manipulated, with the first major change being the move to the Intercontinental Exchange.

Kimberly Cousino

See also: *Vol. 1: Foundations of Economics:* Banking; *Vol. 3: Microeconomics:* Interest Rates; Investment Banks versus Commercial Banks; *Vol. 4: Global Economics:* Exchange Rates

Further Reading

ICE Benchmark Administration (IBA). n.d. ICE LIBOR. https://www.theice.com/iba/libor (accessed November 30, 2016).

ICE Benchmark Administration (IBA). n.d. LIBOR: Frequently asked questions. https://www.theice.com/publicdocs/IBA_LIBOR_FAQ.pdf (accessed November 30, 2016).

ICE Benchmark Administration (IBA). 2014. Position paper on the evolution of ICE LIBOR. https://www.theice.com/publicdocs/ICE_LIBOR_Position_Paper.pdf (accessed November 30, 2016).

Murphy, Edward V. 2012. LIBOR: Frequently asked questions. Congressional Research Service Report for Congress. http://www.fas.org/sgp/crs/misc/R42608.pdf (accessed November 30, 2016).

LORENZ CURVE

Income distribution is the equality with which income is spread throughout society. Income distribution is perfectly equal if every member of society earns the same amount. If no one earns money except for one person, income distribution is perfectly unequal. Income equality is determined by breaking the population into segments (generally five segments of 20 percent each) and measuring how much income is earned by each segment. The data showing income distribution between the population segments is recorded on a graph called a Lorenz curve.

The Lorenz curve, developed by Max Lorenz in 1905, is a graphical representation of income distribution and shows what percentage of a nation's residents possess what percentage of that nation's wealth. The Lorenz curve describes income using a two-dimensional graph. The horizontal axis of the Lorenz curve is the cumulative percentage of people in a country. The vertical axis is the percent of total income in the economy. The curve always starts at (0, 0), as 0 percent of the population earn 0 percent of the income, and ends at (100, 100), as 100 percent of the population earns 100 percent of the income. The line of perfect equity is a 45-degree line, which acts as a point of reference where all people in the country have perfectly equal incomes. The Lorenz curve will always curve below the line of perfect equity. The points on the curve often represent the Pareto principle (also known as the 80/20 rule), which states that roughly 80 percent of the events come from 20 percent of

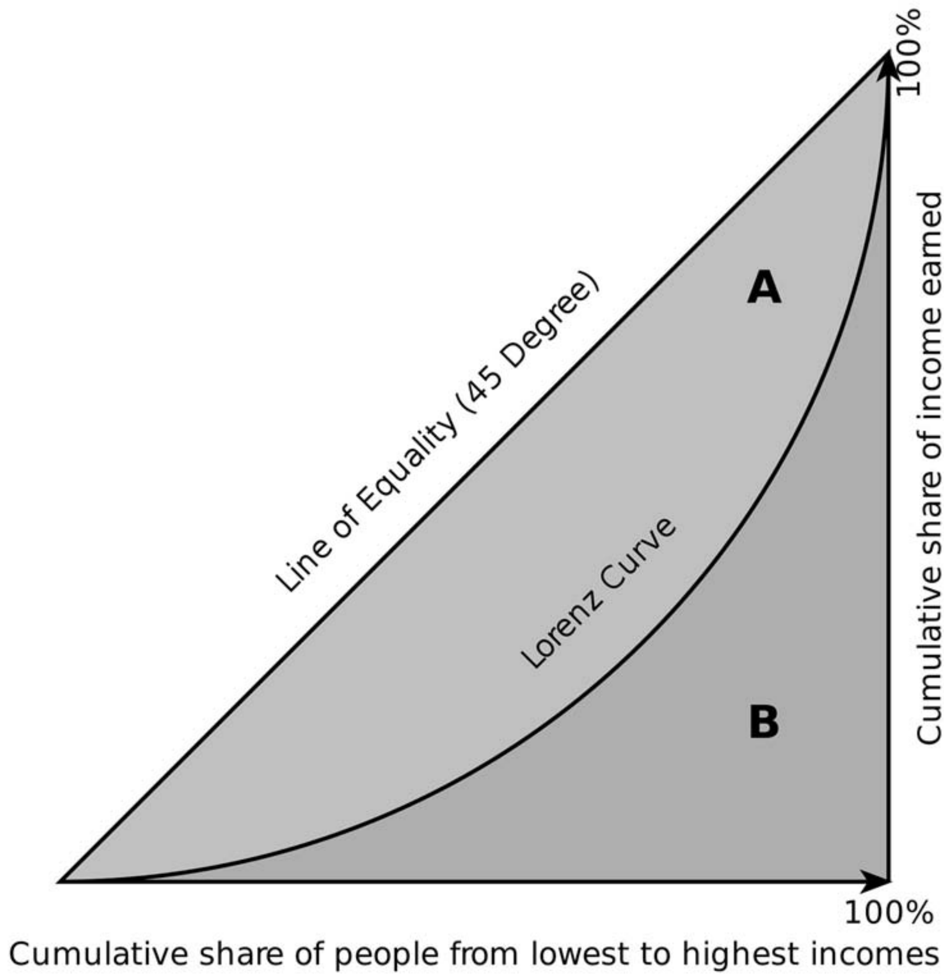

Figure 1. Lorenze curve

the causes—or in relation to income, roughly 80 percent of the income is earned by 20 percent of the population. The curve in constructed by marking the coordinates of percentages of population and its corresponding percentages of income.

The Lorenz curve is then evaluated to determine the Gini coefficient, which is generally used to measure the inequality values of income or wealth. Perfect equality is expressed in a Gini coefficient of zero, where all values are the same. Maximum inequality (one person having all the income) is expressed in a Gini coefficient of one (or 100 percent).

The Gini index is the measure of the area between the line of perfect equality and the Lorenz curve (A), as a percentage (ratio) of the area between the line of perfect equality and the line of perfect inequality (B).

Heather Isom

See also: Macroeconomics; *Vol. 3: Microeconomics:* Income

Further Reading

Gastwirth, Joseph L. 1971. A general definition of the Lorenz curve. *Econometrica* 39 (6): 1037–39.

Intro Micro. n.d. Measures of distributional inequality. OnLineTexts.com. inequality. http://www.econweb.com/texts/current/Mansions/inequality-measure.html (accessed November 30, 2016).

Investopedia Staff. n.d. Lorenz curve. *Investopedia*. http://www.investopedia.com/terms/l/lorenz-curve.asp (accessed November 30, 2016).

LUCAS, ROBERT, JR.

Born: September 15, 1937, in Yakima, Washington; Nationality: American; Professional Interests: rational expectations, monetary theory, international trade, fiscal policy, and economic growth, Nobel Prize (1995); Major Works: "Expectations and the Neutrality of Money" (1972), *Lectures on Economic Growth* (2002).

Robert Lucas Jr. is an American economist who was awarded the Nobel Prize in Economics in 1995 for his pioneering work in econometrics and his contribution to the theory of rational expectations. Applying econometric hypothesis testing, Lucas correlated public policy decisions regarding fiscal and monetary policy at the macroeconomic level with the private microeconomic decisions made by individuals. Individuals, Lucas suggested, will use past experience and future predictions—that is, rational expectations—in their microeconomic decision-making process, thus offsetting the macroeconomic policies. Lucas's arguments, which became known as the "Lucas Critique," were debated as the antithesis of John Maynard Keynes's government interventionist programs, which were the dominant theories and practices of the 1970s.

Robert Emerson Lucas Jr. was born on September 15, 1937, in Yakima, Washington. Growing up in Seattle, Washington, young Lucas was expected to attend the University of Washington and study engineering. But his interest was in history, not math, and he attended the University of Chicago where he earned his BA in history in 1959. Lucas then began his graduate work in history at the University of California, Berkeley, on a Woodrow Wilson doctoral fellowship. While at Berkeley, however, his interest changed from history to economics. Due to financial considerations, he returned to the University of Chicago to pursue economics, earning his PhD in 1964. While at Chicago, Lucas was introduced to two of his mentors: Paul Samuelson through his textbook, and Milton Friedman through his classes. The ideas of Milton Friedman were foreign to Robert Lucas the graduate student, who had grown up in a family of New Deal political thinkers. But regardless of his early political leanings, Mr. Lucas's thinking began to be reshaped.

In 1963, Robert Lucas accepted a position in the Graduate School of Industrial Administration at Carnegie Mellon University. In 1974, he returned to the University of Chicago as a professor of economics, and in 1980, Lucas was named the John Dewey Distinguished Service Professor.

Lucas's time at Carnegie Mellon was one of intense research and rapid formation of his beliefs regarding economic dynamics. In particular, Lucas devoted great energy to understanding tax structure and the taxation of capital gains. During the early years of his career, in the 1960s, Lucas promoted proposals to tax capital gains as ordinary income. Later in his career, he advocated not taxing capital gains at all, in line with supply-side economics.

As much as Lucas enjoyed his time at Carnegie Mellon professionally, his return to the University of Chicago in 1974 was a homecoming. He found the University of Chicago environment exciting and conducive for teaching and research. Through his graduate teaching, he was able to address research issues in the areas of economic growth and international trade, along with fiscal and monetary policy.

Lucas researched and published in several areas of economics, including labor economics, business cycles, investment theory, and economic growth. With his Carnegie Mellon colleague Leonard Rapping, he researched labor economics (U.S. wages and employment from 1929 to 1958). With another Carnegie Mellon colleague, David Cass, he researched Samuelson's overlapping generations model. In his 1988 publication "On the Mechanics of Economic Development," Lucas blended two fields of economic study: economic growth and economic development. He submitted that the same economic framework can apply to both fields. Prior to Lucas's work, the field of economic growth focused on developed countries while economic development focused on developing countries.

Lucas also challenged the Phillips curve, an inverse relationship between inflation and employment made famous by A. W. H. Phillips. Using rational expectations, Lucas argued that workers will eventually understand that the higher wages resulting from higher inflation do not equate to real income growth. As a result, unemployment will not fall as the Phillips curve assumes. Lucas's argument became known as the "policy ineffectiveness proposition," since individuals' rational expectations will neutralize any policy decisions, preventing economic growth.

Based on the number of Nobel laureates or Nobel laureates-to-be who would influence Lucas and vice versa, his success in economics should come as no surprise. Milton Friedman (1976) served on his University of Chicago thesis committee and was one of his professors, he credits Paul Samuelson's (1970) textbook for preparing him for his economics studies, Thomas Sargent (2011) was a colleague at Carnegie Mellon, and Edward Prescott (2004) was one of his graduate students at Carnegie Mellon. He would later write "Investment under Uncertainty" with Edward Prescott, a work that altered the view of rational expectations.

Robert Lucas was awarded the Nobel Prize in Economics in 1995 for his work on rational expectations and macroeconomic analysis. His Nobel lecture came from his paper with Edward Prescott, "Expectations and the Neutrality of Money" (1972), which Lucas considers the most influential of all his writings. To celebrate the paper's importance in macroeconomic theory, the Federal Reserve Bank of Minneapolis conducted a 25th Anniversary Conference on the paper in 1995. Lucas edited or co-edited numerous economics journals. He also held the prestigious office of president for both the American Economic Association and the Econometric Society.

Robert Lucas is considered one of the economic revolutionaries of the second half of the 20th century. He is one of the top 10 economists as reported by the *Research Papers in Economics* rankings. His work has influenced many economists, including Nobel laureates.

David A. Dieterle

See also: Economic Growth, Measures of; Fiscal Policy; Friedman, Milton; Phillips, Alban William H.; Samuelson, Paul; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Nobel Prize in Economics; Rational Expectations; *Vol. 4: Global Economics:* International Trade

Further Reading

Levy, Don. 1993. Interview with Robert E. Lucas. Federal Reserve Bank of Minneapolis. https://www.minneapolisfed.org/publications/the-region/interview-with-robert-e-lucas-jr (accessed April 12, 2012).

Lucas, Robert, Jr. 1972. Expectations and the neutrality of money. *Journal of Economic Theory* 4: 103–24.

Lucas, Robert, Jr. 1976. Econometric policy evaluation: A critique. *Carnegie-Rochester Conference Series on Public Policy* 1: 19–46.

Lucas, Robert, Jr. 1981. *Studies in business-cycle theory.* Cambridge, MA: MIT Press.

Lucas, Robert, Jr. 1987. *Models of business cycles.* Oxford, UK: Basil Blackwell.

Lucas, Robert, Jr. 1988. On the mechanics of economic development. *Journal of Monetary Economics* 22: 3–42.

Lucas, Robert, Jr. 1989. Why doesn't capital flow from rich to poor countries? *American Economic Review* 80: 92–96.

Lucas, Robert, Jr. 1990. Supply side economics: An analytical review. *Oxford Economic Papers* 42: 293–316.

Lucas, Robert E., Jr. 1995. Prize lecture: Monetary neutrality. http://nobelprize.org/economics/laureates/1995/lucas-lecture.pdf (accessed November 30, 2016).

Lucas, Robert E., Jr. 2002. *Lectures on economic growth.* Cambridge, MA: President and Fellows of Harvard College.

Nobelprize.org. 1995. Robert E. Lucas Jr.—Biographical. http://www.nobelprize.org/nobel_prizes/economics/laureates/1995/lucas-autobio.html (accessed April 12, 2012).

Roberts, Russ. 2007. Lucas on growth, poverty and business cycles: *EconTalk*, February 5. Library of Economics and Liberty. http://www.econtalk.org/archives/2007/02/lucas_on_growth.html (accessed October 2012).

Stokey, Nancy L., and Robert E. Lucas. 1989. *Recursive methods in economic dynamics.* Cambridge, MA: Harvard Univ. Press.

M

MACHLUP, FRITZ

Born: December 15, 1902, in Wiener-Neustadt, Austria; Died: January 30, 1983, in Princeton, New Jersey; Nationality: Austria-Hungarian, naturalized U.S. citizen in 1940; Professional Interests: international monetary theory, information economics; Major Works: *Die Goldkernwahrung* [The gold bullion standard] (1925), The *Production and Distribution of Knowledge in the United States* (1962), *Knowledge: Its Creation, Distribution, and Economic Significance* (1980, 1982, 1983).

Fritz Machlup, an Austrian-American, is considered the father of the idea of the information economy. He was one of the first economists to explore the economics of invention, innovation, and knowledge. Born in Austria, and naturalized as a U.S. citizen after fleeing Nazi Germany, Machlup was a noted international economist specializing in monetary mechanisms, particularly the gold standard. Fritz Machlup's influence on the development of economics and economic theory was significant, as he made contributions in virtually every field of economics in areas of theory, policy, and methodology. Machlup died in 1983.

Fritz Machlup was born on December 15, 1902, in Wiener-Neustadt, Austria. Machlup studied under Friedrich von Weiser and Ludwig von Mises at the University of Vienna, earning his doctorate in 1923. He wrote his dissertation on the gold standard, and it was published in 1925 as *Die Goldkernwahrung*, translated as *The Gold Bullion Standard.* His dissertation adviser was the "father of the Austrian School," Ludwig von Mises.

Machlup followed his father into the cardboard-manufacturing business, forming a paperboard corporation in Hungary in 1923. Machlup continued his interest in economics as a member of the Austrian Economic Society, serving as its treasurer and secretary. He was a participant in the *Geistkreis*, a seminar led by Austrian School leader Ludwig von Mises. In 1927, Machlup published a book on Europe's adoption of the gold standard. He also wrote on German war reparations, and in 1931 he wrote a book on the stock market: *The Stock Market, Credit and Capital Formation.* Receiving a Rockefeller fellowship for the United States in 1933, Machlup spent time at several U.S. universities, including Chicago, Stanford, and Harvard.

In 1935, Machlup accepted a professorship at the University of Buffalo, never to return to Austria professionally. While at Buffalo, he accepted visiting professorships at American University, Columbia, Cornell, Northwestern, Stanford, University of Michigan, Harvard, and University of California, Berkeley. He also was a visiting professor at the Universities of Kyoto, Doshisha, and Osaka in Japan and at Melbourne University in Australia.

In 1947, Machlup joined the faculty of Johns Hopkins University as a professor of political economy. In 1960, he joined the faculty at Princeton University as the director of the International Finance Section and the Walker Professor of International Finance. In 1971, he continued living in Princeton, New Jersey, but left Princeton University and began a teaching tenure at New York University, remaining there until his death in 1983.

Machlup became a U.S. citizen in 1940, and it was natural for him to serve the U.S. government during World War II. He served as a U.S. Department of Labor special consultant for the Post War Labor Problems Division and also the Office of Alien Property. He later served in the U.S. Treasury Department as well.

Machlup's areas of economic interest were quite varied. With his dissertation on the gold standard in 1925, the area of international finance, and specifically the gold standard and international monetary mechanisms, was always in the forefront of his work. During World War II, he wrote several papers on foreign exchange. He continued his work on international finance through the 1950s and 1960s. He attacked Keynes's foreign exchange multiplier approach.

Machlup was a major contributor on other economic fronts as well. He supported the application of economic theory in research on industrial organization, writing two books on industrial organization to substantiate his point. In 1972, he published *Optimum Social Welfare* with coauthors Jan Tinbergen, Abram Bergson, and Oskar Morgenstern. He also revealed the problems of empirical research when questionnaires are used.

In the 1950s, Machlup began his study of the information economy, leading to a series of works on innovation and knowledge that established him as the father of the information economy. In 1958, he published *The Economic Review of the Patent System,* followed by *The Production and Distribution Knowledge in the United States* in 1962. A decade later in 1970 he published *Education and Economic Growth.* Following the publishing of *Information through the Printed Word: Dissemination of Scholarly, Scientific, and Intellectual Knowledge* in 1978, Machlup began his magnum opus on the information economy with a three-volume compilation—*Knowledge: Its Creation, Distribution, and Economic Significance*—which was published in 1980, 1982, and 1983. He died before completing what was planned to be a 10-volume series.

To further his study of international monetary mechanisms and international crisis, in 1963 Machlup assembled a group of academics to research and develop solutions. The Bellagio Group published several books and articles with solutions on the problems facing the world's currency issues. The success of the Bellagio Group established Machlup as the intellectual face for addressing the international monetary issues of the 1960s—and for reforming a monetary system on the verge of collapse. One position on which Machlup reversed himself was that of his long-standing support of the gold standard. He reversed his position on the gold standard knowing the position was considered politically infeasible for the time. While this led to an intellectual split with his mentor, Ludwig von Mises, Machlup was later instrumental in von Mises's publishing of *Human Action*, the "Bible" of the Austrian School of economic thought. The Bellagio Group was the predecessor of the Group of Thirty advisory group.

Machlup died on January 30, 1983, in Princeton, New Jersey, shortly after finishing the third volume of *Knowledge: Its Creation, Distribution, and Economic Significance.*

David A. Dieterle

See also: Tinbergen, Jan; *Vol. 1: Foundations of Economics:* Austrian Economic Thought; Mises, Ludwig von; *Vol. 3: Microeconomics:* Trademarks and Patents

Further Reading

Arnold, Bruce. 2003. Fritz Machlup and the infosphere. Caslon Analytics Biographies. http://www.caslon.com.au/biographies/machlup.htm (accessed September 25, 2011).

Austrian Economics Newsletter Staff. 1980. Interview with Fritz Machlup. *Austrian Economics Newsletter* 3 (1). https://mises.org/library/interview-fritz-machlup (accessed September 25, 2011).

Bitros, George, Ed. 1976. *Selected economic writings of Fritz Machlup.* New York: New York Univ. Press.

Cato Institute Staff. n.d. Fritz Machlup: In memoriam. http://www.cato.org/pubs/journal/cj3n1/cj3n1-2.pdf (accessed September 25, 2011).

Dreyer, Jacob S., ed. 1978. *Breadth and depth in economics: Fritz Machlup—The man and his ideas.* Lanham, MD: Lexington Books.

Machlup, Fritz. 1925. *Die Goldkernwahrung* (dissertation under Ludwig von Mises).

Machlup, Fritz. 1931. *The stock market, credit and capital formation.* Auburn, AL: Ludwig von Mises Institute (English translation, 1940).

Machlup, Fritz. 1958. *The economic review of the patent system.* Ann Arbor: Univ. of Michigan Press and U.S. Government Printing Office.

Machlup, Fritz. 1962. *The Production and distribution of knowledge in the United States.* Princeton, NJ: Princeton Univ. Press.

Machlup, Fritz. 1970. *Education and economic growth.* Lincoln: Univ. of Nebraska Press.

Machlup, Fritz. 1978. *Methodology of economics and other social sciences*. Waltham, MA: Academic Press.

Machlup, Fritz. 1980. *Knowledge: Its creation, distribution, and economic significance.* Vol. 1. Princeton, NJ: Princeton Univ. Press.

Machlup, Fritz. 1982. *Knowledge: Its creation, distribution, and economic significance.* Vol. 2. Princeton, NJ: Princeton Univ. Press.

Machlup, Fritz. 1983. *Knowledge: Its creation, distribution, and economic significance*. Vol. 3. Princeton, NJ: Princeton Univ. Press.

Machlup, Fritz. 2008. *Borsenkredit, Industriekredit Und Kapitalbildung Meilensteine Der Nationalokonomie.* New York: Springer.

Machlup, Fritz, and Kenneth Leeson. 1978. *Information through the printed word: The dissemination of scholarly, scientific, and intellectual knowledge.* Santa Barbara, CA: Greenwood Press.

Thornton, Mark. 2007. Biography of Fritz Machlup (1902–1983). Mises Institute. http://mises.org/about/3237 (accessed September 25 2011).

MACROECONOMICS

Macroeconomics is a study of behavior and decision-making that impacts an economy on a nationwide scale, and it includes such broad economic realities as inflation, employment, and money supply, as well as the government policies that influence all of these forces. Income levels and interest rates are also considered when in the measurement of a macroeconomy.

The term *economics* is derived from the Greek term *oikonomika*, a treatise put forth by the philosopher Aristotle in the fourth century BCE. *Oikos* in Greek refers to a "household," and *nomos*, which evolved from *nemein* in the same language, refers to "management of resources" (Boland 1997). An appreciation of the classical world in 16th- and 17th-century Britain caused the term to be co-opted, and thus *economics* morphed into its current form. The Greeks also provided the prefix describing this element of economics: *macro* meaning "large." By contrast, *microeconomics* refers to economic behavior on a smaller scale, such as within and among firms as well as households. The term *aggregate* is frequently used to describe the practice of taking national economic data as a whole as well.

Viewing a national economy in its totality gained credibility in the 1930s. In 1936, in his work *The General Theory of Employment, Interest and Money*, British economist John Maynard Keynes suggested that left to their own mechanizations, markets will not meet the inherent needs of a society and individuals cannot be relied upon to act in ways that will benefit the greatest number of people in society. Keynes believed that when market forces do not yield a reasonable standard of living, an economy's goals for inflation, employment levels, and economic growth can be influenced by governments for the greatest good.

Keynes's ideas emerged amid the worldwide Great Depression, the same era in which Norwegian economist Ragnar Frisch posited that a broad consideration of factors must inform an understanding of why things were as they were at the time. Awarded the first Nobel Prize for Economic Science years later, Frisch suggested in his 1934 book *Statistical Confluence Analysis by Means of Complete Regression Systems* that most economic variables are interconnected and that no variable could be studied on its own. Frisch labeled this concept econometrics, and by the 1960s, in contrast to a micro approach to the economy, the term *macroeconomics* came into widespread use.

The interconnectedness of certain major economic factors composes this view of macroeconomics. The four factors or economic goals most commonly considered in macroeconomics are production, employment, inflation, and interest rates. Aggregate (total) supply and aggregate demand are also often included in this list, but they can also be seen as aspects of the overall factor of production. It should be noted that the measures of these macroeconomic goals are in what is known in economics as a "ceteris parabis" condition. *Ceteris paribus* is a Latin expression used to express the condition that "all other things remain constant."

The first measure, *production*, is the process of turning tangible inputs into finished goods or services. A *good* is any tangible result of production including a physical product such as an ear of corn or a pair of shoes. A *service* is intangible, such as a theatrical production or cutting down a tree. An economy can improve productivity in two ways: (1) It can use fewer of its limited resources (inputs) to produce the same level of goods and services (outputs), and (2) the economy can use the same quantity of limited resources (inputs) to produce a greater level of goods and services (outputs). In either scenario, the ratio of inputs to outputs is increased, which translates into a higher standard of living. This can also be viewed from the relationship between aggregate demand and aggregate supply.

The evolution of technology has broadened the list of what could be called tangible inputs, but still falls into one of three basic categories: human resources, natural resources, and capital resources. *Human resources* are simply the people whose time, skill, and effort go into creating a good or providing a service, be it assembling an automobile or cleaning a hotel room. These and all tasks involve labor, which is the physical or mental effort expended toward an end over a perpetually precious resource time. *Natural resources* are the raw materials found in the natural world, from trees of the forests that can be processed into timber for construction to fossil fuels that can be extracted for energy needs. As tools and devices are often needed for production, *capital resources* or capital goods are the third set of inputs. Machines, vehicles, and devices that humans have created to aid in the production of other products are capital resources.

The cumulative value of all the factors of a nation's output over a period of time is known as either gross national product (GNP) or gross domestic product (GDP). GNP was used as a measurement of a nation's economy in the 1950s through the 1970s. As foreign investment in the United States and production by U.S. firms outside the 50 states grew, the GDP measure came into wider use. GDP includes all good and services produced from all sources within a nation's territory, while GNP includes production by all firms of a nation produced anywhere. Both GNP and GDP are calculated and reported by the Bureau of Economic Analysis (BEA).

A second measure of a macroeconomy is *employment levels*, or the use of human labor in the production of a good or service in exchange for compensation. As industrialization brought innovation and expansion to manufacturing in the later centuries, individuals who were willing to offer their labor to founders of various firms found themselves employed in exchange for wages. In theory, the lower the unemployment rate, with more individuals in an economy willing and able to produce the goods and services, the more workers there are earning a wage to spend on goods and services. Ceteris paribus, greater levels of employment mean more demand, and this would warrant more production expanding an economy and GDP measure. While full employment—the condition of every individual who is seeking work finding work—sounds ideal, a frequent consensus among economists is that an unemployment rate under 5 percent is de facto full employment. The Bureau of Labor Statistics (BLS), a component of the Department of Labor, measures the unemployment rate in several ways.

A third measure of a macroeconomy is the general price level of goods and services, measured by inflationary or deflationary pressures. These measures can be based on the economic activity of consumers relative to the economic activity of producers, or it can be based on an increase in the costs of an economy's inputs in producing goods and services (outputs). Thus, a related measure is the size of the money supply in an economy relative to the quantity of goods and services. These macroeconomic measures focus on inflation or deflation in an economy.

Inflationary pressures are present when consumer demand far exceeds the producers' ability to supply goods and services, and pulls prices upward. If producers' input prices rise and exceed their costs of production, the producers are forced to push output prices upward. The latter scenario, when the money supply is far larger than the amount of goods and services in an economy, is inflationary. Deflationary scenarios are simply the reverse.

Inflationary and deflationary pressures also impact the fourth measure: nominal *interest rates*. Nominal interest rates are important in an economy, because they determine the level of productive activity for major purchases like homes and automobiles. Higher nominal interest rates will slow this activity, while lower nominal in theory increase it.

Each of these elements of an economy is interdependent. Each impacts the other elements, making a macro view of the economy the more informed one. Understanding how production, employment, inflation, and interest rates interact with each other is the macroeconomic perspective of today's financial realities.

David S. Allen

See also: Bureau of Economic Analysis; Bureau of Labor Statistics; Deflation; Economic Growth, Measures of; Federal Reserve System; Inflation; Inflation, Measures of; *Vol. 1: Foundations of Economics:* Circular Flow of Economic Activity

Further Reading

Boland, D. G. 1997. Economics and Aristotle's *Division of the sciences.* Center for Thomistic Studies, Sydney, Australia. http://www.cts.org.au/1997/aristotl.htm (accessed November 22, 2014).

Deuteronomy 23: 19–20. *The New Oxford Annotated Bible with the Apocrypha*. Revised Standard Edition, 243. New York: Oxford Univ. Press, 1965.

Keynes, John Maynard. 1935. *The general theory of employment, interest and money*. New York: Harcourt Brace.

Morris, Pamela. 2014. Unemployment drops to five-year low. *Fund strategy*, May 14. https://www.fundstrategy.co.uk/issues/online-may-2014/uk-unemployment-drops-to-five-year-low/ (accessed November 22, 2014).

Nobelprize.org. 1969. Biographical—Ragnar Frisch. http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1969/frisch-bio.html (accessed November 22, 2014).

Schoen, John W. 2014. Here's why the mortgage refi boom is over. CNBC. http://www.cnbc.com/id/102075422 (accessed November 22 2014).

Zera. 2013. Ragnar Frisch, Jan Tinbergen economics and the development of large macroeconometric models. Economics Theories: History of Economic Theory and Thought. http://www.economictheories.org/2008/08/ragnar-frisch-tinbergen-economics.html (accessed November 22, 2014).

MANKIW, N. GREGORY

Born: March 2, 1958, in Trenton, New Jersey; Nationality: American; Professional Interests: macroeconomics, public policy economics; Major Works: *Principles of*

Economics (1st ed., 2000), *Intermediate Macroeconomics* (2010), *Macroeconomics and the Financial System* (with Laurence Ball) (2010).

N. Gregory Mankiw is one of the major contributors to new Keynesian economics theory. New Keynesian economic theory was developed in response to the new classical economic theorists' criticisms of the traditional Keynesian model. Through his writings and textbooks, he is considered one of the key interpreters of the neo-Keynesian theory to the general public. He also is a major contributor to the current macroeconomic policy debate and its development.

Nicholas Gregory Mankiw was born in Trenton, New Jersey, on March 2, 1958, to Ukrainian parents. Professor Mankiw holds a BA in economics from Princeton University and a PhD in economics from the Massachusetts Institute of Technology. He has been influenced throughout his career by many famous economists of differing viewpoints, including John Maynard Keynes, Arthur Pigou, Stanley Fischer, and Milton Friedman.

Mankiw's research interests include the U.S. economy, entitlements, international trade policy, price adjustment, consumer behavior, financial markets, monetary and fiscal policy, and economic growth. Mankiw's interest and study of economics has led him to author several textbooks, write a daily blog, and receive many honors. He is Robert M. Beren Professor of Economics at Harvard University. His teaching includes the very popular Principles of Economics course. He is also a visiting research fellow at the American Enterprise Institute. From 2003 to 2005, he was chairman of President George W. Bush's Council of Economic Advisers. He also maintains a blog that is read widely across the United States and the world (http://gregmankiw.blogspot.com).

Mankiw has authored several of the most popular textbooks used in high school and college economics courses, including *Principles of Economics,* in its sixth edition; *Intermediate Macroeconomics,* in its seventh edition; and his newest text, *Macroeconomics and the Financial System*, with Laurence M. Ball, in its second edition. His academic papers are published in such journals as *American Economic Review, Journal of Political Economy,* and the *Quarterly Journal of Economics.* He is a frequent contributor to the *New York Times,* reflecting the views of the new Keynesian economics.

Mankiw's contributions to new Keynesian economics highlight the disagreement with new classical economics regarding the adjustment of wages and prices. Classical and monetarist theory says that in the short run, changes in the money supply affect employment and production levels. New classical economics theorizes that wages and prices are flexible, allowing markets to clear and regain their equilibrium (rebalancing demand and supply). New classical thinkers Robert Lucas Jr., Thomas J. Sargent, and Robert Barro have criticized Keynesian theory (*General Theory of Employment, Interest and Money*), saying the Keynesian model does not explain when wage and price changes are slow, demand and supply equilibrium (market-clearing mechanism) can be achieved.

Through his writings and textbooks, Mankiw is one of the leading authors to interpret the new Keynesian theory and make it understandable to the general public. Mankiw's writings are a response to the criticisms levied by the new classical economists regarding the initial market-clearing mechanism (prices determined by equal demand and supply) first proposed by John Maynard Keynes. The new Keynesian economics suggests that markets do not clear (where demand and supply are equal) quickly—and that economic fluctuations are explained through models where wages and prices are not as mobile or flexible as the new classical economists contend. This new Keynesian model includes involuntary unemployment, along with the important role of monetary policy to adjust supply-and-demand conditions when markets do not clear (which is assumed in the new classical thinking).

In the 1990s, a combination view emerged between the new classical and new Keynesian theorists. Mankiw's textbooks reflect this consensus view of a dynamic economy—with inflexible components and market imperfections in the short run, but ultimately a dynamic economy that adjusts in the long run.

Mankiw's awards include the Wolf Balleisen Memorial Prize in 1980 and the Galbraith Teaching Prize in 1991.

Martha R. Rowland

See also: Council of Economic Advisors; Fiscal Policy; Fischer, Stanley; Friedman, Milton; Lucas, Robert, Jr.; Pigou, Arthur Cecil; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics

Further Reading

Ball, Laurence, and Gregory Mankiw. 2010. *Macroeconomics and the financial* system. 2nd ed. New York: Worth.

Harvard.edu. n.d. N. Gregory Mankiw biography. Department of Economics. http://www.economics.harvard.edu/faculty/mankiw (accessed August 6, 2011).

Mankiw, Greg. n.d. Greg Mankiw's blog: Random observations for students of economics. http://gregmankiw.blogspot.com/index.html (accessed August 6, 2011).

Mankiw, Gregory. 2010. *Intermediate macroeconomics.* 7th ed. New York: Worth.

Mankiw, Gregory. 2011. *Principles of economics.* 6th ed. Boston: South-Western.

Mankiw, N. Gregory, and David Romer, eds. 1991. *New Keynesian economics.* 2 vols. Cambridge, MA: MIT Press.

MCCULLOCH V. MARYLAND

In 1790, Alexander Hamilton, the first U.S. Secretary of the Treasury, was adamant regarding the importance of a central bank to the stability of property within a nation. The First Bank of the United States was started to help manage the Revolutionary War debt. The Second Bank of the United States was established in 1816 with the intention of serving the nation's commercial and banking needs.

Unlike the power to create post offices, the power to create banks is not stated in the Constitution. However, the powers to lay and collect taxes, borrow money, regulate commerce, declare war, and raise and support armies and navies are listed in the Constitution. These powers include a considerable portion of the industry of the nation. The United States did not create a bank simply to be in the banking business, but rather as a means to carry out its expressed duties. The architects of the Constitution intended there to be inherent powers in the government, in addition to those necessary and proper to carry out the government's responsibilities. The Supreme Court case *McCulloch v. Maryland,* 17 U.S. 316 (1819) confirmed the federal government's authority to establish a national bank.

Case Summary

In 1811, the U.S. Congress lacked the one vote necessary to continue the First Bank of the United States. Consequently, in 1816, after the War of 1812, Congress set up the Second National Bank to assist in dealing with the economic consequences of yet another war debt on the nation. The Second Bank functioned as a clearinghouse; it held large quantities of state banks' notes in reserve, and it could discipline banks with the threat of redeeming those notes if there was any concern regarding unregulated currency (the over-issuing of notes). In effect, this procedure functioned as an early bank regulator.

The Second National Bank was similar in structure to the First Bank in that the government held one-fifth of the shares, but the Second National Bank had more than double the capital. The Second National Bank opened in Philadelphia and added branches in other states, one of which was in Baltimore, Maryland. In reaction to the branch bank opening in the state of Maryland, the General Assembly of Maryland enacted a tax on all banks, or branches thereof, within its boundaries that were not chartered by the legislature of the state of Maryland. This tax was based on the transactions of bank notes. Any bank not chartered by the authority of the state was required to use special stamped paper for its bank notes and, in effect, pay 2 percent of the value of the notes as a tax, or pay a general tax of $15,000 a year. Many states, particularly in the West and the South, attempted to keep branches of the national bank out of their states by passing similar state laws. The power to tax the federal bank notes had the potential to close the national bank's doors within the state of Maryland.

James McCulloch, a cashier for the Baltimore branch of the Second National Bank, refused to pay the tax. In response to the bank's failure to pay the tax or follow Maryland law, a representative of the state of Maryland took the bank deposits (totaling over $2,000) from the Baltimore branch of the Second National Bank. McCulloch was then sued for violating the Maryland Act.

James McCulloch admitted in Baltimore County Court that he was not complying with the Maryland rule to pay the tax or the annual lump sum. The county court found in favor of Maryland. The case was appealed to the Court of Appeals of the state of Maryland, which affirmed the county court's ruling. This was the culmination of a huge dispute between the federal and state governments that the Supreme Court was required to remedy.

The case was taken by writ of error (in this case a command by the U.S. Supreme Court for the records of a case, in order that some alleged error in the proceedings of that case might be corrected) to the U.S. Supreme Court. The petitioner, James McCulloch, was more than a federal bureaucrat; he was essentially the power of the federal government. The respondent was the state of Maryland.

The case was heard on February 22, 1819, in front of a seven-member court led by Chief Justice John Marshall. The Supreme Court heard oral arguments and narrowed the case to two fundamental questions. First, can the national government create a bank? This was not an unfamiliar issue. Since the opening of the First National Bank, there had been an ongoing debate in Congress as to whether or not this was within the constitutional powers of the federal government. Although there was no enumerated power granted to Congress to incorporate a bank, there was the implied power that the Court felt was inherent within the government to perform the other responsibilities and expectations the people had of the government. In addition, the power granted in the U.S. Constitution to Congress to make laws that are necessary to carry out the execution of the enumerated and expressed powers is clearly stated in the Constitution. The end result must be the legitimate accomplishment of the role of government. Chief Justice Marshall expressed the opinion of the Court that it was in fact within the power of Congress to create a bank.

Therefore, a second question followed: If it is constitutional for the government to create a bank, can a state tax that entity if it is within the boundaries of the state? The Court's retort to Maryland's claim—that the Constitution was enacted by independent states and therefore subordinate to the states—was that this claim was inaccurate. The Court expressed the thought that the Constitution was ratified by three-fourths of the states. The Constitution's reference to "We the People" is a collective response to accepting the legality of the Union. Legitimizing the Union as stated in the Constitution as the superior law of the land relegated the previous sovereignty of the states, which created it, subordinate. Therefore, although limited in its powers, the Constitution is supreme over state laws, and the states cannot apply taxes that would possibly destroy federal legislative law.

For that reason, the state of Maryland's tax on the U.S. Bank was found to be unconstitutional. In a unanimous decision on March 6, 1819, the Marshall Court reversed the judgment of the lower court. This landmark case by the Supreme Court established the precedent of supremacy of the federal government over the states.

Kathleen C. Simmons

See also: Debt; Federal Reserve Act of 1913; Federal Reserve System; *Juilliard v. Greenman*; Taxes; *Vol. 1: Foundations of Economics:* Central Bank

Further Reading

Chicago-Kent College of Law at Illinois Tech. n.d. *McCulloch v. Maryland*. Oyez. http://www.oyez.org/cases/1792-1850/1819/1819_0 (accessed November 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. *McCulloch v. Maryland 100 U.S. 1.* http://www.law.cornell.edu/supct/html/historics/USSC_CR_0017_0316_ZO.html (accessed November 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. Syllabus: *McCulloch v. Maryland 100 U.S. 1.* http://www.law.cornell.edu/supct/html/historics/USSC_CR_0017_0316 _ZS.html (accessed November 30, 2016).

Internet Archive. 1977. *McCulloch v. Maryland*. Judicial Conference of the United States. http://archive.org/details/gov.ntis.AVA02154VNB1 (accessed November 30, 2016).

Ourdocuments.gov. n.d. *McCulloch v. Maryland* (1819). http://www.ourdocuments.gov/doc.php?flash=true&doc=21 (accessed November 30, 2016).
Ourdocuments.gov. n.d. Transcript of *McCulloch v. Maryland* (1819). https://www.ourdocuments.gov/doc.php?flash=true&doc=21&page=transcript (accessed November 30, 2016).

MEDICAID

Medicaid is a U.S. government health care program for lower-income citizens. The federal program is integrated with individual Medicaid state programs. Medicaid includes a special program, called the Children's Health Insurance Program or CHIP program, to help lower-income children. Parents of children who receive CHIP benefits are not necessarily Medicaid recipients.

Medicaid and CHIP cover approximately 60 million Americans. Those insured with Medicaid include children, pregnant women, parents, seniors, and individuals with disabilities. Federal law requires states to cover certain population groups, called the "mandatory eligibility groups," and it offers states the option to cover other population groups, or "optional eligibility groups."

After meeting the federal coverage guidelines, many states grant expanded coverage above the federal minimums, especially for children's support.

Medicaid Eligibility

The Affordable Care Act of 2010 designated the national Medicaid minimum eligibility level to be 133 percent of the federal poverty level. The 2014 eligibility level for Medicaid for a family of four is $31,720.50; this is the maximum income level for a family of four to be eligible for Medicaid benefits. The federal poverty level is updated annually to ensure that eligible citizens are covered.

In addition to income-level criteria, there are further eligibility requirements for Medicaid recipients. To receive Medicaid, individuals need to meet certain federal and state guidelines regarding residency, immigration status, and U.S. citizenship documentation.

In some cases, states may apply for waivers to cover individuals who aren't ordinarily eligible for Medicaid benefits.

Medicaid Benefits

Medicaid benefits are divided into two categories: mandatory and optional. Mandatory benefits include inpatient and outpatient hospital services as well as early periodic screening diagnostic treatment (EPSDT). This benefit is important for ensuring that children under age 21 obtain appropriate care services to facilitate their physical, dental, and mental health.

Mandatory benefits also encompass nursing care, home health services, physician services, laboratory and X-ray tests, family planning, nurse midwife care, and transportation to medical care.

Optional benefits are provided at the states' discretion. States elect whether to offer prescription drug coverage and physical, occupational speech, and respiratory care services. Podiatry, optometry, dental, chiropractic, and related services are also optional. At present, all states provide prescription drug programs.

Similar to the co-pays required by many health care plans, states may also require co-pays or cost-sharing for Medicaid enrollees. The most vulnerable groups—children and pregnant women—are exempt from most out-of-pocket costs.

States also may also charge higher co-payments when individuals visit a hospital emergency department for nonemergency services. This requirement is in place because some lower-income individuals tend to use emergency room services in lieu of other types of clinics and medical facilities.

Long-Term Services and Support

The elderly are particularly at risk for depleting their financial resources due to excess medical costs. After the elderly have exhausted their financial resources, they may need to rely on Medicaid for medical care and other life maintenance support services.

The Medicaid program may also cover institutional care, home care, and community-based long-term care and support. As the U.S. population continues to age, the Medicaid program may be stressed as it is expected to cover more eligible elderly citizens.

The institutions caring for elderly Medicaid recipients are residential and cover all care for the admitted occupants. The care includes room and board. The caregiving institutions must meet certain standards, must be licensed, and must be certified by the state. Other names for these facilities are nursing homes, extended care, and senior citizens homes.

Community-Based Long-Term Services and Support

These services are designated for individuals with disabilities and chronic conditions. The care for citizens with disabilities and chronic conditions strives to maintain independence and a reasonable level of health and quality of care. There are partnerships and programs to assist these candidates.

Long-term community-based services and support vary from state to state, but the states maintain certain characteristics in common. Medicaid attempts to allow the program recipients to maintain control and decide where and with whom they live as well as what services they receive. The services strive for a high level of quality and are coordinated with all providers. Finally, due to the multicultural nature of the U.S. citizenry, the services are sensitive to the participants' individual cultural needs. In sum, the government attempts to promote self-respect, control, and independence for service recipients.

How Are Medicaid's Bills Paid?

As previously stated, Medicaid is funded by the federal and state governments. The federal government pays each state a percentage payment, called the Federal

Medical Assistance Percentage (FMAP). The average FMAP is 57 percent, but the range is from a low of 50 percent, in wealthier states, to 75 percent in states with lower revenues. The maximum regular FMAP is capped at 82 percent.

The states negotiate payments to providers, such as managed care organizations, to deliver the Medicaid services.

Children's Health Insurance Program

The Children's Health Insurance Program, or CHIP, covers approximately eight million children in families that have incomes too high to receive Medicaid benefits but that cannot afford private medical insurance coverage. This program became law in 1997.

Similar to the Medicaid program, CHIP is funded by both the federal and state governments. The federal government designed the contribution rate to be favorable to the states, in order to benefit a greater number of uninsured children.

The Affordable Care Act improved Federal CHIP funding by 23 percent. This brings the federal matching rate for CHIP to 93 percent.

States have the option of operating CHIP independently of Medicaid, as an arm of the Medicaid program, or as a combination of both types.

Barbara A. Friedberg

See also: Entitlements; Medicare; *Vol. 1: Foundations of Economics:* Health Economics; Social Security; *Vol. 3: Microeconomics:* Affordable Care Act Cases; Health Insurance

Further Reading

Cavanaugh, John C., and Fredda Blanchard-Fields. 2014. *Adult Development and Aging.* 7th ed. Mason, OH: Cengage.

Medicaid.gov. n.d. Medicaid information by topic. http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/By-Topic.html (accessed May 21, 2014).

U.S. Department of Health & Human Services. 2015. Poverty guidelines. https://aspe.hhs.gov/poverty-research (accessed May 20, 2014).

MEDICARE

Medicare is a U.S. government-run insurance program that helps offset the costs of medical care. The program is available to individuals over age 65, as well as certain younger people with disabilities, permanent kidney failure, or Lou Gehrig's disease (amyotrophic lateral sclerosis). The Medicare program applies to working and nonworking individuals. Since Medicare covers medical expenses only partially, an integral extension of the program is the opportunity to purchase a Medicare supplement policy (Medigap) from a private insurance company in order to cover some of the costs not included in Medicare.

The Centers for Medicare and Medicaid Services at the Social Security Department implement the program. Medicare is partially financed by the payroll taxes paid by workers and employers. The other part of Medicare funding is paid by premiums deducted from retirees' Social Security checks.

History of Medicare

President Lyndon B. Johnson signed the Medicare and Medicaid programs into law on July 30, 1965. The Medicare program was created to provide health insurance for people over age 65 at a time when insurers were not insuring senior citizens. The greatest medical financial concern during the era of Medicare's creation was that an insurmountable hospital bill would destroy an individual's finances. Medicare was created in the paradigm of the private insurance system in place in the 1960s. Private insurance offered fewer choices and assisted with much lower medical costs than we experience today. There is controversy that as health care has evolved, Medicare changes have not kept up.

Parts of Medicare

Medicare Part A is the hospital insurance. It helps cover inpatient hospital care, skilled nursing facility care, hospice, and home health care. Consumers usually don't pay a premium for Part A coverage if they or their spouse paid Medicare taxes while employed. Another name for Part A is premium-free Part A. People who are not eligible for Part A may be able to purchase this coverage.

Medicare Part B is the medical insurance portion. This part of Medicare covers a portion of the costs associated with doctor visits and other health care provider visits. Part B also offsets the costs of outpatient care, home health care, durable medical equipment, and some preventive services. Most Medicare recipients pay the standard monthly Part B premium (or charge). The Part B premium or charge is deducted from the individual's Social Security payment. Private companies offer a Medicare Supplement Insurance policy (Medigap) to help pay additional charges not covered under Medicare Part B.

Medicare Part C, or Medicare Advantage, is sponsored by Medicare-endorsed private insurance companies. Part C includes all the benefits and services of Parts A and B and usually provides prescription drug coverage (Part D) as well. For an extra cost, Medicare Advantage may also include additional benefits.

The fourth part of Medicare, Part D, covers prescription drugs. This program is also supported by Medicare-chosen private insurance companies.

Where Medicare Is Lacking

There are many health care services not covered by Medicare. For example, Medicare does not cover routine dental care, eyeglasses, hearing aids, and most long-term care. Nursing home care is not covered for Medicare patients, but it may be available under the Medicaid program for consumers with less than $2,000 in assets.

As with most government services, there are debates and criticisms about Medicare. According to the National Academy of Social Insurance (NASI) Study Panel on Medicare Financing, the biggest concerns are that Medicare leaves the elderly with large out-of-pocket costs and expensive supplemental insurance. The research estimates that typical Medicare eligible individuals spend approximately 19 percent of their income on medical care and insurance. This percentage is projected to rise to 30 percent of income by 2025 if health care costs continue their current trajectory.

Medicare, Demographic Trends, and the Future

In "The Future of Medicare" (see under "Further Reading" at the end of this entry), NASI offers some startling statistics: As the baby boomer generation (born between 1946 and 1965) ages, Medicare will be pressured. There is data to suggest that by 2030, Medicare enrollment will double to approximately 80 million people. Compound that projection with the decline in available workers supporting retirees, and there is potential for a large shortfall in Medicare funding.

In 2010, Medicare spending totaled about 3.6 percent of the gross domestic product (GDP). By 2030, according to NASI, the percentage of GDP spent on Medicare is expected to increase to 5.1 percent.

In 2014, the Affordable Care Act gave Medicare recipients expanded benefits, such as preventative service, cancer screening, and yearly "Wellness" visits, without out-of-pocket charges.

The Medicare funding projections will impact both government and consumer spending in the future. With health care costs growing faster than the rate of inflation, modern money management requires consumers to be educated about this health care insurance topic for themselves and their family members.

Barbara A. Friedberg

See also: Entitlements; Gross Domestic Product; Taxes; *Vol. 1: Foundations of Economics:* Health Economics; Social Security; *Vol. 3: Microeconomics:* Affordable Care Act Cases; Health Insurance; Retirement Accounts

Further Reading

Medicare.gov. n.d. *Medicare and you 2017*. https://www.medicare.gov/pubs/pdf/10050.pdf (accessed September 22, 2016).

Medicare.gov. n.d. The affordable care act & medicare. http://www.medicare.gov/about-us/affordable-care-act/affordable-care-act.html (accessed March 4, 2016).

National Academy of Social Insurance (NASI). n.d. The future of Medicare. https://www.nasi.org/learn/medicare/future-medicare/ (accessed September 20, 2016).

National Academy of Social Insurance (NASI). n.d. Medicare. http://www.nasi.org/learn/medicare/ (accessed September 20, 2016).

MENOMINEE TRIBE V. UNITED STATES

In 1961, Congress enacted the Menominee Termination Act. The act terminated the Menominee tribe's traditional hunting and fishing rights in Wisconsin. The Menominee Indians felt this act violated their property rights as given to them in the earlier Wolf River Treaty. The court case centered on the Menominee Indians' property rights as they related to Wisconsin's water and land common-pool resources (i.e., Wisconsin's public waters and lands). Also in question was whether the U.S. government would be subject to rule of law and if property rights that the government had earlier granted would be upheld. A secondary economic relevance would be the precedence set for states to collect hunting and fishing fees—that is, to generate state revenue—from the hunting and fishing activity of the states' Indian population.

Case Summary

The Supreme Court's responsibility in *Menominee Tribe v. United States*, 391 U.S. 404 (1968) was to determine if the Menominee Termination Act, enacted by Congress in 1961, terminated hunting and fishing rights granted in the Wolf River Treaty of 1854. In this treaty, the hunting and fishing rights within the territory described as the Menominee Reservation were not specifically stated, but legally implied, and would therefore constitute property rights and require just compensation. With federal recognition, the Menominee tribe had a flourishing economy. It ran a lucrative timber industry and hospital, utilities, and education systems. It paid Bureau of Indian Affairs (BIA) salaries and had other such examples of infrastructure and economic success. In terms of overall economic well-being, the Menominee tribe was categorized as prosperous within the Indian tribes of the United States.

In 1954, Congress began the process of ending recognition, and by 1961, Congress had terminated the Menominee tribe's federal recognition completely through the Menominee Termination Act. With this act, the government terminated the tribe's right to govern itself, and to receive federal support for health care, education, and fire and police protection, as well as tribal rights to lands. Consequently, the Menominee Reservation boundaries became Menominee County, Wisconsin. In preparation for this termination, the Menominee tribe incorporated the boundaries of the Indian reservation and set up a charter that enabled the tribal council to remain the governing entity. However, the tribe lost the utility, education, and hospital systems and much revenue from the timber industry. As a county, it had no tax base to support basic infrastructure. The tribe was also under the laws and jurisdiction of the state of Wisconsin. Within a few years of the termination, the Menominee tribe was categorized among the poorest within the Indian tribes of the United States. The Menominee considered the traditional rights to hunt and fish the territory as essential to economic survival.

The Menominee tribe had lived in the area that became the states of Wisconsin, Michigan, and Illinois for thousands of years. Through a series of treaties made with the U.S. government in the 1800s, the area of land they inhabited was reduced from millions of acres to just over a couple hundred thousand acres in the area of northern Wisconsin.

The current land area is referred to as an Indian reservation. Although the definition of "Indian" in the United States is complicated, the United States establishes the legal status of an Indian tribe according to laws and acts passed by the U.S. Congress.

The Menominee tribe was federally recognized as one of over 500 tribes in the United States and therefore granted self-governing powers much like a state, excluding such powers as making war and coining money. The 1961 Menominee

Termination Act changed the social, political, and economic fortunes of the tribe by removing federal assistance and placing the tribe under state authority. In addition, the termination forced a restructuring of the tribe as a corporate organization.

In 1962, tribal members Joseph Sanapaw, William Grignon, and Francis Basina were charged with violating state hunting and fishing regulations by hunting deer with headlights or flashlights, a process known as "deer shining." They admitted this act in court, but they claimed that the Wolf River Treaty signed in May 1854 secured their right to hunt and fish. The state trial court agreed and acquitted the three. The state appealed to the Wisconsin Supreme Court, which agreed that although the Wolf River Treaty did not specifically mention hunting and fishing rights, it certainly implied them, and upheld that claim. Following that determination, the court held that the Menominee tribe no longer had hunting and fishing rights due to the Termination Act by the federal government ending its treaty rights as well as its Indian recognition.

The Supreme Court would not grant certiorari (a writ to the lower court to send the case to them for review) at this point; therefore, the tribal members appealed to the Federal Court of Claims to recover compensation from their loss of hunting and fishing rights. Retaining their rights to hunt and fish within the territory established by the Wolf River Treaty as the Menominee Reservation was the essential goal. Acknowledgment of the current economic hardships faced by the tribe and pursuit of just compensation for the loss of formerly granted rights were secondary aims.

The Court of Claims held that the Menominee Termination Act did not end the tribe or its membership, but abolished federal trusteeship of the tribe. The tribe had a right to claims of the Wolf River Treaty, and therefore, the court denied the right to compensation but upheld the tribe's right to fish and hunt not subject to state jurisdiction. The opposite rulings by the Wisconsin State Supreme Court and the Federal Claims Court brought the issue to the U.S. Supreme Court.

This case is unusual in that both the Menominee (the appellee) and the United States (the appellant) argued that the decision of the Court of Claims should be affirmed. In this case, the Supreme Court invited the state of Wisconsin to participate in the court hearings as an *amicus curiae* (one who is not a party to the case, but believes the court's decision may have a relevant impact on its interest). When Congress ended federal recognition of the Menominee tribe in 1961, the hunting and fishing rights that were implied in the Wolf River Treaty of 1854 were terminated. Therefore, the state of Wisconsin argued that the Court of Claims ruling should be reversed. Consequently, the state of Wisconsin contended that the tribe should be given just compensation for that taking. However, the Menominee argument focused on the hunting and fishing rights within the current incorporated boundaries of the terminated Menominee Reservation. The tribe considered these rights guaranteed to them by the Wolf River Treaty, whether the federal government ended recognition of the tribe in 1961 or not. The Federal Claims Court was in agreement with the Menominee.

The Supreme Court, led by Chief Justice Earl Warren, heard arguments on January 22, 1968, and again on April 26, 1968; the Court decided the case on May

27, 1968. The Supreme Court held that the tribe retained its hunting and fishing rights under the Wolf River Treaty of 1854, as the fishing and hunting rights were implied in the treaty. In addition, the Court stated that these rights were not abolished by the Termination Act, but rather would necessitate specific congressional statutes, and without these plain and simple statements by Congress, these rights could not be taken away. In his dissenting opinion, Justice Stewart acknowledged the hunting and fishing rights given to the Menominee tribe in the Wolf River Treaty, but agreed with the state of Wisconsin that Congress nullified those rights with the Termination Act. Justice Stewart, joined by Justice Black, therefore would have reversed the decision of the Federal Claims Court, letting the ruling of the Wisconsin State Supreme Court stand. Of the hundreds of treaties signed by the U.S. government with the Native Americans, less than 1 percent were honored. This decision placed the Wolf River Treaty in that small percentage. However, the greater impact was in expanding the rule of law for a portion of the population with very little history of secured property rights, thereby stretching the tent of American promise over a wider group of "We the people."

Kathleen C. Simmons

See also: Property Rights; Public Goods; Taxes; *Vol. 3: Microeconomics:* Common Property and Common-Pool Resources; Tragedy of the Commons

Further Reading

Chicago-Kent College of Law at Illinois Tech. n.d. *Menominee Tribe of Indians v. United States*. Oyez. http://www.oyez.org/cases/1960-1969/1967/1967_187 (accessed November 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. *Menominee Tribe of Indians, Petitioner, v. United States*. http://www.law.cornell.edu/supremecourt/text/391/404 (accessed November 30, 2016).

Justia Supreme Court Center. n.d. *Menominee Tribe of Indians v. United States, 391 U.S. 404* (1968). http://supreme.justia.com/cases/federal/us/391/404/ (accessed November 30, 2016).

MILLER, G. WILLIAM

Born: March 9, 1925, in Sapulpa, Oklahoma; Died: March 17, 2006, in Washington D.C.; Nationality: American; Professional Interests: Chairman of the Board of Governors of the Federal Reserve (1978–1979), Secretary of the Treasury (1979–1981).

G. William Miller was born in 1925 in Sapulpa, Oklahoma, but was raised in Borger, Texas. His father was a businessman who started a furniture store during the oil boom, which would later fail as a result of the Depression.

William Miller attended junior college in Texas before joining the U.S. Coast Guard. While in the Coast Guard, he pursued a degree in engineering. He graduated from the Coast Guard Academy in New London, Connecticut, with a BA degree in marine engineering. Following graduation, he served as a Coast Guard line officer in Okinawa and Shanghai. In Shanghai, he met Ariadna Rogojarsky, a Russian émigré. They were married in 1946.

After completing his service in the U.S. Coast Guard, Miller earned a law degree from Boalt Hall School of Law at University of California, Berkeley. After finishing at the top of his law school class, Miller joined Cravath, Swaine & Moore, a Wall Street law firm.

In 1956 he left the firm and joined Textron Inc. In 1960 Miller was named president of Textron, and in 1968 he became Textron's Chief Executive Officer. In 1974, he added Chairman to his titles along with CEO. While at Textron, he became a reputable business leader, winning the respect of his community and business leaders. He was credited with growing Textron into a global manufacturing firm.

Miller was involved in Democratic politics, which would ultimately lead to his appointment as Federal Reserve Board Chairman by Jimmy Carter. Before being appointed Fed Chairman, Miller served as a director at the Federal Reserve Bank of Boston. Miller endorsed expansionary monetary policy to promote economic growth rather than simply fighting inflation. He wanted the Federal Reserve to encourage investment, which he felt the Fed could control more than inflation. He also wanted to reduce consumption of foreign oil, cut government spending and taxes, and moderate wage demands and price increases. Miller believed inflation was out of the Fed's range of control, and he believed that the dual mandate of fighting inflation and lowering unemployment could be tackled together.

In 1979, President Carter appointed Miller Secretary of the Treasury. As Treasury secretary he negotiated the $1.5 billion loan guarantee to Chrysler Corporation to prevent the company from filing for bankruptcy. He also arranged both the freezing and unfreezing of Iranian assets during the 1979–1980 Iranian hostage crisis. As Treasury secretary he held government positions with the U.S. Industrial Payroll Savings Committee, and he chaired Plans for Progress for President Carter.

After completing his time as the Federal Reserve Board chairman and secretary of Treasury, Miller founded G. William Miller & Co., a Washington private investment company. Recruited by Presidents Kennedy, Johnson, and Carter to positions to combat unemployment and develop equal employment opportunities, as well as fighting inflation and promoting private investment through tax policies and his role at the Fed.

William Miller died at the age of 81 on March 17, 2006, in Washington, D.C.

Amber Thomas

See also: Bernanke, Ben; Burns, Arthur; Federal Reserve System; Greenspan, Alan; U.S. Treasury; Volcker, Paul; *Vol. 3: Microeconomics:* Chrysler Bankruptcy, 1979

Further Reading

Bernstein, Adam. 2006. Fed chairman G. William Miller, 81. *Washington Post*, March 20. www.washingtonpost.com/wp-dyn/content/article/2006/03/19/AR2006031901108.html (accessed November 30, 2016).

Federal Reserve History. n.d. G. William Miller. www.federalreservehistory.org/People/DetailView/42 (accessed November 30, 2016).

McFadden, Robert D. 2006. G. William Miller, former chairman of Federal Reserve and Treasury secretary, dies at 81. *New York Times*, March 19. www.nytimes.com/2006/03/19/national/19miller.html (accessed November 30, 2016).
U.S. Department of the Treasury. 2010. About G. William Miller (1979–1981). www.treasury.gov/about/history/pages/gwmiller.aspx (accessed November 30, 2016).

MONETARIST ECONOMIC THOUGHT

Monetary policy uses instruments such as interest rates to adjust the amount of money in the economy. Monetarists believe the objectives of monetary policy are best met by targeting the growth rate of the money supply. Monetary economic thought gained prominence in the 1970s to bring down inflation in the United States and the United Kingdom. It greatly influenced the Federal Reserve's decision to stimulate the economy during the global recession of 2007–2009.

Nobel laureate Milton Friedman is a key economist associated with the popular rise of monetary economic thought. Friedman argued that poor monetary policy by the U.S. central bank, the Federal Reserve, was the primary cause of the Great Depression in the United States in the 1930s. The failure of the Federal Reserve to offset forces that were putting downward pressure on the money supply and the Fed's actions to reduce the stock of money were the opposite of what should have been done.

The foundation of monetarist economic thought is called the Quantity Theory of Money (QTM), or the Equation of Exchange. The theory is an accounting identity, meaning it must be true. QTM states that the money supply (M) multiplied by velocity (V) equals the nominal, the number of goods and services sold (Q) multiplied by the average price paid for them (P): $MV = PQ$. The only controversial variable is velocity (V), the rate at which money changes hands. Monetarist theory looks at velocity as generally stable, implying that nominal income is largely a function of the money supply. Variations in nominal income reflect change in real economic activity and inflation.

The decade of the 1970s was one of fairly constant increases in velocity validating the quantity theory of money. Nominal GDP could be predicted with the rate of money growth and a predictable velocity of money. Predictability became unpredictability in the 1980s and 1990s, when the velocity of money became quite volatile with periods of both declines and increases. This unpredictability brought into question the relationship between nominal GDP and the money supply—and by extension, the QTM.

The validity of monetarist economic thought came into question, and economists began looking for answers. Some asserted that new banking rules and changes in financial instruments were the culprit. During the 1980s, banks were allowed for the first time to pay interest on their checking accounts, blurring the difference between checking and savings accounts.

Due to this unpredictability of velocity, most economists today reject the unquestioning attention to money growth that is at the heart of Monetarist Economic Thought. Undoubtedly, the most important issue is that inflation cannot continue forever without increases in the money supply. Monitoring and controlling it should be a primary responsibility—if not the only responsibility—of the Federal Reserve.

The opposite of Monetarist Economic Thought is Keynesian Economic Thought. Keynesians and Monetarists fought head-to-head in the 1970s. Keynesians believe velocity is inherently unstable, as had been proved from 1981 and on. They do not believe that markets adjust quickly to return to potential output. Keynesians believe short-term interest rates were a more effective tool to manage the economy's health, measured by GDP, as opposed to the money supply (M) price (P) relationship of QTM. Therefore, Keynesians attach little or no significance to the QTM.

Because the economy is subject to deep swings and periodic instability, it is dangerous to take unrestricted power away from the Federal Reserve. The Fed should have some leeway or "discretion" in guiding policy. Most economists conclude that the Keynesians won the war but that the Monetarists won many battles. Because of the healthy debate, Keynesians are more convinced of the importance of the money supply and monetary policy, especially over the long run.

Lauren Major

See also: Equation of Exchange (Quantity Theory of Money); Federal Reserve System; Macroeconomics; Monetary Policy; *Vol. 1: Foundations of Economics:* Keynesian Economics

Further Reading

Bleaney, Michael, with David Greenway and Dr. Ian Stewart, eds. 1992. *Companion to contemporary economic thought*. New York: Routledge.

Jahan, Sarwat, and Chris Papageorgiou. 2014. Back to basics: What is monetarism? *Finance & Development* 51 (1): 38–39. http://www.imf.org/external/pubs/ft/fandd/2014/03/pdf/basics.pdf (accessed November 30, 2016).

McCallum, Bennett T. 2008. Monetarism. In *The concise encyclopedia of economics*. Library of Economics and Liberty. http://www.econlib.org/library/Enc/Monetarism.html (accessed November 30, 2016).

MONETARY CONTROL ACT OF 1980

The Depository Institutions Deregulation and Monetary Control Act of 1980 is the formal name for the piece of legislation that was passed under Paul Volcker, the Federal Reserve Chairman at the time, and signed into law by President Jimmy Carter. Prior to the Monetary Control Act, financial sector regulation was still considered weak from the Great Depression.

This act has nine titles or sections that cover many areas that will impact financial institutions. The act is considered one of the most important changes to financial institutions since 1933. The Monetary Control Act of 1980 revised previous regulations regarding bank reserves, Federal Reserve services, and deposit requirements. It changed the operations of all financial institutions and many businesses.

Prior to passage of the Monetary Control Act of 1980, depository institutions were allowed to pay only fixed interest on their deposits that had been mandated by the government since the Great Depression. Now, savers were placing funds in other savings vehicles that were less stable, and savings overall became less appealing since savers were not given a positive incentive for doing so. This alone limited banks' role and the impact they could play in financial markets.

The act addressed deregulating financial institutions that accepted deposits, simultaneously improving monetary policy controls of the Federal Reserve. The nine sections under the Depository Institutions Deregulation and Monetary Control Act of 1980 included Monetary Control Act of 1980, Depository Institutions Deregulation, Consumer Checking Account Equity Act of 1980, Powers of Thrift Institutions and Miscellaneous Provisions, State Usury Laws, Truth-in-Lending Simplification, Amendments to the National Banking Laws, Financial Regulation Simplification Act of 1980, and Foreign Control of United States Financial Institutions.

The Monetary Control Act of 1980 includes reporting requirements, reserve requirements, pricing for services, and effective dates. One portion of the Monetary Control Act that focuses on Reporting Requirements states that all depository institutions must accurately report their assets and liabilities. These reports must also be made directly available to the Federal Reserve Board, where there are other member banks or depository institutions as well as entities such as the FDIC. Another key section of the act hones in on reserve requirements, which are a huge factor and necessity in the conduct of monetary policy.

One goal the act sought to accomplish was to increase savings and create a stable, credible, and safe financial environment. A key component of the act provided for the gradual elimination on interest rate limits, and allowed interest-bearing transaction accounts. Before the act, Regulation Q assigned interest rates that could be awarded to deposit accounts. Banks were unable to pay interest on checking accounts or demand deposits, and savings account rates were significantly lower than market rates. During this time, savers retreated to accounts such as money market mutual funds, which would earn a higher interest rate but were much less regulated.

Banks were at a huge disadvantage and had an incredibly difficult time attracting savers because of these interest rate restrictions. Essentially, savers were penalized for using banks—so they sought other avenues, creating disintermediation. Disintermediation involves the flow of funds from banks to other savings vehicles.

Eliminating the restrictions on interest rates was not accomplished immediately. It took nearly six years for the transition to be completed. The result improved the banks' ability to compete in the financial markets. An incentive for savers and investors was to earn higher rates of return in the banking sector.

Monetary control was the other primary goal of the Monetary Control Act of 1980. Inflation was a huge concern during this time, reaching double digits in the late 1970s. One of the most critical components of the law was the establishment of reserve requirements that banks had to have on hand. This is perhaps one of the greatest tools of modern monetary policy, and ultimately it has a substantial impact on the money supply. Before reserve requirements were the standard for all depository institutions, only commercial banks had to adhere to this protocol. Reserve requirements state that a bank must maintain a certain level of funds either in vault cash or accounts at the Federal Reserve relative to the bank's deposits on hand. In exchange, these institutions could now use the Federal Reserve's discount window for borrowing, which was previously available to member banks only. In order to implement these changes, there would be an eight-year phase-in period of nonmember institutions. The act also allowed the Federal Reserve to begin charging fees for services they provided, such as currency and coin storage, check clearing and collecting, and wire transfers. These new regulations also gave us the FDIC insurance thresholds, expanding the coverage from $40,000 to $100,000 limit.

All of these modifications and effects of the Monetary Control Act of 1980 gave the Fed greater control over the money supply and greater monetary control and influence. Few pieces of legislation have been passed that have had a greater impact on monetary policy than the Monetary Control Act of 1980. This act benefited savers, depository institutions, the Fed's control over the money supply, and ultimately financial markets.

Amber Thomas

See also: Federal Deposit Insurance Corporation; Federal Reserve System; Inflation; Monetary Policy; Volcker, Paul; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929

Further Reading

Board of Governors of the Federal Reserve System. 2013. Federal Reserve's key policies for the provision of financial services: Policies: Statutory authority for services pricing policy, Monetary Control Act of 1980. www.federalreserve.gov/paymentsystems/pfs_pricingpol.htm (accessed November 30, 2016).

Board of Governors of the Federal Reserve System. 2015. Reserve requirements. http://www.federalreserve.gov/monetarypolicy/reservereq.htm (accessed November 30, 2016).

Federal Reserve Bank of Boston. 1980. *Depository institutions deregulation and monetary control act of 1980: a summary*. Boston: Federal Reserve Bank of Boston.

Robinson, Kenneth J. 1980. Depository institutions deregulation and monetary control act of 1980. Federal Reserve History. http://www.federalreservehistory.org/Events/DetailView/43 (accessed November 30, 2016).

MONETARY ECONOMICS

Monetary economics is the macroeconomic study of money supply and the effect that government policies have on employment, inflation, and economic output. Monetary policies, implemented by central banks, determine the supply of money and the cost of borrowing. Policies may be expansionary or contractionary, and they include open market operations, required reserve ratios, and the discount rate. By controlling the supply of money in an economy, government can control inflation and can indirectly influence economic factors that affect employment and growth.

It is essential to the study of monetary economics to identify the functions of money in society. *Money* is any item or commodity that is accepted as payment for debt, goods, or services. Historically, a wide variety of items have been used as money, including shells, tobacco, salt, cattle, grain, copper and gold. It has evolved to coin, currency, and electronic transactions.

There are three functions of money: as a medium of exchange, a store of value, and a unit of account. Money as a medium of exchange allows people to carry out transactions using an item that is generally accepted as payment for goods and services and as repayment of debts. Having a medium of exchange eliminates the need for *double coincidence of wants*, the bartering process by which goods are exchanged on the basis of mutual need. *Store of value* allows money to be held for use at a later time. *Unit of account* allows money to be a standard measure for identifying the prices of goods and services.

Governments' monetary policies are usually carried out by a central bank. The organization that operates as the central bank in the United States is the Federal Reserve System. The Federal Reserve's first step in creating monetary policy is to define and measure the money supply in the economy. The Fed defines monetary aggregates by grouping types of money that the public uses in similar ways. *M1* is the narrowest definition of the money supply; it includes funds used primarily as a medium of exchange, such as currency, coin, demand deposits, other checkable deposits, and traveler's checks. *M2* is a broader definition of the money supply, and it includes all the items from M1 plus savings deposits, small time deposits, money market deposit accounts, noninstitutional money market mutual funds, and other short-term money market assets. M2 is generally assets that are used as a store of value. It is important for the Fed to know the size and rate of growth of the money supply, because both factors have a significant impact on the well-being of the economy. The goals of the Federal Reserve in implementing monetary policy are to promote maximum employment, stable prices, and economic growth.

Monetary policy consists of two general policies: contractionary and expansionary. Expansionary monetary policy increases the supply of money, and contractionary monetary policy reduces the supply of money in the economy. The Federal Open Market Committee (FOMC) of the Federal Reserve System uses the following tools to influence the money stock: open market operation, the required-reserve ratio, and the discount rate.

Open market operation, such as buying or selling government securities in the open market, has the function of expanding or contracting the amount of money in the economy. Purchases inject money into the system, which increases the supply of money. When supply is increased, the price, or interest rate, paid for money decreases. Falling interest rates stimulate growth, because they provide incentives for consumers to spend and firms to invest. Selling securities on the open market has the opposite effect, reducing the supply of money and thereby increasing the federal funds rate.

The *required-reserved ratio* is the dollar amount of deposits that banks are required to hold as cash in their vault or as deposits at the District Federal Reserve Bank in relation to the amount of checkable deposits. The amount of reserves required changes as the amount of deposits increases, and at the sole discretion of the Board of Governors. The goal of banks is to keep the amount held in reserves to a minimum, since they cannot earn interest on this money by loaning it out. Because these funds are not in circulation, they are not counted as part of the money supply. Any deposits that the bank holds in excess of the required reserves are called excess reserves, and the banks can use them to make loans or to purchase government securities. The Fed can affect the money supply by changing the amount banks are required to hold on reserves on all deposits. As supply decreases (or increases), interest rates rise (or fall).

When banks need to borrow money, they have the option of borrowing from the Federal Reserve and paying an interest rate called the *discount rate*. The Fed may increase the rate at which it is willing to lend funds to banks, which will affect the quantity of money demanded by the banks. As rates increase, demand will fall, and vice versa. When banks borrow less, the money supply decreases and provides incentives for saving rather than spending.

When the economy experiences an inflationary period, the Federal Reserve will adopt a contractionary monetary policy to decrease the money supply in the economy. The Fed does this by selling government securities, raising the reserve rate, and/or increasing the discount rate. When the economy experiences a period of recession, the Federal Reserve will adopt an expansionary monetary policy to increase the money supply in the economy. The Fed does this by purchasing government securities on the open market, lowering the reserve rate, and/or lowering the discount rate.

Heather Isom

See also: Federal Open Market Committee; Federal Reserve System; Macroeconomics; Money; Monetary Policy; *Vol. 3: Microeconomics:* Demand Deposits

Further Reading

Bernanke, Ben. 2006. Monetary aggregates and monetary policy at the Federal Reserve: A historical perspective. Speech given at the Fourth ECB Central Banking Conference, Frankfurt, Germany. https://www.federalreserve.gov/newsevents/speech/bernanke20061110a.htm (accessed September 30, 2016).

Board of Governors of the Federal Reserve System. 2006. Federal Reserve monetary policy—Reserve requirements. https://www.federalreserve.gov/monetarypolicy/reservereq.htm (accessed September 30, 2016).

Friedman, B. M. 2001. Monetary policy, Abstract. *International Encyclopedia of the Social & Behavioral Sciences*: 9976–84. http://www.sciencedirect.com/science/article/pii/B0080430767022579 (accessed September 30, 2016).

Friedman, Milton. 1948. A monetary and fiscal framework for economic stability. *American Economic Review* 38(3): 245–64.

MONETARY POLICY

Monetary policy is the policy of determining the quantity of money liquidity in an economy. *Liquidity* in an economy is measured by the amount of cash, credit, and cash complements, such as money market mutual funds, available for purchasing goods and services. Monetary policy is the responsibility of a nation's central banking authority. An economy's *central banking authority* is the central regulatory agency responsible for regulating a nation's banking system. This central agency could take the form of a central bank, a currency board, or other central regulatory agency.

Universally, the goal of monetary policy is stable prices. In the United States, monetary policy was formalized with the Federal Reserve Act in 1913. As the United States' central bank, the Federal Reserve System has the added goal of achieving low unemployment. Central banks use monetary policy to influence interest rates—that is, the price of money. Monetary policy also determines the quantity of money in an economic system, along with the rate of the money supply's growth or reduction.

Central banks influence employment, economic growth, and the general level of prices. Using monetary policy tools, central banks influence the quantity of money, credit, and interest rates used to purchase goods, services, and productive resources. Central banks have three main tools to effectively implement monetary policy. First, a central bank can lower or raise the discount rate. The *discount rate* is the short-term interest rate the central bank charges its depository institutional customers, who borrow from the central bank mostly in overnight loans. A second tool for monetary policy is to alter the reserve requirement of banks. The *reserve requirement* is the amount of money reserves the banks, under the central bank's jurisdiction, are required to maintain in their vaults at the end of each business day.

The third, and primary, tool is buying and selling government securities (bills, notes, bonds) on the open market to influence nominal interest rates by influencing the fed funds rate. The *fed funds rate* is the overnight interest rate that banking institutions charge each other for overnight loans. In the United States, the open market operations are a weekly event of the Domestic Trading Desk at the Federal Reserve Bank of New York and the Federal Open Market Committee (FOMC) of the Federal Reserve System. In the open market operations, dealers and brokers bid for the U.S. securities, and the distribution of the securities is based on a competitive market, not on selection by the central bank.

In the United States, the Federal Reserve System is the central authority responsible for regulating the nation's banks and using monetary policy to determine the monetary size of the economy. Monetary policy is the function of the Federal Reserve System to influence the economy. Implementing the three tools of monetary policy, the Federal Reserve System can control both the quantity of money and the amount of credit in an economy.

Using the tools of monetary policy, expansionary monetary policy is applied when an economy is lagging and near the bottom of the business cycle. To stimulate and expand the economy, the central banking authority could lower the discount rate, reduce the reserve requirement, or buy U.S. securities to expand the quantity of money in the economy. Contractionary monetary policy is prescribed when the economy is accelerating, with excessive demand by consumers resulting in inflation (higher general price level); to contract and be restrictive, slowing down the economy, the central banking authority can raise the discount rate, increase the reserve requirement, or sell U.S. securities to contract the quantity of money in the economy.

Critics of Monetary Policy

Not everyone is a supporter of monetary policy. Critics of monetary policy claim that an economy is at risk the more influence monetary policy has on the economy. If the central banking authority uses monetary policy too freely ("loose monetary policy"), an economy's inflationary pressures are greater. Conversely, if monetary policy is too strict ("tight monetary policy"), the economy has deflationary pressures that keep prices, wages, and investment values declining. Critics suggest the banking authority cannot accurately predict with precision and timing the monetary policy's proper positioning within an economy at any given point in time.

A second criticism of monetary policy is timing. Critics make the claim that monetary policy has an implementation lag that makes monetary policy ineffective. They suggest that by the time any decisions regarding monetary policy are implemented, the economy would have moved on, and the current economic condition would not be the same as when the monetary policy decision was made.

David A. Dieterle

See also: Contractionary Monetary Policy; Expansionary Monetary Policy; Federal Open Market Committee; Federal Reserve System; Inflation; Inflation, Measures of; *Vol. 1: Foundations of Economics:* Central Bank

Further Reading

Dr. Econ. 2002. What is the difference between fiscal and monetary policy? Federal Reserve Bank of San Francisco. http://www.frbsf.org/education/publications/doctor-econ/2002/march/fiscal-monetary-policy (accessed September 30, 2016).

Economist Staff. n.d. Monetary policy. http://www.economist.com/topics/monetary-policy (accessed September 30, 2016).

Federal Reserve Bank of San Francisco. n.d. What is the fed: Monetary policy. http://www.frbsf.org/education/teacher-resources/what-is-the-fed/monetary-policy (accessed September 30, 2016).

federalreserveeducation.org. n.d. Monetary policy basics. http://www.federalreserveeducation.org/about-the-fed/structure-and-functions/monetary-policy/ (accessed September 30, 2016).

Friedman, Milton. 1968. The role of monetary policy. *American Economic Review* LVIII (1): 1–17.

Tobin, James. n.d. Monetary policy. In *The concise encyclopedia of economics*, ed. David R. Henderson. Library of Economics and Liberty. http://www.econlib.org/library/Enc/MonetaryPolicy.html (accessed September 30, 2016).

MONEY

Most people would refer to *money* as the coins and bills in their wallet or the paycheck they receive from their job. Economists define *money* in terms of its three uses. Money is anything that serves as a medium of exchange, a unit of account, or a store of value. Money also has distinct characteristics that make it common throughout the world.

Money as a Medium of Exchange

Money as a medium of exchange is anything that is used to determine value during the exchange of goods and services. Without the use of money, people acquire goods and services through the barter system. This type of exchange would require a great deal of time and energy. First, one would have to find someone who wanted to barter for the items that one has, and second, the two parties would have to agree to the value of each item or service. This type of exchange works well only in small, traditional economies.

With the use of money as a medium of exchange, one only needs to find someone who is willing to pay the amount that a good or service is worth. Because money makes exchanges so much easier, people have been using it for thousands of years.

Money as a Unit of Account

The use of money as a unit of account provides a means for comparing the values of goods and services. With the use of money, one can compare the cost of an item offered at different locations because the price is expressed in the same common way in every location. For example, in the United States, the value of a good or service is expressed in dollars and cents. Other countries have their own forms of money that serve as units of account, such as the Japanese yen or the British pound.

Money as a Store of Value

When money is serving as a store of value, the currency keeps its value if one decides to hold on to it instead of spending it. The money will still be valuable and will be recognized as a medium of exchange weeks, months, or even years into the future.

Money serves as a good store of value, with one important exception. Sometimes economies experience a period of rapid inflation. If an economy experiences inflation, the saved money loses its value, or buying power, at the rate of inflation. For example, if the United States experiences 10 percent inflation during a year and someone has stored money for that same year, when that person uses that money it will have 10 percent less buying power. Therefore, when an economy experiences inflation, money does not function well as a store of value.

Common Characteristics of Money

The coins and paper that are used as money in the United States today were not always used as currency. In the past, societies have used a wide range of objects as currency. Cattle, salt, furs, precious stones, gold, and silver have all served as currency at various times in various places. Even teeth, rice, shells, and olive oil have been used as currency. Although all of these items were used successfully in the past, none of them would function very well in the economies of today. Each of these items lacks at least one of the six common characteristics that economies use to judge how well an item serves as currency: durability, portability, divisibility, uniformity, limited supply, and acceptability.

Durability

Objects used as money must withstand the physical wear and tear that comes with being used over and over again. If money wears out or is destroyed too easily, it cannot be trusted to serve as a store of value. Unlike salt, rice, or olive oil, coins last for many years. Also, when paper bills wear out, the U.S. government can easily replace them with new bills.

Portability

Currency needs to be easily transferred from one person to another. It must be able to be carried as people go about their daily business; therefore, it must be lightweight and small. Paper money and coins are very portable, which is why they are used as the primary means of currency throughout the world.

Divisibility

For money to be useful, is must be easily divided into smaller denominations or units of value. When money is divisible, people can use only as much of it as necessary for any exchange. Most currencies around the world consist of various denominations, such as 10-cent coins, 50-cent coins, $1 bills, $10 bills, and so on.

Uniformity

Any two units of money must be exactly the same in terms of what they will buy. In other words, people must be able to count and measure money accurately. A $1 bill in the United States must always buy $1 worth of goods or services in order for the currency to work accurately.

Limited Supply

Supply creates the value of items; currency must also be in limited supply in order to have value. If leaves were used as currency and your nation was filled with trees, the currency would be in too great an abundance to have any value. Therefore, in the United States as well as most other nations, the government controls the supply of money in circulation.

In the United States, the Federal Reserve System is the government-run entity that controls the money supply. It is able to monitor, distribute, and limit the amount of money available at all times. This system helps to keep the amount of money is circulation in limited supply, which in turns helps to maintain the value of the currency.

Acceptability

Finally, everyone in an economy must be able to exchange the objects that serve as the money (dollars and coins) for goods and services in said society. When one person uses a certain currency, it must be able to be reused by the receiver of the currency in that person's next transaction throughout the entire society.

In the United States, people expect that other people will continue to accept the paper and coins that are issued by the government in exchange for purchases of goods and services. The use of the money issued and accepted throughout a nation makes an economy flow more easily and with a common currency language.

Tracy L. Ripley

See also: Bureau of Engraving and Printing; Deflation; Federal Reserve System; Inflation; Inflation, Measures of; *Juilliard v. Greenman*; Monetary Policy; United States Treasury; *Vol. 1; Foundations of Economics:* United States Mint

Further Reading

Bastiat, Frédéric. 1853. *Essays on the political economy: Part III. Government and what is money?* London: W. and F. G. Cash, 5, Bishopsgate Without. https://mises.org/journals/qjae/pdf/QJAE5_3_7.pdf (accessed September 30, 2016).

Dr. Econ. 2001. What are the money and foreign exchange markets? What forces influence supply and demand in these markets? Federal Reserve Bank of San Francisco. http://www.frbsf.org/education/publications/doctor-econ/2001/june/money-market-foreign-exchange (accessed September 30, 2016).

O'Sullivan, Arthur, and Steven M. Sheffrin. 2007. *Economics principles in action*. Upper Saddle River, NJ: Pearson-Prentice Hall.

MONEY ILLUSION

Inflation is an ever-present phenomenon of economies. It implies that the real value of money or the purchasing power of money has eroded, which theoretically is offset by increasing wages. The money's real value therefore does not have an invariant relationship to its nominal representation—that is, the numbers appearing on coins and notes. *Money illusion* is the failure to recognize this changing relationship. It is therefore a bias in the assessment of the real value of money. This undue influence of the money's nominal representation may extend to economic decisions made by firms, households, and individuals. If the money illusion has such consequences, it is a serious blow to contemporary macroeconomic theory.

Several types of evidence have been suggested in support of the existence of the money illusion. Firms are infrequently indexing contracts to take expected inflation into account. Prices are observed to change more slowly than supply and demand. In housing markets, the ratio of rental to purchase prices depends on nominal interest rates. In stock markets, nominal loss aversion is reflected in the reluctance to sell assets at nominal rather than real losses. Yet, such observations have other possible explanations. That the money illusion plays a role in decision-making is still conclusively supported by experiments simulating real-world decision-making. A psychological account is that people know both the nominal value and the real value of money, but that the former dominates because it is salient and, unlike the latter, does not require to be calculated. Except in cases of hyperinflation, the nominal value may also be sufficiently accurate. Investing additional effort would lead to adjustments for inflation, although not always correctly.

Money illusion is an example of a wider set of phenomena related to how the value of money and prices are perceived. Research shows that the nominal representation of the money exerts a strong influence on citizens' adjustments to the change from domestic currencies to the euro, which occurred in 2002 in 12 of the European countries that make up the European Monetary Union (EMU). As an example, Italian lire were numerically much larger than the euros that replaced them. After this change, for some time people perceived prices to be lower. Experiments have also demonstrated that such a change in nominal value affects product choices. Even two years after the euro changeover, field studies show that many citizens still faced problems in their daily economic transactions. Learning prices in the new currency rather than converting from the new to the old fostered quicker adjustments. Dual pricing (disclosing prices in both the old currency and the new), as practiced in some of the EMU countries, improved short-term adjustments but probably impeded long-term adjustments.

Tourist-spending in unfamiliar foreign currencies is another demonstrated effect of the nominal representation of prices. In the EMU countries, where the euro is a fraction of the former domestic currency (smaller nominal value), statistics showed a steep increase in spending after 2002. Furthermore, experiments demonstrate overspending and underspending, depending on whether the unfamiliar foreign currency is a fraction or a multiple of the familiar domestic currency. In the EMU, with a common currency, such effects are eliminated among citizens traveling between the countries as soon as they have learned the value of the new currency. In other countries, tourists are frequently helped by electronic charging systems converting prices in the foreign currency to the domestic currency.

A third example is depreciation of national currencies. This should have effects similar to those of the euro changeover. A difference between inflation and a currency change or depreciation is that inflation (price increases) is not in general an instantaneous shock but a creeping one. It is therefore difficult for consumers to distinguish inflationary price increases from other price changes or to assess whether the price increases are compensated by wage rises. Consistent with this, it has been shown that perceived inflation is distorted in systematic ways other than those due to the money illusion. The usual information policies to inform the public about monthly or annual inflation may need to be improved. It is clearly important that actors in markets have an accurate perception of the value of money—at present and in the future.

Tommy Gärling

See also: Inflation; *Vol. 4: Global Economics:* Euro (European Currency Unit); European (Economic) Community

Further Reading

Akerlof, George A., and Robert J. Shiller. 2009. *Animal spirits: How human psychology drives the economy, and why it matters for global capitalism*. Princeton, NJ: Princeton Univ. Press.

Fisher, Irving. 1928. *The money illusion*. New York: Adelphi.

Shafir, Eldar, Peter Diamond, and Amos Tversky. 1997. Money illusion. *Quarterly Journal of Economics* 112: 341–71.

Tyran, Jean-Robert. 2007. Money illusion and the market. *Science* 314: 1042–43.

MONEY MULTIPLIER

The money multiplier is very closely linked to fractional reserve banking and the reserve requirement established by the Federal Reserve Board. Assuming that banks do not hold any excess reserves and that individuals deposit their money into banks, the *money multiplier* is used to calculate how much new money will be generated through the banking system from one initial deposit or a purchase of bonds or other assets by the Federal Reserve. The Federal Reserve can control the money multiplier and the money supply by increasing or decreasing the reserve requirement. The *reserve requirement* is the percentage of each deposit that banks must keep on hand rather than lending. However, individual banks can choose to keep excess reserves. This would result in a decrease in the intended money multiplier of the Federal Reserve.

To understand how the money multiplier works, one must understand fractional reserve banking. *Fractional reserve banking* is a banking system that requires individual banks to keep only a specific percentage or fraction of each deposit on hand; the excess can be loaned to consumers or business owners or used to purchase bonds and other assets.

For simplicity, the following example will be based on a banking system that loans 100 percent of its excess reserves to consumers and has a reserve requirement of 10 percent. If a banking customer deposits $1,000 into a bank, that bank will retain $100 (10 percent required reserves) and loan the remaining $900 to another banking customer. The second banking customer will use the money to purchase goods and services, which results in a $900 deposit into a second bank. In just these two simple transactions, $900 was created through the fractional reserve banking process. The second bank will retain $90 (10 percent required reserves) and loan the remaining $810 to yet another banking customer. The third banking customer will use the money to purchase goods and services, resulting in $810 deposited into a third bank. If this process continues, $10,000 of money will now be in the economy as a result of the fractional reserve banking system.

To calculate the money multiplier, use the formula (1/rr) with rr being the reserve requirement. To find how much money will be created with an initial deposit of money that was already in the money supply, such as cash held by a banking consumer, use the formula [(1/rr) x deposit] – deposit. The initial deposit must be subtracted because the initial deposit was already in the money supply. Using the example from above, [(1/0.10) x $1,000)] – $1,000, a $1,000 deposit will result in an increase of $9,000 into the money supply. If the initial deposit or bank holding was not already in the money supply, such as a bond held by a bank purchased by the Federal Reserve, the initial deposit or monetary injection is not subtracted because that money was never in the money supply. If the Federal Reserve purchased a $1,000 bond from a bank, the reserve requirement was 10 percent, and banks lend out 100 percent of excess reserves, the money supply would increase by $10,000, or (1/0.10) x $1000.

During economic contractions, the Federal Reserve will use the concept of the money multiplier to increase the money supply, which reduces key interest rates and encourages consumer and investment spending—which increases aggregate demand and, hopefully, reverses the contraction and restores the economy to long-run equilibrium. Lowering the required reserve ratio can increase the money multiplier. If the required reserve ratio is 20 percent, the money multiplier will be (1/0.2), or 5. If the required reserve ratio is 5 percent, the money multiplier will be (1/0.05), or 20.

Conversely, the multiplier can be decreased by an increased required reserve ratio. During rapid economic expansion with high inflation, the Federal Reserve can use the concept of the money multiplier to decrease the money supply to increase interest rates, discourage consumer and investment spending, and decrease aggregate demand. In theory, this will reduce inflation and restore the economy to long-run equilibrium.

While it may appear easy for the Federal Reserve to increase and decrease the money multiplier—and thus easy to increase and decrease the money supply, and have some control over economic activity—the Federal Reserve has limited control over the money multiplier. The money multiplier ultimately depends on banks lending their excess reserves and consumers depositing their money into banks. If banks choose not to loan excess reserves, the money multiplier will decrease and the potential growth rate of economic activity could slow. In addition, if consumers do not deposit their money in banks, but rather keep it at home in a safe, the banks will not be able to participate in the fractional reserve banking system and the money multiplier will effectively be zero.

Consumer confidence in the United States' fractional reserve banking system and the concept of the money multiplier is so important that many people believe that a loss of consumer confidence in the U.S. banking system was a major cause of the Great Depression (1929–1941). To restore confidence in the banking system, Congress passed the Emergency Banking Act of 1933, which created the Federal Deposit Insurance Corporation and insured banking deposits up to $2,500.

The money multiplier is dependent on (1) consumers trusting the banking system and electing to deposit their excess cash into the banking system, (2) individual banks lending out all their excess reserves, and (3) individuals being willing to borrow money from banks. If all three of these requirements are met, the money multiplier will be at its maximum. Any decrease in these requirements will decrease the money multiplier.

Xavier Whitacre

See also: Banking Act of 1933 (Glass-Steagall Act); Federal Open Market Committee; Federal Reserve System; Federal Deposit Insurance Corporation; Monetary Policy; Money Supply; *Vol. 1: Foundations of Economics:* Great Depression and Wall Street Crash, 1929; *Primary Document*: Banking Act of 1933 (Glass-Steagall Act)

Further Reading

Investopedia Staff. n.d. Multiplier effect. *Investopedia.* www.investopedia.com/terms/m/multipliereffect.asp (accessed November 1, 2014).
Moss, David. 2007. *A concise guide to macroeconomics*. Boston: Harvard Business Review Press.
Wheelan, Charles. 2002. *Naked economics: Undressing the dismal science.* New York: Norton.

MONEY SUPPLY

The amount of money within a nation's monetary system is the *money supply*. The amount of money in circulation is important, because it helps central banks control economic indicators, unemployment, inflation, and deflation—that is, control price stability through monetary policy. Depending on economic needs, banks may pursue expansionary monetary policy or contractionary monetary policy. In the United States, the Federal Reserve manages the money supply. The money supply also has varying effects on the exchange rate and the business cycle.

Measuring the Money Supply in the United States

The Board of Governors of the Federal Reserve, the central bank of the United States, measures the monetary base of the U.S. economy. The base measures are called M1 and M2.

M1 is the total of cash and coins in circulation held by the public and in the financial institutions. M1 also includes demand deposits, such as checking accounts. M1 money supply measures money that is totally liquid and available for immediate use in the economy. M2 is all the money supply measured as part of M1 plus savings accounts, money market funds, and time deposits of less than $100,000 denominations. A much broader measure is called M3, which includes the M2 measured money supply along with long time deposits, larger institutional money market funds, and other large and liquid assets, such as short-term repurchase agreements.

Data on the money supply is reported by the Federal Reserve in two of their publications: H.3 and H.6 Statistical Releases.

Managing the Money Supply

The Federal Reserve controls the money supply through the Federal Open Market Committee (FOMC) and open market operations, establishing reserve requirements, and setting the discount rate to influence lending practices of financial institutions. The most common action of the three is open market operations.

Open market operations involves the buying and selling of government securities to financial institutions in the open market. This influences both short-term interest rates and the amount of money reserves held by banks and financial institutions. When the Federal Reserve wants to increase the money supply, it will purchase government securities, releasing tangible currency into circulation. When the Federal Reserve wants to contract the money supply, it will sell government securities, so the money is returned to and held by the Federal Reserve.

Another option for controlling the money supply is through the Federal Reserve's discount rate. This is an interest rate charged for overnight loans offered by the Federal Reserve to banks. When the discount rate is small, more loans are being made (likely due to a smaller discount rate) than money supply is being expanded, since the Federal Reserve is providing reserves to the banks. *Reserves* are monetary assets that banks hold on to in order to have available liquidity of money to support operations. As such, the Federal Reserve also sets reserve requirements for banks in order to set a standard for a certain fraction of deposits of these funds to be held with the Federal Reserve. To meet the requirements, there are also transactions between banks in order to meet reserve requirements; this rate is called the federal funds rate.

The money supply is crucial to national operations and monetary policy. The primary goal of monetary policy is price stability. Concurrent with price stability, the Federal Reserve uses the money supply and monetary policy to support high employment, economic growth, financial market stability, interest-rate stability, and foreign exchange market stability (Mishkin 2012). When prices are stable, investors and businesses can operate with greater surety, therefore allowing for more dynamic movement in markets and greater volume of trade.

One of the biggest impacts of the money supply is its ability to control inflation rates. When the market is flooded with currency, the value of the currency decreases, because the price of goods increases. The relative purchasing power of money decreases when there is more of it in circulation. When a nation expands its monetary base, it runs the risk of hyperinflation in the future, so it is crucial that monetary policy is controlled and sensitive to potential repercussions. Conversely, when there is too little currency in circulation, it becomes harder to come by, which can also have adverse effects on the economy. Therefore, controlling and monitoring the money supply is critical to supporting the economy and sustaining yet controlling growth.

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See also: Federal Open Market Committee; Federal Reserve System; Fractional Reserve Banking; Monetary Multiplier; Monetary Policy

Further Reading

Bank for International Settlements (BIS). 2003. The role of central bank money in payment systems. http://www.bis.org/cpmi/publ/d55.pdf (accessed June 20 2015).

Bernanke, Ben S. 2004. Money, gold, and the great depression. Remarks at the H. Parker Willis Lecture in Economic Policy, Washington and Lee University, Lexington, Virginia. http://www.federalreserve.gov/boarddocs/speeches/2004/200403022/default.htm (accessed June 20 2015).

Board of Governors of the Federal Reserve. n.d. Monetary policy. http://www.federalreserve.gov/monetarypolicy/default.htm (accessed June 20 2015).

Board of Governors of the Federal Reserve. n.d. What is the money supply? Is it important? http://www.federalreserve.gov/faqs/money_12845.htm (accessed June 20 2015).

Johnson, Paul M. 2005. A glossary of political economy terms. http://www.auburn.edu/~johnspm/gloss/money_stock (accessed June 20 2015).

Mishkin, Frederic S. 2012. *Financial markets & institutions*. 7th ed. Boston: Prentice Hall.

MORAL HAZARD AND BEHAVIORAL ECONOMICS

Moral hazard is present when one party to a transaction takes actions that a partner cannot observe; these actions can be relatively risky since the individual taking these actions does not bear the burden or costs of these risks. Moral hazard often arises in organizations. In a moral hazard environment, the informed party has some control over the unobserved attribute, which can result in moral hazard behavior. Resources are often invested to monitor possible moral hazard behavior, when this behavior can be harmful to the larger organization. To induce desirable behavior, the organization often designs incentive schemes, which tie rewards or punishments to performance.

In team production, output is the joint product of several agents' contributions. Team members interact extensively, and they are accountable as a team for economic outcomes. Alchian and Demsetz (1972) suggest that there is a source of gain from cooperative activity involving working as a team. The combined entity does enjoy opportunities that are impossible for individuals acting alone to exploit. However, compensation must be based on team production, and individual contributions to output cannot be easily identified. The free-rider problem arises in this setting (Holmstrom 1982) and can result in moral hazard behavior.

Teams may enhance the social interaction among members. Team membership per se may affect the behavior of participants. It is possible that peer norms come about through processes of mutual influence. Peer effects have the potential to internalize externalities in workplaces. Some studies incorporate social concerns into the analysis of behavior inside firms. Kandel and Lazear (1992) stress the role of peer pressure among team members. They argue that teams alleviate costly monitoring of workers by relying on internal motivation through peer pressure. Social ties among co-workers are advantageous, because social sanctions are an effective way to punish those who deviate from norms of high effort. Rotemberg (1994) writes that the internal pressure for cooperative behavior is altruism. As long as workers' inputs are complements and workers can observe the others' choice of preference, workers commit to the level of altruism they have chosen.

Unlike legal rules, norms are not supported by formal sanctions. Norms often direct individuals to undertake actions that are inconsistent with selfish actions. The incentive to comply with norms derives not only from the enforcement of costly punishment by others, but also from reputation-building for oneself (Teraji 2013). The fear of punishment sometimes has a positive effect on cooperation. Fehr and Gächter (2000) indicate that many individuals are willing to punish unfair behavior at a personal cost. Potential punishers are not themselves the victims but have merely witnessed the unfair behavior. This willingness suggests that cooperation has evolved through the sacrifice of altruistic punishers who are ready to incur some costs to prevent unfair behavior. On the other hand, disobeying accepted norms may involve a loss of reputation. People are fair because they care about their reputation. They have to be rewarded for maintaining a good reputation, and they have to be willing to comply with norms. Norms are constituted by expectations shared by members in a population and are jointly recognized among the population.

Shinji Teraji

See also: Alchian, Armen; *Vol. 1: Foundations of Economics:* Behavioral Economics; Golden Rule and Behavioral Economics; *Vol. 3: Microeconomics:* Asymmetric Information

Further Reading

Alchian, Armen A., and Harold Demsetz. 1972. Production, information costs, and economic organization. *American Economic Review* 62: 777–95.

Fehr, Ernst, and Simon Gächter. 2000. Cooperation and punishment in public goods experiments. *American Economic Review* 90: 980–94.

Holmstrom, Bengt. 1982. Moral hazard in teams. *Bell Journal of Economics* 13: 324–40.

Kandel, Eugene, and Edward P. Lazear. 1992. Peer pressure and partnerships. *Journal of Political Economy* 100: 801–17.

Rotemberg, Julio J. 1994. Human relations in the workplace. *Journal of Political Economy* 102: 684–717.

Teraji, Shinji. 2013. A theory of norm compliance: Punishment and reputation. *Journal of Socio-Economics* 44: 1–6.

MULTIPLIER EFFECT

The *multiplier effect* is a measure of how much final spending will increase when it is given an injection of additional spending in an economy. The injection of new spending is sometimes the result of expansionary fiscal or monetary policy. Additionally, the injection of new spending could be the result of private investment, such as the construction of a new manufacturing facility or an increase in new jobs to a community. Any increase in consumer income will result in new spending. As a result, the final spending amount is greater than the initial spending, due to the multiplier effect.

In a simple circular-flow economic model, money is either consumed or saved. The measures of whether the additional money is consumed or saved are the marginal propensity to consume (MPC) and the marginal propensity to save (MPS), respectively. Both measures are ratios of consuming or saving of the additional dollar, resulting in MPC + MPS = 1.

The multiplier effect is dependent on the marginal propensity to consume (MPC), which is the percentage of each additional (marginal) dollar that will be spent on goods and services. If the MPC is 0.80, 80 cents of every additional dollar will be spent on consumption and 20 cents will be saved. If the MPC is 0.80, the marginal propensity to save (MPS) is 0.20. The simple spending multiplier is used to calculate the multiplier effect or to determine how much final spending will result from any increase in new spending. The formula for the simple spending multiplier is 1/(1 – MPC) or the reciprocal 1/MPS. After the simple spending multiplier is calculated, to see the multiplier effect, simply multiply the new spending by the simple spending multiplier. If there is an additional $1,000 spent in an economic system and the MPC is 0.80, the final spending amount will be $1,000 [1/(1 – 0.80)] = $5,000.

It may seem incredible that an increase of $1,000 in spending will result in a final spending amount of $5,000 if the MPC is 0.80, but the thinking behind the multiplier effect is clear. If person A spends any additional money, that increased spending is received by person B, who spends 80 percent of person A's spending on consumption from person C, who spends 80 percent of person B's spending on consumption from person D, and this continues until there is no additional money to spend, which will result in the final spending amount. If a new road is constructed, the construction workers will use their additional income to purchase goods and services, and the sellers of these goods and services will spend their additional income on even more goods and services, and the sellers of those goods and services will spend their additional income on even more goods and services.

When the MPC increases, the multiplier effect will increase, and when the MPC decreases, the multiplier effect will decrease.

Fiscal policy changes are often the focus of discussion concerning the multiplier effect. During times of economic contraction, the government will increase spending, decrease taxes, or both. The multiplier effect can be used to predict the amount of increased economic activity that will result in an increase in government spending or a decrease in taxes. Say, for example, that the government wants to either increase spending by $1,000,000 or decrease taxes by $1,000,000. The first step is to find or calculate the MPC. In this example, the MPC will be 0.75. The second step is to calculate the simple spending multiplier, which is [1/(1 – 0.75)], or 4. The last step is to multiply the amount of government spending $1,000,000 by 4, which is $4,000,000. In this example, an increase in spending of $1,000,000 will result in an increase of final spending of $4,000,000. However, a decrease in taxes of $1,000,000 will result in a smaller increase in final spending compared to an increase in government spending, because the taxpayers or consumers must first spend the reduction of taxes that is subject to the marginal propensity to consume. If the MPC is 0.75, a decrease in taxes of $1,000,000 will yield an increase of only $750,000 in new spending, because 25 percent of the tax decrease was not spent on consumption, but saved. A decrease of $1,000,000 in taxes will result in an increase of final spending of ($1,000,000 x 0.75) x [1 – (1/0.75)], which is $3,000,000.

When an economic system experiences a decrease in spending, that decrease is also subject to the multiplier effect, which will result in a greater amount of final spending lost compared to the initial loss of spending. The thinking is the same if the government eliminates spending on a construction project. The construction workers will experience a decrease in income, which will cascade into the other sectors of the local economy, creating even more job losses and an even greater reduction in spending.

The Federal Open Market Committee (FOMC) of the Federal Reserve can influence the marginal propensity to consume by increasing and decreasing the money supply. An increase in the money supply creates downward pressure on interest rates, which incentivizes consumers to increase spending, which increases the marginal propensity to consume. This expansionary policy is intended to help the economy recover from an economic contraction. Conversely, a decrease in the money supply creates upward pressure on interest rates, which discourages consumption and incentivizes savings, which decreases the marginal propensity to consume. This contractionary policy is intended to correct for high inflation.

Xavier Whitacre

See also: Contractionary Fiscal Policy; Contractionary Monetary Policy; Deflation; Expansionary Fiscal Policy; Expansionary Monetary Policy; Federal Open Market Committee; Federal Reserve System; Fiscal Policy; Inflation; Monetary Policy; *Vol. 3: Microeconomics:* Akerlof, George

Further Reading

Akerlof, George, and Shiller, Robert. 2009. *Animal spirits: How human psychology drives the economy, and why it matters for global capitalism.* Princeton, NJ: Princeton Univ. Press.

Frank, Robert. 2009. *The economic naturalist's field guide.* New York: Basic Books.

Wessel, David. 2009. *In Fed we trust: Ben Bernanke's war on the great panic*. New York: Three Rivers Press.

Wheelan, Charles. 2002. *Naked economics*. New York: Norton.

N

NATIONAL BANK ACT OF 1863

A national or central bank is not an institution that has always been part of the United States. Alexander Hamilton attempted the first national bank, the First Bank of the United States, in 1791. It eventually failed, but the Second Bank of the United States was established in 1816 when signed into law by President James Madison. It, too, failed when its charter expired in 1836, and it was not renewed by Congress. The National Bank Act of 1863, with its revisions in 1864 and 1865, tried again to create a national banking system.

Prior to these national banking initiatives, banks were state-chartered. To have state-chartered banks, without federal oversight, was the predominant formula of the banking industry until the mid-19th century. As the dates of the National Bank Act would suggest, the origination of a national bank was a response to the Civil War. As the nation became divided and the Civil War ensued, state-chartered banks were not benefiting the war effort for the Union. The National Bank Act of 1863 created national charters for banks, and the National Bank Act of 1864 revised the original 1863 act. These two national bank initiatives were the predecessor to the Federal Reserve Act in 1913.

President Abraham Lincoln desired to apply some national influence on the banking industry and exert some control over it, but he was not interested in forming a central bank. The National Bank Act had three goals to benefit the Union. The first goal was to create a system of national banks under the influence of the federal government. The second goal was to establish a new national currency to help finance the Civil War. The third goal, also intended to help finance the Union's Civil War effort, was to establish a secondary market so the federal government could sell war bonds and Treasury securities. None of these goals was very popular with Congress at the time. The National Bank Acts of 1863 and 1864 had great difficulty getting passed by Congress.

The National Bank Act of 1863 set out a mechanism for creating the national currency and the national banking system. The federal government would sell government securities to banks, and these holdings would be the backing of a national currency. At the same time, the 1863 act levied a heavy tax on the currency of state banks, the goal being to drive the state bank-backed currencies out of the system. The plan failed, and this was in part the reason for the follow-up 1864 act.

The first goal of the National Bank Act of 1863 was to permit the establishment of national banks. Essentially the same as the private and state banks that already existed, the national banks would be chartered by the federal government. National charters were good for 20 years, subject to renewal at that time. This gave the federal government regulatory control, which was quite different from the banking control by the states. Nationally chartered banks had higher reserve requirements and were required to hold more capital. Also, they were forbidden to make real estate loans; nor were they able to make large loans to individuals if the amount exceeded 10 percent of the bank's capital holdings.

Second, the National Bank Act of 1863 and 1864 set out to establish a national currency. Today, a common currency is taken for granted, but in the mid-19th century there were as many as 200 different currencies in circulation throughout the states of the Union. Quite obviously, a common national currency would make interstate and national transactions much easier. This was accomplished through the national banks, as they were required to accept each other's banknotes at a value set by the federal government. The printing of these new national banknotes was the oversight responsibility of the newly created Comptroller of the Currency office. This new office, as set out in the 1863 Banking Act, would be an office of the Department of Treasury. The comptroller would also be responsible for inspecting the national banks to ensure that they were adhering to the capital requirements and values for the new national banknotes, or currency.

The final goal of the National Bank Act was to aid in the Civil War financing for the Union army. To this end, each nationally chartered bank was required to maintain a large deposit of U.S. Treasury securities with the comptroller, collateral for offering national banknotes. In return, the bank received the new national banknotes with a value of up to 90 percent of the market value of the bonds on which they were backed. A nationally chartered bank could make loans only up to the value of the securities that the bank had on deposit with the comptroller. If a bank wished to increase its loaning capability, it needed to increase its holdings of securities with the comptroller. This form of reserve banking created a secondary market for bonds, but more importantly at the time, and to achieve its goal, it provided funds to the Union without extensive borrowing. The first nationally chartered bank was the First National Bank of Philadelphia, but this was not the first to be in business. That honor went to the 15th chartered national bank, the First National Bank of Davenport, Iowa.

A third revision in 1865 levied a 10 percent tax on state currency—that is, currency that was not federally issued. The intent was to drive state currencies, and essentially state banks, out of existence. While the tax succeeded in eliminating state currencies, state-chartered banks invented the demand deposit, or checking, account. Many state-chartered banks converted to national charters. But they did not go away. With the invention of the checking account, the number of state banks actually grew, and they again became the dominant face of the banking industry.

As the Civil War ended, so did national banking. With the lack of a central banking mechanism to oversee monetary policy, the economy often suffered extreme peaks and troughs in the business cycle. By 1865, the number of national banks had grown to over 1,500, over 80 percent of the total number of national and state-chartered banks (Flaherty n.d.).

David A. Dieterle

See also: Federal Reserve System; Money; United States Treasury Bills, Notes, and Bonds; *Vol. 1: Foundations of Economics:* Central Bank; Hamilton, Alexander; *Primary Document*: National Bank Act of 1863

Further Reading

Federal Reserve Bank of Minneapolis. n.d. A history of central banking in the United States. https://www.minneapolisfed.org/community/student-resources/central-bank-history/history-of-centralbanking (accessed June 3, 2014).

Federalreserveeducation.org. n.d. History of the Federal Reserve. http://www.federalreserveeducation.org/about-the-fed/history/ (accessed June 3, 2014).

Flaherty, Edward. n.d. A brief history of central banking in the United States. *American history from revolution to reconstruction*. http://www.let.rug.nl/usa/essays/general/a-brief-history-of-central-banking/ (accessed June 3, 2014).

Flaherty, Edward. n.d. National banking acts of 1863 and 1864. *American history from revolution to reconstruction*. http://www.let.rug.nl/usa/essays/general/a-brief-history-of-central-banking/national-banking-acts-of-1863-and-1864.php (accessed June 3, 2014).

Scripophily.com. National bank history of the United States. n.d. http://www.national-bankhistory.com/ (accessed June 3, 2014).

NATIONAL BUREAU OF ECONOMIC RESEARCH

The National Bureau of Economic Research (NBER) was officially founded in 1920. It is a nonprofit private research entity that promotes better understanding of the economy, and it is the largest economic research organization in the United States. The NBER's target audiences are policymakers and academic and business professionals. Over the years, the NBER has examined such important macroeconomic issues as business cycles, economic growth, demand for money, and national income accounting.

Today, the NBER is the top economic research organization in the United States. NBER researchers are well respected in the field and are among the leading scholars of economics and business in the world. NBER researchers have included 22 Nobel Prize winners in economics, 13 previous chairs of the President's Council of Economic Advisers, and many business and economics professors at leading research universities across the United States. In dealing with major issues related to economic policies, the bureau has five guiding principles: (1) analyzing and defining economics facts and their relationships, (2) analyzing quantitative measures of data, (3) pursuing a scientific approach to all economic problems, (4) publishing the findings with utmost regard to impartiality, and (5) refraining from making policy recommendations.

Although the founders of the bureau had very different opinions on economic and social policies, they all believed strongly that social programs should be based on objective knowledge of facts and reliable quantitative and scientific research approaches. The main question was how to obtain objective knowledge and ensure that the public would accept the NBER's objectivity. This question was raised in 1916, when Malcolm C. Rorty, an engineer and statistician, discussed the idea with Nahum I. Stone, an economist. Although the two men had very different views on social and economic policies, they agreed that to have an independent organization dedicated to finding facts on controversial economic issues would represent significant progress. They concluded that in order to earn the public's confidence, the organization should include a group of well-known and well-respected economists from different schools of thought, should follow a thorough quantitative economic research method, and should include representatives of all important organized interests—such as financial, industrial, and labor—in the country.

The start of World War I in 1917 delayed the establishment of the NBER until 1920. In January 1920, with enough funding available, the bureau was legally formed. It has never had any specific theories or policies to advance; neither has it had any obligations toward any other entities. This freedom of action and impartiality in findings has been essential for the NBER to earn the public's trust. In order to assure that a scientific approach is applied in all the research conducted, the board of directors has been responsible for reviewing the design, findings, and presentation of the data in each study. Publication of the findings depends on a favorable vote from the majority on the board.

The NBER's headquarters is in Cambridge, Massachusetts. The organization's board of directors consists of economists from the top leading research universities and research organizations in the United States. In addition, it employs research associates and research fellows, with fewer than 50 employees as support staff. Wesley Mitchell, the first director of research at the bureau, set the standards high and led a very productive research staff during his 25 years of service.

The bureau's first study was about the distribution, size, industrial composition, and growth and fluctuation of the national income. Because today's economic life is centered on either making or spending money, the resulting framework could be used as a basis for many other unanswered questions—questions regarding the magnitude, process, and consequences of aggregate changes in distribution of the nation's income. It took less than two years for the bureau to complete the national income study. The results were published in two volumes. But more importantly, through this work the bureau successfully established its reputation among public and professional individuals and organizations as a thorough and reliable research organization.

Studying the national income was just a starting point in developing deeper knowledge of the economy. While finishing an initial examination of the national income, the bureau had already started investigating the geographical distribution of the income, comparing it among different states. Furthermore, in 1921, the bureau started another related study on annual savings. Later, in 1930, Simon Kuznets, a student of Mitchell's and one of the bureau's staff, started leading a series of studies on the nation's income, savings, and expenditures. This important study extended over the next three decades and was considered the initial step in estimating the gross national product (GNP) and other related statistics.

In 1921, the board's executive committee approved Mitchell's proposal to study business cycles. In 1927, with the bureau's help, Mitchell published the first part of his proposal series. The study was titled “Business Cycles: The Problem and Its Setting.” The title was the same as the first part of the study done in 1913, but the later work included many new ideas and materials.

Over the years, the bureau has completed many important studies on subjects such as the fluctuations of savings, cyclical changes in productivity, and cyclical changes in employment. The bureau’s founders established a culture of strict action. Although it is difficult to focus on important economic issues while paying attention to their symptoms, it is not impossible. The founders’ stringent principle of scientific and empirical analysis and impartiality guided the bureaus’ work from one generation to another. The NBER has earned the trust and respect of government, business, and academic professionals. Today, the bureau’s budget is more than $6 million, and there are more than 100 research associates located in the United States and abroad who conduct important domestic and international economic studies (see www.nber.org).

Elham Mahmoudi

See also: Bureau of Economic Analysis; Bureau of Labor Statistics; Department of Commerce; Gross National Product; *Vol. 1: Foundations of Economics:* United States Census Bureau

Further Reading

Burns, Arthur F., and Wesley C. Mitchell. 1946. *Measuring business cycles*. Washington, DC: NBER Books.

Chauvet, Marcelle. n.d. Real time analysis of the U.S. business cycle. Federal Reserve Bank of Atlanta, Center for Quantitative Research. www.frbatlanta.org/cqer/researchcq/chauvet_real_time_analysis.cfm (accessed November 30, 2016).

Fabricant, Solomon. 1984. Toward a firmer basis of economic policy: The founding of the National Bureau of Economic Research. (Orig. pub. 1927.) www.nber.org/nberhistory/sfabricantrev.pdf (accessed November 30, 2016).

Mitchell, Wesley. 1927. *Business cycles: The problem and its setting*. New York: National Bureau of Economic Research.

National Bureau of Economic Research. 2010. Business cycle dating committee, National Bureau of Economic Research. www.nber.org/cycles/sept2010.html (accessed November 30, 2016).

NATIONAL DEFICIT VERSUS DEBT

The national *deficit* refers to the amount a government spends that is more than it takes in over a given period of time, usually one year. The national *debt* is the accumulation of government deficits over time. The publicly held debt consists of the U.S. Treasury securities held by individuals, financial intuitions, and foreign governments. Another portion of the debt, called the intragovernmental debt, consists of the Treasury bonds held by agencies of the federal government, including the Social Security Trust Fund. Since the 1930s, there has not been a consistent plan to pay down the national debt, and any decreases are a result of inflation and economic growth.

Deficit

Deficit spending occurs when a government spends more than it collects in revenue in a given year. These annual deficits contribute to the national debt, which is the total amount that a nation owes. Many things can contribute to deficit spending—such as national emergencies, including wartime; maintaining infrastructure and public goods; stabilizing the economy during a recession or a depression; and government programs such as Social Security, Medicare, and Medicaid.

To cover the deficit, the government must sell Treasury bonds, which are bonds that pay a fixed interest rate and mature in 10 years. These bonds generally have low interest rates, but they are safest since they are backed by the full faith and credit of the U.S. government. When these bonds mature, they pay the face value plus interest. Commonly, these bonds can be purchased through auction—and sometimes at less than face value.

Debt

The debt of the United States can be traced back to the Continental Congress, which borrowed money to finance the Revolutionary War. When the U.S. Constitution went into effect in 1789, the United States was already $75 million in debt. The nation's first Secretary of the Treasury, Alexander Hamilton, authorized the Treasury to borrow money so it could pay interest on the national debt; he also authorized Treasury bonds to be issued for the first time. Hamilton also used tariffs and taxes to pay down the national debt.

The nation was completely debt-free under President Andrew Jackson's administration (although a series of economic crises ensued after he left the White House). The United States next went into debt as a result of the Civil War, when the federal government borrowed $2.8 billion, or 30 percent of the gross domestic product (GDP) (Gramm and McMillin 2013). The public debt increased from $65 million to $2.76 billion by 1866 (Phillips 2013).

The Great Depression resulted in a large increase in the national debt, which reached 43 percent of GDP (or $40 billion) in 1934 (Phillips 2013). The U.S. debt was high after World War II, at about 130 percent of GDP (Gordon 2011). The post–World War II economic boom created a high demand for U.S. goods and services, a demand that remained high through the 1950s. During this same period, government spending was cut immensely. An economic boom and decreased government spending helped bring down the debt-to-GDP ratio.

In the 1970s, the debt-to-GDP ratio was 39 percent (Gordon 2011), the lowest since the Great Depression. In the 1980s, a recession increased the debt-to-GDP ratio again. As the U.S. economy entered the 1990s, the debt was 58 percent of GDP (Gordon 2011). As the economic boom of the 1990s continued, the federal government achieved a budget surplus for the first time in 30 years. In 2003, however, the debt-to-GDP ratio rose again, to over 61 percent, as a result of a recession (Gordon 2011). The Great Recession was also a significant contributor to an increase in the debt-to-GDP ratio. In 2009, it reached over 84 percent and continued until it reached 100 percent (Gordon 2011). To avoid increasing debt and a potential debt crisis, a nation must grow faster than the interest rate paid on its debt, or it risks no gains in economic growth.

There are many implications of a rising national debt. Economic conditions can be affected in the form of higher interest rates and increased income taxes, as well as the depreciation of the dollar.

A key issue that contributes to the national debt is government spending. Congress has struggled to establish policies on limiting the size of the nation's debt. In 1985, Congress established *sequestration*, which means that if Congress went over its deficit ceiling or spending caps, the budget would be subjected to automatic spending cuts. The Budget Enforcement Act of 1990 introduced a pay-as-you-go concept for the nation's budget. Any spending increases would have to be offset by tax increases.

Another issue confronting Congress and the national debt is what Congress must do when the debt ceiling is reached. The *debt ceiling* is a legal limit, set by Congress, that determines by how much the federal government can exceed its current debt obligations. The amount of additional debt the federal government increases can be changed only by a vote of Congress. Consequently, when the debt ceiling is reached, Congress must decide to either increase the debt ceiling (allow the debt to increase) or shut down the government. Congress has acted to increase the debt ceiling 77 times since 1962.

Currently, the U.S. federal debt exceeds 100 percent of GDP and continues to increase. U.S. taxpayers now and in the future bear the burden of paying the interest and principal of the debt, if surpluses can be achieved. The government's options for decreasing the national debt include cutting federal spending and increasing taxes. The costs and benefits of these options must be weighed carefully to determine what is best for the future of the U.S. economy.

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See also: Debt; Debt Crisis of the 1980s; Deficit; Entitlements; Fiscal Policy; Gross Domestic Product; U.S. Treasury Bills, Notes, and Bonds

Further Reading

Gordon, John Steele. 2009. A short history of the national debt. *Wall Street Journal*, February 18. http://online.wsj.com/article/SB123491373049303821.html (accessed May 11, 2013).

Gordon, John Steele. 2011. A short primer on the national debt. *Wall Street Journal*, August 29. http://online.wsj.com/article/SB10001424053111903480904576510660976229354.html (accessed May 11, 2013).

Gramm, Phil, and Steve McMillin. 2013. The debt problem hasn't vanished. *Wall Street Journal*, May 21. http://online.wsj.com/article/SB100014241278873247870045784948640427545 82.html (accessed May 11, 2013).

Marketplace.org. n.d. Budget hero. http://www.marketplace.org/topics/economy/budget-hero (accessed May 11, 2013).

Phillips, Matt. 2013. The long story of U.S. debt, from 1790 to 2011, in 1 little chart. *The Atlantic*, November 13. http://www.theatlantic.com/business/archive/2012/11/

the-long-story-of-us-debt-from-1790-to-2011-in-1-little-chart/265185/ (accessed May 11, 2013).

Schiller, Brad. 2013. A history of the national debt. *Washington Times*, February 19. http://www.washingtontimes.com/news/2013/feb/19/a-history-of-the-national-debt/. (accessed May 11, 2013).

U.S. Debt Clock. n.d. http://www.usdebtclock.org/ (accessed May 11, 2013).

NATIONAL INDUSTRIAL RECOVERY ACT

The National Industrial Recovery Act (NIRA) was passed in 1933 to help the United States' struggling economy. The purpose of the NIRA was to stimulate industry and to influence consumer purchasing power. Between 1929 and 1932, manufacturing production had declined by half. The NIRA, in conjunction with the New Deal, was intended to help heal the economy.

When President Franklin D. Roosevelt and his staff put this plan into action, the United States was in the midst of one of the worst economic crises in its history: the Great Depression. The NIRA started out as a great idea.

The NIRA created the National Recovery Administration, also known as the NRA, which attempted to create a "fair" playing field between similar industries. A blue eagle was the symbol for the NRA, and businesses would proudly hang it outside their buildings to show their support. If the blue eagle was displayed outside of a business, it meant that that business was participating in the attempt to help save the economy under the provisions of the NIRA. The NIRA also created the Public Works Association, or PWA, to put the federal government in control of public works.

A positive aspect of the NIRA was that in the midst of a terrible economic time, it inspired many people. Even though statistically it did not did not jumpstart the economy and improve the Great Depression as anticipated, it did give hope to the hopeless. It gave people jobs and a reason to keep pushing onward.

In the U.S. Supreme Court case *Schechter Poultry Corp. v. United States*, the Schechter Poultry Corporation had fought against the U.S. government due to unconstitutional actions. "Congress had overstepped its bounds by regulating local commercial activity" (Schechter 1935). The Schechter Poultry Corporation won the Supreme Court case, which started the downfall of the NIRA.

In the end, the NIRA both helped and hurt the United States. By raising wage prices, it actually hurt the economy. The NIRA brought business and government together by increasing the role the government played. When the economy went down and the Great Depression hit, the government had to step in. Roosevelt's leadership did help give the economy the kick-start it needed, even though the plan did not work the way it was supposed to. When the government oversteps its bounds with businesses, the outcome is not successful, as the National Industrial Recovery Act showed.

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See also: *Vol. 1: Foundations of Economics:* New Deal; Roosevelt, Franklin D.; Supreme Court

Further Reading

Chicago-Kent College of Law at Illinois Tech. n.d. *Schechter Poultry Corp. v. United States* (Syllabus). Oyez. https://www.oyez.org/cases/1900-1940/295us495 (accessed February 14, 2016).

Justia Supreme Court Center. n.d. *Schechter Poultry Corp. v. United States.* https://supreme.justia.com/cases/federal/us/295/495/ (accessed February 14, 2016).

National Industrial Conference Board. 1933. *The National Industrial Recovery Act: Analysis of approved codes*. Washington, DC: National Industrial Conference Board.

Our Documents: The National Industrial Recovery Act. June, 1933. Franklin Roosevelt's Statement on the National Industrial Recovery Act. http://docs.fdrlibrary.marist.edu/odnirast.html (accessed October 8, 2016).

NATIONAL LABOR RELATIONS ACT OF 1935 (WAGNER ACT)

The National Labor Relations Act (NLRA) of 1935 (29 U.S.C. §§ 151–169) affected labor laws in the United States by protecting private-sector employees' right to organize themselves into labor unions. President Franklin D. Roosevelt signed the act into law on July 5, 1935. Unofficially known as the Wagner Act, this legislation recognized New York senator Robert F. Wagner's (served 1927–1949) efforts to respond to the Supreme Court striking down the National Industrial Recovery Act as unconstitutional.

A combination of (1) worldwide labor movements against exploitive employers and governments and (2) economic conditions in the aftermath of the Great Depression provided the impetus for Congress to propose a bill that would protect the rights of workers in the United States. In the 1930s, organized labor wanted protection from employers who spied on, interrogated, disciplined, discharged, and blacklisted union members. Workers organized themselves militantly, and between 1933 and 1934 numerous strikes occurred across the United States, some of them resulting in violent confrontations between workers who were trying to form unions and institutions, including the police, that were defending the anti-union employers.

Recognizing that difficult economic conditions had caused other governments to be violently replaced by communist ideology at the hands of a disillusioned labor sector, Democrats sought to keep the communist movement out of the United States. In addition, as outlined in Section 1 of the NLRA, members of Congress believed that industrial peace was essential to a functioning economy, and that suffering employees could hinder full economic production.

As stated in Section 1 [§151] of the NLRA,

> [T]he inequality of bargaining power between employees who do not possess full freedom of association or actual liberty of contract and employers who are organized in the corporate or other forms of ownership association substantially burdens and

> affects the flow of commerce, and tends to aggravate recurrent business depressions, by depressing wage rates and the purchasing power of wage earners in industry and by preventing the stabilization of competitive wage rates and working conditions within and between industries.

The passage of the NLRA gives employees the freedom to organize and form a legally protected bargaining unit, or trade union, through which to collectively bargain terms and conditions of employment. As a last resort, if there is an impasse with the employer on reaching an agreement, the act gives legal protection for unions to take collective action against the employer, including the organization of a strike.

In the decade that followed the passing of the Wagner Act, House and Senate Republicans repeatedly attempted to repeal or amend it; they were worried that its provisions contradicted the principles of a capitalist society, that it would hinder maximum growth and profit across industry markets, and that it would indirectly promote socialist/Marxist ideology in the United States. Republicans were so concerned about the promotion of this ideology that they encouraged businesses and employers not to comply, and to file an injunction in federal court to negate the act. All efforts by House and Senate Republicans either failed to pass in one or both chambers, or were vetoed by the president.

The provisions of the Wagner Act did not apply to government workers at any level of administration (federal, state, or local). In addition, because the Railway Labor Act covers workers in the railway and airline industries, they are also exempt from coverage under the Wagner Act. Other employees not covered by the act are agricultural employees, domestic workers, supervisors, independent contractors, and close relatives of individual employers. Employees whose religious beliefs prevent their joining and contributing to unions are also exempt from any requirement to associate or financially support them (Section 19).

Section 3 of the NLRA established the National Labor Recovery Board (NLRB), whose primary duties are to oversee the unionization process of employees, as well as to provide legal and financial support to unions seeking to prosecute an employer for violations. In this capacity, the NLRB can lead investigations, collect evidence, issue subpoenas, and call witnesses to testify and provide evidence.

Section 7 of the act explicitly addresses the rights of unions in the collective bargaining process. This section states that employees have the right to self-organize and to join or assist a labor organization. The bargaining unit can bargain for the collective group through representatives of its own choosing (as outlined in Section 9), and it can also participate in activities that would provide mutual aid or protection for employees. Section 7 also outlines that each bargaining unit is allowed only one representative, that employees are allowed to discuss wages with each other to ensure fair pay, that the union is allowed to promote itself to employees, and that employers are compelled to bargain in good faith with the representative for the employee unit.

Section 8 of the act outlines what would be considered unfair labor practices by employers. These include interfering with, restraining, or coercing employees in terms of exercising their rights guaranteed in Section 7 of the NLRA, interfering in either the formation of the labor organization or in the collection of financial contributions to support it, influencing employment or promotion on condition of discouraging or exemplifying nonsupport for unions, discriminating against employees who file charges or testify against the employer in union initiated cases, and refusing to bargain with the representative for the collective unit.

The NLRA also outlines what would be considered unfair practices of labor organizations against employees and employers. These include threats of job loss or punishment for lack of support toward the union or for choosing not to be a member; refusing to process a grievance because an employee criticized the union or its officials; firing employees who left the union; misconduct during pickets, including threats, assault, or preventing nonstrikers from accessing the employer's premises; and striking over issues unrelated to employment terms and conditions.

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See also: Labor Uprisings, 1936–1939; National Labor Relations Board; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; New Deal; *Primary Document*: National Labor Relations Act of 1935 (Wagner Act)

Further Reading

Cornell University Law School, Legal Information Institute. n.d. National Labor Relations Act (NLRA). http://www.law.cornell.edu/wex/national_labor_relations_act_nlra.

National Labor Relations Board. n.d. National Labor Relations Act. https://www.nlrb.gov/resources/national-labor-relations-act (accessed April 15, 2013).

Ourdocuments.gov. n.d. National Labor Relations Act (1935). http://www.ourdocuments.gov/doc.php?doc=67 (accessed April 15, 2013).

Tubach, Linda. n.d. Case study: A national labor relations board union representation election at get-well community hospital. http://labor-studies.org/pdfs/NLRBUnionElection.pdf (accessed April 15, 2013).

NATIONAL LABOR RELATIONS BOARD

In 1935, the National Labor Relations Act (NLRA) created the National Labor Relations Board (NLRB) for the purpose of improving working conditions by overseeing and protecting the rights of workers to organize. The act set out a framework from which nongovernmental employees could bargain for better wages and working conditions or could decertify a current labor union if they so choose.

The NLRA covers an array of labor rights for employees. Under the act, employees are protected to form a labor union or organization, decertify a labor union or organization, and engage in collective bargaining with their employer. The act also protects employees if they do not wish to bargain collectively, or if they wish to bargain collectively without the representation of a labor union. The NLRA provides employees with the right to collective bargaining for better working conditions, including wages. Under the act, employers are forbidden from interfering with their employees' right to form a union, join a union, or participate in union activities. However, it also protects employees who do not wish to participate in such activity.

The NLRB is headquartered in Washington, D.C. There are also more than 30 regional NLRB offices across the United States. The NLRB is made up of five members. The board members are appointed for five-year terms by the president of the United States with consent of the Senate. The members are staggered so that one term expires each year. There is a general counsel for the board who is also appointed by the president. The general counsel's term is four years. The general counsel's responsibility is to prosecute unfair labor practices. A division of judges hears the unfair labor practice cases and rules on their status.

Employees or employers who feel that their rights have been violated can file an unfair labor practice charge with the NLRB. The general counsel investigates the charges and determines whether a case exists to be heard. If it is determined that a charge has merit, the case is heard before one of 40 administrative law judges. Once the decision is determined, the board encourages the parties involved in the case to comply with the judge's decision. However, the right to due process permits the party found in the wrong to appeal the decision to the board. When the party does not comply with a decision, it is the responsibility of the general counsel to prosecute and seek legal enforcement in the U.S. Court of Appeals.

J. Warren Madden was the first chair of the NLRB. Madden created five separate divisions with the NLRB. Of the five divisions, the economic division was created to address three tasks. First, the economic division collects economic data to support the NLRB's position in court cases. Second, the division researches labor relations to support the board's decision and policy-making efforts. Third, its members write papers and conduct research on labor relations history, collective bargaining, and case studies regarding labor disputes so that they may serve as experts in the area of labor relations.

Like most new, far-reaching federal legislation, the NLRA faced several constitutional issues. Fearing that the composition of the Supreme Court would make it inclined to rule against the NLRB, Madden delayed court challenges until he felt the Court would be sympathetic to the NLRB. His tactics appear to have been successful. In 1937, in *National Labor Relations Board v. Jones & Laughlin Steel Corporation*, the Supreme Court upheld the constitutionality of the NLRA. Further, the Supreme Court endorsed the NLRB's rulings in 19 cases, and denied only 2 cases.

Interestingly, the American Federation of Labor (AFL) was the NLRB's most ardent rival in court. The AFL accused Madden of pitting the AFL against its union competitor, the Congress of Industrial Organizations (CIO). The two labor organizations would later merge to create the powerful AFL-CIO labor union.

In 1938, after prompting from the AFL, an investigation of the NLRB by the House Un-American Activities Committee confirmed that Madden had hired at least one member of the Communist Party of the United States: a 1940 House of Representatives Special Committee investigation was led by an antilabor representative, Howard W. Smith from Virginia. The committee's efforts led to major restructuring of the NLRB and expansion of the board from the original three members to the current five. The two investigations damaged the NLRB's reputation with both the public and Congress. While President Roosevelt supported the

NLRB, the reputational damage of the investigations has been connected with the eventual passage of the Taft-Hartley Act of 1947.

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See also: Labor Force; Labor Uprisings, 1936–1939; National Labor Relations Act of 1935 (Wagner Act); *Vol. 1: Foundations of Economics:* Roosevelt, Franklin D.; Supreme Court; *Vol. 3: Microeconomics:* Labor Economics; Labor Market Regulation; *Primary Document*: National Labor Relations Act of 1935 (Wagner Act)

Further Reading

Gross, James A. 1974. *The making of the national labor relations board: A study in economics, politics, and the law 1933–1937*. Albany, NY: State Univ. of New York Press.

Harlan Institute. n.d. *Lesson plan: National Labor Relations Board v. Noel Canning Corporation*. http://harlaninstitute.org/contests/virtual-supreme-court/virtual-supreme-court-lesson-plan-national-labor-relations-board-v-canning/ (accessed May 21, 2014).

National Labor Relations Board. 2008. *Decisions and orders of the National Labor Relations Board*. Volume 352. Washington, DC: Government Printing Office.

National Labor Relations Board. n.d. Home. http://www.nlrb.gov/ (accessed May 21, 2014).

National Labor Relations Board. n.d. What we do. http://www.nlrb.gov/what-we-do (accessed May 21, 2014).

NATIONAL LABOR UNREST, 1894

The Panic of 1893 and the ensuing depression was a peak in civil unrest and the development of unions. The unionization movement grew in reaction to wage cutting during the depression. The year 1894 would see some of the nation's bloodiest strikes, starting with a national coal strike in April followed by a Pullman strike in the summer.

The United Mine Workers and the Knights of Labor called for a national strike in April 1894, and more than 200,000 miners were involved nationwide. The Knights of Labor, who called for an eight-hour day, led the strike. The two-month strike was bloody, violent, and deadly, and at least 11 miners died in the Connellsville region of Pennsylvania. One of the problems prompting the strike was that mining companies were unable to meet their payrolls. The strikers became what was called a "roaming army of Huns." The Hungarian, Polish, and Slavic workers united in the new union, which pushed the owners with violence. "Scabs" were often beaten to death, and mines were dynamited.

The strike was widespread, universal, and national, and thus news reports of the strike were diffused and inconsistent. Violence and deaths occurred in Alabama, Illinois, West Virginia, and Ohio. Governor William McKinley of Ohio ordered out troops and mounted machine guns on railcars. The strike lasted about eight weeks, as the workers broke along ethnic lines. But again, the rural nature of the operations often suppressed press reporting.

The economy ultimately helped end the strike. The coke companies in the Connellsville area brought in more than 2,000 black and Italian workers as scabs, paying recruiting agents $3 per person. The owners hired an army of 1,000 deputies at $5 per person. The economy, scabs, union division, and the hired army ended the strike in Connellsville by June 1894. The Knights, representing the unskilled laborers, were involved in much of the fighting. There was bitter infighting between the Knights of Labor union and the United Mine Workers, mostly over the unskilled Hungarian and Slav workers' elimination from the union. The H. C. Frick Company was considered worker-friendly, so the Hungarians did not target Frick mines. In return, Frick often used Hungarians, blacks, and Italians for strikebreakers and would allow them to stay on in the workforce if they proved themselves.

The unsuccessful national strike led to the rise of the United Mine Workers of America (UMWA), which had 20,000 members by 1890 and had become the dominant union for the mining districts. The 1890s was a decade of depression, however, and the UMWA lost members. Still, the foundations of the UMWA were strengthened in the Panic of 1893, and the universal strike resulted in the UMWA replacing the Knights of Labor and smaller groups. The UMWA affiliated with Samuel Gompers' American Federated Labor. The new union elected John B. Rae to lead it, paying him a salary of $1,000 a year.

The disaster of the national strike highlighted the lack of unity among the miners. To win future labor battles, the membership needed to change and promote new leadership. The UMWA began to embrace all races and religions in its membership and adopted the motto "United We Stand, Divided We Fall." The UMWA did call a national strike against the soft coal industry—soft coal was needed for steel production—and won recognition in the midwestern coal mines.

The Pullman Company and its "company" town were at the center of another major labor strike that would spread like the Great Railroad Strike of 1877. Pullman City was 14 miles south of downtown Chicago near Lake Calumet. The strike lasted three weeks, and at its peak it involved more than 250,000 men in 27 states. Strike-related violence resulted in the death of 13 strikers, more than 60 wounded, and property damage valued at more than $340,000 (the equivalent of about $9 million today). The strike was the effort of the American Railway Union headed by socialist Eugene Debs.

The trouble started in May 1894 with a layoff of 3,000 of Pullman's 5,800 employees at the Chicago plant. In an effort to save jobs, George Pullman cut the wages of his remaining employees by 25 percent. Pullman had seen orders for his rail cars plummet as a result of the Panic of 1893. Pullman was labor-friendly, but he was hardheaded and a poor communicator. He had been hailed by many as a paternal capitalist, but Pullman was no Carnegie or Westinghouse. He ran Pullman City as a profit center. Workers were required to live in Pullman City, where Pullman provided all the utilities, services, and housing for a profit. Pullman charged rents 25 percent higher than in surrounding neighborhoods. In addition, he purchased water from Chicago at 4 cents per thousand gallons and sold it to his town at 10 cents. Even the clergy were charged rent on churches in Pullman City, and the library charged a fee, too.

Members of the American Railway Union asked that the rents in the Pullman worker town be reduced. Pullman ended up firing the union representatives, which brought union president Eugene V. Debs into the disagreement. Pullman then locked out the employees. Things quickly escalated to a strike as Pullman announced a regular dividend to its stockholders. The strike started to evolve along related railways, as three-quarters of the rails moving in and out of Chicago closed. The union called for a nationwide boycott of Pullman cars, and railroad workers across the nation refused to switch Pullman cars.

President Grover Cleveland got involved, hiring 3,600 special deputies and sending 6,000 troops to Pullman City. The troops had the full protection of the U.S. government. Not wanting another Haymarket Riot or Railroad Strike of 1877, Cleveland thought he would get national labor support, given the reputation of Pullman as labor-friendly—but he did not. The newspapers supported Cleveland initially, but the support was short-lived.

Pullman used scabs and strikebreakers at the factory, which caused violence. Federal involvement inspired more rioting by the workers as the unemployed joined in. On July 7, the strike erupted into shootings and deaths as troops clashed with workers in Chicago. The strike started to spread across the country along the railroads. Cleveland was forced to get a federal injunction against the strikers based on the fact that the strike interfered with delivery of the U.S. mail. It was the first time the federal government had used an injunction to stop a strike.

The strike ended with the heavy federal crackdown, but the courts took over to avenge the upheaval. The result of the Debs strike would change the landscape of American politics. Eugene Debs was sentenced to six months in prison for disobeying the injunction, and he would later form the American Socialist Party. The Sherman Antitrust Act was used to support the conviction, and the Supreme Court upheld the use of the act against labor. In addition, the Supreme Court upheld the use of the federal injunction because of interruptions to the U.S. mail. In 1897, the Supreme Court of Illinois forced Pullman Company to divest itself of the City of Pullman. The United States Senate launched investigations that resulted in a condemnation of Pullman's use of paternalism to profit from workers.

Quentin R. Skrabec Jr.

See also: Labor Uprisings, 1936–1939; *Vol. 1: Foundations of Economics:* Supreme Court; *Vol. 3: Microeconomics:* National Steel Strike, 1919; National Steel Strike, 1959; Sherman Antitrust Act of 1890; *Primary Document*: Sherman Antitrust Act of 1890

Further Reading

Hirsch, Susan Eleanor. 2003. *After the strike: A century of labor struggle at Pullman*. Urbana: Univ. of Illinois Press.

Lindsay, Almont. 1943. *The Pullman strike: The story of a unique experiment and of a great labor upheaval*. Chicago, IL: Univ. of Chicago Press.

Skrabec, Quentin R. 2010. *Henry Clay Frick: The life of the perfect capitalist.* Jefferson, NC: McFarland Publishing.

NOISE POLLUTION

Noise pollution consists of all the myriad sources of irritating (and often unhealthy) sounds emanating from other people and other things in the world around us. Loud noises from any source can be physically harmful; numerous studies have shown that chronic exposure to moderate to high levels of noise is linked to a wide variety of physical and psychological problems, including hearing loss, aggression, elevated stress, and such cardiovascular effects as hypertension. As a result, a number of studies have tried to measure the impact of living close to a source of noise such as a busy road or airport. In addition, as people move to large cities where expensive housing translates into dense living conditions, residents may be subjected to yet another source of noise that has received much less academic and policy attention: neighbor noise. Some of this noise is caused by inconsiderate behavior, but other noise related to everyday living may more rightly be attributed to poor acoustic insulation from inadequate planning and building.

If you walk on a hard wood floor, practice the drums, or teach your dog to speak on command, chances are you will not chafe at the sound of your own steps, beats, or barks. However, noise coming from the outside world that is not under your control may have a very different psychological effect, depending on your tolerance (or perturbability) for such things. Thus, to the extent that the noisemakers of the outside world do not take into account the full harm being inflicted on nearby ears when they're making decisions about the level of (loud) activity to engage in, noise pollution—like many other forms of pollution—is an externality.

In economics, there is naturally an interest in calculating the costs of noise pollution and comparing these costs to the costs of noise abatement policies. However, there is no off-the-shelf observable market price for noise reduction, so researchers must infer a price from people's behavior. One popular approach to valuing noise is to use hedonic house price regressions to analyze the relationship between house prices and proximity to noise sources (usually airports) in order to estimate a shadow price of noise from the market data. All else being equal, if similar homes sell for less the closer they are to the airport, the conditional difference in price is interpreted as the market discount attributed to the noise problem. The imputed noise costs found by many of these studies are substantial: for example, one study finds a $200,000 house would sell for $20,000 to $24,000 less if its residents will be exposed to airplane noise.

In theory, with perfect information and costless mobility, in equilibrium house prices should completely compensate the noise differentials; the average homeowner should be left observationally indifferent between house #1 with noise level *x* and house #2 with noise level *y*. In practice, however, information on noise is often difficult to observe (or elicit from sellers), and mobility is far from free. Many people who optimally chose a home 5 or 10 years ago may find themselves in a suboptimal noise situation years later for a number of reasons: increases in local traffic, changes in airplane flight paths, or loud new neighbors next door (indeed, many new urban apartment dwellers have faced a rude welcome upon discovering heretofore-hidden sources of noise once they move in, a factor that may help explain the popularity of renting in big cities). Furthermore, many housing markets are highly regulated, with a large amount of rationing. For all these reasons, house prices may not fully compensate for undesirable characteristics like noise, and there will be residual welfare costs.

A further complication in using hedonic methods arises due to heterogeneity in individuals' tolerance toward noise, with more perturbable people self-selecting into quieter areas, and more noise-tolerant people self-selecting into louder areas (taking advantage of the lower prices). This self-selection leads to a downward bias in any estimate of the average welfare costs of noise; we cannot necessarily interpret the difference in house prices attributed to noise differentials as the total cost that would be imposed on a particular individual exposed to that noise.

Given these difficulties, several alternative approaches to hedonic models have also been used to measure the welfare impacts of noise. One is to use a contingent valuation and another is a stated-choice method, where subjects are asked to give their willingness to pay for alternative levels of different attributes. These methods are prone to various forms of strategic and recall bias, and thus they remain somewhat controversial.

A third method that has been used more recently is to use data from the happiness or life-satisfaction surveys that are now available, many of which ask questions about both household income and exposure to various forms of pollution, including noise. Although the use of life-satisfaction data is quite a controversial subject in economics, in principle at least it should be possible to estimate the degree to which exposure to noise pollution lowers life satisfaction, and then to calculate the income transfer required to compensate for this impact. One study finds that exposure to significant levels of noise pollution lowers life satisfaction approximately as much as being disabled, and that noise alone can explain the differences in life satisfaction between urban and rural residents.

In sum, a growing body of evidence suggests that noise pollution is a serious problem that can significantly lower overall public welfare. However, as noise is an externality and often not observable before someone purchases or rents a home, the free market will not deliver an optimal solution. Instead, urban planners and policymakers should pay more attention to this issue and, when necessary, increase standards of acoustic building codes and/or the enforcement of local noise ordinances. As the world becomes increasingly urbanized, enhanced attention to noise control will ensure that the benefits of city living are more likely to be enjoyed by all.

Diana Weinhold

See also: Externality; *Vol. 1: Foundations of Economics:* Environmental Economics; Welfare Economics; *Vol. 3: Microeconomics:* Air Pollution

Further Reading

Cohen, Jeffrey P., and Cletus C. Coughlin. 2008. Spatial hedonic models of airport noise, proximity, and housing prices. *Journal of Regional Science* 48 (5): 859–78.

Nelson, Jon P. 2004. Meta-analysis of airport noise and hedonic property values: Problems and prospects. *Journal of Transport Economics and Policy* 38 (1): 1–27.

van Praag, M. S. Bernard, and Barbara E. Baarsma. 2005. Using happiness surveys to value intangibles: The case of airport noise. *The Economic Journal* 115 (500): 224–46.

Wardman, Mark, and Abigail Bristow. 2008. Valuations of aircraft noise: Experiments in stated preference. *Environmental and Resource Economics* 39 (4): 459–80.
Weinhold, Diana. 2013. The happiness-reducing costs of noise pollution. *Journal of Regional Science* 53 (2): 292–303.

NON-TRADITIONAL MONETARY POLICY

Non-traditional monetary policies are often referred to as unconventional monetary policies. In recent years, the central banks in the United States, Japan, the United Kingdom, and Europe have all resorted to nontraditional policies to combat the global financial crisis and recession of 2008. Across borders the details have differed, yet in all four countries the nontraditional policies have proven successful in easing overall monetary conditions. Traditionally, central bankers ease or tighten monetary policy by adjusting a benchmark interest rate to influence the availability of credit. There are two main reasons why traditional monetary policy reached its limit in the recession of 2008.

First, in December 2008, the Fed lowered the federal funds rate effectively to zero, where it has remained ever since. The Bank of England, the European Central Bank, and the Bank of Japan have also lowered their policy rates nearly to zero, meaning those rates cannot be lowered any further to provide additional stimulus. Traditional policies' second limitation was how financial markets functioned. Normal market conditions suggest profits are obtained when the risk of the returns aligns with the profit opportunity. However, a financial crisis creates inconsistencies in interest rates across all markets. So as the Fed reduces interest rates to close to zero, traditional monetary policies suggest at some point the Fed cannot affect the interest rates that are important to consumers and businesses.

The 2008 financial crisis essentially halted spending by the private sector (consumers and producers). In response to the crisis, central banks lowered short-term rates close to zero rates. Central banks buying long-term bonds were instituted to lower long-term interest rates. This monetary method by central banks popularly became known as quantitative easing. Quantitative easing allowed central banks to purchase both short-term and long-term in an attempt to stabilize interest rates. The main problem was that interest rates obtained by quantitative easing did not align with the economy's current market forces. Without the alignment of the interest rates from quantitative easing and market interest rates, inflation and output will not stabilize.

Nontraditional policies can be identified into three groups. Group 1 involves discount window lending. This method uses one of the standard tools of monetary policy: the discount rate. The discount rate is the short-term interest rate that the Fed charges its clients for overnight loans. In 2007, the Fed began to encourage lending through the discount window to increase liquidity. Group 2 is new lending participants in the financial markets who are not identified as normal lending institutions. Finally, Group 3 the large government-sponsored enterprises. Use of this third group is a broadening of the Fed's traditional open market operations.

When central banks withdraw significant liquidity in a relatively short period of time, contractionary monetary shocks result. When liquidity is contracted in such a short period of time, quantitative easing policies make it difficult for the market to absorb the assets to be sold. Heavy market losses may result if the actions are too quick. Conversely, inflation becomes a real risk when the liquidity measures are reversed.

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See also: Contractionary Monetary Policy; Expansionary Monetary Policy; Federal Reserve System; Monetary Policy; Quantitative Easing; *Vol. 1: Foundations of Economics:* Central Bank

Further Reading

Bernanke, Ben S. 2012. Monetary policy since the onset of the crisis. Speech given at the Federal Reserve Bank of Kansas City Economic Symposium, Jackson Hole, Wyoming. http://www.federalreserve.gov/newsevents/speech/bernanke20120831a.htm (accessed November 30, 2013).

Evans, Charles L. 2009. Nontraditional monetary policy. Remarks given at the Executives' Club of Chicago. https://www.chicagofed.org/publications/speeches/2009/06-15-executivesclub (accessed November 30, 2013).

Federal Reserve Bank of Atlanta. 2013. Primer on nontraditional monetary policy tools: The maturity extension program. https://www.frbatlanta.org/education/publications/extra-credit/2013/spring/primer-on-nontraditional-monetary-policy-tools-maturity-extension-program.aspx (accessed November 30, 2013).

NORTH, DOUGLASS

Born: November 5, 1920, in Cambridge, Massachusetts; Died: November 23, 2015, in Benzonia, Michigan; Nationality: American; Professional Interests: economic history, institutional economics, cliometrics, Nobel Prize (1993); Major Works: *The Economic Growth of the United States, 1790–1860* (1961), *Structure and Change in Economic History* (1981), *Institutions, Institutional Change and Economic Performance* (1990), *Understanding the Process of Economic Change* (2005).

Douglass North was an American economist whose work in economic history and institutional economics earned him the 1993 Nobel Prize in Economics. North helped found the field of cliometrics (named after Clio, the muse of history), which applies economics and quantitative methods to the study of economic history. His interest in institutional economics shaped how the discipline views the role of institutions and property rights in economic growth. North was influential in understanding how people make choices. He was particularly interested in the way that individuals' ideas, beliefs, and prejudices influence their decision-making, often in ways that hinder growth.

Douglass Cecil North was born on November 5, 1920, in Cambridge, Massachusetts. His mother was a strong believer in education, reflected by his early schooling experiences. He attended school in Lausanne, Switzerland; Ottawa, Canada; New York City; Long Island; and Choate Academy in Connecticut. He also developed a strong passion for photography, winning several awards in high school. Though he had been accepted at Harvard University, he followed his family to the West Coast when his father accepted a new position. He did his undergraduate work at the University of California, Berkeley (UC Berkeley). His academic record at UC Berkeley was only slightly above average, although he pursued a triple major in philosophy, political science, and economics.

While at Berkeley, North became a Marxist and a pacifist. When he graduated from Berkeley, he spent time pursuing photography, working with Dorothea Lange photographing migrant workers in California for the Farm Services Administration. When World War II broke out, North joined the Merchant Marines and became a navigator. He even taught celonavigation (celestial navigation) at the U.S. Maritime Service Officer School in Alameda, California.

North returned to Berkeley after the war to continue his study of economics, graduating in 1952. By his own admission, he did not learn much economic theory there. It was during his first position at the University of Washington that the situation changed and economic theory became an integral component of his future professional efforts. As a result of his dissertation, North received a fellowship from the Social Science Research Council, which allowed him to go to the East Coast. There he attended classes taught by Robert Merton at Columbia and by Arthur Cole and Joseph Schumpeter at Harvard. North was invited to be a fellow at the National Bureau of Economic Research (NBER), where from 1957 to 1958 he worked on a quantitative study of the U.S. balance of payments from 1790 to 1860. This led to his first major work: The *Economic Growth of the United States, 1790–1860*.

Also during this time, North helped found the field of cliometrics (named after Clio, the muse of history), which applies economics and quantitative methods to the study of economic history. The field came about through a joint program of the NBER and the Economic History Association on the growth of the American economy. As a result of the program, two of North's former students, John Hughes and Lance Davis, both faculty members at Purdue University, held a conference for economic historians. That meeting was a seminal moment in the field of cliometrics, and North became involved in setting up a program at the University of Washington.

In the late 1960s, North turned his attention from American economic history to European economic history. Under the auspices of a Ford Foundation grant, North spent a year in Geneva studying European economic history. While there, North decided that neoclassical economics did not provide the proper tools for explaining the economic change in Europe from medieval times to the present.

In the area of institutional economics, one of the issues North confronted was the prevailing idea that institutions were always efficient. He found that this was not true for some economies, and he challenged the rationality postulate that provides the foundation for economic analysis. North and others found that individual ideas, beliefs, and prejudices were important factors in shaping decisions and could keep a society from developing efficient economic institutions that promoted growth. The result was that some societies would find themselves locked into dysfunctional institutions, actually providing a barrier to further development and growth.

By 1983 North was looking for a new environment to help him with his puzzles. He saw an opportunity when he was invited to join the faculty of Washington University in St. Louis. North established the Center in Political Economy as well as the Center for New Institutional Social Studies to continue to study the effect of institutions on choice. North was convinced that understanding how people make choices when the conditions are uncertain was central to further research in human behavior.

In April 1985 North was appointed editor of the Cambridge series *The Political Economy of Institutions and Decisions,* editor of the *Journal of Economic History,* and president of the Economic History Association. In 1987, he was elected to the American Academy of Arts and Sciences. In 1993, Douglass North and Robert Fogel were awarded the Nobel Prize in Economics.

Douglass North's academic appointments have included the Peterkin Professor of Political Economics at Rice University in 1979 and the Pitt Professor at Cambridge University in 1981. North was also a visiting fellow at the Center for Advanced Studies in in Behavioral Sciences and the Hoover Institute at Stanford University. He was the Luce Professor of Law and Liberty at Washington University in 1983 and the Spencer T. Olin Professor of Arts & Sciences at Washington University in 1996.

North died on November 23, 2015, in Benzonia, Michigan, at age 95.

Timothy P. Schilling

See also: Economic History; Institutional Economics; Nobel Prize in Economics; Schumpeter, Joseph; *Vol. 3: Microeconomics:* Merton, Robert

Further Reading

Breit, William, and Barry T. Hirsch. 2004. *Lives of the laureates*. Cambridge, MA: MIT Press.

Henderson, David R., ed. 2008. Douglass C. North. In *The concise encyclopedia of economics*. Library of Economics and Liberty. http://www.econlib.org/library/Enc/bios/North.html (accessed March 7, 2012).

Hoover Institution. n.d. Douglass C. North, Bartlett Burnap Senior Fellow. http://www.hoover.org/fellows/10069 (accessed March 7, 2012).

Mokyr, Joel, ed. 1985. *The economics of the industrial revolution*. Lanham, MD: Rowman & Littlefield.

Nobelprize.org. 1993. Biographical—North, Douglass C. http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1993/north-bio.html (accessed March 7, 2012).

North, Douglass. 1961. *The economic growth of the United States, 1790–1860.* Englewood Cliffs, NJ: Prentice Hall.

North, Douglass. 1981. *Structure and change in economic history.* New York: Norton.

North, Douglass. 1990. *Institutions, institutional change and economic performance*. Cambridge, UK: Cambridge Univ. Press.

North, Douglass. 2005. *Understanding the process of economic change*. Princeton, NJ: Princeton Univ. Press.

O

OFFICE OF MANAGEMENT AND BUDGET

The Office of Management and Budget (OMB) is an office of the executive branch of the U.S. government. The main function of the OMB is to serve the president of the United States. As the largest of the agencies of the executive branch, it has wide-ranging duties, responsibilities, and influence with the president as well as other offices and agencies of the executive branch of government. The OMB helps the president set priorities as well as assisting in seeing that the president's agenda is implemented.

As its name suggests, the major responsibility of the OMB is to assist the president with the development of a budget and to manage the budget's the implementation and operations. The OMB is an extension of the president's influence throughout government regarding budgetary creation and execution. The OMB works with all aspects of the government during the budget process. The OMB serves the president in carrying out presidential decisions and policies on a wide variety of topics and issues, ranging from the economy to national security.

As its number one priority and responsibility to the president, developing a budget is a multilevel, multifaceted task for the OMB. Five different offices of the OMB are responsible for developing, reviewing, and executing the executive budget. These are called regional management offices, or RMOs. First, the RMOs help the president frame the spending side of the budget. The resulting plans are then compared against the funding proposals of the many offices and agencies of the federal government. From this study of the proposals and the president's spending plan, the budgetary funding priorities are established.

Once this process is concluded and the budget is in place for execution, the RMOs are then responsible for the implementation and continuing guidance of the budget, to see that its funding and management priorities are met. On a continuing basis, the RMOs evaluate, assess, and analyze the operations and implementations of the government's programs. The OMB also monitors congressional appropriations and other legislation regarding government spending.

A second area in which the OMB serves the president is in the management of the president's office and the executive office. The OMB evaluates the operational policies of the executive office regarding financial and information management, assesses the efficiency and effectiveness of the office, and assesses the systems and processes that are in place to purchase goods and services for the efficient operation of the federal government. In assessing the executive office's efficiency, the OMB reviews all regulations and policies as they pertain to the different executive offices and departments that report to the president.

The OMB is responsible for seeing not only that the executive offices operate efficiently but also that they carry out the president's priorities. An important consideration for the president is that the OMB has carefully and thoughtfully assessed the economic impact and economic consequences of the president's priorities, policies, and decisions. The OMB works closely with the legislature to be certain there is coordination between the president's agenda and that of the Congress.

The OMB also serves the president with legislative proposals and implementation of bills. When the president prepares a bill for Congress, the OMB reviews the bill before it is sent to Congress. The OMB is charged with reviewing the bill with all the executive agencies that might be affected by it, in order to ascertain their views on the proposed legislation. Once the OMB has comprehensively reviewed the bill with the appropriate agencies, the OMB "clears" the bill to be sent to Congress. Any concerns or disagreements about a proposed bill are clarified during the clearing process. Once a president's bill is sent to Congress, the OMB is responsible for submitting statements of administration policy (SAPs). If Congress passes a bill, the president calls on the OMB once again to solicit views from the impacted agencies before the president signs or vetoes the legislation.

When the president requests counsel on economic issues, the president leans on the Office of Economic Policy (EP) of the OMB, the Council of Economic Advisors (CEA), and the Department of Treasury. The Office of EP assists with developing the president's budget and helps the RMOs with their budgeting preparation and policy proposals, as well as creating economic models for gathering economic data on tax policy, labor, education, credit, and insurance.

The OMB is headed by a director. The director's main role is the management and oversight of a management agenda for all of the federal government, from IT to financial management to human resources. There are five main management offices of the OMB: the Office of Federal Financial Management (OFFM), the Office of Federal Procurement Policy (OFPP), the Office of E-Government and Information Technology, the Office of Performance and Personnel Management (OPPM), and the Office of Information and Regulatory Affairs (OIRA). Other departments within the OMB include general counsel, economic policy, legislative affairs, and legislative reference, communications, and management and operations. All five of the management offices are self-contained and include administration and policy management, as well as evaluation and assessment of the policies for which they are responsible. Each management office works closely with the RMOs to ensure that the policies for which they are responsible are being implemented appropriately and in keeping with the agenda and policies of the president. Noted former OMB directors include George Shultz, David Stockman, Caspar Weinberger, and Alice Rivlin.

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See also: Congressional Budget Office; Rivlin, Alice; Shultz, George

Further Reading

Office of Management and Budget. n.d. The mission and structure of the office of management and budget. http://www.whitehouse.gov/omb/organization_mission/ (April 12, 2013).

Stegon, David. 2012. FedScoop interview: OMB portfoliostat lead Andrew McMahon. *Fedscoop*, October 11. http://fedscoop.com/fedscoop-interview-omb-portfoliostat-lead-andrew-mcmahon/ (April 12, 2013).

Walser, George H. 1986. *Office of management and budget: Evolving roles and future issues, with an overview.* Vol. 4. Washington, DC: Government Printing Office.

OIL CRISIS OF 1979

The oil crisis of 1979 represented a turbulent transitional period in global trade. Sometimes referred to as the oil shock or second shock, the oil crisis of 1979 reflected a chain reaction to the Iranian Revolution 1978–1979, in which Ayatollah Khomeini displaced Shah Mohammad Reza Pahlavi. During the conflict, from 1978 to 1981, Iranian production of crude oil dropped by 3.9 million barrels a day. Initially, other OPEC (Organization of Petroleum Exporting Countries) members were able to offset the decrease in production, but the 1980 Iran-Iraq War further curtailed production from Middle Eastern exporters (USEIA n.d.).

The Organization of Petroleum Exporting Countries (OPEC) currently consists of 13 member-states. It was founded in 1960 in Baghdad by the Islamic Republic of Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela. Since OPEC's inception, the following nations have become member-states (the year each country joined OPEC is shown in parentheses): Qatar (1961), Indonesia (1962), Libya (1962), the United Arab Emirates (1967), Algeria (1969), Nigeria (1971), Ecuador (1973), and Angola (2007). Gabon (1975) was a member until 1995, then rejoined in 2015 (OPEC 2016a).

OPEC's principal goal was to create a unified vision in which the market could be equitably controlled. The Arab Oil Embargo of 1973 and the Iranian Revolution of 1979 created global price inflation and volatility of the market, which led many nations to try to avoid dependence on OPEC, specifically Arab-based exports. The Arab Oil Embargo of 1973 was a stop order on trade of oil in response to American support for Israel in the Yom Kippur War of 1973. The resulting price spikes in crude oil created the first oil crisis in the United States. The memory of the 1973 crisis contributed deeply to consumers' panic and reaction to the 1979 crisis. Furthermore, it revealed a deep-seated distrust for the global energy trade and OPEC amid difficulties that the member nations were having creating unified goals and policies.

The effects of the crisis were felt primarily in the United States and the Western European nations. In early 1979, the global oil price was $14 barrel. Two years later it, had inflated to $38 per barrel (USEIA n.d.). Experts argue that the effects of the crisis were exacerbated in the United States due to consumer panic and stockpiling of gasoline—which further increased demand, and therefore increased prices. Philip Verleger argues that the Department of Energy encouraged inventory buildup and redistribution with the intention of balancing differences between high-consumption and high-production regions within the United States. Furthermore, these price controls and regulations made it profitable to withhold stockpiled gasoline, thereby creating a further shortage. These policies heightened the crisis and subsequent recession, where foresight to discourage hoarding of supplies might have counteracted the production cuts.

Coming out of a period of relative prosperity, the crisis created a shock in the American economy. In 1979, the United States was also entering a period where unemployment was on the rise and inflation was taking place. The Federal Reserve was debating on the proper method in which to use price controls and monetary policy to try to curtail the issues. The Fed's policy of contracting the money supply in conjunction with the oil crisis stifled inflation, but it led to the worst recession the country had experienced since the Great Depression. A consequence of the oil crisis was the impetus to move away from reliance on oil. This had trickle-down effects in many industries, where policies and innovations became more aware and tailored toward environmental friendly alternatives. The recession sparked a depression in the U.S. auto industry that was embodied by the shift from U.S.-produced automobiles to smaller, more fuel-efficient Japanese alternatives.

Daniel S. Talwar

See also: Energy Policy; *Vol. 1: Foundations of Economics:* Environmental Economics; Environmentalism; *Vol. 4: Global Economics:* Arab Oil Embargo Crisis, 1973; International Trade and the Environment

Further Reading

Graefe, Laurel. 2013. Oil shock of 1978–79. *Federal Reserve history*. Federal Reserve Bank of Atlanta. www.federalreservehistory.org/Events/DetailView/40 (accessed January 6, 2016).

OPEC (Organization of the Petroleum Exporting Countries). 2016a. Brief history. www.opec.org/opec_web/en/about_us/24.htm (accessed January 6, 2016).

OPEC (Organization of the Petroleum Exporting Countries). 2016b. Member countries. www.opec.org/opec_web/en/about_us/25.htm (accessed January 6, 2016).

Sawyers, Arlena. 2013. 1979 oil shock meant recession for U.S., depression for autos. *Automotive News*, October 13. www.autonews.com/article/20131013/GLOBAL/310139997/1979-oil-shock-meant-recession-for-u.s.-depression-for-autos (accessed January 6, 2016).

U.S. Department of Energy. 2016. Tips: Saving money on gas. www.energy.gov/energysaver/tips-saving-money-gas (accessed January 6, 2016).

USEIA (U.S. Energy Information Administration). 2002. Petroleum chronology of events 1970–2000. www.eia.gov/pub/oil_gas/petroleum/analysis_publications/chronology/petroleumchronology2000.htm#T_0_ (accessed January 6, 2016).

Verleger, Philip K. 1982. When the oil spigot is suddenly turned off. *Journal of Policy Analysis and Management* 1 (4). http://www.jstor.org/stable/3324783 (accessed January 6, 2016).

Verleger, Philip K., Arthur Okun, Robert Lawrence, Christopher Sims, Robert Hall, and William Nordhaus. 1979. The U.S. petroleum crisis of 1979. *Brookings Papers on Economic Activity* 1979 (2): 463–76. http://www.jstor.org/stable/2534392 (accessed January 6, 2016).

OKUN, ARTHUR

Born: November 28, 1928, in Jersey City, New Jersey; Died: March 23, 1980, in Washington, D.C.; Nationality: American; Professional Interests: neo-Keynesian, econometrics; Major Work: *Equality and Efficiency: The Big Tradeoff* (1975).

Arthur Okun was an American economist most noted for the economic law that bears his name. While a senior economist at the Council of Economic Advisers (CEA), Okun discovered the relationship between economic growth and changes in unemployment. He asserted that each point change in the unemployment rate equated to a change in real economic growth—as measured by the gross national product (GNP)—of between 2 and 3 percent. This inverse relationship applied with changes to either the unemployment rate or economic growth. A rise in one would create a decrease in the other, and vice versa.

Arthur Melvin Okun was born on November 28, 1928, in Jersey City, New Jersey. He received his BA and PhD degrees from Columbia University, and he began his academic career when he accepted an offer to join the economics faculty at Yale University.

Okun began public service early in his career, when he became a member of President John F. Kennedy's Council of Economic Advisers (CEA). Okun joined the CEA as an adviser in 1962 and served as a member till 1969. In 1968 and 1969, during President Johnson's administration, he chaired the CEA. While a senior economist there, Okun discovered a relationship between economic growth and changes in unemployment.

Based on data collected between World War II and 1960 (the year Kennedy was elected), Okun provided President Kennedy the data needed to make Keynesian-style tax cuts in order to boost a sagging economy. Okun asserted that a 1-percent decrease in the unemployment rate would create an approximate 3-percent increase in economic growth, measured as real gross national product (GNP). Conversely, a change in real GNP would create an opposite percentage change in the unemployment rate. While the evidence of the relationship convinced Kennedy to enact the tax cuts, the validity of the unemployment/economic growth relationship over time and the predictive relationship is now known as Okun's law.

As robust as Okun's law may be, Okun himself applied boundaries:

1. The relationship applied only to the U.S. economy.
2. The law was accurate only when the unemployment rate was between 3 and 7 percent.

He was also careful to acknowledge that many variables can cause economic growth. Okun was quick to point out that correlation between the two variables did not equate to causation between them. This correlation–causation has also been amended over time as Okun's law proves predictably strong.

Over time, Okun's boundaries have been revised:

1. Okun's law has been applied to other economies, most notably those of industrialized nations. Economists now assert that there is at least some causation to economic growth through lower unemployment.

2. Okun's law has also been converted to the relationship between the unemployment rate and gross domestic product (GDP). This relationship fell to approximately a 2-percent growth in GDP for every 1-percent reduction in the unemployment rate.

As a stagnant economy continues to plague politicians and economists, research is beginning to question the modern reliability of the predictability of Okun's law. As the global economy develops and grows, along with new technologies changing productivity variables, the relationship between economic growth and the unemployment rate and the ratios promoted by Okun faces further research and scrutiny.

Okun is also noted for his work on wealth transfer. Using taxes as the transfer mechanism, he makes his case in *Equality and Efficiency: The Big Tradeoff* (1975). He admits both the inefficiency of such an action and the complete lack of incentives for both the poor and the rich. For the inefficiency, he draws the analogy of a leaky faucet. Elements such as administrative costs and lack of incentives provide shortcomings for the tax revenues to be completely transferred. The poor lose the incentive to work by receiving the transfer of wealth, and the rich have no incentive to work since a significant portion of their marginal dollar earned will be taxed away.

Fellow CEA member James Tobin labeled Okun's law as one of the most reliable regularities in macroeconomics. Arthur Okun also served as a Brookings Institution fellow from 1969 to 1980.

Okun is also noted as being the creator of the misery index. The misery index is a simple calculation adding together the unemployment rate and the inflation rate. The index reflects the wrongs of an economy. A high misery index infers an economy in which the people are suffering (i.e., in misery) from a significant number of people out of work (high unemployment rate) while at the same time the price level is rising (high inflation), neither condition beneficial for a growing economy.

Arthur Okun died on March 23, 1980, in Washington, D.C., of heart failure at just 51 years of age.

David A. Dieterle

See also: Macroeconomics; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics

Further Reading

Abel, Andrew B., Ben S. Bernanke, and Dean Croushore. 2008. *Macroeconomics.* 6th ed. Boston: Pearson.

Daly, Mary, Bart Hobijn, and Joyce Kwok. 2009. Labor supply responses to changes in wealth and credit. *FRBEC Economic Letter*, January 30. http://www.frbsf.org/publications/economics/letter/2009/el2009-05.html (accessed September 12, 2012).

Henderson, David R., ed. 2008. Arthur M. Okun. In *The concise encyclopedia of economics*. Library of Economics and Liberty. http://www.econlib.org/library/Enc/bios/Okun.html (accessed September 12, 2012).

Okun, Arthur M. 1962. Potential GNP: Its measurement and significance. Cowles Foundation Paper 190. New Haven, CT: Cowles Foundation/Yale Univ. https://milescorak.files.wordpress.com/2016/01/okun-potential-gnp-its-measurement-and-significance-p0190.pdf (accessed September 30, 2016).

Okun, Arthur M. 1970. *The political economy of prosperity.* Washington, DC: Brookings Institution Press.
Okun, Arthur M. 1975. *Equality and efficiency: The big tradeoff.* Washington, DC: Brookings Institution Press.
Okun, Arthur M. 1981. *Prices and quantities: A macroeconomic analysis.* Washington, DC: Brookings Institution Press.
Pechman, Joseph A., ed. 1983. *Economics for policymaking: Selected essays of Arthur M. Okun.* Cambridge, MA: MIT Press.
United States Misery Index. 2016. Home. http://www.miseryindex.us/ (accessed October 8, 2016).

OSTROM, ELINOR

Born: August 7, 1933, in Los Angeles, California; Died: June 12, 2012, in Bloomington, Indiana; Nationality: American; Professional Interests: economic governance of common pool resources, individual choice theory, Nobel Prize (2009); Major Works: *Governing the Commons: The Evolution of Institutions for Collective Action* (1990), *Rules, Games, and Common-Pool Resources* (with Roy Gardner and James Walker) (1994), *Working Together: Collective Action, the Commons, and Multiple Methods in Practice* (with Amy R. Poteete and Marco A. Janssen) (2010).

Elinor Ostrom's research involved local public and private stakeholders at multiple levels managing common-pool resources. Her work was acknowledged by the Nobel committee in 2009 when they awarded Elinor Ostrom and Oliver Williamson the Nobel Prize in Economics. She was the first woman to receive this honor. Ostrom died in 2012.

Elinor Awan Ostrom was born on August 7, 1933. As she was growing up, her parents fed her from their vegetable garden and orchard, taught her to knit, and enrolled her in the nearby public school. She was a competitive swimmer and an accomplished member of her high school debate team. Like many of her peers at Beverly Hills High School, she decided she was going to be the first in her family to attend college. Holding jobs as a secretary, an assistant personnel manager, and a graduate assistant, she acquired the funds she needed to attend the University of California, Los Angeles (UCLA). While at UCLA, she earned an undergraduate degree in political science in 1954 (graduating with honors in three years by attending school year-round), a master's degree in 1962, and a PhD in 1965.

She wrote her dissertation on management of the groundwater industry in Southern California. In what was to become the introduction to her life's work, she studied the West Basin in Los Angeles County. This was her first common-pool resource problem. Because Garrett Hardin's classic "The Tragedy of the Commons" had not yet been published, she was in a position to approach problems of the commons in her own way.

Ostrom was affiliated with Indiana University, Bloomington, since 1965 as a professor and as cofounder of the Workshop in Political Theory and Policy Analyses. Her distinguished career includes the position of Arthur F. Bentley Distinguished Professor of Political Science and Senior Research Director of the Workshop in

Political Theory and Policy Analyses at Indiana University. She was also the founding director of the Center for the Study of Institutional Diversity at Arizona State University, Tempe. Her topics in commons research were as diverse as forests, irrigation, and police departments.

For over a dozen years, Elinor Ostrom researched law enforcement delivery systems in six metropolitan areas. She concluded that large departments of 100 officers were no more efficient than small to medium cadres of 25 to 50 officers. Her long-term study included traffic, patrol, emergency response, and criminal investigators. She produced strong, empirical evidence that large, centralized institutions were not always more efficient than community organizations.

Based on her research, Ostrom concluded that it was indeed realistic to put the management of common resources in the hands of individuals and small groups without private property rights or centralized authority. Her findings defied popular assumptions that powerless, reasonable people were stuck in no-win situations in terms of commons management. She concluded that regime regulations or efforts to privatize to prevent waste and ruin of the commons often were not the best alternative. The empirical evidence indicated that multiple small governments operate effectively, even though they lose some of the advantages that are gained from the opportunities presented by economies of scale.

In contrast to the prevailing wisdom, Ostrom's findings showed that individuals and small parties could write their own rules and self-monitor to obtain maximum benefit from resources they shared in common. The widely held belief was that privatization was not the most favorable solution in many situations. She asserted that chaos and inefficiency were not certain outcomes without property rights, as many traditional policy makers proclaimed. She warned that broken trust within public and private partnerships had more lasting detrimental effects on achieving efficient use of the commons. Ostrom contended that a complex system of large and small public bodies along with private individuals operating at all levels was the most beneficial strategy for optimizing the use of common-pool resources.

Along with husband Vincent Ostrom (also an Arthur F. Bentley Professor at Indiana University), in 1973 Ostrom founded the Workshop in Political Theory and Policy Analyses. The focus of the workshop was to encourage collaboration among social scientists. Researchers from multiple disciplines developed common methodologies for collecting, testing, and sharing data. The workshop schedules regular meetings for scientists worldwide with similar research interests.

Elinor Ostrom has many accolades to her credit. Most notable was being awarded the Nobel Prize in Economics in 2009. In addition to being a Nobel laureate, she was honored with the John J. Carty Award for the Advancement of Science by the National Academy of Science in 2004 and the Johan Skytte Prize in Political Science in 1999. She was recognized as an honorary fellow for the International Institute of Social Studies in 2002, and received the James Madison Award by the American Political Science Association in 2005 and the William H. Riker Prize in Political Science in 2008. She served as president of the American Political Science Association and the Public Choice Society.

Elinor Ostrom died of pancreatic cancer on June 12, 2012, in Bloomington, Indiana, at the age of 78.

Cynthia Blitz Law

See also: *Vol. 1: Foundations of Economics:* Nobel Prize in Economics; *Vol. 3: Microeconomics:* Common Property and Common-Pool Resources

Further Reading

Aligica, Paul Dragos. 2003. Rethinking institutional analysis: Interviews with Vincent and Elinor Ostrom. Arlington, VA: Mercatus Center, George Mason Univ.

Droste, Nils. 2010. *Regime effectiveness of climate protection: Adapting Elinor Ostrom's institutional design principles.* Norderstadt, Ger.: GRIN Verlag.

Hardin, Garrett. 1968. The tragedy of the commons. *Science* New Series 162 (3859): 1243–48. American Association for the Advancement of Science. http://www.environnement.ens.fr/IMG/pdf/hardin_1968.pdf (accessed September 30, 2016).

Nobelprize.org. 2009. Biographical—Elinor Ostrom. http://nobelprize.org/nobel_prizes/economics/laureates/2009/ostrom.html (accessed July 2011).

Ostrom, Elinor. 1990. *Governing the commons: The evolution of institutions for collective action.* Cambridge, MA: Cambridge Univ. Press.

Ostrom, Elinor, Roy Gardner, and Jimmy Walker. 1994. *Rules, games, and common-pool resources.* Ann Arbor: Univ. of Michigan Press.

Poteete, Amy R., Marco A. Janssen, and Elinor Ostrom. 2010. *Working together: Collective action, the commons, and multiple methods in practice.* Princeton, NJ: Princeton Univ. Press.

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PANIC AND GLOBAL DEPRESSION, 1873

The Panic of 1873 hit the United States hard. It lasted five years, created 30 percent unemployment, and left another 40 percent of the population working for less than seven months a year. The Panic of 1873 was the first time an American panic would drag the whole world into depression. Banker Thomas Mellon called the Panic of 1873 the "most disastrous and extensive collapse since that of 1819." A quarter of the nation's 360 railroads failed, as did 20,000 other businesses. Nationwide, 3 million people lost their jobs, while daily wages fell 25 percent. Financial and political scandals of the period further rocked investor confidence.

Railroad workers suffered a 35 percent decrease in wages during the panic, and wages for Ohio coal miners dropped by half. In New York City, more than 50 soup kitchens were serving more than 20,000 hungry persons every day. There were more and more tramps on city streets, and Andrew Carnegie remarked that he had to step over tramps to get to his New York office. The *New York Times* suggested getting a dog with good teeth as protection against the tramps. Oil prices dropped from $3 a barrel to 50 cents a barrel. Agricultural products dropped a similar percentage, causing farms to fail and bringing a dramatic decrease in railroad profits.

By 1873, the U.S. economy was showing strain after years of expansion and government corruption had eroded public confidence in business. Like many panics, the Panic of 1873 started as a bank crisis in New York in conjunction with investment house problems. Within a few days, the stock market closed for the first time in its history. The main cause of the panic was railroad speculation after the Civil War. Railroads had continued to expand, building on the enthusiasm created by the Transcontinental Railroad. The panic was part of almost 100 years of exponential growth in the railroad industry, which drove a world industrial boom.

On May 10, 1869, the East and West coasts of the United States were linked via the transcontinental Union Pacific and the Central Pacific railways, creating an economic boom. In 1850, there were only 9,000 miles of track in America; that had grown to 30,626 miles of track by 1860 and 52,299 miles by 1870. Later, the government poured money into a new line—the Northern Pacific—and speculators followed quickly.

The Railroad Act of 1864 had contributed to the creation of such a system of corruption among the speculators that they were considered by some to be the worst aspects of the Act and government's participation in the railroad industry. Crédit Mobilier Company of America, for example, set the price of supply contracts for the railroads. If a shovel cost Crédit Mobilier a dollar, the company might charge Union Pacific three dollars. Crédit Mobilier also overcharged for the actual cost of track laid. The project generated dividends for its stockholders at the expense of the government.

The Union Pacific Railroad, for example, was a network of corruption: for every $3 spent by the government, less than $1 went to actual construction. The government would pay in bonds at the rate of $16,000 a mile in the flatlands, $32,000 a mile in hilly terrain, and $48,000 a mile in the mountains. In addition, for every mile completed, the railroad's builders received 6,400 acres of land, which they could sell or lease to settlers. In the early 1870s, there was a true bubble in railroad stocks. Railroads expanded with wheat production in the West, while wheat prices were falling as well. The speculation was that eventually wheat exports would make the railroads profitable.

However, the railroads were undercapitalized and were not producing profits. Grain prices had continued to fall, further reducing railroad profits. New York banker Jay Cooke, the builder of the North Pacific railroad, was behind the railroad stock bubble and involved with the overselling of Northern Pacific stock and bonds. Rumors of financial scandals within the Cooke firm started to surface. Meanwhile, the Northern Pacific was in dire need of capital, and Cooke could not sell more bonds with the rumors swirling around his firm. In early September 1873, some small railroads went under, and a stock panic started to build. On September 18, 1873, which became known as Black Thursday, Cooke's large investment house failed. Black Friday, September 19, brought the failure of others. A full-blown panic began, and the market crashed. Western Union led the crash, as stock prices fell from $75 to $59 on Black Friday.

The stock market crash started a banking panic with the public. The United States lacked the Federal Reserve System of today. Loans were "callable"—that is, a bank could call in a loan and demand immediate full or partial payment. As the bank runs reduced the cash on hand, banks had to call in business loans to generate cash, which, in turn, created a downward spiral. The panic spread quickly across the Atlantic. London had supplied a great deal of the money to fuel the American railroad expansion (more than $30 million). Europe, in total, had invested more than $240 million in America railroads. Thus, the American stock crash created a credit crisis throughout Europe as well.

Industry was suffering within weeks of the panic. In 1873, at least 5,100 firms went bankrupt; and by 1878, the peak year of the depression, more than 10,000 failed in total. It was not just manufacturing that suffered, however. The credit crisis forced H. J. Heinz's first company into bankruptcy. Some of the "kings" of Wall Street filed for personal bankruptcy. The price of wheat continued its decline during the depression and thus eroded railroads' cash on hand. As the railroads shut down, so did America's steel mills, which had boomed under the great expansion. Business activity dropped by 33 percent (in comparison, during the Great Depression of the 1930s business activity dropped by 55 percent). The depression of the 1870s would remain the "Great Depression" until overtaken by the depression of the 1930s.

Quentin R. Skrabec Jr.

See also: Federal Reserve System; Great Recession, 2009; *Vol. 1: Foundations of Economics:* The Great Depression and Stock Market Crash, 1929; *Vol. 3: Microeconomics:* Subprime Mortgage Bubble and Crisis

Further Reading

Gordon, Sarah H. 1996. *Passage to union: How the railroads transformed American life.* Chicago, IL: Ivan R. Dee.

Juglar, Clement, and W. DeCourcy. 2005. *A brief history of panics in the United States*. Old Chelsea Station, NY: Cosimo Press.

PAULSON, HENRY M., JR.

Born: March 28, 1946, in Palm Beach, Florida; Nationality: American; Professional Interests: 74th U.S. Secretary of the Treasury from July 10, 2006, to January 20, 2009; Major Event: U.S. economy experienced the worst financial crisis since the Great Depression.

Henry M. Paulson Jr. is a 1968 graduate of Dartmouth College with an AB in English, and in 1970 he was awarded an MBA from Harvard Business School. After earning his master's degree, Paulson became the staff assistant to the Assistant Secretary of Defense at the Pentagon (1970–1972). He then worked for President Richard Nixon, serving as a member of the White House Domestic Council (1972–1973).

In 1974, Paulson joined Goldman Sachs, a large investment banking firm; during his 32-year career there, he rose through the ranks to become the firm's chairman and CEO. On July 10, 2006, he left Goldman Sachs to serve as Treasury secretary under President George W. Bush, where he succeeded John Snow.

Secretary Paulson was a stark contrast to the previous Treasury secretary and other appointees of the Bush administration. Paulson is a vocal environmentalist (a position that was often at odds with the Bush administration) and insisted on being a fully invested, involved, and policy-making secretary, unlike his predecessor. Little did he or the administration know that within a year of his appointment the U.S. economy would experience its worst financial crisis since the Great Depression.

As the country entered a recession in 2007, amid the bursting of the U.S. housing bubble and high default rates on subprime mortgages, Secretary Paulson spearheaded the creation of the Hope Now Alliance. This cooperative of government, housing counselors, and lenders assists struggling homeowners in avoiding foreclosure. In September 2008, Secretary Paulson engineered the rescue of the government-backed private mortgage agencies Fannie Mae and Freddie Mac. Yet the damage was already done, and these efforts could not prevent a breakdown of the major Wall Street financial institutions that were holding mortgage-backed securities.

By the fall of 2008, the banking system nearly collapsed. Secretary Paulson collaborated with Federal Reserve chairman Ben Bernanke and Federal Reserve Bank of New York president Tim Geithner to rescue Wall Street through a combination of coordinated bank mergers (Merrill Lynch into Bank of America), bank failures (Lehman Bros.), and government bailouts (AIG). What had begun as a subprime-mortgage problem in the United States evolved into a global financial crisis and drove stock markets to record lows and unemployment to record highs.

Public sentiment about the Treasury Secretary's actions during this critical economic period has been equivocal. Paulson was criticized for how he handled the financial crisis and was questioned on the decision to let Lehman Brothers fail. *Time* magazine named him a runner-up for Person of the Year in 2008, but then later listed him as one of the "25 People to Blame for the Financial Crisis." His decisiveness and provocative thinking during the worst days of the crisis—such as crafting the Troubled Asset Relief Program (TARP), which Congress subsequently passed—most likely kept the U.S. from experiencing another Great Depression.

Secretary Paulson completed his tenure with the end of the Bush presidency in 2009, and he was succeeded by Timothy Geithner. In 2010, he published a book with Barney Frank titled *On the Brink: Inside the Race to Stop the Collapse of the Global Financial System*, detailing his experiences as Treasury secretary during the global financial crisis. Since leaving public service, he founded the Paulson Institute at the University of Chicago and serves as its chair. This innovative think tank works to promote economic growth and environmental preservation in the United States and China.

The Treasury and its secretary directly impact the personal finances of consumers. The Treasury is the executive agency responsible for economic and financial activity. Its responsibilities include producing the nation's coin and currency, assessing and collecting taxes, and disbursing payments—including tax refunds and Social Security checks—to the American public. The Treasury also advises the president on economic matters and financial policy.

Leslie E. Linfield

See also: Bernanke, Ben; Geithner, Timothy; Federal Reserve System; Great Recession, 2009; United States Treasury; *Vol. 3: Microeconomics:* Subprime Mortgage Bubble and Crisis

Further Reading

Paulson, Henry. 2010. *On the brink: Inside the race to stop the collapse of the global financial system*. New York: Grand Central Publishing.

Paulson Institute. Henry M. Paulson, Jr., Chairman. http://www.paulsoninstitute.org/about/about-our-people/ (accessed October 7, 2013).

Time. 2008. Person of the year: Henry Paulson. *Time* Magazine, December 17. http://content.time.com/time/specials/packages/article/0,28804,1861543_1865103_1865105,00.html (accessed March 3, 2014).

Time. 2009. 25 people to blame for the financial crisis. *Time* Magazine, February 11. http://content.time.com/time/specials/packages/article/0,28804,1877351_1877350_1877341,00.html (accessed March 3, 2014).

U.S. Department of the Treasury. About Henry M. Paulson, Jr. (2006–2009). http://www.treasury.gov/about/history/pages/hmpaulson.aspx (accessed October 7, 2013).

PHILLIPS, ALBAN WILLIAM H.

Born: November 18, 1914, in Dannevirke, New Zealand; Died: March 4, 1975, in Auckland, New Zealand; Nationality: New Zealander; Professional Interests: economic growth, Phillips curve; Major Works: "A Simple Model of Employment, Money and Prices in a Growing Economy" (1961), "Employment, Inflation and Growth" (1962).

A. W. H. Phillips was a leading 20th-century New Zealand economist who spent most of his academic career at the London School of Economics (LSE). Phillips was noted for his work on the relationship between the level of unemployment and the rate of wage inflation, illustrated by what would become known as the Phillips curve. Using his engineering knowledge, Phillips also designed and built the MONIAC hydraulic economics computer in 1949. Phillips was appointed to the prestigious Tooke Professorship in Economics at the LSE in 1958 and to a research professorship at the Australian National University in 1967. Phillips died in 1975.

Alban William Housego ("A. W." or "Bill") Phillips was born on November 18, 1914, in Dannevirke, New Zealand. Having a father who experimented with technology, he had an adventurous youth traveling through Australia (where he ran an outback movie theater) and Southeast Asia. At the age of 15, he left school to become an apprentice engineer for the Public Works Department. For the next 10 years, he worked at various jobs in New Zealand, Australia, and Great Britain. However, his civilian life was interrupted by World War II; he became an armaments officer in Singapore for the Royal Air Force. He was captured by the Japanese and held as a prisoner of war. Phillips was awarded an MBE (Military Division) for outstanding courage while under attack.

With his fascination with the interactions of sectors across the economy and his engineering training, in 1949 he developed a hydraulic model of the macroeconomy: the MONIAC (Monetary National Income Analogue Computer). It was initially known as the "Phillips Machine." The model consisted of flows of water from one container to another, representing monetary flows—for example, from consumption to income and thence, via an accelerator mechanism, to investment. "Leakages" to imports were included, and multiple models were built to represent multiple countries—interlinked by pipes. It was very well received, and Phillips was soon offered a teaching position at the LSE.

Having worked on modeling the national economic processes of the British economy with his MONIAC, in 1958 he published his own work on the relationship between inflation and unemployment, illustrated by the "Phillips curve." The curve had been described as the most influential and productive macroeconomic idea in the postwar era. Phillips observed that there is a trade-off between a strong economy and low inflation. In years when the unemployment rate was high, wages tended to be stable, or possibly fall. Conversely, when unemployment was low, wages rose rapidly, leading to inflationary pressures.

Following this publication, two other notable economists, Paul Samuelson and Robert Solow, wrote an influential article describing the possibilities suggested by the Phillips curve in the context of the United States. Although the Phillips curve has changed substantially over time, it remains an important feature of macroeconomic analysis of economic fluctuations; for example, while it has been observed that there is a stable short-run trade-off between unemployment and inflation, this has not been observed in the long run.

Phillips made several other notable contributions to the field of economics, particularly as it relates to stabilization policy. He asserted that not only is it crucial to have the right policies but also that they have to be implemented at the right time. The right policy implemented at the wrong time can make the economy worse. However, the subtlety and wisdom of Phillips's stabilization exercises were largely overlooked, as both monetarists and the Keynesians competed for policy influence. With a profound distaste for such policy manipulation, he gradually abandoned macroeconomics for Chinese economic studies.

After the 1968 student riots in London, Phillips returned to Australia for a position at Australian National University, and later he took a position at the University of Auckland, which allowed him to devote half his time to Chinese studies. He became one of the first Western economists to turn his attention to Chinese developments, anticipating the rise of the Chinese economy despite its then-perilous state. Although he did not become an academic until 1950 at the age of 36, his contributions have been significant and lasting.

A. W. H. Phillips died on March 4, 1975, in Auckland, New Zealand.

Ninee Shoua Yang

See also: Inflation; Samuelson, Paul; Solow, Robert; Unemployment; *Vol. 1: Foundations of Economics:* Keynes, John Maynard

Further Reading

Bollard, Alan E. 2011. Man, money and machines: The contributions of A. W. Phillips. *Economica* 78: 1–9.

Gordon, Robert J. 2011. The history of the Phillips curve: Consensus and bifurcation. *Economica* 78: 10–50.

Hally, Mike. 2005. *Electronic brains: Stories from the dawn of the computer age*. Washington, DC: Joseph Henry Press.

Henderson, David R., ed. n.d. Phillips curve. In *The concise encyclopedia of economics*. Library of Economics and Liberty. http://www.econlib.org/library/Enc/PhillipsCurve.html (accessed March 15, 2012).

Laidler, David. 2000. Phillips in retrospect. Review essay on *A. W. H. Phillips: Collected works in contemporary perspective*, ed. Robert Leeson. Cambridge, UK: Cambridge Univ. Press. http://economics.uwo.ca/people/laidler_docs/phillips.pdf (accessed March 15, 2012).

Leeson, Robert. 1995. *The life and legacy of A. W. H. Phillips*. Perth, Austr.: Murdoch Univ.

Phillips, A. W. H. 1950. Mechanical models in economic dynamics. *Economica* 17: 283–305.

Phillips, A. W. H. 1954. Stabilisation policy in a closed economy. *The Economic Journal* 64: 290–323.

Phillips, A. W. H. 1957. Stabilisation policy and the time form of lagged response. *The Economic Journal* 67: 265–77.

Phillips, A. W. H. 1958. The relation between unemployment and the rate of change of money wage rates in the United Kingdom, 1861–1957. *Economica* 25: 283–99.

Phillips, A. W. H. 1961. A simple model of employment, money and prices in a growing economy. *Economica* 28: 360–70.
Phillips, A. W. H. 1962. Employment, inflation and growth. *Economica* 29: 1–16.
Phillips, A. W. H., and A. R. Bergstrom. 1978. *Stability and inflation: A volume of essays to honour the memory of A. W. H. Phillips.* Hoboken, NJ: Wiley.

PHYSIOCRATS

Physiocracy (derived from the Greek word for "government of nature") is an economic theory developed by the Physiocrats, a group of economists who believed that the wealth of nations was derived solely from the value of land agriculture or land development. Their theories originated in France and were most popular during the second half of the 18th century. Physiocracy is noted as perhaps the first well-developed theory of economics. The group was founded by François Quesnay, whose original contribution was the truism that all wealth originated with the land and that agriculture alone could increase and multiply wealth. The Physiocrats' ideas were important not just to economists but also to the course of politics in France. Adam Smith, as a moral philosopher, considered the Physiocrats' views on the political economy to be highly aligned to his moral philosophy, and he was greatly influenced by their work. Industry and trade, according to the Physiocrats, were basically sterile and could not add to the wealth created by the land. They did not advocate neglecting industry and trade in favor of agriculture, but they tried to prove that no economy could be healthy unless agriculture was given the fullest opportunity.

The Physiocrats' main objective was to recognize the operation of the basic causes, which determined the general level of economic activity. For this purpose, they believed that it was useful to consider economic activity as taking the form of a "circular flow," as we would call it today. In this circular economic activity, the two main actions—production by producers, and consumption by consumers—are interdependent variables. As such, the actions of one will be reflected by an action of the other party. Physiocrats also tried to explain interdependence through its repetitive or circular nature, where the actions of producers and consumers continually repeat themselves creating a continual linkage to each other (i.e., interdependence). They attempted to identify the basic movements of an economy's decline and expansion activity.

Agriculture was one area where they discovered what they called the "net product," or a disposable surplus over necessary cost. Anything that increased this net product would cause an expansion in economic activity, and anything that reduced it would cause a contraction in economic activity.

Agricultural methods had to be scientifically improved, and most importantly fair prices had to be maintained for agricultural production; according to Quesnay's maxim, only abundance combined with high prices could create prosperity. This result could be obtained only if the "economic law"—which the Physiocrats envisioned as being as indisputable as the law of gravity—was allowed to act unhindered. Absolute freedom of trade was necessary to stabilize prices at a fair level, and laissez faire was to restore the economic process to its natural course, from which all further benefits would flow. To tax anything but the land was pointless, because only the land produced wealth and because manufacturers and traders pass their tax burden on to the farmer; only taxation at the very source of the wealth itself was reasonable and economical.

In addition, the Physiocrats anticipated the classical-economic insight that money is not crucial and that in the long run commodities or real goods exchange for each other, with money simply acting as an intermediary. Therefore, the key goal is not to stockpile precious metal or to follow the fantasy of a permanently favorable balance of trade, but to have a high standard of living in terms of real products. Seeking to amass specie means that people in a nation are giving up real goods in order to acquire mere money. Physiocrats believe that these people are losing rather than gaining wealth in real terms. The significance of money is to exchange it for real wealth—and if people insist on accumulating an unused hoard of specie, they will lose wealth permanently.

Lauren Major

See also: *Vol. 1: Foundations of Economics:* Circular Flow of Economic Activity; Classical Economics; Quesnay, François; Smith, Adam

Further Reading

Rowles, Catherine Mary Clegg. 1978. *Buffon, the physiocrats and the rule of nature*. Hamilton, Can.: McMaster Univ.

Vaggi, Gianni. 1987. *The economics of François Quesnay*. Durham, NC: Duke Univ. Press.

Vardi, Llana. 2012. *The physiocrats and the world of the enlightenment*. New York: Cambridge Univ. Press.

PIGOU, ARTHUR CECIL

Born: November 18, 1877, in Ryde, Isle of Wight, England; Died: March 7, 1959, in Cambridge, England; Nationality: English; Professional Interests: classical economics, neoclassical economics, welfare economics, public finance; Major Works: *Wealth and Welfare* (1912), *Unemployment* (1914), *The Theory of Unemployment* (1933).

Arthur Cecil (A. C.) Pigou was a British economist who is best remembered for the development of welfare economics and public finance. *Welfare economics* refers to the study of maximizing economic value to benefit society as a whole. In this direction, Pigou defined the economic concept of *externalities* before it was part of the economics lexicon. He also studied public finance, which investigates the impact of taxation and other government interventions in the economy. A star student of Alfred Marshall, Pigou rose from lecturer to professor and chair of political economy at Cambridge University. As professor, his star student was John Maynard Keynes. Pigou died in 1959.

Arthur Cecil Pigou was born in November 18, 1877, on the Isle of Wight. His father was an army officer and his mother came from a line of Irish government officials. Pigou won a scholarship to Harrow, a prestigious private school; from there he continued on to Cambridge, where he began his studies in history. Taking classes from renowned economists Alfred Marshall and Henry Sidgwick, however, convinced him to study political economy instead. He became Marshall's star student, and upon graduation he was promptly hired as a lecturer. When Marshall retired in 1908, Pigou took his place as chair of political economy. Pigou remained devoted to the teachings of his mentor, often telling his students, "It's all in Marshall."

Pigou's most famous student, John Maynard Keynes, would be less kind to his instructor. During World War I, Pigou used his summer vacations to serve in the front lines with the Ambulance Corps of the British Army. His wartime experiences affected him deeply, and they may have been what changed him from a jovial man of society to an enigmatic recluse.

Pigou developed his concept of economic welfare early in his career, with the publication of *Wealth and Welfare* in 1912. "Welfare" refers to the benefits that society gets as a result of people's decisions. It is not to be confused with the study of government welfare programs, although it might sometimes include them. However, the decisions of individual economic actors can also damage social welfare. The key is to get the most benefit at the least cost to society. Adam Smith had famously stated in *The Wealth of Nations* that when people pursue their own interests, markets will tend to make decisions beneficial for society. But Pigou noted that this is not always the case, because people's choices may involve "external" costs and/or benefits. Pigou's idea came to be known later as "externalities," a term Pigou did not use. An *externality* is a cost or benefit that is "external" to the person who makes a particular decision. Externalities can be both negative and positive. Pollution is an example of a negative externality, while education is a positive externality.

Pigou wrote that externalities might be a good place for the government to get involved. The government could put a tax on negative externalities and a subsidy on positive externalities. The effect of these actions would be to encourage the "right" or "optimal" amount of, for example, toy-making and education. These have come to be known as Pigovian taxes and subsidies. Pigou introduced a systematic way to study the social impact of personal choices, and a framework for deciding whether or not government action was necessary in a certain situation. This framework is still in use, though it has received an interesting and serious challenge by Ronald Coase and other economists, who point out that government action can produce externalities of its own.

Pigou's relatively uncontroversial life received a sudden shock when his former student, John Maynard Keynes, published the famous *General Theory of Employment, Interest and Money* (1936). Keynes used Pigou as the foil for his book, casting him and his classical predecessors as oblivious, out of touch, and uncaring of the plight of people in the real world. Pigou had indeed written that long-term unemployment was impossible as long as wages were permitted to fall. Keynes said that wages would not fall, and that the real problem was low overall demand—so the classical theory was pointless. Deeply offended, Pigou responded with counter theories of his own. He and Keynes, however, were polite to each other in personal conversation.

Although Pigou remained at Cambridge, he spent more and more time in his apartment, venturing out only to deliver lectures. His reclusive habits (especially compared with Keynes's charm and dash) made him less than popular on campus. However, it was undeniable that his ideas, especially the ones having to do with economic welfare and public finance, showed great promise. It was not long before his theories were used as the basis for determining whether the government should get involved in a matter and what the subsequent public policy might be. Laws that tax and regulate pollution and other externalities are directly affected by the pioneering work of A. C. Pigou.

Arthur Cecil Pigou died in Cambridge, England on March 7, 1959.

Stephen H. Day

See also: Externality; Fiscal Policy; Macroeconomics; Taxes; Unemployment; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; Marshall, Alfred; Welfare Economics; *Vol. 3: Microeconomics:* Coase, Ronald

Further Reading

Cassidy, John. 2009. An economist's invisible hand. *Wall Street Journal*, November 28. http://online.wsj.com/article/SB10001424052748704204304574545671352424680.html (accessed December 10, 2011).

Collard, David. 1981. A. C. Pigou, 1877–1959. In *Pioneers of modern economics in Britain*, ed. D. E. O'Brien and John R. Presley, 105–39. London: Macmillan.

Henderson, David R., ed. 2008. Arthur Cecil Pigou. In *The concise encyclopedia of economics*. Library *of Economics* and Liberty. http://www.econlib.org/library/Enc/bios/Pigou.html (accessed December 22, 2011).

Pigou, A. C. 1912. *Wealth and welfare.* New York: Macmillan.

Pigou, A. C. 1914. *Unemployment.* New York: Williams and Norgate.

Pigou, A. C. 1920. *The economics of welfare*. London: Palgrave Macmillan.

Pigou, A. C. 1921. *The political economy of war.* New York: Macmillan.

Pigou, A. C. 1927. *Industrial fluctuations.* New York: Macmillan.

Pigou, A. C. 1933. *The theory of unemployment.* New York: Macmillan.

Pressman, Steven. 2006. Arthur Cecil Pigou. In *Fifty major economists*, ed. Steven Pressman, 143–48. New York: Routledge.

Spiegel, Henry. 1971. *The growth of economic thought.* Englewood Cliffs, NJ: Prentice-Hall.

PIGOUVIAN TAXES

A *Pigouvian tax*, introduced by British economist Arthur C. Pigou, aims to correct economic distortions caused by *negative externalities*, which are the imposition of social costs on other parties without compensation. Without correction, negative externalities may exceed the socially optimal level. A Pigouvian tax on a good or service that generates a negative externality can restore the optimum by reducing such activities to efficient levels.

In environmental economics, Pigouvian taxes are targeted at such negative externalities as air and water pollution or solid waste. A prominent example includes carbon taxes, imposed on the per-unit generation of greenhouse gases such as carbon dioxide that contribute to climate change. Other examples include charges for nutrient loadings in effluent from wastewater treatment plants, and gas-guzzler taxes on low-fuel efficiency automobiles.

Ronald Coase believed a Pigouvian tax to be unnecessary and, in fact, a suboptimal way to correct the pollution problem. Coase argued that negative externalities such as pollution are reciprocal in that it takes both a polluting party and a receiving party to create the problem. A Pigouvian tax assigns the liability to the polluting party (which they then share via the tax burden–sharing phenomenon), and thus there is no incentive for the receiving party to take action to minimize pollution's cost on them by taking defensive action such as filtering dirty air or water or simply moving away. If the costs of the defensive actions are lower than the costs of cleaning up the pollution, social costs would be lower if the solution relied more on defensive action and less on the cleanup level dictated by the Pigouvian tax. Coase, skeptical of market intervention, argued that the Pareto optimal solution lies in a negotiated outcome between the affected parties where the correct combination of cleanup and defensive action can be agreed upon.

In 1974, Martin Weitzman published an article that contrasted price-based economic mechanisms for correcting negative externalities, such as Pigouvian taxes, with quantity-based mechanisms, such as emissions standards (or tradable permits).

Price and quantity instruments can both lead to efficient outcomes, provided that the marginal cost and marginal benefits of pollution control are known with certainty. However, if the marginal cost function is not known *ex ante*, then the preferred approach to the problem depends on the perceived relative steepness of the marginal cost and marginal benefit functions in the neighborhood of the policy space. If the marginal benefit of emissions control is relatively flat in the range of the policy outcomes considered (that is, emission reductions have similar marginal values over a wide range of outcomes), a tax is the preferred option because it minimizes the distortion from an uncertain marginal cost function by allowing the pollutant to vary at the fixed tax rate. Alternatively, if the marginal benefit of emissions control is rather steep (that is, high levels of emissions are very damaging), a quantity-based emissions mechanism, such as an emissions standard, is preferred.

On the innate preferences of some parties for the price or quantity approach, Weitzman opines:

> From a strictly theoretical point of view there is really nothing to recommend one mode of control over the other. This notwithstanding, I think it is a fair generalization to say that the average economist in the Western marginalist tradition has at least a vague preference toward indirect control by prices, just as the typical non-economist leans toward the direct regulation of quantities. (Weitzman 1974, 477)

Weitzman goes on to say that the traditional economist's confidence in the superiority of the price instrument may be misguided if it relies on the premise that the proper price to charge is known with certainty, a matter that is typically elusive in practice. The foundation of his article is that uncertainty about the cost and benefit functions underlies the uncertainty about whether the price or quantity approach is preferred. Others have extended the Weitzman framework to consider prices versus quantities in a dynamic setting that is more reflective of actual policy conditions. They show that quantity instruments, such as cap-and-trade with banking and borrowing between periods, can outperform a tax in a multiperiod setting where policies are set in one period and costs and benefits are resolved in subsequent periods. They find that the flexibility of the quantity-based approach allows firms to adjust their emissions abatement to equate expected marginal costs across periods better than a price instrument can.

To this day, many economists still favor the Pigouvian tax (price) approach over a quantity approach, albeit for different reasons than stated by Weitzman—namely, because of their revenue-generating characteristics, a consideration heightened by the prevalence of fiscal deficits throughout much of the world. Money raised through Pigouvian taxes can be used to replace distortionary (e.g., income) taxes in the current system and thereby enhance overall economic efficiency (referred to as a double dividend). While usually attributed to the tax approach, it is important to recognize that revenue can also be raised with a quantity-based emissions trading system that sells emission allowances to the regulated community through an auction or other means. The double-dividend hypothesis, however, has been extensively challenged. First, there is the relevant political challenge in ensuring that revenue raised in a Pigouvian tax system will actually be used to reduce distortionary taxes elsewhere in the system. But there have also been challenges based on theoretical grounds, given that pollution taxes themselves create distortions in the real net wage. Subsequent research has examined whether Pigouvian taxes create negative tax interaction effects with existing distortions that can negate the double-dividend benefits. The results are indeterminate, and they depend highly on the type of policy and model specification.

Brian C. Murray

See also: Externality; Taxes; Water Pollution; *Vol. 3: Microeconomics:* Air Pollution; Coase, Ronald; Coase Theorem; *Vol. 4: Global Economics:* Subsidies

Further Reading

Bovenberg, A. Lans, and Lawrence H. Goulder. 2000. Environmental taxation and regulation in a second-best setting. In *Handbook of public economics*, 2nd ed., ed. A. Auerbach and M. Feldstein. New York: North Holland.

Coase, Ronald H. 1960. The problem of social cost. *Journal of Law and Economics* 3 (1): 1–44.

Fullerton, Don, and Gilbert Metcalf. 1998. Environmental taxes and the double-dividend hypothesis: Did you really expect something for nothing? *Chicago-Kent Law Review* 73:221–56.

Murray, Brian C., Richard G. Newell, and William A. Pizer. 2009. Balancing cost and emissions certainty: An allowance reserve for cap-and-trade. *Review of Environmental Economics and Policy* 3 (1): 84–103.

Pigou, A. C. 1920. *The economics of welfare*. London: Palgrave Macmillan.

Weitzman, Martin. 1974. Prices vs. quantities. *The Review of Economic Studies* 41 (4): 477–91.

POLLOCK V. FARMERS' LOAN & TRUST COMPANY

The power of Congress to tax is a very extensive power. The Constitution provides for it with one exception and two qualifications: Congress cannot tax exports, and it must impose direct taxes by the rule of apportionment, and indirect taxes by the rule of uniformity. Most revenue that the federal government acquired was through tariffs, duties, and other consumption taxes (i.e., sales taxes).

The Supreme Court's responsibility in *Pollock v. Farmers' Loan & Trust,* 157 U.S. 429 (1895) was to settle the issue of whether or not a tax on income earned from property violated Article I, Section 2, Clause 3, of the U.S. Constitution. This article requires that direct taxes imposed by the national government be apportioned among the states on the basis of population.

The Panic of 1893 resulted in the United States experiencing a financial contraction in the business cycle, characterized by high unemployment rates and difficult access to capital. In response, Congress passed the Wilson-Gorman Tariff Act of 1894. Believing that this income tax violated the Constitution, Charles Pollock sued the Farmers' Loan & Trust Company in 1895. The Supreme Court reversed its previous ruling in *Springer v. United States* (102 U.S. 586, October 1880) and agreed in part with Pollock. Afterward, it became difficult for Congress to impose a national income tax that applied to all forms of income until the 1913 ratification of the Sixteenth Amendment to the U.S. Constitution.

Case Summary

Corporations cannot spend shareholders' profits in ways that are illegal. Charles Pollock believed that Farmers' Loan & Trust Company was going to do that very thing if it took his share of the net profits to pay what he alleged was an unconstitutional tax. Charles Pollock was not rich by the standards of the day, nor was he poor. He owned 10 shares in the Farmers' Loan & Trust Company of Massachusetts with a value of over $5,000, which would be close to $140,300 in 2013 dollars (BLS n.d.). Pollock's investment was not great, but the significance of his objection was not small.

Charles Pollock could not sue Congress. Therefore, he sued the corporation he was employed with in a federal circuit court, enjoining it from paying the tax and reporting the shareholders' income to the Internal Revenue officer. Other stockholders of Farmers' Loan & Trust, many of whom did not think they should pay 2 percent of their net profit to the federal government, shared in this litigation. Pollock argued that the tax was unconstitutional. He lost, and he appealed his case to the Supreme Court.

At the turn of the 20th century, the time of *Pollock v. Farmers' Loan & Trust Company*, the nation was divided on political principles. Some years earlier, opposed by the Republicans, Congress passed an emergency revenue bill, the Internal Revenue Act of 1862 and 1864, to implement a temporary income tax on the wealthy to help finance the Civil War. Prior to this time, most of the revenue the federal government acquired was from tariffs, duties, and other consumption taxes (i.e., sales taxes). In *Springer v. U.S.* (1864), the Supreme Court upheld the constitutionality of the income tax. This tax was allowed to expire, as it had been mainly an emergency measure.

In 1892, Grover Cleveland became the first Democratic president elected since the Civil War. Only months after his inauguration, the nation experienced the Panic of 1893. The economy went into a contraction phase of the business cycle, characterized by high unemployment, bank panics, and a severe difficulty in obtaining capital. President Cleveland and Congress responded by lowering tariffs and duties. In addition, in 1893 Congress and President Cleveland re-implemented the income tax by enacting the Wilson-Gorman Tariff Act.

The act stipulated that every citizen would pay a 2-percent tax on income from property, rents, interest dividends, salaries, and so forth over the amount of $4,000. This income included sales of bonds, notes, and agricultural products. In addition, all persons of lawful age having an income of at least $3,500 would be required to submit a list or record of their income to the Internal Revenue collector. Investment and banking institutions must submit that payment of tax on behalf of the investors whose interest and rent were the subject of taxation. Farmers' Loan & Trust Company, a corporation of the state of New York, held a fiduciary responsibility to its clients that required it to report the income and pay the 2-percent tax. The capital stock of the corporation was worth $1 million. There were 40,000 shares of stock at a par value of $25 per share (for publication information on the transcript of syllabus of the case, see "Further Reading" at the end of this entry). Additional assets of the corporation included property and a host of New York City municipal bonds.

The Supreme Court took the *Pollock v. Farmers' Loan & Trust* case to settle an issue with regard to whether or not a tax on income earned from property violated Article I, Section 2, Clause 3 of the Constitution, which requires that direct taxes imposed by the national government be apportioned among the states on the basis of population. Pollock argued that income derived from property was a direct tax and as such was not collected per apportionment, as was the constitutional requirement. In addition, the federal government could not tax municipal bonds any more than state governments could tax federal bonds.

When writing the opinion of the Court, Chief Justice Fuller made great effort to construe what the framers of the Constitution intended by "direct" and "indirect" taxes. It was Fuller's conclusion that even with the readings of Adam Smith at their disposal, it could not be determined what the Justices meant. The issue of apportionment and taxation was a compromise by the convention to keep the negotiations going. It was clear that the states could not tax imports, and commerce was to be regulated by the federal government. Actual apportionment within a state, however, was left to the state. Furthermore, Fuller concurred with the argument that municipal bonds were not eligible for taxation, thereby finding sections of the Wilson-Gorman Tariff Act in violation of the Constitution. The Court held that imposing taxes on personal income derived from real estate investments and personal property such as stocks and bonds was a direct tax and had not been apportioned properly among the states.

Justice White's dissenting opinion was ardent. Joined by Justice Harlan, White expressed concern that precedent had been established whereby no legal power could obstruct or control the collection of taxes. If there were a mechanism to do this, the very existence of the government might hang on the authority of an antagonistic judiciary. White stated that as long as Pollock had recourse to legal remedy after his taxes were paid, he had no grounds for a case prior to payment. In addition, White argued that to ponder the intent of the framers of the Constitution was to ignore the opinions of William Paterson, who was a contributor at the Constitutional Convention. (Justice Paterson sat on the Supreme Court from 1793 to 1806 and clearly stated that the power to tax was extensive.) Justice Harlan added in a short dissent that the framers' interpretation of direct and indirect taxation was clear and vested in the United States' plenary powers of taxation, with the exception of exports (for publication information on the transcript of Justice Harlan's dissenting opinion, see "Further Reading" at the end of this entry).

Nonetheless, Chief Justice Fuller agreed that the framers of the Constitution had aimed at compromise with the rule of apportionment, but he added that if the federal government is allowed to call a direct tax indirect, the power boundary is broken and the safeguard of private rights and private property could disappear as well (for publication information on the transcript of Chief Justice Fuller's majority opinion, see "Further Reading" at the end of this entry). The Supreme Court ruled that the Circuit Court finding was to be reversed and the case remanded with directions to enter a decree in favor of Pollock.

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See also: Taxes; U.S. Treasury Bills, Notes, and Bonds; Unemployment; *Vol. 1: Foundations of Economics:* Capital Resources; Private Property; *Vol. 3: Microeconomics:* Business Cycle; Supreme Court; *Vol. 4: Global Economics:* Tariffs

Further Reading

BLS (Bureau of Labor Statistics). n.d. Databases, tables & calculators by subject: CPI inflation calculator. http://www.bls.gov/data/inflation_calculator.htm (accessed September 30, 2016).

Chicago-Kent College of Law at Illinois Tech. n.d. *Pollock v. Farmers' Loan and Trust Co*. (Facts of the case.) Oyez. http://www.oyez.org/cases/1851-1900/1894/1894_893 (accessed September 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. *Pollock v. Farmers' Loan and Trust Co*. (Syllabus of the case.) http://www.law.cornell.edu/supct/html/historics/USSC_CR_0157_0429_ZS.html (accessed September 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. *Pollock v. Farmers' Loan and Trust Co*. (Transcript of Chief Justice Fuller's majority opinion.) http://www.law.cornell.edu/supremecourt/text/157/429#writing-USSC_CR_0157_0429_ZO (accessed September 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. *Pollock v. Farmers' Loan and Trust Co.* Transcript of Justice Field's separate opinion.) http://www.law.cornell.edu/supremecourt/text/157/429#writing-USSC_CR_0157_0429_ZX (accessed September 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. *Pollock v. Farmers' Loan and Trust Co.* (Transcript of Justice White's dissenting opinion.) http://www.law.cornell

.edu/supremecourt/text/157/429#writing-USSC_CR_0157_0429_ZD (accessed September 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. *Pollock v. Farmers' Loan and Trust Co.* (Transcript of Justice Harlan's dissenting opinion.) http://www.law.cornell.edu/supremecourt/text/157/429#writing-USSC_CR_0157_0429_ZD_1 (accessed September 30, 2016).

Currie, David P. 1990. *The constitution in the Supreme Court: The second century, 1888–1986.* Vol. 2. Chicago, IL: Univ. of Chicago Press.

Joseph, Richard J. 2004. *The origins of the American income tax: The revenue act of 1894 and its aftermath*. Syracuse, NY: Syracuse Univ. Press.

POST-KEYNESIAN ECONOMICS

Keynesian economics represents a school of economic thought that dispels traditional classical economic theory and has greatly influenced modern-day macroeconomics. Pioneered by John Maynard Keynes, it looked to explain economic conditions with fluctuations in aggregate demand.

Keynes argued that aggregate demand is the main driver of the economy. He argued that an increase in spending would essentially lead to an increase in employment, which in turn would lead to more spending. Speaking originally in response to the Great Depression, Keynes had pointed out the natural inclination during a recession was to save. However, spending and interventionist policy by the government to expand the money supply to increase spending would lead to economic recovery.

Post-Keynesian economics is an expansion of Keynesian economic thought. Specifically, it is the synthesis of Keynes's original ideas into the modern concept of macroeconomics. It is most commonly associated with Professors Jan Kregel and Alfred Eichner and their modern interpretations of Keynesian economics during the 1970s. Specifically, post-Keynesian economics looks at the relationship between capital distribution and economic growth. The distribution of wealth as a policy through the increase in money supply or other such government interventions can have various impacts on the economy.

Post-Keynesian economists expand on previous economic thought that intervention of the money supply can be used as a tool to prevent or mitigate financial crises by stimulating spending rather than promoting conservatism. Another tenet of Post-Keynesian thought is that at a given level of investment the capitalist gains greater share of wealth from investment than is gained from savings. To invest rather than save further stimulates the economy and promotes individual wealth for that actor. The capitalist's actions and optimism regarding investments can signify future trends in economic growth.

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See also: Aggregate Demand and Aggregate Supply; Money Supply; Unemployment; *Vol. 1: Foundations of Economics:* Classical Economics; Keynes, John Maynard; Keynesian Economics; New Classical Economic Thought

Further Reading

Arestis, Philip. 1996. Post-Keynesian economics: Towards coherence. *Cambridge Journal of Economics* 20 (1): 111–35. www.jstor.org/stable/23599782 (accessed January 10, 2016).

Economicsconcepts.com. 2015. Classical versus Keynesian economics. *Economics concepts*. www.economicsconcepts.com/classical_versus_keynesian_economics.htm (accessed January 10, 2016).

Fontana, Giuseppe. 2005. A history of post Keynesian economics since 1936: Some hard (and not so hard) questions for the future. *Journal of Post Keynesian Economics* 27 (3): 409–21. www.jstor.org/stable/4538935 (accessed January 10, 2016).

Jahan, Sarwat, Ahmed Saber Mahmud, and Chris Papageorgiou. 2014. What is Keynesian economics? *International Monetary Fund*. www.imf.org/external/pubs/ft/fandd/2014/09/basics.htm (accessed January 10, 2016).

Keynes, John Maynard. 1936. *The general theory of employment, interest, and money*. cas.umkc.edu/economics/people/facultypages/kregel/courses/econ645/winter201111/generaltheory.pdf (accessed January 10, 2016).

Maynardkeynes.org. n.d. Keynesian economics in a nutshell. www.maynardkeynes.org/maynard-keynes-economics.html (accessed January 10, 2016).

Pressman, Steven, and Richard Holt. 2003. Teaching Post Keynesian economics to undergraduate students. *Journal of Post Keynesian Economics* 26 (1): 169–86. www.jstor.org/stable/4538866 (accessed January 10, 2016).

Zera. 2008. What is post-Keynesian economics? Economic theories. www.economictheories.org/2008/07/what-is-post-keynesian-economics.html (accessed January 10, 2016).

PROPERTY RIGHTS

A *property right* in the broad (economic) sense refers to the right, consent, or permission granted to an individual that allows that individual to act in a particular way, or, alternatively, the right of an individual to be free from the harm imposed by the actions of others. When referring to physical property such as land or a house, it might mean the right to use that property in a particular way (e.g., to paint the house bright purple), or the right to sell that property to whomever one chooses. However, not all property rights are tied directly to physical property. For example, a firm might have a property right that allows it to generate harmful pollution as a by-product of production. Alternatively, individuals might have a right not to be exposed involuntarily to pollution arising from the activities of others.

Where do these rights come from? In short, they come from society. Society determines what is or is not allowed, and therefore determines what property rights people have. These rights can be defined legally (for example, through laws, regulations, or legal rules and precedents), or they can emerge from accepted social norms. Once the rights are defined, society also needs to enforce those rights—that is, make sure that those rights are protected. For example, the enforcement of property rights is a key function of the judicial system, where courts sort out disputes about who is allowed to do what and impose consequences when they find that someone's property rights have been violated. Possible consequences include ordering an individual to stop acting in a way that violates another's rights, and/or requiring payment of compensation for damages or losses due to the violation.

Clearly, individuals care about their property rights. More specifically, an individual's utility, income, and/or wealth will depend on the assignment of property rights. For example, if landowners have a right to use their land in any way they want, the land is worth more than if they are restricted in how they can use it (or to whom they can sell it). Similarly, a firm that has the right to generate pollution without having to pay compensation for any resulting damages will earn higher profits than a firm that is prohibited from exceeding a certain level of emissions or a firm that must pay compensation for damages if that level is exceeded. Conversely, all else being equal, an individual who has a property right to clean water will generally have higher utility than a person who does not have that right, either because the water will be cleaner or because, if the water is polluted (as a result of someone else's actions), the property owner will be compensated for the resulting damages.

Although individuals clearly care about their property rights, an important economic question is the role of property rights in determining real outcomes, where *real outcomes* means the actual use of resources in the economy and the good results or bad results that are produced. For example, will society have more pollution under one assignment of property rights than under another? Will the land-use decisions that are ultimately made depend on the assignment of property rights?

In essence, property rights determine who has to pay and who gets paid when certain activities occur. Although this has implications for the distribution of income, a famous result known as the Coase theorem states that, under certain conditions, it will not affect real outcomes. Coase's key insight is that, if property rights are well defined and individuals can freely bargain (without income effects), then through bargaining they will arrive at a deal that is mutually beneficial. In addition, although the direction of payment (i.e., who pays whom) under the deal will depend on the assignment of property rights, the real outcome that the individuals agree upon will not.

The insight underlying the Coase theorem has wide applicability and has been demonstrated in a number of different contexts where mutually beneficial trades (bargains) can occur. For example, one well-known result states that, in a simple cap-and-trade system where pollution permits are initially distributed free of charge and the permit market is competitive, the pattern of pollution reductions across firms that emerges after trading does not depend on how the permits were initially distributed. Since the initial distribution of permits defines an assignment of property rights (i.e., each permit gives the holder the right to use or sell the permit), this result is a direct parallel to the Coase theorem.

Although the Coase theorem states that, under certain conditions, the assignment of property rights does not affect real outcomes (after bargaining or trade), importantly, in the real world the conditions needed for this result often fail. For example, bargaining will be difficult or costly when the number of polluters or affected individuals is large. In addition, if individuals can make irreversible investment decisions before bargaining occurs, these conditions can fail. In such cases, property rights can affect real outcomes. More specifically, actions by the government that implicitly or explicitly define property rights can, in turn, create incentives that affect outcomes. A classic example is when the government regulates the use of private property, which some argue constitutes a government taking.

In the United States (and many other countries), the government is allowed to seize private property for public use (e.g., to build a school or a road) under its power of eminent domain. However, the Fifth Amendment of the Constitution requires that the government pay just compensation to the landowner for this taking. Some argue that the same protection of private property extends to government actions that do not seize private property but rather regulate its use for a public purpose (e.g., prohibiting the cutting of timber on land that provides habitat to an endangered species). Such actions are often referred to as regulatory takings.

As a property rights issue, the question is whether such an action requires that the government compensate the property owner for the loss in the value of the property that results from the restriction on its use. The rule regarding compensation—that is, whether compensation must be paid or how much compensation must be paid—effectively defines the property right. There is considerable debate about the appropriate rule, with private property advocates on one side and proponents of government regulation on the other side. Arguments are often based on notions of fairness or justice. However, from an economic perspective, the questions are whether and how the compensation rule affects the incentives faced by the government and the property owner. These incentives determine the decisions that are ultimately made and hence the real outcomes. An economic evaluation of different rules focuses on how they affect economic efficiency, as measured by aggregate net social benefits, rather than on the fairness of the implied assignment of property rights.

The compensation rule can affect the incentives of both the government and the landowner. If the government is concerned more about its own outlays than about the costs borne by society as a whole, then if it does not have to compensate landowners for their loss, the government will view the regulation as less costly and hence have an incentive to overregulate. This argument has been used to suggest that requiring compensation will lead to better (i.e., more efficient) regulatory decisions. Although this is true, other compensation rules—such as a threshold rule that requires the government to pay compensation only for regulations that are deemed to be inefficient—can also achieve this goal. In addition, when the government has to pay compensation, typically it will have to raise the necessary funds through some form of taxation that distorts behavior and thereby generates a (deadweight) loss for society. This means that rules that can induce efficient incentives without requiring the government to always pay compensation (such as the threshold rule) will be more efficient, all else being equal.

While some have argued for compensation as a way to curb excessive regulation, most of the economic debate about compensation has focused on its impact on landowner incentives. Landowners can make decisions prior to the government action, and those decisions can be influenced by whether the landowners expect to receive compensation (and the nature of the compensation) if a government taking occurs. For example, landowners can invest in their property to improve its value. If they expect to be compensated based on the actual value of their property, they will have an incentive to overinvest since they will not internalize the risk that the private investment will be wasted if a taking occurs. This is analogous to the standard moral hazard effect of insurance. It implies that any compensation that is paid should not be tied to the actual value of the property (thereby rewarding the landowner for additional investment even if a taking occurs). Rather, if compensation is paid, it should be independent of the landowner's investment (i.e., lump-sum).

But what should the level of (lump-sum) compensation be? If the actual value of the property will influence the likelihood that the government will regulate it, then the compensation amount should equal the loss the landowner would incur under the efficient (rather than the actual) investment decision. If compensation is less than this, the landowner will have an incentive to overinvest so as to make the property more valuable, thereby decreasing the likelihood of being regulated (and receiving less than full compensation). Conversely, if compensation is more than this amount, the landowner will have an incentive to underinvest to make the property less valuable and increase the likelihood that the landowner will receive the excessive compensation. Thus, only full compensation, based on efficient rather than actual investment, eliminates these distortionary incentives.

Similarly, a landowner might be able to influence (or possibly eliminate altogether) the possibility of regulation by developing the land: for example, filling in a wetland in anticipation of a ban on wetlands development or cutting timber to destroy habitat for an endangered species that might subsequently be protected. As in the previous case, not compensating the landowner if a regulation occurs will create an incentive for the landowner to engage in these preemptive activities.

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See also: Externality; *Vol. 1 Foundations of Economics:* Capitalism; Economic Systems; *Vol. 3: Microeconomics:* Coase, Ronald; Coase Theorem

Further Reading

Coase, R. H. 1960. The problem of social cost. *Journal of Law and Economics* 3: 1–44.

Demsetz, Harold. 1967. Toward a theory of property rights. *American Economic Review* 57 (2): 347–59.

Hahn, Robert W., and Robert N. Stavins. 1992. Economic incentives for environmental protection: Integrating theory and practice. *American Economic Review* 82 (2): 464–68.

Miceli, Thomas J., and Kathleen Segerson. 2007. The economics of eminent domain: Private property, public use and just compensation. *Foundations and Trends in Microeconomics* 3 (4): 275–329.

PUBLIC DEBT

Simply put, *debt* is money owed. Debt can be owed between people, organizations, and the government. *Public debt* is all debt of governments and public institutions (public schools, et al.) held by individuals, corporations, state and local governments, Federal Reserve Banks, foreign governments, and other entities outside of a government. Public debt is the obligation on the part of a governmental unit to pay a specific monetary amount to holders of legally designated claims at a point in time.

Public debit is classified into two categories: debt held by the public and intergovernmental holdings. Public debt is created by the act of borrowing. In the United States, the federal government auctions Treasury securities such as bonds and Treasury bills to foreign and domestic investors to raise money. The government sets a spending goal and sells enough securities at auction to satisfy that goal. Social Security and other government programs are financed through intragovernmental holdings, the other category of debt in the United States. The debt is repaid during a reverse transfer where the government gives up money for debt instruments.

Say, for example, that the federal government forecasts that it will need $33 billion more than it is currently collecting in tax revenue to pay for an existing program. The government could increase taxes to pay for the program, but this may not be a politically popular decision, nor would it reflect favorably in the economy. The government may also print the money, which could lead to inflation, increasing the price of goods and services in the economy. So, rather than raising revenue or printing money, the federal government raises money by issuing bonds. The money raised from the selling of the bonds will be used to finance the underfunded program. The government or government entity issuing the bonds now has public debt.

An indicator of a nation's indebtedness is the ratio of its public debt to its gross domestic product (GDP). When observed as a percentage of a nation's GDP, a rising national debt is a large problem for the economy. The more debt a nation holds, the less money there is to save or to reinvest into the economy.

Another important factor in determining the impact of debt on a national economy is ownership of the public debt. National debt in all countries is owned by various governmental and quasigovernmental agencies. Distinguishing between debts held by the banking system and debt held by the nonbanking public is important. Since central banks provide reserves for the commercial banking system, any changes in their holdings of government securities reveal important information about the economy.

The set of operations required to maintain an existing debt is public debt management, or servicing the debt. At intermittent times, debt must be rolled over or refinanced. This can cause significant issues with the management of debt. These potential management issues explain why it is so beneficial to fund national debt to the maximum extent possible. As the national debt grows, a larger share of a government's expenditure budget is consumed by interest payments on the debt. Minimizing the cost of interest payments is an important objective for debt management. Debt management must also involve macroeconomic policy and the effects that debt has on the economy.

Virtually all economists accept that some government debt can be a good thing; this is the classic Keynesian model. During recessions, the safety net of government programs financed by debt can be good for the economy—so long as the deficits during recessions are balanced by surpluses and less debt during good economic times.

Government debt also has negative effects. Interest rates may rise, because government bonds compete directly with corporate bonds for investors. There is also a crowding-out effect, in which the government absorbs a large section of the capital market and pushes out the private sector, often raising nominal interest rates. Public debt is very detailed and complex, and it is often subject to heated political debate, not only in the United States but in nations around the world.

Debt and deficits are often used interchangeably, yet they are two quite different measures. The *deficit* is the difference between government revenues and the amount of money the government spends during a fiscal year. *Debt* is the accumulation of deficits. Even though deficits may decrease, the debt will continue to increase, a connection that is often lost on politicians or the media. Deficits in the United States were high during the 1980s. Even though deficits were falling, the national debt kept growing into the 2000s. Today the United States has large deficits and a significantly large public debt.

Michael Weck

See also: Bureau of Economic Analysis; Debt; Debt Crisis of the 1980s; Deficit; Fiscal Policy; Public Goods; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics

Further Reading

Encyclopedia.com. 1968. Debt, public. International encyclopedia of the social sciences. http://www.encyclopedia.com/doc/1G2-3045000287.html (accessed September 30, 2016).

Johnson, Simon, and James Kwak. 2009. National debt for beginners. *National Public Radio Planet Money,* February 4. http://www.npr.org/templates/story/story.php?storyId=99927343 (accessed September 30, 2016).

The World Bank. n.d. Central government debt, total (% of GDP). http://data.worldbank.org/indicator/GC.DOD.TOTL.GD.ZS (accessed September 30, 2016).

PUBLIC FINANCE

Public finance is the study of how governments generate revenue to provide services in an economy and measure the effectiveness of the funded services. Using taxes, fees, bonds, and other financial instruments as its revenue base, a public institution provides spent on public goods and services. A *public institution* is an institution at the local, state, or federal level of government that provides public goods and services funded by the public through various public sources of revenue. Organizations or individuals responsible to the public for insuring that public revenues are collected or spent appropriately include local city or township treasurers; state treasurers and the agencies that report to them; state comptrollers; and at the federal level the Congressional Budget Office (CBO), Office of Management and Budget (OMB), U.S. Treasury, and, of course, the Internal Revenue Service (IRS).

Public finance also measures the costs and benefits of services for the economy as a whole. Public finance studies how governments provide the public with desired services and how the governments obtain financial resources to pay for these desired services at the national, state, and local levels. In most industrialized countries, government spending and taxation make up a majority of the nation's economic activity.

Local, state, and federal governments provide roads, military forces, street lights, education, police and fire protection, and many other public goods and services that need revenue in order to function. Most public goods, such as the military, exist because private citizens do not voluntarily pay for these goods and businesses have no incentives to produce them as private goods. Many public goods are such that individuals cannot be excluded from their provision and many people benefit equally at the same time.

Public finance also allows governments to fix externalities of a transaction. *Externalities* are undesirable (negative) or highly desirable (positive) side effects of a transaction, with the cost or benefit also being extended to a third party. An example of a negative externality is pollution. Pollution affects people who are not part of the original transaction and therefore not responsible for its occurrence. To correct a spillover, governments can encourage or restrict certain economic activities. Governments can finance recycling programs to encourage reducing pollution or they can pass laws restricting pollution.

Besides taxes and fees, public goods or public projects can be funded using the bond markets. Bonds are loans that investors make to a public entity (city, state, school district, or federal government). All levels of government use the bond market to finance long-term projects. Local governments might use the bond market to finance a new firehouse or police station, and a local school district will use the bond market to finance building a new school or renovating an existing one or upgrading equipment. States will finance new roads, bridges, or other infrastructure using the bond market. Because the federal government is the only level of government that can legally have a deficit and debt, the federal government uses the bond market to finance its federal debt.

Problems with financing public services are often subjective—and therefore political. Some politicians believe high taxation by government is a problem, while others believe that taxation is not high enough; some promote less government spending, while others promote more. Even with these problems and issues, public funding is a necessity. The benefits outweigh the negatives. Overall, public finance is very important in a successful economy when appropriately used by the government.

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See also: Public Debt; Public Goods; Government Finance, State and Local; Taxes; Tax Forms: U.S. Federal Tax System; *Vol. 1: Foundations of Economics:* Theory of Public Choice; *Vol. 3: Microeconomics:* Bonds

Further Reading

AmosWEB. n.d. Public finance. AmosWEB Encyclonomic WEB*pedia. www.amosweb.com/cgi-bin/awb_nav.pl?s=wpd&c=dsp&k=public+finance (accessed February 2, 2016).

Farmer, Liz. 2014. The 7 deadly sins of public finance (Finance 101 special series). *Governing*, June. www.governing.com/finance101/gov-deadly-public-finance-sins.html (accessed February 2, 2016).
Gruber, Jonathan. 2016. *Public finance and public policy*. 4th ed. New York: Worth Publishers.

PUBLIC GOODS

Public goods are goods and services provided by a government, as opposed to goods offered by private businesses or organizations. Public goods are often defined because of market imperfections where the private market does not supply the quantity of a good that society deems appropriate, such as education. Examples of public goods are national defense, interstate highways, state and city parks, public state universities, public schools and education, public libraries, and fire and police protection. Public goods are deemed to be public goods because a society has deemed the good or service to be a valuable benefit to society.

For a good to be considered *public*, two key characteristics need to be fulfilled: shared consumption and nonexclusion principles. *Shared consumption* (which has also been known as nonrival consumption) means more than one person can receive the benefit of the good or service at the same time. Everyone benefits from the Internet or local police protection at the same time, without that benefit being diminished by anyone. Likewise, many people can enjoy a public park on a sunny day without reducing the enjoyment of other people.

While shared consumption is a necessary criterion for a public good, shared consumption does not automatically mean that a good or service is public. Golf courses definitely satisfy shared consumption, since many golfers can enjoy a golf course at the same time. However, golf courses are both a public good and a private good. While there are many public golf courses, there are also many private golf courses. The same can be said for elementary schools, colleges and universities, and campgrounds.

In the second main criterion, the *nonexclusion principle*, a person cannot be excluded from the benefits of the good or service, whether or not the person has paid to support the good or service. This nonexclusion principle best exemplifies a public good. Conversely, a private good's key criterion is that the buyer of the good has the right to decide who consumes the good. The buyer can exclude others from using the particular good. When buying a cup of coffee, a car, or a new pair of shoes, the buyer decides who benefits from the good. The buyer has the right to exclude other people from benefiting from the purchase. A public good, however, does not permit such exclusive-use decisions.

The best example of the nonexclusion principle is national defense. It does not matter if a person pays taxes to support the military. If the military becomes involved in a war or a military conflict to protect a nation's citizens, the military does not protect only those who paid taxes. It protects everyone: taxpayers and nontaxpayers alike. A public good from which everyone can benefit presents governments that provide public goods with a key problem: the free rider problem.

Public Goods

	Excludable	Non-Excludable
Rival	Private Goods (Groceries, Clothes, TVs)	Common Goods (Fisheries, Oceans, School Cafeteria)
Non-Rival	Club Goods (Parks, Golf Courses, Movie Theaters)	Public Goods (National defense, police, fire, roads)

Figure 1. Public goods

Free Rider Problem

The free rider problem is an inherent problem for every government that offers a public good. The government (whether it is federal, state, or local) is constantly confronted with how to deal with free riders and minimize the free rider issue. One key solution to the free rider issue is to increase the exclusivity of the public good. This has been accomplished through the use of tolls for roads and bridges, fees for parks, or licenses for many professional and recreational activities.

A second problem for a public good arises when ownership and property rights are not well defined. When ownership of a resource, such as the ocean, cannot be well defined, there is a tendency to overuse the good without consideration of the costs of its use. This imbalance of excess use without concern for costs leads to negative externalities such as pollution. This type of public good problem is called the "tragedy of the commons." Ownership is based on rule of capture, which results in the overuse of the good. The free rider problem has been confronted throughout history with, for example, efforts to preserve different types of fish or buffalo herds; this form of free rider problem is addressed through improved property rights. Defining property ownership and assigning property rights for a property such as a body of water is a problem for government. While no solution has been found to be perfect, this issue has been addressed through establishing quotas or increasing fees for use.

Critics of public goods suggest that governments and societies are often too quick to designate a good or service as one that should be available to all (i a public good). Critics point out that many of these goods could have been satisfactorily distributed in the marketplace as private goods. Indeed, some historically public goods have over time been transferred, at least in part, to the private sector. In some parts of the country, for example, fire protection has been transformed into a more private good, where those who do not pay the fee do not receive fire protection.

Funding of Public Goods

Public goods are funded through taxes, fees, fines, and licenses. The type of funding a public good receives is often determined by the characteristics of the public good. For national defense, for example, which is clearly shared consumption and where excluding someone would be virtually impossible, taxes are the revenue choice. Education is another example of funding through taxes, because consumption is shared and one cannot be excluded from benefiting. If the public good is an activity for which the nonrival principle does not hold and someone can be excluded, then fees or licenses are used as an incentive for people to participate and fund the activity. States often require fishing and hunting licenses for people to participate in those activities. Users are often charged a fee to enter national and state parks. One cannot drive a car without a driver's license and a license plate.

Public Goods and the Global Economy

An increasing concern as the global economy grows and expands is the role of institutions in providing an amount of certainty and order to the global economic environment. It has been argued that this lack of general international rules leads to financial crises. At issue regarding a free rider problem is the use of international public goods to define how countries choose (or not) to participate in the global economy. Global public goods can include capital flows to developing countries, international money settlements for international debts, and last-resort lending. A lack of international rules and institutions creates incentives for some nations to be free riders in solving these international issues, creating a fragile global economy. Some countries choose not to pay, but they participate in the international marketplace and international institutions such as the World Bank and the International Monetary Fund. These countries that do not pay participating fees to the World Bank or International Monetary Fund still receive emergency financial assistance from either or both organizations. These nations are essentially free riders in the global economy.

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See also: Externality; Free Rider; Taxes; *Vol. 1: Foundations of Economics:* Private Property; *Vol. 3: Microeconomics:* Tragedy of the Commons; *Vol. 4: Global Economics:* Globalization; International Monetary Fund; World Bank

Further Reading

Alesina, Alberto, Reza Baqir, and William Easterly. 1999. Public goods and ethnic divisions. *Quarterly Journal of Economics* 114 (4): 1243–84. http://qje.oxfordjournals.org/content/114/4/1243.abstract (accessed November 30, 2012).

Cowen, Tyler. n.d. Public goods. *The concise encyclopedia of economics*. Library of Economics and Liberty. http://www.econlib.org/library/Enc/PublicGoods.html (accessed November 30, 2012).

Gerber, James. 2014. Chapter 2: International economic institutions since World War II. In *International Economics*, 6th ed., 29–32. New York: Pearson Education.

Holcomb, Paul. 1997. A theory of the theory of public goods. *Review of Austrian Economics* 10 (1): 1–22. http://mises.org/journals/rae/pdf/rae10_1_1.pdf (accessed November 30, 2012).

Johnson, Paul M. n.d. Public goods. A glossary of political economy terms. http://www.auburn.edu/~johnspm/gloss/public_goods (accessed November 30, 2012).

Q

QUANTITATIVE EASING

Quantitative easing (QE) is a large expansion of a central bank buying securities from its member banks, also known as open market operations. This buying creates liquidity in capital markets. The effect is very similar to increasing the money supply and is a power specific solely to central banks. In return, the central bank issues credit to the bank reserves in order to buy the securities.

The purpose of this type of expansionary monetary policy is to lower interest rates and spark economic growth. The goal of lowering interest rates is to incentivize bank customers to apply for more bank loans and to enable banks to make more loans. More bank loans help to stimulate demand by giving businesses cheap loans and giving shoppers more credit to buy goods. By increasing the money supply, QE keeps the value of the country's currency low. A low currency helps to make stocks appear like a relatively good investment to foreign investors and U.S. exports cheaper in foreign markets.

Central banks typically set the price of money by using official interest rates in order to regulate the economy. These interest rates funnel into the rest of the economy and affect the cost of loans paid by companies, the cost of mortgages for households, and the return on savings. The higher the interest rates, the more expensive borrowing is, which also makes borrowing less attractive. High interest rates also make saving more attractive, which reduces demand and reduces the amount of spending that is taking place in the economy. Lower interest rates have the reverse effect.

When the central banks want to lower the price of money (i.e., interest rate), they can do so through QE. QE is sometimes incorrectly described as "printing money," but in reality a central bank actually creates money electronically, resulting in increasing the credit in its own bank account. The central bank can then use the money to buy such assets as government bonds, equities, mortgages, and corporate bonds.

The first established use of QE was by Japan from 2001 to 2006. A more recent example is the European Central Bank's adoption of QE in 2015: The European Central Bank purchased euro-bonds in order to lower the value of the euro and increase exports. The U.S. Federal Reserve exhibited the most successful QE effort to date. Through QE, the balance sheet of the U.S. Federal Reserve more than quadrupled in 2014, making the U.S. QE the largest economic stimulus program in world history.

How the Federal Reserve uses QE illustrates the concept in even greater depth. The Fed may start by adding credit to the banks' reserve accounts in exchange for mortgage-backed securities and treasuries. The *reserve account* is the amount of money that banks have on account with the Federal Reserve. A portion of the reserves the banks are required to maintain with the Fed. These are *required reserves*. When the Fed adds credit to the reserve, banks now have more money in their reserves than they need. These additional reserves in a bank's account are *excess reserves* and banks do with these reserves as they desire. In theory, the goal is that banks will loan the excess reserves to businesses and households in the economy.

The banks also now have more money to lend to other banks. In an attempt to unload their extra reserves, banks drop the interest rate they charge. This amount is known as the federal funds rate, and it is the basis for other interest rates, such as the prime interest rate.

The Fed may also stimulate the economy through the federal government's auctioning off of large quantities of treasuries to pay for expansionary fiscal policy. As the Fed buys treasuries, demand increases, keeping treasury yields low. Considering that Treasuries are the basis for all long-term interest rates, other consumer debt rates are affordable. This is also true for corporate bonds, allowing businesses to expand more cheaply. The practice of QE helps to keep long-term, fixed interest mortgage rates low.

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See also: Bernanke, Ben; Federal Reserve System; Monetary Policy; Treasury Securities; Yellen, Janet; *Vol. 4: Global Economics:* Draghi, Mario; European Central Bank

Further Reading

Amadeo, Kimberly. n.d. What is quantitative easing? Definition and explanation. About .com News & Issues. http://useconomy.about.com/od/glossary/g/Quantitative-Easing .htm (accessed June 11, 2015).

BBC. 2016. What is quantitative easing? *BBC News*, August 4. http://www.bbc.com/news /business-15198789 (accessed June 11, 2015).

Giles, Chris. n.d. Definition quantitative easing. Financial Times. http://lexicon.ft.com /Term?term=quantitative-easing (accessed June 11, 2015).

R

RAPID DEINDUSTRIALIZATION, 1975

The first part of the 1970s brought a crushing blow to American industry. It was the beginning of the end of America's dominance in auto, steel, and rubber production. The final economic steel boom came in 1970, masking the real structural problems of American heavy industry. The boom ended in 1972, and what followed was the rapid deindustrialization of the American economy. The root of many of the problems of great U.S. cities and industries today is the result of the rapid deindustrialization of the 1970s.

In the 1970s, the Four Horsemen of deindustrialization appeared in the U.S. economy: rising imports driven by free trade, old plants and assets, global labor competition, and rapid technological change. The late 1970s saw a loss of 32 million industrial jobs in the United States, a rate that continued into the 1980s. America's great cities of the industrial age began their decline. Deindustrialization did more than change the geography books: It changed social norms and old immigrant infrastructure in many industrial cities, including Detroit, Cleveland, Cincinnati, Youngstown, Akron, Buffalo, Trenton, Newark, Philadelphia, Pittsburgh, St. Louis, and Chicago. The loss of their industrial tax base and tax-paying workers started decades of deficit spending for these once-great cities. Families and neighborhoods—and social norms—changed with the loss of local industrial plants. Family and community safety networks disappeared, requiring government to step in. Deindustrialization continued for decades, fundamentally changing American society.

At its peak in the 1940s, the American steel industry made more than 60 percent of the world's steel, but by the end of the 1970s the total was less than 20 percent. In 1968, the steel industry and the steel unions had been pacified by a voluntary agreement with friendly nations not to dump steel. The arrangement was actually successful until the steel boom in 1970, which saw temporary steel shortages and price increases. In 1971, Congress let the voluntary agreement expire. The year 1972 was the steel industry's "last hurrah," as U.S. steel shipments started to fall rapidly, overwhelmed by competition from raw steel imports, steel parts imports, capital goods imports, and automobile imports. By 1975 the boom was a memory.

The steel collapse was followed by a collapse in auto production, as a deep recession exposed the weakness of American industry in a global market. In 1950, America was supplying almost 80 percent of the world's cars, but by 1980 that share had dropped to 30 percent. In the 1970s, 25 U.S. auto plants closed: 13 Chrysler plants, 7 General Motors plants, and 5 Ford plants. These closings affected more than 500,000 workers in the auto industry and another 300,000 in the supply chain. By 1975, the Japanese had 18 percent of the American market. By 1980, Detroit was surrendering even more domestic share—22 percent of the market went to imports. Not only did the auto supply chain collapse for the steel and the auto industries; both industries also came under the direct attack of foreign competition.

The rubber industry became the confluence of the industrial decline, collapsing in the late 1970s. During the last two years of the 1970s, Firestone, Goodyear, Goodrich, and Mohawk closed major rubber-making plants in Akron, Ohio. In all, Akron lost 30,000 rubber jobs in the 1970s. B. F. Goodrich Company got out of the tire business in 1975. Firestone shocked all observers by closing its iconic Akron plant no. 1 in 1978, followed by plant no. 2 in 1980; it ended passenger tire production in Akron in 1980. Firestone also announced the closing of 14 rubber factories across the nation. Goodyear and Mohawk stopped tire production in Akron in 1978, and Sun Rubber closed that year.

The rubber industry was crushed in the United States because its old plants, with bias-ply tire equipment, were unable to compete with radial Michelin tires from France and Bridgestone radials from Japan. The conversion to radial technology required the gutting of old plant equipment and huge capital investment. Like steel, the fall of rubber went beyond Akron, the "Rubber City." In the last five years of the 1970s, 24 rubber plants closed, 11 of them in the South. It was the one-two punch of radial technology and auto imports. The rubber industry collapse was far-reaching; it included the three core Los Angeles plants of Goodyear, Goodrich, and Firestone that had brought tire-making to America's West Coast. In 1919, Goodyear's Los Angeles plant was the first tire plant built outside of Akron. In 1975, it closed.

Deindustrialization struck many industries in 1979. Unemployed workers from Westinghouse Electric and Stauffer Chemical in New Jersey, Weyerhaeuser timber mills on the West Coast, and textile plants in North Carolina gathered around their Thanksgiving dinner tables with the same concerns as workers in Youngstown and Pittsburgh. And the problem was not confined to the Rust Belt and southern cities. Los Angeles lost seven major factories: Ford Motor, U.S. Steel, Uniroyal, Pabst Beer, General Motors, Firestone, and General Electric in 1979, and 18,000 people lost their jobs. By early 1980, more than 150 plants had closed in California. Deindustrialization struck with such speed that local politicians were unable to coordinate a response. Almost too late, congressmen in many states realized the importance of security for such national industries as steel. In both political parties, the cry to "Protect our industries" was counteracted by the rising popularity of free-trade economics.

As bad as the rapid deindustrialization was statistically, Americans stoically absorbed the impact. The norm of one-breadwinner families shifted to two-income families to restore the lost wages of good-paying industrial jobs. In larger cities, families fled the poverty and unemployment that deindustrialization had brought to their city neighborhoods by moving to the suburbs. There was a diaspora of workers to the southern states where there was job growth, albeit at lower wages. Cities taxed more and used deficit spending to counter lost industrial tax revenue.

Decades later, these industrial cities collapsed into centers of rising welfare, poverty, unemployment, crime, and eventually bankruptcy or bailouts.

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See also: Detroit Bankruptcy, 2013; *Vol. 3: Microeconomics:* Auto Import Challenge, 1965; Chrysler Bankruptcy, 1979; General Motors Bankruptcy, 2009; Rust Belt, 1980s; *Vol. 4: Global Economics:* Arab Oil Embargo Crisis, 1973

Further Reading

Bluestone, Barry, and Bennett Harrison. 1982. *The deindustrialization of America.* New York: Basic Books.
Yates, Brock. 1984. *The decline & fall of the American automobile industry*. New York: Vintage Books.

RECESSION

One of the factors used to measure the health of an economy is gross domestic product (GDP). If GDP falls for two consecutive quarters (the equivalent of six months), the economy is said to be in a recession.

A recession is characterized by several factors; one of the better known of these is for unemployment to rise in the range of 6 to 10 percent. A recession generally lasts from 6 to 18 months. During a time of recession, many firms lay off workers, and production levels in the nation begin to decline.

Causes of Recession

Many factors can lead to a recession; one of these is the natural rise and fall in the business cycle, which is not easy to predict. The fluctuation of the business cycle is caused by any one of four factors: business investment; interest rates and credit; consumer expectations; and external shocks. Some factors can be more predictable than others, such as business investments, interest rates, and consumer expectations.

All of these factors can be detrimental to the economy, and in the past the government has tried different tactics to intervene in all of these situations—trying to prevent the recession from becoming a depression.

Government Intervention

Historically, economists believed the business cycle would naturally fluctuate quickly. If the economy declined, it will quickly recover on its own without government intervention. This was the common belief in 1929, when the economy took a severe downturn; the recession deepened, and by 1933 GDP fell by almost one-third and unemployment rose to about 25 percent. The United States fell into the deepest recession it had ever faced, and this became known as the Great Depression.

Since the Great Depression, both economists and the government have changed their view regarding the economy naturally correcting itself. Even though opinions vary on what role the government should take to help correct a decline in the economy, there have been recessions since the Great Depression—but none as severe.

In the 1970s, the Organization of Petroleum Exporting Countries (OPEC) instituted an embargo on oil shipped to the United States. This caused oil prices to quadruple, and external shocks were felt in the American oil market. As oil prices spiked, so did the cost of raw materials, causing the economy to fall into a contraction. Americans modified their behaviors quickly. They began to conserve energy, turned down their heat in their homes, bought smaller and more fuel-efficient cars, and began searching for alternatives to oil.

Americans purchasing smaller, more fuel-efficient cars caused great suffering for U.S. automakers. These companies were producing larger automobiles at a time when citizens were turning primarily to the Japanese automobile makers Honda and Toyota to replace their gas-guzzling American-made automobiles. This furthered the economic downturn in the United States. The response to the oil embargo was for the U.S. government and private firms to develop more of their own energy resources.

More recently, the United States suffered from a recession in the late 1990s and early 2000s. Businesses and individuals invested billions of dollars in new technology that proved to be unprofitable. The negative effects of the technology crash were felt in other industries across the nation. By March 2001, the country had slipped into a recession.

The government and economists alike hoped that the downturn would be short-term, but the terrorist attacks on September 11, 2001, resulted in a severe drop in consumer spending. Fear swept throughout the nation, bringing sharp declines in travel. The hotel, airline, and tourism industries were affected the most. Due to the nature of the terrorist attacks, consumers were afraid to fly.

In response to the 2001 recession, the Federal Reserve cut interest rates to all-time lows to help keep the economy from slipping even further into recession or depression. Unemployment continued to rise, and firms and consumers alike kept their spending very low.

By 2003 the economy was thriving again, with GDP growing at a rate of 7.5 percent over three months. However, by 2006 gas prices were rising sharply, and the economy's growth began to slow. Difficulties in the banking industry, due primarily to high-risk lending, caused the economy to fall into a deep contraction; by 2008 the country was in the most severe recession since the Great Depression. The Federal Reserve responded by lowering interest rates to the lowest in U.S. history to try and stimulate lending. Federal regulations on banking, in the form of more restrictive lending laws, made sweeping changes to mortgage lending in an attempt to prevent the crisis of 2008 from ever happening again.

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See also: Bureau of Economic Analysis; Expansionary Fiscal Policy; Expansionary Monetary Policy; Gross Domestic Product; Quantitative Easing; Unemployment; *Vol. 1: Foundations of Economics:* Economic History

Further Reading

National Bureau of Economic Research. 2015. The NBER's business cycle dating committee. http://www.nber.org/cycles/recessions.html (accessed September 30, 2016).

National Bureau of Economic Research. 2015. US business cycle expansions and contractions. http://www.nber.org/cycles.html (accessed September 30, 2016).

O'Sullivan, Arthur, and Steven M. Sheffrin. 2007. *Economics principles in action.* New York: Pearson-Prentice Hall.

REGULATION

Businesses produce goods and provide services that we all enjoy. However, in the process of producing these goods and providing these services, businesses frequently generate by-products that harm the natural environment, including humans. Sometimes these by-products are extremely hazardous pollutants that cause great environmental harm, for example, radioactive waste generated by nuclear power plants. In other cases, these by-products represent merely nuisances that cause only minor harm, for example, the noise generated by lawn mowers and other landscape maintenance tools.

Regardless of the scale, the harm generated by any business represents a burden or cost borne by someone else. Since these costs are borne by others, these costs are distinctively different from the costs that businesses normally face, such as the cost of hiring workers or renting buildings. While labor and rental costs are born internally by businesses, the environmentally related costs are born externally. Given this distinction, businesses are free to ignore external costs, leading businesses to make environmentally insensitive decisions due to this negative externality. Consequently, environmental costs are external to the market as a whole. Since the market price does not reflect environmental costs, the market price is too low, leading consumers to overconsume goods and services that harm the environment.

Fortunately, governments are able to offer regulatory methods for correcting business-related negative externalities. In the United States, major environmental regulation began in 1970 with the creation of the Environmental Protection Agency (EPA). Since then the EPA has implemented various regulatory programs designed to correct business-related externalities, for example, the Clean Air Act in 1970. These environmental regulatory programs attempt to reduce the environmental harm caused by businesses. Most regulatory programs restrict businesses' choices directly or indirectly. Other regulatory programs induce businesses to make more environmentally sensitive choices. Regulatory programs directly restrict businesses' choices generally by imposing design standards, such as the requirement to install filters on smokestacks in order to remove particulate matter. Businesses are legally obligated to meet these design standards. When businesses fail to comply, they are subject to penalties, such as fines. Regulatory programs indirectly restrict businesses' choices generally by imposing performance standards, such as the requirement to keep pollution below a certain maximum. Businesses are legally obligated to meet these performance standards, and noncompliant businesses face the risk of penalties.

Other regulatory programs induce businesses to reduce their generation of harmful by-products, that is, pollution, generally by placing a price on pollution. In essence, these regulatory programs transform the disposal of pollution into another cost of business. In the same way that businesses must pay their workers for their time, these regulatory programs force businesses to pay society for the use of its natural environment as a means of disposal. Once businesses must pay to pollute, they should lower their pollution. Since efforts to reduce pollution are not costless, no business is expected to eliminate its pollution. Instead, each business identifies the level of pollution that represents the best trade-off between the cost of pollution and the cost of pollution reduction.

A pollution charge explicitly places a price on pollution by charging businesses for each unit of pollution emitted, for example, each pound of particulate matter. A program of transferable permits, that is, cap-and-trade, implicitly places a price on pollution. A program caps the aggregate amount of pollution allowable from an identified set of pollution sources (nearly always businesses), issues the number of permits needed to match this cap (generally one permit per pollution unit), and initiates trading among the set of businesses. The buying and selling of permits within a market establishes a market price for the legal right to pollute. Faced with the need to buy permits for the right to pollute, businesses should lower their pollution. Businesses also enjoy the opportunity to sell permits, which may motivate a business to reduce its pollution in order to generate excess permits, that is, the number of permits held exceeds the amount of pollution.

The regulatory programs for correcting business-related externalities enjoy synergies with other similar efforts expended by nongovernmental agents, such as investors. In some cases, nongovernmental efforts serve merely to reinforce regulatory programs. For example, even investors who care about only the profitability of businesses may still pressure businesses to improve their environmental management. Environmentally insensitive choices increase the exposure of businesses to regulatory sanctions. If a business repeatedly violates its performance standard, the EPA may impose a large penalty, which lowers profits. Investor pressure prompts business managers to take these possible penalties seriously, thus improving the effectiveness of these penalties for inducing compliance with performance standards.

In other cases, nongovernmental efforts rely on the regulatory programs for generating influence over businesses' environmentally related decisions. For example, across the United States, members of communities located near polluting businesses are demonstrating that they are very interested in protecting their local environment. In several cases, this interest runs so deep that community members are pressuring regulated businesses to exceed their regulatory requirements, such as lowering their pollution to levels below the maxima established by performance standards. Even though the standards are exceeded, they remain important by serving as a reference point for conveying a community's interest and demonstrating a business's response to local community pressure.

In the end, regulatory programs are effective at reducing environmental harm only if businesses respond to these programs. In the time period shortly following the implementation of a regulatory program, a business is constrained by its capacity to evaluate the set of available options for reducing pollution and by its existing resources: management team, workers, building, equipment, etc. Both constraints limit the effectiveness of regulatory programs and inflate businesses' costs of complying with these programs.

Given the time to evaluate its options fully and modify its resources, a business is much better equipped to respond to regulatory programs. Businesses are more likely to identify the best-fitting approach for reducing pollution. Moreover, businesses may hire a new management team, hire additional environmental management engineers, construct a new building, and install more equipment, as well as researching and designing new technologies. All of these efforts improve the effectiveness of regulatory programs and lower businesses' costs of complying with these programs.

According to conventional economic wisdom, all regulatory programs constrain business operations, thus undermining profitability. However, based on a competing economic perspective, stringent yet flexible environmental regulation may improve profitability. In a dynamic world where opportunities arise frequently and prove difficult to assess in real time, environmental regulation forces businesses to reexamine their operations. In the process, businesses identify opportunities that allow them to comply with environmental regulation and lower production costs or improve product quality. Empirical evidence supports both perspectives, indicating that the ultimate effect of environmental regulation on profitability depends on circumstances.

The flexibility offered by a regulatory program arguably represents the most important circumstance. Design standards offer no flexibility. Performance standards offer flexibility regarding the methods for reducing pollution but not regarding the level of pollution (that is, cannot exceed the maximum). Emission charges and transferable permits offer full flexibility regarding both method and level.

Lastly, even the threat of environmental regulation may prove effective at correcting business-related externalities. Fearing the (potential) burden of future regulation, businesses may band together, especially in the form of industrial associations, in order to demonstrate to environmental agencies that the businesses are capable of self-regulation, thus preempting government regulation. For example, in 1988 the American Chemistry Council created the Responsible Care program to promote safe, responsible, and sustainable management of chemicals, which may have been designed to preempt government regulation in response to a major industrial accident in Bhopal, India, in 1984.

Dietrich Earnhart

See also: Environmental Protection Agency; Externality; Public Goods; Taxes; *Vol. 1: Foundations of Economics:* Theory of Public Choice; *Vol. 3: Microeconomics:* Clean Air Act; Clean Water Act

Further Reading

Earnhart, Dietrich, and Robert Glicksman. 2011. *Pollution limits and polluters' efforts to comply: The role of government monitoring and enforcement*. Palo Alto, CA: Stanford Univ. Press.

RIVLIN, ALICE

Born: March 4, 1931, in Philadelphia, Pennsylvania; Nationality: American; Professional Interests: fiscal policy, monetary policy; Major Works: *Systematic Thinking for Social Actions* (1971), *Reviving the American Dream: The Economy, the States, and the Federal Government* (1993), *Systematic Thinking for Social Action* (2015).

Alice Rivlin is an economist who has devoted her career to public service for the American people. She served as the first director of the Congressional Budget Office (from February 1975 to August 1983) during the Jimmy Carter and Ronald Reagan administrations. She was also the 30th director of the Office of Management and Budget (from October 1994 to April 1996), this during the Bill Clinton administration. She then became the vice chairman of the Federal Reserve from June 1996 through July 1999. President Barack Obama appointed Rivlin to his National Commission on Fiscal Responsibility and Reform in 2010. Rivlin has also worked for the Brookings Institution throughout her career. She is currently a visiting professor at the Georgetown Public Policy Institute, along with her work on the National Commission of Fiscal Responsibility and Reform.

Alice Mitchell Rivlin was born on March 4, 1931, in Philadelphia, Pennsylvania. She began her collegiate studies at Bryn Mawr College with a focus on history. She took a first-year summer course in economics with Reuben Zubrow at Indiana University and decided that economics would be more useful. She graduated in 1952, writing her senior thesis on the economic integration of Western Europe, even discussing the European monetary union. She then moved to Paris, where she held a junior position working on the Marshall Plan. She was later rejected from the public administration program at Harvard because she was of marriageable age and consequently was considered a poor student risk. She applied to Radcliffe College's (Harvard University) economics program, where she earned her PhD in economics in 1958. She is married to economist Sidney G. Winter, who is a professor at the University of Pennsylvania. She is a frequent contributor to newspapers, television, and radio, and she has written numerous books.

Instead of an academic career, Rivlin ultimately focused on policy work, as she saw this as an avenue to improving people's lives. In her book *Systemic Thinking for Social Change,* Rivlin examines how systemic analysis has positively contributed to such social action programs as education, health, manpower training, and income maintenance, and where it falls short due to inadequate data or methods. Rivlin ultimately endorses widespread implementation of social experimentation and acceptability of the federal government, with the requirement of comprehensive, reliable performance measures.

In *Reviving the American Dream,* Rivlin discusses how to foster faster growth rates in average incomes over the long run. She states that this is necessary to restore confidence in the United States as a place where people who work hard can expect to do better than their parents did. Specifically, Rivlin proposes a common tax for states to be collected on a uniform basis and a uniform rate across the country and shared by the states on a formula basis. She advocates that this policy would encourage interstate commerce and ultimately promote growth. She also writes that state tax policy should shift away from tax breaks and move toward improving services, as this would encourage an aggressive effort for states to improve their infrastructure and their education systems in order to attract business.

Rivlin not only is an economist but also was at the forefront of female representation within the profession. Rivlin recounts that her years as a graduate student at Harvard in the 1950s were not always smooth sailing. She taught mixed-gender economics classes, but initially was assigned only women tutees. When wanting to allow a swap of students with a male colleague for a research project, a senior tutor objected to the switch on the grounds that a female tutor would make male students feel second-class. In addition, Rivlin did not teach introductory economics in the spring of her second year, due to the birth of her child. The man who picked up the class in the spring announced that since a woman could not adequately teach economics, all work and grades previously given would not count. Fortunately, the department chair intervened, and Rivlin's students were able to keep their prior grades. She has maintained that she has never worried about being the only woman (or one of the few) in her government positions, as people eventually realized she was competent and not self-conscious about her gender.

Rivlin was also the director of Brookings Institution's Greater Washington Research Project. President Lyndon Johnson appointed Rivlin to serve as assistant secretary for planning and evaluation at the U.S. Department of Health, Education, and Welfare (1968–1969). She was the founding director of the Congressional Budget Office (CBO) during 1975–1983, where as head of the CBO she was known to criticize Reaganomics. In 1983, she won a MacArthur Foundation "genius" award. She was a senior fellow for economic studies at the Brookings Institution from 1983 to 1993. Under President Clinton, she served as deputy director of the Office of Management and Budget and then as its first female director from 1994 to 1996.

From 1996 to 1999, she served as a governor of the Federal Reserve (the Fed) and as the Fed's vice chair. She was also chair of the District of Columbia Financial Responsibility and Management Assistance Authority from 1998 to 2000, where she helped rescue the District of Columbia from bankruptcy. She has taught at Harvard University, George Mason University, and The New School Universities. She has served as president of the American Economic Association, and she is currently a member of the board of directors of the New York Stock Exchange. She is the author or coauthor of 16 books and numerous articles and papers.

Kathryn Lloyd Gustafson

See also: Bernanke, Ben; Burns, Arthur; Congressional Budget Office; Federal Reserve System; Fiscal Policy; Monetary Policy; Office of Management and Budget; Volcker, Paul

Further Reading

Edison, Hali J. 1998. An interview with Alice Rivlin. American Economic Association. https://www.aeaweb.org/about-aea/committees/cswep/awards/rivlin (accessed September 24, 2010).

Levy, David. 1997. Interview with Alice Rivlin. *The Region*, June 1. Federal Reserve Bank of Minneapolis. https://www.minneapolisfed.org/publications/the-region/interview-with-alice-rivlin (accessed September 24, 2011).

Rivlin, Alice. 1993. *Reviving the American dream: The economy, the states and the federal government.* Washington, DC: Brookings Institution Press.

Rivlin, Alice M. 2015. *Systematic thinking for social action*. Washington, DC: Brookings Institution Press.

Rivlin, Alice M., and Joshua M. Wiener. 1988. *Caring for the disabled elderly: Who will pay?* Washington, DC: Brookings Institution Press.

Woodward, Bob. 1994. *The agenda: Inside the Clinton White House.* New York: Simon & Schuster.

ROBINSON, JOAN

Born: October 31, 1903, in Willesden, England; Died: August 5, 1983, in Cambridge, England; Nationality: English; Professional Interests: imperfect competition, socialism, Keynesianism; Major Works: *Economics of Imperfect Competition* (1933), *The Theory of Unemployment* (1933), *Essay on Marxian Economics* (1942), *The Accumulation of Capital* (1956), *Essays in the Theory of Economic Growth* (1964).

Joan Robinson was a remarkably complex economist. Robinson's 1933 *Economics of Imperfect Competition* confronted the prevailing neoclassical economic models of the day. For example, she was a major critic of models that suggested that equilibrium could be identified. As a lecturer at Cambridge, Robinson was an early disciple of John Maynard Keynes. She later promoted the work of Karl Marx and, sympathetic to social revolutions, she was supportive of Chinese and North Korean communism. Robinson enjoyed lively debate, often treating fellow professors as students. Robinson died in 1983.

Joan Robinson was born Joan Maurice on October 31, 1903, in England to a wealthy and distinguished family. Even during her youth, her thoughts were dominated by questions about how to create a more just and equal society. She studied at Cambridge under A. C. Pigou, and after graduation she married economist Austin Robinson. They moved to India in 1926, so Austin could work as a tutor to a maharajah. They returned to England in 1929 so that Austin could take a position at Cambridge. Not having a job, Joan sought to continue her work in economics by writing articles and a book.

The book *Economics of Imperfect Competition* (1933) expressed her belief that current "neoclassical" economic methods (as expressed by Marshall, Walras, and Pigou) did not reflect reality. Their methods were organized around the pursuit of ideal equilibrium situations, which, she argued, are illusory. Furthermore, their models assumed perfect competition, as if all products were the same and a business could be opened or shut down instantly. In her book, Robinson suggested more realistic assumptions.

Unlike many (perhaps most) economists, Robinson was not content to make minor improvements on economic theory. In her view, the reality of imperfect competition did not simply require small modifications to current economic theory; imperfect competition completely undermined current economic theory. She insisted that economists abandon the old models and seek a brand-new way of looking at the world. Her 1933 book established her as a serious and innovative economist, and she secured a position as a lecturer at Cambridge in 1934.

At Cambridge, Robinson came under the influence of John Maynard Keynes, who was also at Cambridge at the time. In Keynes's *The General Theory of Employment, Interest and Money* (1936), Robinson saw a way to completely do away with the old Marshallian view of economics. She became Keynes's greatest supporter, and she considered her own theory of imperfect competition as the way to destroy the old system. She thought that Keynes's theory of aggregate demand could become the groundwork for a new system. She was enormously disappointed, however, when Keynes himself did not seem to think his ideas were as revolutionary as she did. When Keynesianism began to be used by neoclassical economists all over the world, Robinson dismissed those economists as "bastard Keynesians" and counted such development as a severe missed opportunity.

Desperate for fresh ideas, she turned to Karl Marx, studying his work and writing a short book called *Essays on Marxian Economics* (1942). She found Marx's questions about the development of capitalism and the distribution of income to be promising, but in the end she decided that his methods were not much better than the existing ones. The book did not make her popular, for she gained the enmity of both Marxists (for finding fault with Marx) and mainstream economists (for making it seem like Marx was worth studying).

Robinson was sympathetic to the various Socialist revolutions that occurred around the world, and she was deeply hostile to American foreign and domestic policy, in particular the arms race with the Soviet Union. She was not impressed with Soviet communism either. Instead, she was highly optimistic about Chinese and North Korean communism. She took several trips to China, the first in 1953. She was also encouraged by the possibility of a social experiment comparing North Korea and South Korea, and she was convinced that communist North Korea would be far more successful than capitalist South Korea.

She was an ardent follower of John Maynard Keynes, and seemed to consider herself more of a Keynesian than he was. She desperately desired a more just society, but she cared nothing for feminism. She might have been the most important economist not to have been awarded the Nobel Prize. Yet she herself dismissed her own most important work as flawed. She claims to have lost interest in the groundbreaking *Imperfect Competition* soon after she wrote it, and said she much preferred *The Accumulation of Capital* (1956).

Joan Robinson died in Cambridge, England, in 1983.

Stephen H. Day

See also: Pigou, Arthur Cecil; *Vol. 1: Foundations of Economics:* Command Economy; Keynes, John Maynard; Marshall, Alfred; Marx, Karl; Socialism

Further Reading

Beaud, Michael, and Gilles Dostaler. 1995. *Economic thought since Keynes*. Aldershot, UK: Edward Elgar.

Cicarelli, James, and Julianne Cicarelli. 2003. Joan Robinson (1903–1983). In *Distinguished women economists*, 160–64. Westport, CT: Greenwood Press.

Rima, Ingrid Hahne. 1991. *The Joan Robinson legacy.* London: M. E. Sharpe.

Turner, Marjorie Shepherd. 1989. *Joan Robinson and the Americans.* Armonk, NY: M. E. Sharpe.

ROTHSCHILD FAMILY DYNASTY

The Rothschild dynasty began in the 1760s with Mayer Amschel Rothschild (his surname was originally Bauer) in the city of Frankfurt, in an area of Europe that was part of the Holy Roman Empire (the area later became Germany). Rothschild became a dealer in rare coins and then began providing banking services to Crown Prince Wilhelm in 1785. Shortly thereafter, he decided to turn his focus away from profitable farm and small business loans and toward providing international government loans. It was this pivotal move that established Rothschild as one of the first international bankers and began a family banking dynasty.

Rothschild's five children furthered the banking principles he established. The five arrows on the family's coat of arms represent the banking dynasties started by the five sons: Amschel took over in Frankfurt, Salomon in Vienna, Nathan in London, Carlmann in Naples, and Jacob in Paris.

The brothers entered into a formal partnership agreement with each other that strengthened their financial hold across Europe. By keeping the financial centers within familial control, Rothschild was able to maintain secrecy over the exact size of the vast family fortune. Spreading their fortune over many international cities and varied financial instruments further insulated their fortune. Several other Jewish financial families emulated this strategy.

A major turning point came for the family in 1814, when the brothers helped Britain raise capital to help defeat Napoleon. Nathan viewed Napoleon's war efforts as a threat to the family business. The family spent a significant amount of money organizing metal shipments to the British armies and financing British allies. In 1815, loans to allies totaled about $10.1 billion (using today's average earnings).

Assisting in the war efforts also provided the family with extensive contacts across Europe. The contacts included couriers, shippers, and agents, and these contacts provided the family with essential information, keeping them one step ahead of other financiers regarding the markets.

The family developed a reputation for funding wars. The fame and influence of the Rothschilds was so widespread that the family was thought to be able to control whether wars broke out or empires continued to exist. This reputation generated many conspiracy theories regarding the family. One prevalent theory is that the family played both sides of many conflicts—including the Napoleonic Wars, the Franco-Prussian War, and World War I—in order to expand their fortune.

Other notable ventures by the Rothschilds included assisting in Brazil's independence from Portugal, financing the Suez Canal, and funding the creation of the African colony of Rhodesia.

The family wealth reached its zenith during the 19th century. Although it has diminished since then due to dilution among hundreds of descendants, the family's combined fortune is estimated to be between $350 billion and $1 trillion USD. The family is still active in many industries, including finance, real estate, and philanthropy.

Dale Johnson

See also: *Vol. 1: Foundations of Economics:* Banking; History of Banking

Further Reading

Ferguson, Niall. 1999. *The house of Rothschild. Volume 1: Money's prophets: 1798–1848*. London: Penguin Books.
Kaplan, Herbert. 2010. *Nathan Mayer Rothschild and the creation of a dynasty: The critical years 1806–1816*. Palo Alto, CA: Stanford Univ. Press.
Morton, Frederic. 1962. *The Rothschilds: A family portrait*. New York: Atheneum.

S

SAMUELSON, PAUL

Born: May 15, 1915, in Gary, Indiana; Died: December 13, 2009, in Belmont, Massachusetts; Nationality: American; Professional Interests: macroeconomics, author, Nobel Prize (1970); Major Work: *Economics: An Introductory Analysis* (first published 1948).

Paul Samuelson is probably one of the most referenced and decorated of contemporary economists. Economic historians have called him the "father of modern economics," and the *New York Times* once referred to him as the foremost academic economist of the 20th century. He authored the best-selling college economics textbook of all time: *Economics: An Introductory Analysis*. In 1970, Paul Samuelson was the first U.S. economist to receive the Nobel Prize in Economics. Samuelson died in 1994.

Paul Anthony Samuelson was born on May 15, 1915, in Gary, Indiana. He received his bachelor of arts degree in 1935 from the University of Chicago. Paul Samuelson went on to Harvard University, where he was awarded his PhD in 1941. His early economic influences at Harvard were noted economists Wassily Leontief, Joseph Schumpeter, and Alvin Hansen. At the age of 21, while a doctoral student at Harvard, Samuelson wrote his first published article: "A Note on the Measurement of Utility."

In 1940, Samuelson accepted a position as assistant professor at the Massachusetts Institute of Technology (MIT), where he would remain till his retirement. Paul Samuelson was more than the author, and later coauthor, of the most widely used college textbook in history. During his tenure at MIT, Samuelson worked in the fields of international trade, welfare economics, consumer theory, applying nonlinear dynamics to economic analysis, and public-private choice allocation. In each of these areas, Samuelson has been credited with adding notably to the body of economic knowledge. In terms of economic philosophy, he referred to himself as a "right wing . . . New Deal economist"—that is, a Keynesian.

In 1938, he introduced a way to measure consumer choices and satisfaction-witnessing consumer behavior. This became known as the revealed preference theory. In 1941, he and economist Wolfgang Stolper developed the Stolper-Samuelson theorem in trade theory. This theorem proposed, under certain conditions, that when a resource is scarce, trade will lower real wages and thus protectionism will raise real wages. Stolper-Samuelson would submit that trade between developed and developing countries lowers the wages of the unskilled labor in the developed country that is competing with the lower unskilled wages in the developing country. The Stolper–Samuelson theorem was influential in the later international trade models.

Another area of economics in which Samuelson was well known is public finance, where he is recognized for his efforts in resource allocation between public and private goods and services. One thing that set Samuelson apart from other economists of his time was his use and application of mathematical analysis. In 1947, Samuelson published *Foundations of Economic Analysis*, in which he illustrated the importance of mathematics to the science of economics. In 1948, he published the first edition of what was to become the best-selling, most widely used economics textbook in history: *Economics: An Introductory Analysis*. Since the first edition in 1948, "Samuelson" has been translated into more than 40 languages. Many consider it the most influential economics textbook published since World War II. The Keynesian approach that Samuelson presents had a great influence on the United States' embrace of John Maynard Keynes's theories.

During World War II, from 1941 to 1945 Paul Samuelson served on the National Resources Planning Board and the War Production Board, as well as in the Office of War Mobilization and Reconstruction. Following the war, he served in various government positions till 1960. In 1960–1961, he was a member of the National Task Force on Economic Education. Samuelson served as an adviser to presidents John F. Kennedy and Lyndon B. Johnson, and he was a consultant to the U.S. Treasury, the Bureau of the Budget, the Council of Economic Advisers, and the Federal Reserve Bank. Along with Chicago School economist Milton Friedman, Samuelson wrote a weekly column for *Newsweek* magazine, where the two men represented opposing sides: Samuelson took the Keynesian perspective, and Friedman presented the Monetarist perspective.

Paul Samuelson was the first economist to introduce the idea of "cost-push" inflation. *Cost-push inflation* is the inflation caused by a general rise in resource prices, which includes wages. As the cost of resources increases, price increases follow. In 1960, Samuelson was particularly sensitive to and expressed concern about the issue: Even when full employment had not yet been reached, the future effects of the high employment were visible in the economy.

Along with the Nobel Prize in 1970, Paul Samuelson received the David A. Wells Prize from Harvard University in 1940 and the John Bates Clark Medal by the American Economic Association in 1947. Paul Samuelson was a member of the editorial board of the Econometric Society and was their past-president in 1951. He was elected president of the International Economic Association in 1965.

Paul Samuelson described himself as a "generalist" whose true interests were in teaching and research. Samuelson is not the only economist in the family. His nephew is Harvard professor and former presidential economic adviser Larry Summers.

Paul Samuelson died on December 13, 2009, at the age of 94.

Dave Leapard

See also: Macroeconomics; Summers, Lawrence; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; Nobel Prize in Economics; Schumpeter, Joseph; *Vol. 3: Microeconomics:* Stigler, George; *Vol. 4: Global Economics:* Stiglitz, Joseph

Further Reading

Brown, Edgar Cary, and Robert Solow. 1983. *Paul Samuelson and modern economic theory.* New York: McGraw-Hill.

Dorfman, Robert, Paul Samuelson, and Robert Solow. 1958. *Linear programming and economic analysis.* Santa Monica, CA: RAND Corporation.

Nobelprize.org. 1970. Paul A. Samuelson—Biographical. http://www.nobelprize.org/nobel_prizes/economics/laureates/1970/samuelson-bio.html (accessed September 10 2011).

Samuelson, Paul. 1948. *Economics: An introductory analysis.* New York: McGraw-Hill.

Samuelson, Paul, and William A. Barnett, eds. 2007. *Inside the economist's mind: Conversations with eminent economists.* Malden, MA: Blackwell.

Samuelson, Paul, Robert L. Bishop, and John R. Coleman, eds. 1955. *Readings in economics.* New York: McGraw-Hill.

Szenberg, Michael, Aron A. Gottesman, and Lall Ramrattan. 2005. *Paul A. Samuelson: On being an economist.* New York: Jorge Pinto Books.

Weinstein, Michael M. 2009. Paul Samuelson, economist, dies at 94. *New York Times*, December 13. http://www.nytimes.com/2009/12/14/business/economy/14samuelson.html (accessed September 10 2011).

Wong, Stanley. 1978. *The foundations of Paul Samuelson's revealed preference theory: A study by the method of rational reconstruction.* Oxford, UK: Routledge & Kegan Paul.

SCHWARTZ, ANNA

Born: November 11, 1915, in New York City; Died: June 21, 2012, in New York City; Nationality: American; Professional Interests: economic and financial history, banking policy, monetary policy, international economic policy, financial policy; Major Works: *The Growth and Fluctuation of the British Economy, 1790–1850: An Historical, Statistical, and Theoretical Study of Britain's Economic Development* (with A. D. Gayer and W. W. Rostow) (1953; 2nd ed., 1975), *A Monetary History of the United States, 1867–1960* (with Milton Friedman) (1963).

Anna Schwartz worked as an economist at the National Bureau of Economic Research (NBER) starting in 1941. She has been praised for her contributions to economic history and using her historical insights to interpret current events. She is best known for her collaboration with Nobel laureate Milton Friedman in their book A *Monetary History of the United States, 1867–1960,* which outlines the importance of the quantity of money—not interest rates—in influencing monetary policy and the economy as a whole; in the work, Schwartz and Friedman also critique the actions of the Federal Reserve during the banking panics of the 1930s. Her collaboration skills, her empirical rigor, and the longevity of her research define a woman who contributed significantly to economics scholarship. Schwartz died in 2012.

Anna Jacobson Schwartz was born on November 11, 1915, in New York City. At age 18, she graduated from Barnard College and was elected to Phi Beta Kappa. One year later, she earned her master's degree in economics from Columbia University. Schwartz then married and started her family (she and her husband had four children), all while continuing to work as a professional economist. She ultimately earned her PhD from Columbia in 1964.

Schwartz worked briefly for the U.S. Department of Agriculture in 1936, and then went on to the Columbia University Social Science Research Council. In 1941, she began her work in statistical research at NBER (an association she continued for the rest of her life). Eleven years after she first joined the NBER, she began teaching at Brooklyn College, and then Baruch College for a short time along with her work at the National Bureau. In 1967, she became an adjunct professor of economics for City University of New York, Graduate Division at Hunter College. In 1969, she moved on to an adjunct professorship at New York University, Graduate School of Arts and Sciences. She served on the board of editors of the *American Economic Review* (1972–1978), the *Journal of Money, Credit, and Banking* (1974–1975, 1984–2012), the *Journal of Monetary Economics* (1975–2012), and the *Journal of Financial Services Research* (1993–2012). Schwartz was president of the Western Economic Association from 1987 to 1988. She was also the honorary visiting professor of the City University Business School in London from 1984 to 2002.

Schwartz began her academic collaboration with Milton Friedman in 1948 at the suggestion of Arthur Burns. She had recently completed work on another collaboration project with Arthur D. Gayer and Walt Rostow: *The Growth and Fluctuation of the British Economy, 1790–1850*. Many have remarked that neither Friedman nor Schwartz could have completed *Monetary History* without the other. Notably, this collaboration was carried out between New York City, where Schwartz worked and lived, and Chicago, where Friedman worked and lived. The two did meet in New York or talk on the phone occasionally, but most correspondence, editing, and other writing activity for this work was carried out using the U.S. Postal Service.

Schwartz and Friedman stated that their inspiration for *Monetary History* arose from the NBER program to study the cyclical behavior of different economic processes such as transportation, inventory management, and consumption. *Monetary History* illuminates the importance of fluctuations in the growth rate of the money stock and the business cycle, and it criticizes the ineptness of the Federal Reserve during the Great Depression. Many note that this work's greatest effect has been to focus monetary policy on the goal of price stability.

Until her death in 2012, Schwartz remained a founding member of the Shadow Open Market Committee, which was created in 1973 to act as a watchdog over Federal Reserve policy. She published numerous articles and publications over the course of her career—many in collaboration with Michael Bordo.

Until her death in 2012, Schwartz continued to work at the NBER and as an adjunct professor of economics at the Graduate School of the City University of New York. She earned numerous honorary doctorates from such prestigious schools as Williams, Loyola, Emory, Rutgers, and London City University. She was the distinguished fellow of the American Economic Association in 1993, the honorary fellow of the Institute of Economic Affairs in 1997, and a fellow of the Academy of Arts and Sciences in 2007.

Anna Schwartz died on June 21, 2012, in Manhattan, New York City.

Kathryn Lloyd Gustafson

See also: Burns, Arthur; Friedman, Milton; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929

Further Reading

Feldstein, Martin. 2000. Anna Schwartz at the national bureau of economic research. *Journal of Financial Services Research* 18 (2/3): 115–17 http://www.nber.org/feldstein/schwartz.html (accessed October 16, 2012).

Ferguson, Tim. 2012. Anna Schwartz, monetary historian, RIP. *Forbes*, June 21. http://www.forbes.com/sites/timferguson/2012/06/21/anna-schwartz-monetary-historian-rip (accessed October 2012).

Fettig, David. 1993. Interview with Anna J. Schwartz. *The Region*, September 1. Federal Reserve Bank of Minneapolis. http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=3724 (accessed October 16, 2012).

Gayer, A. D., W. W. Rostow, and Anna Schwartz. 1975. *The growth and fluctuation of the British economy, 1790–1850.* 2 vols. 2nd ed. Sussex, UK: Harvester Press.

Matthews, Steve, and Vivien Lou Chen. 2012. Anna Schwartz, economist Milton Friedman's co-author, dies at 96. *Bloomberg*, June 22. www.bloomberg.com/news/2012-06-21/anna-schwartz-economist-milton-friedman-s-co-author-dies-at-96.html (accessed October 2012).

Schwartz, Anna, and Milton Friedman. 1963. *A monetary history of the United States, 1867–1960.* Princeton, NJ: Princeton Univ. Press.

SECURITIES AND EXCHANGE COMMISSION

In the early 20th century, the world was changing rapidly. Transportation, communication, and investing were only a few of the areas in which significant global changes were occurring. The inventions of the day were bringing with them the possibility that people from all walks of life could invest in these new inventions through the stock markets and "strike it rich." Regulating this investing frenzy was not encouraged or promoted by the federal government or anyone else. The stock market crash of 1929 and the significant loss of money by both the investors and the investees changed the environment from one from emphasizing the positives of investing in the stock market to one of focusing on only the negatives. Confidence in the markets was lost. Confidence in the economy was lost. The Great Depression was beginning.

In the mid-1930s, it was widely acknowledged that for any economic progress to occur, confidence in the banking industry and capital markets had to be restored. In 1933, Congress passed the Securities Act, and in 1934 followed it up with the Securities Exchange Act. Both acts were designed to clean up the market exchange between buyers and sellers. The acts enforced the dissemination of more information to investors and created rules by which investor transactions would occur. By cleaning up the rules of the investing game and opening the channels of information for investors, the government was anticipating a restoration of confidence and activity in the capital markets to boost the depressed economy. In addition to the rules and information changes, the Securities Exchange Act of 1934 created the Securities and Exchange Commission (SEC) to oversee and enforce the implementation of the new rules.

The new laws had two objectives. First, companies that wanted to offer securities on the stock market were now required to openly provide the public with information on their businesses, what securities they were selling, and, quite possibly most important, what risks were involved in investing in their companies. Second, the new laws stipulated that stock brokers and stock dealers, and those who sold the securities to the investing public, were to be more concerned with the interests of and honest dealings with the public investors than with the companies doing the selling. Both objectives were quite broad in nature, but it was the charge of the new Securities and Exchange Commission to do the enforcing.

As both banking and stock market investing grew, they became different in one very important way. With the creation of the Federal Deposit Insurance Corporation (FDIC), bank deposits became an insured savings tool for the general public. This insurance feature did not extend to the stock market and stock investing, which made the role of the SEC as the capital markets enforcer that much more important for the consumer. The SEC was the capital markets' police force, charged with protecting consumers from tactics such as accounting fraud, providing inaccurate and misleading information about either the company or its securities offerings, and insider trading.

While the SEC was established to enforce the new laws, its primary responsibility was to protect the investors in capital markets goods and services. Investors are the SEC's main source of information about potential unlawful activity by companies and the capital markets industry, including the stock market. To assist investors, the SEC provides educational information on many topics, issues, and activities within the capital markets industry. The material is designed to educate, inform, and alert the consumers about possible illegal activity in which they may have been unknowing participants.

President Franklin D. Roosevelt appointed Joseph Kennedy, father of future president John F. Kennedy, as the first chair of the SEC. The commission is made up of five commissioners, all appointed by the president. One is elected chair. The commissioners serve five-year terms, staggered to maintain consistency. Nonpartisanship is maintained, as a maximum of three can be from the same political party. The SEC is a dynamic commission that works closely with Congress, the Federal Reserve, and the Treasury Department to keep regulations and policies up to date and applicable to the current financial, economic, and investing environment.

The SEC comprises five separate divisions and 23 offices. The five divisions are the Division of Corporation Finance, Division of Economic and Risk Analysis, Division of Investment Management, Division of Enforcement, and Division of Trading and Markets. The offices of the SEC include the Office of the General Counsel, Office of the Chief Accountant, Office of Compliance Inspections and Examinations, Office of Credit Ratings, Office of International Affairs, Office of Investor Education and Advocacy, Office of the Chief Operating Officer, Office of Human Resources, Office of Information Technology, Office of Legislative Affairs and Intergovernmental Relations, Office of Public Affairs, Office of the Secretary, Office of Equal Employment Opportunity, Office of the Inspector General, and

Office of Administrative Law Judges. All of these divisions and offices are headquartered in Washington, D.C.

The role of the SEC has become much more important, and has expanded, in the years since its inception in 1934. Stock market investing took on a glamour that attracted many people from varied walks of life. The average citizen saw the stock market as the saving and investing mechanism for the first home, college fund, and retirement. The global economy attracted foreign investors, and the SEC broadened its outlook to incorporate global financial and capital markets. The SEC's role, responsibilities, and regulation have grown and become more complex.

David A. Dieterle

See also: Federal Deposit Insurance Corporation; Federal Reserve System; United States Treasury; Regulation; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; Regulation and Oversight of Financial Institutions; Roosevelt, Franklin D.

Further Reading

Securities and Exchange Commission Historical Society. n.d. The mechanics of legislation: Congress, the SEC, and financial regulation. http://www.sechistorical.org/ (accessed June 16, 2014).

Securities and Exchange Commission Historical Society. n.d. Timeline. http://www.sechistorical.org/museum/timeline/ (accessed June 16, 2014).

U.S. Securities and Exchange Commission. n.d. http://www.sec.gov/ (accessed June 16, 2014).

SECURITIES EXCHANGE ACT OF 1934

The Securities Exchange Act of 1934 was the government's initial intervention in the securities market that would place regulation on companies that offer various types of investment products, including stocks, bonds, and other securities. In general, the goal of the act was to impose a set of rules and guidelines for companies that offered such products. The act sought to increase transparency, organization, and order as well as confidence in the market following the Stock Market Crash of 1929.

The Securities Exchange Act of 1934 was one of three major acts—along with the Securities Act of 1933 and the Public Utility Holding Company Act of 1935—that created what is known today as the Securities and Exchange Commission (SEC) and outlined the corresponding responsibilities of that organization. The Securities Act of 1933 mandated that public corporations register their stock sales and distributions as well as providing periodic financial disclosures. The Securities Exchange Act of 1934 made it possible for the SEC to, in fact, regulate the resulting exchanges, brokers, and over-the-counter markets and require proper disclosure of financial data reporting. The Public Utility Holding Company Act of 1935 essentially gave the SEC the power to break up any public utility companies that became too large and too powerful.

The Securities Exchange Act of 1934, the most relevant and powerful of all of these, focused primarily on the transactions and exchanges that occur after a company's initial public offering (IPO). Most of these trades are executed through brokerage firms, and may change hands many times during the life of the investment. The trades are typically made to earn a financial gain. Not only the brokers, but also the stock markets, are now expected to follow certain rules. The act regulates where investments are sold and who participates.

The biggest accomplishment of the Securities Exchange Act of 1934 includes not only transparency but most importantly the creation and establishment of the SEC. The SEC enforces the rules of the securities market that have been established through the Securities Exchange Act, the Sarbanes-Oxley Act of 2002, and other various regulations and rules established by the SEC itself. The SEC's direct responsibilities include ensuring that companies meet the disclosure requirements established in the Exchange Act, creating and enforcing rules for the conduct of market participants, and overseeing self-regulatory organizations. The 1934 act sought to decrease the level of fraud and insider trading occurring in the sale of securities. The act seeks to promote interstate commerce as established by the U.S. Constitution.

As mentioned previously, the act was adopted shortly after the Great Depression to assist with economic reform. The Great Depression had placed the country in a financial predicament like never before, and President Franklin D. Roosevelt promised reform and intervention to decrease the chances of it happening again. Roosevelt's New Deal was the first broad-based application of federal regulation to the economy. A component of the New Deal, the Securities Exchange Act of 1934 was aimed at ensuring securities reform. Roosevelt felt that better regulatory procedures and supervision needed to be in place in relation to the buying and selling of exchangeable investment products. He hoped to revive the public's confidence in the financial markets, and he believed he could do so by mandating clarity and transparency.

The financial sector and its participants were critics of the 1934 act. The act meant the government was intervening in a market activity. In laissez faire economics this intervention was thought to be a sin. Providing full disclosure and clarity took a lot of time, and money might be sacrificed as a result of this waiting game. For a long time, the stock market had been independent and had included little government regulation; the business sector felt this hands-off approach created the perfect atmosphere for economic progress. Despite opposition to the regulation, however, the act became law in on June 6, 1934. The act has survived several court challenges. While Congress continues to fund the SEC, the agency is not responsible for, nor does it make refunds to, investors who have lost money because of illegal company actions or noncompliance.

For a long time, the United States has been an economic and financial lighthouse for the rest of the world. Many attribute this to its market economy and how it operates, and the Securities Exchange Act of 1934 is credited for achieving this level of progress. The Securities Exchange Act of 1934 has had a tremendous effect on financial markets and investors' level of confidence in the market.

Amber Thomas

See also: Securities Exchange Commission; Stock Market Crash of 1929; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; New Deal; Roosevelt, Franklin D.; *Vol. 3: Microeconomics:* Stock Market; Stocks; *Primary Document*: Securities Exchange Act of 1934

Further Reading

Cornell University Law School, Legal Information Institute. n.d. Securities Exchange Act of 1934. www.law.cornell.edu/wex/securities_exchange_act_of_1934 (accessed November 15, 2015).

The Free Dictionary. n.d. Securities. legal-dictionary.thefreedictionary.com/Securities+Exchange+Act+of+1934 (accessed November 15, 2015).

History.com Staff. 2010. Securities and Exchange Commission. www.history.com/topics/securities-and-exchange-commission (accessed November 15, 2015).

National Archives DocsTeach. n.d. Telegram from Webb Hilbert opposing the Securities Exchange Act of 1934; 3/30/1934; Records of the U.S. Senate, Record Group 46. https://www.docsteach.org/documents/document/telegram-from-webb-hilbert-opposing-the-securities-exchange-act-of-1934 (accessed November 15, 2015).

Reference for Business. n.d. Securities Exchange Act of 1934. www.referenceforbusiness.com/encyclopedia/Res-Sec/Securities-Exchange-Act-of-1934.html (accessed November 15, 2015).

U.S. Securities and Exchange Commission. n.d. Securities Exchange Act of 1934. www.sec.gov/about/laws/sea34.pdf (accessed November 15, 2015).

SERVICEMEN'S READJUSTMENT ACT OF 1944 (GI BILL)

As World War II came to a close, returning servicemen needed help re-acclimating to civilian life. President Franklin D. Roosevelt and Congress were keenly aware of the civil unrest following World War I, when no benefits were made available to returning military. The Servicemen's Readjustment Act, or the GI Bill, as it became known, offered a wide range of benefits for the returning GIs. "GI" was an initialism the military used to identify "general issue" military items. It later became a label for those serving in the military as well as returning veterans. The Servicemen's Readjustment Act became known as the GI Bill, or GI Bill of Rights, acknowledging those who would be receiving the benefits.

As part of his overall plan to use the federal government to achieve economic ends, President Roosevelt originally proposed a comprehensive plan to provide a wide range of benefits to only those military personnel who met means-tested criteria to be considered poor. Under the congressional leadership of Senator Ernest McFarland (D-Ariz.) and Representative Edith Nourse Rodgers (R-Mass.), who offered their own version of a GI bill, Roosevelt's means-tested plan was ignored. The final bill presented in both Houses of Congress was directed to all returning military who had been on active duty for longer than 90 days. As long as the veteran had served longer than 90 days and received an honorable discharge, he would qualify for the bill's benefits. The Servicemen's Readjustment Act was signed into law by President Franklin D. Roosevelt on June 2, 1944.

The new GI Bill included benefits ranging from loans to start a business, tuition reimbursements for those who wanted to return to school and either finish high school or attend a postsecondary school, living expenses including one year of unemployment compensation, and below-market interest mortgage loans to buy homes without a down payment. Because the U.S. economy had such massive pent-up demand for consumer goods and services following World War II, finding a job was not very difficult for the majority of veterans who wanted to enter the labor force immediately after the war. This made the no-down, low-interest mortgages a very attractive benefit for many veterans, as postwar families moved from the cities to suburbia. The other major benefit claimed by veterans was the tuition benefit. If a veteran did not return to the labor force, he most likely used the GI Bill and the tuition benefit to enter college or a vocational postsecondary school.

Most economists consider the GI Bill a major economic success for the United States. The tuition benefit alone quickly elevated the level of human capital in the United States to levels never before realized—or even considered—by most economists. When the original GI Bill ended in 1956, the number of new college graduates provided a generation with new skills and knowledge to challenge the problems of a post–World War II world. This vast new human capital made the United States the world leader in moving the world forward. Between the pent-up demand for goods and services and the rapid growth of human capital as a result of the GI Bill, the United States' post–World War II economy experienced an era of significant economic growth and rise in the standard of living for most U.S. citizens.

While the GI Bill proved to be the catalyst for economic growth and a higher standard of living in the United States, its most significant contribution to the nation's lifestyle was the foundation it established for the future treatment of returning military veterans. Since 1944 and the first GI Bill, veteran benefit programs have been established to assist all honorably discharged veterans, whether they served during wartime or during peacetime.

The use of GI Bills, especially for education, continued through the Korean War and the Vietnam War. Offspring of the original 1944 Servicemen's Readjustment Act included the Veterans' Readjustment Act of 1952 following the Korean War. The Veterans' Readjustment Benefits Act of 1966, signed into law by President Lyndon Johnson, was the first veterans' benefit bill to include veterans who served during peacetime.

Like the 1944 bill, these bills also had their critics. Many veterans did not think the bills provided enough benefits. An increase adjustment was made in 1972 with the signing of the Readjustment Assistance Act, which designated increases each year up to 1977.

However, in 1973 the rules of the game changed, and so did the incentives of the GI Bill. In 1973, the United States switched from a conscription-based military to an all-volunteer military. The Veterans Educational Assistance Program (VEAP) and the Montgomery GI Bill (MGIB) were signed into law not to provide veterans' benefits as much as to create incentives for joining the military. The VEAP is a voluntary program for military personnel to set aside part of their current pay for future use toward their education. The MGIB, a second educational benefit program, is open to all current service personnel and veterans. The MGIB-SR is available to members of the National Guard as well as the U.S. Navy, Coast Guard, Marine Corps, Air Force, and Army Reserves.

Regardless of adjustments and revisions to any future GI bills, the Servicemen's Readjustment Act of 1944 clearly had an impact on the U.S. economy that was as significant as any legislation before or since.

David A. Dieterle

See also: Entitlements; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; New Deal; Roosevelt, Franklin D.

Further Reading

Humes, Edward. 2006. *Over here: How the G.I. Bill transformed the American dream*. Orlando, FL: Harcourt.

Military.com. n.d. An overview of the GI bill. http://www.military.com/education/gi-bill/learn-to-use-your-gi-bill.html (accessed December 2, 2013).

Suberman, Stella. 2012. *The GI Bill boys: A memoir*. Knoxville: Univ. of Tennessee Press.

U.S. Department of Veterans Affairs. n.d. Education & training. www.benefits.va.gov/gibill (accessed December 2, 2013).

SHADOW BANKING

Shadow banks are financial intermediaries whose functions parallel those of commercial banks, with both types of financial institutions engaging in credit intermediation. The distinction lies first in the specific types of assets transformed. Commercial banks gain most of their immediate funding from deposits, and they use these deposits to give long-term loans. Shadow banks, rather than accepting deposits, conduct a variety of other functions to raise money and invest, such as borrowing funds from money markets, and they use the money to acquire longer-term maturities. This difference leads to many legal and practical implications.

Legally, because they are not required to abide by U.S. banking regulations, shadow banks do not qualify for emergency funding from the Federal Reserve. In addition, because the short-term funds they acquire are not from depositors, these funds are not insured under the Federal Deposit Insurance Corporation. Economists investigating the U.S. and world financial crises of the early 2000s began analyzing trends among shadow banks, often citing them as contributors to the instability that led to the financial downturns. Economist Paul McCulley first used the term *shadow banking* to define such financial intermediaries, referencing both the similarities to commercial banks and the lack of regulation that has allowed these entities to function with minimal oversight.

One conglomerate of international financial organizations, the Financial Stability Board (FSB), has defined *shadow banks* as all entities (excluding regulated banks) that engage in any of the several forms of credit intermediation. This includes maturity transformation (using short-term funds to acquire long-term assets), liquidity transformation (using liquid assets like cash to acquire less-liquid assets, like loans), leveraging (using techniques to magnify the gains or losses of investments), and credit risk transfer (transferring risk from the original lender to others). Additional organizations that are considered shadow banks are money market mutual funds and entities that use investors' funds to acquire mortgage-backed or commercial securities.

Because they are not legal banks as defined by U.S. law, shadow banks operate without the regulations and supports that commercial banks have. First, commercial banks must abide by many regulations designed to curtail their risk. Because the extent of these limits affects market activity, and thus bank profitability, shadow banks tend to enter the market at times when the market is more highly regulated. Therefore, increased regulation of commercial banks leads to increased shadow bank operations as commercial banking becomes less profitable.

Although this lack of restriction on shadow banking activity encourages market entry, the risks associated with shadow banking are amplified by the lack of government security that commercial banks qualify for. Commercial banks generally are funded by private depositors' savings and are insured by the Federal Deposit Insurance Corporation. Furthermore, commercial banks are eligible for emergency lending from the Federal Reserve. Shadow banks qualify for neither of these supports, magnifying their risk of failure.

The effects of this risk on both shadow banks and the economy at large appear in one of the most widely studied examples of shadow banking: the conversion of home mortgages into securities in the early 2000s. By pooling and distributing mortgages, organizations began transferring risk to those who purchased their securities, engaging in shadow banking. Shadow banking, especially in the home mortgage market, is now considered one of the foremost causes of the appreciation of housing values before the U.S. financial crisis that began in 2007. Having taken on excessive risk without government backing, shadow banks began failing when the economic climate deteriorated. When these shadow banks struggled, they exacerbated other issues that were facing the U.S. economy. Many economists speculate that shadow bank practices not only helped initiate the crisis but also amplified its magnitude. Economists and policymakers have begun analyzing shadow banks to find solutions that preserve their functions in the financial market while adding regulation to stabilize them and desensitize them to fluctuations in market conditions.

Adam Vallus

See also: Federal Deposit Insurance Corporation; Great Recession, 2009; Financial Intermediation; *Vol. 1: Foundations of Economics:* Banking; *Vol. 3: Microeconomics:* Investment Banks versus Commercial Banks; Liquidity; Subprime Mortgage Bubble and Crisis

Further Reading

Bernanke, Ben S. 2012. Some reflections on the crisis and the policy response. Speech given at the Russell Sage Foundation and Century Foundation Conference on Rethinking Finance, New York, April 13. http://www.federalreserve.gov/newsevents/speech/bernanke20120413a.htm (accessed September 30, 2016).

International Monetary Fund. 2013. What is shadow banking? http://www.imf.org/external/pubs/ft/fandd/2013/06/basics.htm (accessed September 30, 2016).

Pozsar, Zoltan, Tobias Adrian, Adam Ashcraft, and Hayley Boesky. 2012. Shadow banking. Staff Report no. 458. Federal Reserve Bank of New York. http://www.newyorkfed.org/research/staff_reports/sr458.pdf (accessed March 25, 2015).

SHULTZ, GEORGE

Born: December 13, 1920, in New York City; Nationality: American; Professional Interests: economist, public administration, public policy; Major Works: *Guidelines, Informal Controls and the Market Place (Study in Business)* (1966), *Turmoil and Triumph: My Years as Secretary of State* (1993), *Putting Our House in Order: A Guide to Social Security and Health Care Reform* (2008), *Turmoil and Triumph: Diplomacy, Power, and the Victory of the American Deal* (2010).

George Shultz served in several executive positions in the U.S. government. He also worked as an economist, a researcher, and a political advisor, and he influenced American conservative policies for more than 50 years.

George Pratt Shultz was born on December 13, 1920, in New York City. He attended Princeton University, and directly following graduation, he joined the U.S. Marine Corp. He served during World War II and rose to the rank of captain. After the war he enrolled at the Massachusetts Institute of Technology (MIT), where he earned a PhD in industrial economics.

After graduating from MIT, Shultz rose quickly to power and influence. He became a professor of economics at MIT and shortly thereafter served as an economic adviser to President Dwight Eisenhower. He returned briefly to MIT before moving to the University of Chicago in 1957, becoming dean of the university's Graduate School of Business in 1962. Chicago was the center for free-market ideas and for the new monetarist theories of Milton Friedman. Such ideas ran counter to the Keynesianism that was popular at the time, and they prepared Shultz for his later career as a Republican policymaker.

In 1969, Shultz was appointed to the administration of President Richard Nixon, first as secretary of labor, then as director of the Office of Management and Budget. Upon taking office, Shultz and the Nixon administration faced two major economic problems: the imminent failure of the gold standard and the threat of inflation.

After World War II, the Bretton Woods Conference had created a world monetary system in which the United States set a value for the dollar tied to the price of gold; other countries set the value of their money according to the dollar. As the demand for gold fluctuated, the United States was having trouble keeping up its end of the deal, and the administration recognized that the Bretton Woods gold standard had to end. But there was a problem with this.

Going off the gold standard was likely to make the dollar less valuable, which would in turn make inflation worse. Inflation was high when Shultz took office, and though it had been declining (falling from 6 percent to 5 percent in 1970), administration officials feared that it would go back up when the gold standard ended.

A tempting option presented itself: wage and price controls. John Connally, the secretary of the Treasury, recommended that President Nixon simply mandate a 90-day freeze in wages and prices, if Congress would allow it. George Shultz claimed to have opposed the idea—he noted later that "it's always much easier to get into something like that than to get out of it"—yet the freeze continued anyway.

Although the price freeze was initially popular, it ultimately failed to tame inflation, which would continue to be a problem until the early 1980s. Shultz later summarized that wage and price controls—even when instituted by the talents of Shultz, Richard Nixon, John Connally, Dick Cheney, and Don Rumsfeld—would not work. During Shultz's years in public life, he considered wage and price controls an ineffective public policy.

Shultz replaced Connally as secretary of the Treasury in 1972, but he resigned from this office shortly before President Nixon himself resigned in the face of the Watergate scandal. Shultz spent the next eight years as a private citizen, working as president of Bechtel Corporation, the largest engineering company in the United States. As president of Bechtel, Shultz oversaw several major projects in the areas of hydroelectric power, steel factories, deep-waters ports, and other heavy industries.

In 1982 Shultz was called back to Washington, D.C., by the administration of Ronald Reagan, this time to serve as secretary of state. In this capacity, he was in charge of foreign relations for the United States at a time when the Cold War was the central concern of American foreign policy. Shultz supported an increased nuclear presence in Europe in order to put pressure on the Soviet Union, even though an expansion of nuclear arms was extremely controversial. However, he also encouraged a dialogue with the Soviet leader, Mikhail Gorbachev.

While Shultz retired from government service in 1989, he did not retire completely. He has continued to influence policy in many capacities: as a scholar at the Hoover Institute, a board member of several companies, co-chair of California's Economic Recovery Council, adviser to President George W. Bush, and other various policy-influencing positions.

Stephen H. Day

See also: Friedman, Milton; Gold Standard; *Vol. 1: Foundations of Economics:* Capitalism; *Vol. 3: Microeconomics:* Markets; *Vol. 4: Global Economics:* Bretton Woods Conference

Further Reading

Manweller, Matthew, ed. 2012. *Chronology of the U.S. presidency.* Santa Barbara, CA: ABC-CLIO.

Norris, Floyd. 2011. George Shultz on politics and budgets. *New York Times Economix*, September 16. http://economix.blogs.nytimes.com/2011/09/16/george-shultz-on-politics-and-budgets/ (accessed October 30, 2012).

PBS.org. 2000. Interview with George Shultz. *Commanding Heights*, October 2. www.pbs.org/wgbh/commandingheights/shared/minitextlo/int_georgeshultz.html (accessed October 30, 2012).

Shultz, George. 1993. *Turmoil and triumph: My years as secretary of state.* New York: Scribner.

Shultz, George P., and John B. Shoven. 2008. *Putting our house in order: A guide to social security and health care reform.* New York: Norton.

Shultz, George, and Robert Z. Alibar, eds. 1966. *Guidelines, informal controls and the market place: Policy choices in a full employment economy.* Studies in Business. Chicago, IL: Univ. of Chicago Press.

SMOOT-HAWLEY TARIFF ACT. *See* Tariff Act of 1930

SOCIAL SECURITY ACT OF 1935

During the Great Depression, many people saw the fabric of American life being threatened as the unemployment rate reached extraordinary levels. Children were being abandoned in the streets or left as orphans, and wives and mothers and their children were being abandoned by husbands and fathers who could not support them or who left the home to go look for work and never returned. The elderly, handicapped, and blind were being left to the care of families, churches, or states.

The Social Security Act was signed into law on August 14, 1935, by President Franklin D. Roosevelt. The intent of the act was to establish a system to benefit older workers who had accidents while on the job or who became unemployed, and to support handicapped and single mothers with children. The original act also provided benefits for the blind and the physically handicapped. President Roosevelt was the first president to publicly support federal efforts to help the elderly.

Prior to the Social Security Act, the social safety net for older citizens was considered the province of local or state governments, or social organizations such as families or the church. The Great Depression's extremely high unemployment rate made this status quo inadequate. A national discussion ensued on how to bring a broad-based social safety net to those most affected by the Great Depression: the elderly and the infirm. There was significant national discussion of the issue; a national social safety net, as it was being discussed, was not supported by everyone. Many thought such a federal plan was an attack on personal freedom and personal space. Businesses, knowing that the cost of any government-sponsored and government-administered pension plan would fall on them, sought protection in the form of exemptions from the plan. After diverse and rigorous public debate on the topic, on August 15, 1935, President Roosevelt signed into law a new federal government–directed retirement program: the Social Security System.

The new Social Security Act had many moving parts. First, it provided universal support to the elderly. It established a national account within the Treasury to administer payments to those who qualified, including the blind. The act provided the states with aid for children abandoned during the Depression and for orphans. It also provided states with funds to provide for the health and well-being of crippled children. Partnering with the states again, the federal government provided funds to set up public health facilities and the personnel training so that facilities and health care would be adequately and professionally administered. Quite possibly the most unique aspect of the new law was that the system would be financed by both employers and employees. Finally, the act specified who would be exempt from the law (family-employed persons and businesses of fewer than eight employees), established a Social Security Board to oversee the new program, and set forth the legal terminology defining geographical inclusion (Alaska, Hawaii, and Washington, D.C.) and separation of the many parts of the new program. The only hurdle left for the new Social Security System to surmount were the court challenges that were sure to follow.

Twice the Supreme Court ruled sustaining the Social Security Act's constitutionality. Two years after the act became law, the Supreme Court ruled in *Steward*

Machine Company v. Davis to uphold the act. In a 5–4 ruling, the Court claimed that national funding to relieve the strains of such a national crisis as the Depression indeed promoted the general welfare. The second Supreme Court ruling sustaining the Social Security Act was also handed down in 1937, on the same day as the *Steward Machine Company v. Davis* case. In *Helvering v. Davis* the Court sustained the constitutionality of the federal government's right to impose a tax to fund the new program.

With the support of the Supreme Court, implementation of the act began in earnest. Yet implementation of the new program brought with it new complex administrative problems for the federal government. Key among them were registering citizens so they could receive the program's benefits, setting up the intricate system of taxing and receiving the contributions from both employers and employees, and, of course, developing a system for disbursing benefits to the recipients. In more recent times, the major challenge is the funding of Social Security in the long run.

David A. Dieterle

See also: Entitlements; *Helvering v. Davis*; Public Goods; Taxes; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; New Deal; Roosevelt, Franklin D.; Social Security; Supreme Court; *Primary Document*: Social Security Act of 1935

Further Reading

Ourdocuments.gov. n.d. Social security act (1935). http://www.ourdocuments.gov/doc.php?doc=68 (accessed December 11, 2014).

Segal, Elizabeth A. 2010. *Social welfare policy and social programs: A values perspective*. Belmont, CA: Brooks/Cole Cengage Learning.

Social Security Administration. n.d. The social security act of 1935. http://www.ssa.gov/history/35act.html (accessed December 11, 2014).

Understanding Fiscal Responsibility. n.d. The history of social security. http://teachufr.org/admin/the-history-of-social-security-2/ (accessed December 11, 2014).

SOLOW, ROBERT

Born: August 23, 1924, in New York City; Nationality: American; Professional Interests: macroeconomics, economic growth, unemployment, capital and interest, Nobel Prize (1987); Major Works: "Balanced Growth under Constant Scales of Return" (with Paul Samuelson) (1953), "A Contribution to the Theory of Economic Growth" (1956), *Capital Theory and the Rate of Return* (1963), *Nature and Sources of Unemployment in the U.S.* (1964), "Economics of Resources or Resources of Economics" (1974), *Growth Theory: An Exposition* (2000), *An Almost Practical Step Toward Sustainability* (2014).

Robert Solow is an American economist who produced significant work in the area of economic growth, earning the Nobel Prize in Economics in 1987. The basis of Solow's work on economic growth was the publication titled "A Contribution to the Theory of Economic Growth." In it, Solow reworked the earlier works of other economists, claiming an economy could remain at full employment when wages are flexible. He spent his entire career at the Massachusetts Institute of Technology where his office was next to Paul Samuelson's.

Robert Merton Solow was born on August 23, 1924, in New York City, the oldest of three children. His grandparents were immigrants, and he and his siblings were the first members of his family to attend college. Solow attended a public high school in New York and was a good student. In 1940, at the age of 16, he received a scholarship from Harvard, where he went to study sociology and anthropology. World War II interrupted his education; he joined the U.S. Army in 1942 and served in North Africa, Sicily, and Italy. He received his discharge in 1945 and returned to Harvard to resume his education.

It was at this point that Solow became immersed in economics. He studied under Wassily Leontief, who became his friend and mentor as well as a teacher. Solow stayed at Harvard, receiving his BA in 1947, his MA in 1949, and his PhD in 1951. He continued working with Leontief to develop the first capital coefficients in an input-output model. He also developed an interest in statistics and modeling, and on the advice of Frederick Mosteller he spent 1949 and 1950 on a fellowship at Columbia University. While at Columbia, Solow also worked on his thesis for his PhD at Harvard.

Solow's thesis won the Wells Prize from Harvard; the prize included publication of the work in book form; along with a $500 check. However, he was not satisfied with the thesis, so the thesis remained unpublished and the check uncashed. Just before starting his Columbia University fellowship, Solow received and accepted an offer for an assistant professorship at the Massachusetts Institute of Technology (MIT), teaching econometrics and statistics. As luck would have it, he was given an office next door to Paul Samuelson, beginning a lifelong relationship of friendship and collaboration.

It was at MIT that Solow published "A Contribution to the Theory of Economic Growth." This piece was the foundation of the work that resulted in his Nobel Prize. In it, Solow expanded on the work of Roy Harrod and Evsey Domar. Harrod and Domar had independently presented models suggesting that there was no reason for a balanced growth rate. The main criticism of their models is the assumption of fixed labor and capital. Solow would modify this approach with one that is more dynamic, allowing for flexible wage rates and still maintaining an economy that could maintain full employment.

That same year, he published "Technical Change and the Aggregate Production Function" in the *Review of Economics and Statistics*. The work was significant because it showed that only half of economic growth could be explained by changes in the size of labor and capital endowments. The rest, he posited, was the result of innovation; this became known as the Solow residual.

The Solow paradox is also named for him. The paradox derives from a claim he made in the 1990s, when he stated that the productivity increase from computer use was showing up everywhere except in aggregate statistics. There have been numerous studies of the paradox and just as many theories for it. None have decisively explained it.

Solow served in a professional capacity and received a number of honors during his career. He received the John Bates Clark Medal in 1961 as the most promising young economist. He received the Nobel Prize in 1987 and the National Medal of Science in 1999.

Solow served on the Council of Economic Advisers under President John Kennedy from 1961 to 1963. He was an Eastman Professor at Oxford University in 1968 and 1969. He served as a member of the board of directors of the Federal Reserve Bank of Boston from 1975 to 1980, serving as its chairman in the last two years. He was named a visiting scholar of the Russell Sage Foundation in 1999 and 2000 and became a permanent staff member in 2012. He has been awarded honorary degrees from the University of Chicago, Brown University, University of Warwick, Lehigh University, and Tufts University.

Solow has the professorial distinction of seeing three of his students follow him in receiving the Nobel Prize: George Akerlof, Peter Diamond, and Joseph Stiglitz.

Robert Solow retired from his post at MIT in 1995.

Timothy P. Schilling

See also: Council of Economic Advisors; Fiscal Policy; Galbraith, John Kenneth; Samuelson, Paul; Unemployment; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics; *Vol. 3: Microeconomics:* Akerlof, George; Diamond, Peter; *Vol. 4: Global Economics:* Stiglitz, Joseph

Further Reading

Arrow, Kenneth, Hollis Chenery, Bagicha Minhas, and Robert Solow. 1961. Capital labor substitution and economic theory. *Review of Economics and Statistics* 43 (3): 225–50.

Blaug, Mark, and Paul Sturgess. 1983. *Who's who in economics: A biographical dictionary of major economists, 1700–1980.* Cambridge, MA: MIT Press.

Henderson, David R., ed. n.d. Robert Merton Solow. In *The concise encyclopedia of economics*. Library of Economics and Liberty. http://www.econlib.org/library/Enc/bios/Solow.html (accessed July 16, 2012).

Hoover, Kevin D., and Mauro Boianovsky. 2009. *Robert Solow and the development of growth economics.* Durham, NC: Duke Univ. Press.

Horn, Karen Ilse. 2009. *Roads to wisdom, conversations with ten Nobel laureates in economics.* London: Edward Elgar.

Nobelprize.org. 1987. Biographical—Robert M. Solow. http://www.nobelprize.org/nobel_prizes/economics/laureates/1987/solow.html (accessed July 16, 2012).

Solow, Robert. 1956. A contribution to the theory of economic growth. *The Quarterly Journal of Economics* 70 (1): 65–94.

Solow, Robert. 1963. *Capital theory and the rate of return.* Amsterdam: North Holland.

Solow, Robert. 1964. *Nature and sources of unemployment in the U.S.* Stockholm: Almqvist and Wicksell.

Solow, Robert. 1994. Perspectives on growth theory. *The Journal of Economic Perspectives* 8 (1): 45–54.

Solow, Robert. 2000. *Growth theory: An exposition.* 2nd ed. Oxford, UK: Oxford Univ. Press.

Solow, Robert. 2008. The state of macroeconomics. *The Journal of Economic Perspectives* 22 (1): 243–46.

Solow, Robert. 2014. *An almost practical step toward sustainability*. London: Routledge.

Solow, Robert, and Paul Samuelson. 1953. Balanced growth under constant scales of return. *Econometrica* 21 (3): 412–24.

STOCK MARKET CRASH OF 1929

Black Thursday, October 24, 1929, has been called "the most devastating day in the history of the stock market." The U.S. stock market, which had begun a downward slide during the last weeks of October, eventually crashed—an event that became known as the "Great Crash." During that time, $30 billion in stock value, about the same amount as the United States spent in World War I, evaporated completely.

Causes of the Great Crash of 1929

The Roaring '20s were a time of economic prosperity. The United States had entered a new era in which anyone could become rich. Although the stock market has the reputation of being a very risky investment, it did not appear that way in the 1920s. With the mood of the country on a high, the stock market seemed to be a secure investment in the future.

As more and more people invested in the market, stock prices began to rise; this was first noticeable in 1925. Stock prices fluctuated up and down throughout late 1925 and 1926, and by 1927 the stock market was on a steady rise with no end in sight. This rapid growth enticed more people to invest in the market, and by 1928 the stock market boom had begun. The boom changed the way investors viewed the stock market: The market was no longer just for long-term investment.

By 1928 the stock market had become a place where everyday people truly believed they could quickly become rich. Stocks had become the talk of the town everywhere, by everyone. The purchasing of stocks grew exponentially. Of course, although an increasing number of people wanted to buy stocks and jump on this rapid growing investment option, not everyone had the money to do so.

A new way to get involved in the stock market craze began. The practice of buying "on margin"—which involves paying only a fraction of a stock's dollar value, usually a small percentage of the total value of the stock, and borrowing the rest of the money from a stockbroker—became common practice throughout the 1920s. The stock itself was used as the collateral for the loan. During the boom years of the 1920s, many investors who were buying on margin made fortunes. Buying stocks at low prices and watching as the stock values steadily climbed throughout the 1920s gave many investors huge profits and earned them great wealth. As long as stock prices continued to rise, stockbrokers were happy to lend money to speculators and allow investors to buy on margin. Most stockbrokers earned 20 percent interest on their loans, and if the stock prices began to fall they had the stock itself as collateral to cash in.

Many investors also wanted to make their fortunes immediately, so they began buying stocks on speculation. This type of investment is a way of gambling with short-term investments, many of which are very high-risk. From 1927 to 1929, stocks were making great gains, making them very attractive to investors who normally would have put their money in a savings account. The dramatic difference in the rate of return between a savings account and the stock market made the market an attractive gamble for thousands of Americans. Many people began investing in the stock market due to its rapid and steady gains. It seemed as if the Roaring 20s would never end, and that economic growth would continue effortlessly.

By the summer of 1929, stockbrokers had lent out more than $6 billion in margin loans to their customers. The market became saturated with investors, and some of them began to sell their stocks, causing stock values to slowly decline by the fall of 1929. Many investors did not have cash to pay for their stocks, so brokers were forced to sell off the stock, causing prices to fall even further. Seeing the slow decline in the market, other investors began to sell in a panic and more brokers began to call in their margins. The stock market decline gained speed. By the last week of October 1929 the bottom fell out of the market, with major stock prices falling by 75 percent. People who were millionaires at the beginning of 1929 were suddenly in severe debt.

Stock market investors were not the only people who were severely affected by the Great Crash. Many banks had lent their cash reserves to stockbrokers. When the brokers called in their margin loans and their customers could not repay them, the brokers lost the borrowed money. Savings deposits were not federally insured, so people who had conservatively placed their money in savings accounts instead of the high-risk stock market found their savings had vanished when the banks went bankrupt. Even worse, businesses, including banks, trying to get in on the rapid profit margin, had invested money in the market. The Great Stock Market Crash of 1929 caught millions of innocent citizens in a financial crunch—in addition to those who lost everything in the stock market.

Effects of the Great Crash of 1929

After the crash of the stock market in 1929, the economy began a downward spiral that affected every American. The textile, lumber, mining, and railroad industries began to slow productivity. The automobile and construction sectors had a decrease in orders, and farmers' incomes fell throughout the decade. The declines across the board in major U.S. industries caused incomes to drop as employers began to lay off workers. With the loss of savings, declining incomes, and rising unemployment, workers could not afford the many manufactured goods that the nation's industries had been mass-producing throughout the 1920s. This under-consumption became a major weakness in the U.S. economy and caused the country to slip even further into the deepest depression it had ever experienced. Nonconsumable goods, including radios, telephones, refrigerators, washing machines, and automobiles, were no longer in demand. Warehouses filled of these consumer goods sat full with no one to buy the products.

Adding to the economic crash, the Federal Reserve followed a restrictive monetary policy, causing credit to dry up. The nation's money supply was excessively tight. The lack of access to money limited the nation's ability to bounce back after the stock market crashed.

The crash of the stock market did not affect just the United States. Throughout the 1920s, the United States served as a bank for other nations, lending money to aid foreign industries and to help speed recovery from World War I. As Americans began investing borrowed money into the stock market, bank funds for loans to other nations declined. Congress aided in increasing the impact of the stock market crash with the passage of the Smoot-Hawley Tariff Act. This legislation was intended to aid U.S. industries, but its actual impact was to cause U.S. trading partners to retaliate with their own tariffs. International trade slowed due to lack of access to money to spend on other nation's goods, made worse by antitrade protectionist measures taken by all nations. This decline in demand for goods even in other nations added further to the cycle of under-consumption, weakening the American economy even more.

Reform Laws

In response to the massive devastation to the economy of the United States and abroad, the federal government introduced several new pieces of legislation to try to curtail future Great Crashes. As part of the New Deal, President Franklin D. Roosevelt enacted the Truth-in-Securities Act, which was designed to eliminate fraud in the stock market. Under this new law, a company that deliberately deceived investors about its financial status could be sued. Another new law, the Glass-Steagall Banking Act, prohibited banks from investing savings deposits in the stock market. Finally, the Federal Deposit Insurance Corporation (FDIC) was established to insure bank deposits in all member banks. The FDIC was created to try to help people regain confidence and trust in the banking industry again.

Tracy L. Ripley

See also: Banking Act of 1933 (Glass-Steagall Act); Federal Deposit Insurance Corporation; Tariff Act of 1930 (Smoot-Hawley Tariff Act); *Vol. 1: Foundations of Economics:* Banking; New Deal; Roosevelt, Franklin D.; *Vol. 3: Microeconomics:* Margin; Stock Markets; *Primary Document*: Banking Act of 1933 (Glass-Steagall Act)

Further Reading

Nash, Gary B. 1997. *American odyssey.* Columbus, OH: Glencoe/McGraw-Hill.

O'Sullivan, Arthur, Steven M. Sheffrin, and Grant Wiggins. 2013. *Economics.* New York: Pearson-Prentice Hall.

Rosenberg, Jennifer. n.d. The stock market crash of 1929. About education.com. http://history1900s.about.com/od/1920s/a/stockcrash1929.htm (accessed November 30, 2014).

STOCK MARKET CRASH OF 1987

After the Great Depression and the Great Crash of 1929, many people were skeptical of investing in the stock market. In 1980, only 2.5 percent of American households held stock. Gradually, however, attitudes began to change. The development of mutual funds helped people become more comfortable with the stock market and stock ownership.

Unfortunately, the newly gained trust in the market came to an abrupt halt on "Black Monday": October 18, 1987. The Dow Jones Industrial Average lost 22.6

percent of its value, nearly twice the one-day loss that began the Great Crash of 1929. Black Monday marked the largest one-day percentage drop in market history.

Causes of the Crash

There were several reasons for the sudden crash of the market on October 18, 1987. On October 13, the House Ways and Means Committee proposed a bill to eliminate the tax deduction for loans used to finance corporate takeovers. The bill also included language to regulate the stock market. On October 16, 1987, just three days after the proposed bill was announced, stock prices fell more than 10 percent, which was the largest three-day drop in 50 years. The Dow Jones lost 22.6 percent of its value in one day, which was nearly twice the loss that began the Great Crash of 1929. The stocks that fell the most in value were those of the companies that would have been hurt the most by the proposed legislation.

Another contributing factor was the automated sell-off of stocks once the market dropped by a certain percentage. With computer trading and set points, many stocks automatically call in sell orders if the market falls. When the market began to fall due to the new legislation news, automatic sell orders began pouring in. Unfortunately, there weren't enough buyers for some of the stocks that were ordered to sell, which caused the market to drop even further.

The final factor that caused the crash on Black Monday was the Treasury secretary's announcement that the United States might let the value of the dollar fall. This would make U.S. stock prices cheaper for foreign investors. Current investors feared the drop in their stock values, leading to additional sell orders in the market at present market levels.

Effects of the Crash

Many Americans feared that a crash in the stock market would cause a recession or even a depression as seen in 1929. However, the Federal Reserve expanded the money supply by putting money into banks and liquidity into the economy. The Fed also reduced interest rates to help stimulate the economy. The result was a stabilized market, and by the end of October the stock market had risen by 15 percent. Within two years, the Dow Jones had returned to pre-crash levels.

Tracy L. Ripley

See also: Federal Reserve System; Stock Market Crash of 1929; Stock Market Crash of 1987; United States Treasury; *Vol. 1: Foundations of Economics:* New York Stock Exchange; *Vol. 3: Microeconomics:* Asset Bubbles; Stocks; Stock Market

Further Reading

Galbraith, John Kenneth. 2009. *The Great Crash of 1929*. New York: Mariner Books Houghton, Mifflin, Harcourt.

Metz, Tim. 2003. *Black Monday: The stock market catastrophe of October 19, 1987*. Washington, DC: Beard Books.

O'Sullivan, Arthur, Steven M. Sheffrin, and Grant Wiggins. 2013. *Economics*. New York: Pearson-Prentice Hall.

SUGAR ACT, CURRENCY ACT, AND STAMP ACT BOYCOTTS, 1764–1765

By the early 1760s, all the British colonies in America were experiencing a postwar recession. The depression was affecting the full spectrum of industries and colonists. Most historians think that, by 1764, this recession had become America's first depression. Great Britain too was struggling with massive debts from the French and Indian War and believed the colonies should pay more of its war debts. To reduce British war debt, Parliament passed a series of acts—the Sugar Act, the Stamp Act, and the Townsend Act—that placed new duties and regulations on Britain's American colonies.

Great Britain also strengthened its restriction on the printing of paper currency in the colonies with the Currency Act of 1764, at a time when the colonies had low reserves of gold and silver. The colonies had used their reserves to pay their bills from the French and Indian War. Tight money—from currency restrictions and a shortage of specie—and new taxes from Parliament restricted the colonies' means of expanding the economy. In the colonies, these British taxes and restrictions created a major economic crisis that moved from recession to depression. Many believe this depression was the root of the American Revolution.

The Sugar Act of 1764 is better described by its name: the American Revenue Act. The act placed import duties on sugar, wine, coffee, indigo, and textiles brought into the colonies. It also required stricter enforcement of the Molasses Act of 1733. New regulations required merchants to submit customs forms. Interestingly, the act actually cut the tax rate on molasses in half, in hope of better compliance. However, the rum distilleries of New England had become adept at avoiding the taxes on rum for 30 years.

Merchants in all the colonies protested the Sugar Act—and its taxes on imports the most. Boston merchants even sent a letter of protest to Parliament. The tight money and the influx of cheaper British pewter and metal tableware destroyed the business of craftsmen such as Paul Revere. Merchants and craftsmen were also hurt by the Currency Act, which restricted colonial paper money, causing currency shortages. In effect, the return to a currency backed by gold and silver stopped the making of silverware by American craftsmen, except where the customer supplied his own silver to be melted down.

The Stamp Act of 1765 proved to be even more politically explosive during these colonial hard times, because it directly taxed goods moving within the colonies. In 1765, many prominent Boston merchants, such as Nathaniel Wheelwright, went bankrupt. The Stamp Act imposed a tax on printed materials, including legal papers, deeds, newspapers, and playing cards. This time, people took to the streets in reaction to the new act, and riots occurred in all the colonies. The lieutenant governor's mansion in New England was burned. The discontent caused by the Stamp Act gave rise to the Sons of Liberty patriotic group. Local craftsmen switched to manufacturing household goods themselves instead of buying British imports. Merchants and groups like the Sons of Liberty started local boycotts of British goods. As during any depression, the unemployed and the poor joined in the political movement out of frustration.

The Stamp Act solidified colonial governments against British taxation. Patrick Henry led the Virginia effort, Sam Adams led the New England effort, and Ben Franklin led the Pennsylvania effort. The colonies moved toward a unified front, calling a meeting of colonial representatives in New York. Representatives signed the Nonimportation Agreement to boycott British goods. Colonists enthusiastically joined the boycott, and British merchants were soon feeling the pain.

The British Parliament pressed for a compromise. It was clear that the colonies continued to be in a depression, and the urban centers had high unemployment. The Stamp Act was repealed in 1767, though Parliament reaffirmed its right to tax the colonies. Parliamentary repeal of the Stamp Act gave rise to celebrations in the streets of the colonies.

The celebrations were short-lived: The Townshend Act was passed in 1767. This new set of taxes targeted imported goods such as paper, glass, and tea. Tea became a flash point as colonists boycotted it, and a brisk smuggling trade in Dutch tea developed. Tea was the national drink; little coffee was consumed in the colonies at that time. Another unpopular element of the legislation was that the taxes helped pay for royal commissioners to enforce the Townshend Act, which took away the enforcement authority previously held by the colonists. The new customs system, where merchants had to submit customs forms, made it difficult for the colonists to cheat and elude the new taxes. Britain sent two regiments to Boston to keep the peace. Besides the obvious political issues, British soldiers added to the local economic woes by working off-hours for low wages, creating tension with the large number of unemployed. Incidents of British soldiers replacing colonial laborers in the workforce brought the lower classes into the struggle with the motherland.

The colonists boycotted more goods, and again they were successful. In 1767, New York City imported more than 350,000 pounds of tea. By 1770, after the boycott of imported British tea, fewer than 150 pounds of tea were imported into New York. Parts of the Townshend Act were repealed, but they were replaced with new parliamentary taxes in the 1770s.

The colonial economy remained stuck in recession, but a new manufacturing sector started to emerge. Lancaster, Pennsylvania, became a crafts and manufacturing center that supplied frontiersmen during the boycotts and high taxes on goods in the 1760s. In 1770, Lancaster had 13 blacksmiths, 22 masons, 15 coopers, 19 tailors, 7 hatters, 6 gunsmiths, 3 clockmakers, 3 silversmiths, more than 50 various craftsmen in woodworking, and hundreds of apprentices associated with them. In addition, the surrounding area had iron furnaces and glassmaking factories, as well as weavers and leather craftsmen.

Depressions often result in infrastructure changes in the economy. One positive side of the depression and high taxation in the 1760s was the rise of colonial manufacturing. Before the 1760s, Virginia and South Carolina exported most textiles from Great Britain. After the new taxation laws, southern plantations began to produce their own textiles. Similarly, textile manufacturers were encouraged in New England. Stocking production started in Pennsylvania. New England started to manufacture shoes, and by the end of the decade, they were supplying to the colonies to replace British imports. In addition, South Carolina and other colonies expanded their export trade in rice and indigo. By the end of the decade, colonial exports exceeded the value of imports.

Quentin R. Skrabec Jr.

See also: Tax Forms: U.S. Federal Tax System; Taxes

Further Reading

Breen, T. H. 1993. An empire of goods: The anglicization of colonial America, 1690–1776. In *Colonial America: Essays in politics and social development*, ed. Stanley N. Katz, John M. Murrin, and Douglas Greenberg, 105–07. New York: McGraw-Hill.

Tyler, John W. 1986. *Smugglers and patriots: Boston merchants and the advent of the American revolution.* Boston: Northeastern Univ. Press.

SUMMERS, LAWRENCE

Born: November 30, 1954, in New Haven, Connecticut; Nationality: American; Professional Interests: public finance, labor economics, finance economics; Major Work: *Understanding Unemployment* (1990).

Lawrence "Larry" H. Summers began his economic political career as a domestic policy economist on the Council of Economic Advisers under President Reagan in 1982–1983. During the 1980s, Larry Summers wrote or coauthored over 50 papers on debt, savings, taxes, stocks, the overall economy, and more. In 1987, he was awarded the Alan T. Waterman Award from the National Science Foundation. This award, along with its $500,000 research grant, is awarded every year to honor an exceptional young scientist or engineer from the United States whose work demonstrates originality, innovation, and a significant impact within the winner's field.

Lawrence Henry Summers was born on November 30, 1954, in New Haven, Connecticut, into a family of economics professors. His parents, Robert and Anita Summers, were both economics professors at the University of Pennsylvania, and two of his uncles—Paul Samuelson of the Massachusetts Institute of Technology (MIT) and Kenneth Arrow of Stanford University—were Nobel laureates. Summers spent most of his childhood in Penn Valley, a suburb of Philadelphia. Encouraged in early childhood to take part in family discussions of economic theory and current events, Summers followed his love of the topic and attended MIT, where he received his bachelor of science in economics degree in 1975.

He taught economics for three years at MIT and was named an assistant professor in 1979 and and associate professor in 1982. As a graduate student, Summers attended Harvard University and received his PhD in economics in 1982. Summers went on to teach at Harvard, and he became one of its youngest tenured professors at the age of 28, returning to serve as the Charles W. Eliot University Professor.

In the 1990s, Summers wrote or coauthored over 50 papers and five books, including *Understanding Unemployment* (1990). He left Harvard in 1991 and became the chief economist of the World Bank (1991–1993). Later he became the U.S. deputy secretary of the Treasury (1995–1999), and then the secretary of the Treasury (1999–2001). During his tenure as secretary, the U.S. economy experienced an unprecedented period of sustained economic growth. As a result, he is considered an expert on domestic economics and a leading authority on international finance. It was during his time working with the Clinton administration that he recommended the deregulation of the derivatives contracts within the financial industry. Specifically, he endorsed the Gramm-Leach-Bliley Act, which removed the separation between investment and commercial banks—repealing the Banking Act of 1933, also known as the Glass-Steagall Act.

Summers is not without his critics, as some claim he ignored the 1990s stock bubble and later the housing bubble. He left the political limelight to become president of Harvard University from 2001 to 2006. While there, he wrote and edited a number of works, including papers for the Brookings Institution and the *Harvard Business Review,* and he coauthored a paper with Henry Kissinger for the Council on Foreign Relations. While at Harvard, he quarreled with a number of the faculty, and he resigned under pressure. After taking a year off, he returned as a professor of economics at Harvard's Kennedy School of Government.

Summers was an adviser to Barack Obama's presidential campaign and was later named director of the National Economic Council in 2009. As in President Clinton's administration, Summers held significant influence over economic policies in President Obama's administration. He frequently writes for a variety of news publications, including the *Washington Post*, *Financial Times*, *Boston Globe*, and *Wall Street Journal.*

In 1993, Summers was awarded the John Bates Clark Medal for being an outstanding young American economist.

Carol Lynn Nute

See also: Council of Economic Advisors; Fiscal Policy; Galbraith, John Kenneth; Gramm-Leach-Bliley Act; Macroeconomics; Samuelson, Paul; Unemployment; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; *Vol. 3: Microeconomics:* Arrow, Kenneth

Further Reading

Bradley, Richard. 2005. *Harvard rules: Lawrence Summers and the struggle for the soul of the world's most powerful university.* New York: HarperCollins.

Goulder, Lawrence H., and, Lawrence H. Summers. 1987. Tax policy, asset prices, and growth: A general equilibrium analysis. Working Paper No. 2128. National Bureau of Economic Research. http://www.nber.org/papers/w2128.pdf (accessed October 30, 2012).

Harvard Kennedy School. n.d. Lawrence H. Summers. http://www.hks.harvard.edu/about/faculty-staff-directory/lawrence-summers (accessed October 30, 2012).

Kinsley, Michael, ed. 2008. *Creative capitalism: A conversation with Bill Gates, Warren Buffett, and other economic leaders.* New York: Simon & Schuster.

Kissinger, Henry, and Lawrence H. Summers. 2004. *Renewing the Atlantic partnership: Report of an independent task force.* Washington, DC: Council on Foreign Relations Press.

MIT News Staff. 2001. Economist Lawrence Summers, MIT '75, named Harvard president. *MIT News*, March 14. http://news.mit.edu/2001/economist-lawrence-summers-mit-75-named-harvard-president (accessed February 15, 2012).

Prahalad, C. K., Rosabeth Moss Kanter, and Lawrence H. Summers. 2004. *Harvard business review on leadership in a changed world.* Cambridge, MA: Harvard Business Review Press.

Summers, Lawrence, ed. 1987–1990. *Tax policy and the economy.* Multiple vols. Cambridge, MA: MIT Press.
Summers, Lawrence. 1990. *Understanding unemployment.* Cambridge, MA: MIT Press.
Summers, Lawrence H. 1994. *Investing in all people: Educating women in developing countries*. EDI Seminar Paper No. 45, World Bank Institute (WBI). Washington, DC: The World Bank. http://documents.worldbank.org/curated/en/492291468765047177/Investing-in-all-people-educating-women-in-developing-countries (accessed September 30, 2016).

SUPPLY-SIDE ECONOMICS

Proponents of supply-side economics posit that bolstering an economy's ability to supply more goods is the most effective way to stimulate economic growth. Based on insights derived from the Nobel Prize–winning economists Robert Mundell, Milton Friedman, and James Buchanan with economist Arthur Laffer, the supply-siders developed a new program based on tight money to stop inflation and cuts in marginal tax rates to stimulate growth during the stagflation years of the late 1970s. Supply-side theorists advocated income tax reduction in order to increase private investment in corporations, facilities, and equipment.

Many people refer to supply-side economics as "Reaganomics," because of the "trickle-down" policy espoused by Ronald Reagan while he was running for president of the United States running against incumbent president Jimmy Carter. During the 1980s, President Reagan popularized the idea that tax cuts for investors

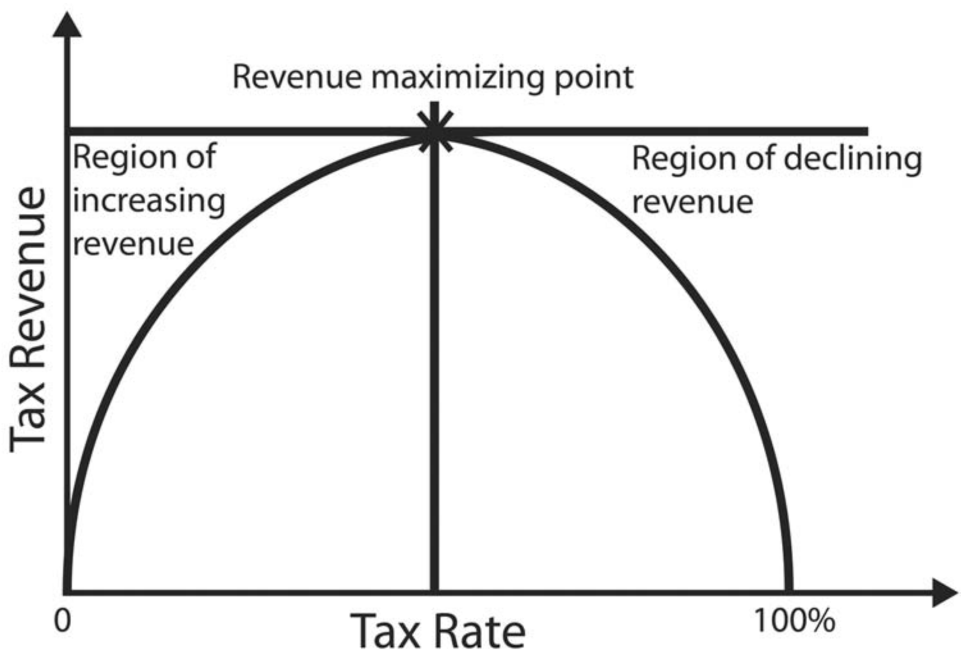

Figure 1. With the Laffer curve, the forerunner to supply-side economics, Arthur Laffer proposed that high tax rates will result in lower government revenue

and entrepreneurs would provide incentives to save, invest, and produce the economic benefits that would trickle down to the overall economy.

A basic economic principle is that aggregate demand and aggregate supply intersect to determine overall output and price levels. The supply-siders contend that an increase in supply will increase output and lower prices. Supply-siders often go further and claim that demand is largely irrelevant, since overproduction and underproduction are not sustainable phenomena. They argue that when companies temporarily "overproduce," excess inventory will be created, prices will subsequently fall, and consumers will increase their purchases to offset the excess supply.

In general, supply-side theory has three pillars: tax policy, regulatory policy, and monetary policy. Since the single idea behind all three pillars is that production is most important in determining economic growth, supply-siders are often contrasted with Keynesians, who believe that consumers and their demand for goods and services are key economic drivers.

Supply-siders argue for lower marginal income tax rates in order to tempt workers to choose work over leisure. Certain supply-siders might even argue that the government would not lose total tax revenue, because lower rates would be offset by a higher tax revenue base as a result of greater employment and productivity. This relationship between marginal tax rates and tax revenues was promoted by economist Arthur Laffer with his famous Laffer curve.

In regard to regulatory policy, supply-siders prefer a smaller government and less intervention in the free market. This is logical, because supply-siders do not support the idea that induced demand promoted by Keynesian economic theory can either rescue a recession or have a sustainable impact on growth. Unlike the Keynesian supposition that monetary policy is an important tool for tweaking the economy and dealing with business cycles, supply-siders do not think that monetary policy can create economic value. They are concerned that the Fed might either create too much inflationary liquidity with expansionary monetary policy, or alternately, might not sufficiently "grease the wheels" of commerce with enough liquidity due to a tight monetary policy. Since neither outcome is desirable, strict supply-siders fear that any action by the Fed may inadvertently stifle growth.

Because supply-siders view monetary policy not as a tool that can create economic value but rather as a variable to be controlled, they advocate a stable monetary policy or a policy of gentle inflation tied to economic growth. This principle is the key to understanding why supply-siders often advocate a return to the gold standard. The idea is not that gold is particularly special, but rather that gold is the most obvious candidate as a stable "store of value." Supply-siders argue that if the United States were to peg the dollar to gold, the currency would be more stable, and fewer disruptive outcomes would result from currency fluctuations.

Since supply-side economics implies a reduced role for government and a less progressive tax policy, the supply-side philosophy reappears during most political campaigns. Supply-side economics has become the economic philosophy synonymous with tax cuts, regardless of economic conditions.

Maura Donnelly

See also: Friedman, Milton; Laffer, Arthur; Laffer Curve; *Vol. 1: Foundations of Economics:* Hayek, Friedrich von; Keynesian Economics; Reagan, Ronald

Further Reading

Bartlett, Bruce R. 1981. *Reaganomics: Supply-side economics in action*. New York: Arlington House.

Feldstein, Martin S. 1986. *Supply-side economics: Old truths and new claims*. Washington, DC: National Bureau of Economic Research.

Raboy, David G. 1982. *Essays in supply-side economics*. Washington, DC: Institute for Research on the Economics of Taxation.

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TAFT-HARTLEY ACT, 1947

The labor struggles and union movement of the 1930s had changed labor relations in the United States. The struggle between labor and management rights continues to this day. Laws enacted in the 1930s properly addressed some employer abuses when the United States controlled the global market. The overextension of the 1935 Wagner Act to support the labor movement would be addressed in the 1947 Taft-Hartley Act, which also addressed some abuses by unions, such as secondary boycotts and mass picketing. An unintended consequence of the act would be a shift of industry south when the United States entered the period of globalization of production. The Taft-Hartley Act had outlawed closed shops, but permitted union shops, which required union membership after a period of time. The law did allow states to pass right-to-work laws.

The National Labor Relations Act, or Wagner Act, named after Senator Robert Wagner of New York, was the cornerstone of President Franklin D. Roosevelt's New Deal social legislation. It would end decades of struggle to unionize employees in the steel and related heavy industries. This act changed the very landscape of labor in the United States in hopes of avoiding widespread social unrest during the Great Depression. The Wagner Act would usher in a wave of unionization in the steel, automotive, rubber, mining, and electrical industries. At the start of the 1930s, less than 10 percent of America's labor force was unionized; after the 1935 passage of the Wagner Act, the decade ended with 35 percent of the labor force unionized. The act changed the role of government in labor policy. The act declared that democracy must apply in the workplace and that the means to this democracy was the right of workers to organize and bargain collectively through employee representatives. The act established a National Labor Relations Board (NLRB) to implement and oversee the Wagner Act.

The Wagner Act would face 20 years of challenges in Congress, with two major amendments: the Taft-Hartley Act in 1947 and the Landrum-Griffin Act in 1959. The NLRB today remains a type of court for employee complaints. The Wagner Act had many critics; but in the end, the Supreme Court upheld it in 1937 (*NLRB v. Jones & Laughlin Steel*). The argument over individual choice continued, and President Roosevelt tried to counterbalance the actions of some of the extreme activist supporters who wanted to expand the intent of the act. The Taft-Hartley Act addressed the right of the federal government to intervene in strikes and the right of the states to address union membership. The 1959 national strike was the first test of the Taft-Hartley Act.

At 116 days, the steel strike of 1959 was the nation's longest. At the time, the steel industry was the nation's largest industry; there were 540,000 members in the United Steelworkers of America. The root of the strike was a dispute over management control and contract clauses in the workplace. In particular, management had the right to assign the number of workers to a task, reduce the workforce by replacing workers with machinery, and introduce new work rules. It became a bitter battle in a nation totally dependent on domestic sources for steel. The strike ended when President Dwight D. Eisenhower invoked the Taft-Hartley Act. The union challenged the Taft-Hartley action, but the Supreme Court upheld it. The union eventually retained contract clauses on work rules and won a small wage increase. The right of the federal government to intervene in strikes would, however, become a seldom-used part of the act.

The Wagner Act created a number of issues that are controversial to this day. One is the wording that called collective bargaining a "right." Opponents maintain that fair treatment in the workplace suggests that collective bargaining is but one method available for solving disputes. Another issue was the so-called closed shop. Once a union was certified by an NLRB election, it could not be removed as the workers' representative. Furthermore, workers would be required to join the union to stay working at the shop.

In 1947, the Taft-Hartley Act limited the application of a true closed shop. It allowed for a union shop, which is a form of closed shop. However, under the Taft-Hartley Act, states could pass right-to-work laws to make even union shops illegal and to make sure that workers would not be forced to join the union. Today, right-to-work laws have spread in southern and western states, which want to attract heavy-industry jobs, and have prompted some northern factories to move south. In today's global market, transplanted foreign companies have favored building factories in the southern right-to-work states. Right-to-work laws have made American labor more competitive in a global market, but such factories have lower wages and fewer benefits than unionized factories. After a peak in the 1960s, industrial union membership has been in steep decline. The Taft-Hartley Act has become highly political, as the party in power controls the NLRB.

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See also: Labor Uprisings, 1936–1939; National Labor Relations Act of 1935 (Wagner Act); National Labor Relations Board; National Labor Unrest, 1894; *Vol. 3: Microeconomics:* Great National Railroad Strike, 1877; National Steel Strike, 1959; *Primary Document*: National Labor Relations Act of 1935 (Wagner Act)

Further Reading

Edsforth, Ronald. 2000. *The New Deal: America's response to the Great Depression*. London: Blackwell.

Morris, Charles. 2004. *The blue eagle at work: Reclaiming democratic rights in the American workplace*. Ithaca, NY: Cornell Univ. Press.

TARIFF ACT OF 1930 (SMOOT-HAWLEY TARIFF ACT)

In 1930, when the United States had begun to slip into a depression, one of the strategies that the federal government attempted to use to help the economy get back on its feet was to pass the Tariff Act of 1930 (Smoot-Hawley Tariff Act). Consumer spending was on the decline, and many workers had lost their jobs. Congress hoped the passing of this act would protect American workers from foreign competition.

History of the Smoot-Hawley Tariff Act

During the 1920s, the agriculture industry lobbied Congress for protection from the intense competition of the European farmers as it recovered from World War I. Also during this time period, overproduction had drastically reduced agricultural prices. In 1922, Congress passed the Fordney-McCumber Act to impose strict protectionist tariffs, raising the average tariff 40 percent.

In 1928, Republican presidential candidate Herbert Hoover campaigned on a platform of increasing tariffs on agricultural products. Once elected president, Hoover was influenced to broaden the tariffs to many other products. By 1929, when the U.S. economy began to slip into the greatest depression of all time, and in response to the stock market crash, protectionism was gaining strength. President Hoover signed the Tariff Act of 1930 on June 17, despite the objections of more than 1,000 economists, who had signed a petition against the legislation. The legislation became known as the Smoot-Hawley Tariff Act for the legislation's chief sponsors: Senator Reed Smoot of Utah and House Representative Willis Hawley of Oregon. Senator Smoot was chairman of the Senate's Finance Committee, and Representative Hawley was chairman of the House Ways and Means Committee. The Smoot-Hawley Tariff Act was the last legislative act in which the United States imposed definitive tariff rates.

Effects

The Smoot-Hawley Tariff Act raised the average tariff on all imported products to 50 percent and started a trade war between the United States and its trading partners around the world. Other nations responded by raising tariffs against American-made goods. The trade war that resulted decreased international trade and deepened the worldwide depression of the 1930s. Most economists blame the Smoot-Hawley Act for increasing American unemployment. The trade war had closed foreign markets to American goods and reduced international demand for all goods.

In retaliation, more than two dozen countries also passed tariff legislation to counter Smoot-Hawley. The world economy was already very fragile, and global trade had been on the decline. The act further added to Wall Street losing confidence in the economy. It was also the beginning of U.S. isolationism. Between 1929 and 1932, total U.S. trade (exports and imports) fell by approximately two-thirds. World trade fell by a similar margin, feeling the repercussions of Smoot–Hawley's impact and those of the retaliatory tariffs of other nations.

Response

President Franklin D. Roosevelt signed the Reciprocal Trade Agreements Act in 1934. This legislation liberalized trade policies, reduced tariff rates from the Smoot-Hawley levels, and began reconciling with foreign governments to reestablish global trade. It has been suggested that the Smoot-Hawley Tariff Act caused the Great Depression to be deeper and last longer. The act may also have influenced the rise of political extremism and fascism throughout Europe.

Trade wars still break out between the United States and other nations, but most disputes center on a few products. The Smoot-Hawley Tariff Act focused on all imports. Recent conflicts built around just a few products have included the Beef War of 1999 and the Steel Tariff of 2002.

European countries launched the Beef War by banning the import of American beef from cows that had been fed hormones. The United States responded by imposing tariffs on European clothing and specific foods, including certain cheeses, meats, and mustards.

The Steel Tariff dispute began when the United States introduced temporary tariffs on imported steel to help American steel producers recover from bankruptcy. Angry European nations sued and threatened to retaliate. In 2003, an international panel ruled these tariffs illegal.

Reasons for Tariffs

Why does a country impose trade barriers, such as what was done with the Smoot-Hawley Tariff Act? There are three main arguments that support protectionism: protecting workers' jobs, protecting infant industries, and safeguarding national security. Tariffs would also be initiated in retaliation against another country's tariffs on domestic goods. This was the case when other nations instituted tariffs in retaliation to the Smoot-Hawley Act.

The argument for protecting workers' jobs, which is why the Smoot-Hawley Act was passed in the 1930s, is that it shelters workers in industries that would be hurt by foreign competition. If the United States reduces tariffs on certain imports, domestic manufacturers may not be able to compete and would have to close their factories and lay off workers.

In an ideal world, the laid-off workers would take new jobs in other industries. In practice, however, retraining and relocation can be difficult. Many workers do not have the skills to work in other industries, and obtaining such skills takes time and money. In addition, industry and political leaders often do not want to shut down existing industries and lose jobs in their home regions.

The same theory is true regarding tariffs that protect infant industries from foreign competition until those industries have had a chance to acquire the ability to produce goods efficiently and at a competitive price. Once the infant industry has had time to become competitive on a global scale, the tariff can be eliminated or reduced.

There are two main difficulties with implementing tariffs to protect infant industries. First, the start-up industry lacks the incentive to become more efficient and competitive, since it is secured by the tariff from true global competition. Second, once an industry is given tariff protection, taking the protection away can be difficult. The tariff can prevent the infant industry from ever really growing up.

Safeguarding national security is the final argument in favor of tariffs. Even supporters of free trade agree that some industries need to be protected and and their goods produced within the United States, or at least they need to receive government assistance in order to reduce the country's dependence on other nations in times of crisis.

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See also: Taxes; *Vol. 1: Foundations of Economics:* Fascism; Great Depression and Wall Street Crash, 1929; Roosevelt, Franklin D.; *Vol. 4: Global Economics:* Protectionism; Tariffs; *Primary Document*: Tariff Act of 1930 (Smoot-Hawley Tariff Act)

Further Reading

Beaudreau, Bernard. 2005. *Making sense of Smoot-Hawley: Technology and tariffs*. Lincoln, NE: iUniverse.

Foundation for Economic Education. n.d. The Smoot-Hawley tariff and the Great Depression. https://www.fee.org/articles/the-smoot-hawley-tariff-and-the-great-depression (accessed September 30, 2016).

O'Sullivan, Arthur, and Steven M. Sheffrin. 2007. *Economics principles in action*. Upper Saddle River, NJ: Pearson-Prentice Hall.

Sherden, William A. 2011. *Best laid plans: The tyranny of unintended consequences and how to avoid them*. Santa Barbara, CA: ABC-CLIO/Greenwood.

TAX AVOIDANCE, TAX EVASION, AND THE SHADOW ECONOMY

Shadow economy ("underground economy" or "hidden economy"), in the broadest sense, refers to economic activities that take place outside the official economy and are not declared for tax purposes. Some of the vast areas of shadow economy are "black" labor and tax evasion as well as do-it-yourself activities and neighborly help. The term *shadow economy* refers to both legal and illegal activities.

The assignment of economic activities to a shadow economy varies in the literature. Feige (1990) distinguishes between (1) illegal economy (production of prohibited substances), (2) unreported economy (tax evasion), (3) unrecorded economy (household productions), and (4) informal economy (black labor). Schneider (2011, 79) proposes a fourfold table, differentiating between legal and illegal activities as well as monetary and nonmonetary transactions.

The extent and growth of shadow economy can be measured with direct (audits, surveys) and indirect (indicators; simulation models) methods. As shadow economy is hardly directly measured, indicators are often used to estimate shadow activities:

1. Currency demand approach: Changes in cash flow can act as an indicator, as it is assumed that cash payment is common in shadow economy in order to leave no traces.
2. Labor market indicators (labor force participation rate or growth rate of the total labor force): If total labor force participation rate is assumed to be constant, a change can act as an indicator of shadow economic activities.

3. Discrepancy between national expenditure and income statistics: The gap between income measure of gross domestic product (GDP) and expenditure measure of GDP can be used as an indicator of shadow economic activities.
4. Physical inputs (electricity consumption): The growth of shadow economy is calculated as the difference between the growth of electricity consumption and the growth of official GDP.
5. Transaction approach: It is assumed that there is a constant relation between the volume of transaction and official GDP over time. The GDP in the shadow economy is calculated as the difference between the official GDP and the nominal GDP (which is based on the value of total known transactions in the national economy) (Schneider 2011; Schneider and Enste 2000).

Another method for calculating the growth and extent of the shadow economy is the simulation approach, which explicitly considers multiple causes of and multiple effects of shadow economy. Here, structural equation models are used to estimate unobservable variables (Kirchler 2007, 16).

The main cause of shadow economy is the rise of the burden of tax liability and social security contributions. It is assumed that a higher tax burden leads to an increase in underground economic activities. Further, unemployment, increasing regulation in the official economy and bureaucratic burden, forced reduction of weekly working hours, earlier retirement, and declining tax morale have to be mentioned as important influential factors (Schneider 2000, 82).

Tax evasion is one of the most-investigated areas of shadow economy. *Tax evasion* refers to the process whereby individuals or companies evade taxes by breaking the law; that is, they illegally pay less tax than the law mandates. Tax evasion can involve acts of omission or commission (failing to report certain assets or deliberately issued false reports), but it excludes inadvertent noncompliance resulting from lack of knowledge, memory lapses, or calculation errors.

In contrast, the term *tax avoidance* describes the process to reduce the amount of tax burden using options within the law. Tax avoidance is not illegal, although it is against the spirit of the law. Reduction of tax liability occurs by payors taking advantages of loopholes in the law.

Erich Kirchler
Barbara Hartl

See also: Tax Compliance; Tax Forms: U.S. Federal Tax System; Taxes; *Vol. 1: Foundations of Economics:* Financial Literacy; *Vol. 3: Microeconomics:* Behavioral Law and Economics; Tax Deferral

Further Reading

Feige, Edgar L. 1990. Defining and estimating underground and informal economies: The new institutional economics approach. *World Development* 18: 989–1002.

Kirchler, Erich. 2007. *The economic psychology of tax behaviour*. Cambridge, UK: Cambridge Univ. Press.

Schneider, Friedrich, ed. 2011. *Handbook on the shadow economy*. Cheltenham, UK: Edward Elgar.

Schneider, Friedrich, and Dominik H. Enste. 2000. Shadow economies: Size, causes, and consequences. *Journal of Economic Literature* 38: 77–114.

TAX COMPLIANCE

Behavioral economics offers a considerable contribution to the understanding of tax compliance and noncompliance. Standard economic analysis suggests that straightforward monetary considerations influence decisions regarding tax compliance. However, many taxpayers comply with their tax obligations even when there is little chance of tax evasion being detected or substantial penalties imposed. Factors that affect taxpayer compliance include a willingness to contribute to the general good, attitudes toward the state and the tax authorities, perceptions of fairness, the roles of individuals in society, and accepted norms of behavior—as well as a range of such background factors as age, culture, education, gender, and occupation. While there is no doubt that auditing and penalties are essential, compliance policy may be more effective when it also follows a more behavioral approach.

Tax authorities have long used behavioral techniques to promote compliance. For example, the technique of withholding tax at the source, which dates back to the 16th century in England, exploits behavioral phenomena now known as the "endowment effect," "status quo bias," and "loss aversion." Individuals feel the loss of tax payments less if the taxes are taken before people actually receive their money rather than afterward. More recently, tax authorities have set out specifically to take advantage of insights generated by behavioral economics. For instance, one initiative led to improvements in the behavior of some taxpayers after they received letters explaining that most people in their area had already paid their taxes. More generally, compliance can be improved by more public education and the development of a sense of responsibility toward taxation. More specific communications with individuals can improve their understanding of the tax system and how to meet their obligations. Other particular insights include personalizing the language on official documents the public receives, so that people realize more easily that it is relevant to them, as well as highlighting key messages in those documents and prompting taxpayers at key points in the completion of tax forms.

It is also useful to consider what is meant by *compliance*. Sometimes the definition is cast in terms of the extent to which taxpayers formally comply with the tax law. It has then been claimed that the degree of noncompliance can be measured by the "tax gap": the difference between actual revenue and the revenue that would be received if there were 100 percent compliance. However, if taxpayers go to inordinate lengths to reduce their tax liability, it is difficult to see this as "compliance," even if their activities are technically lawful. A further complication is that, as well as raising revenue, taxation is used as an instrument of economic and social policy when the purpose of taxation is often to influence behavior. It may actually be the aim of some taxes that they be avoided. For example, it has been argued that higher taxes on alcoholic drinks and tobacco would reduce the consumption of those products and lead to improvements in the health of the population. Any such changes in behavior would constitute tax avoidance according to narrow definitions, but that would have been the intention. A better definition of *compliance* would therefore be for taxpayers to behave in accordance with the spirit as well as the letter of the law, and this is best achieved with a behavioral approach to tax compliance.

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See also: Tax Avoidance, Tax Evasion, and the Shadow Economy; Taxes; *Vol. 1: Foundations of Economics:* Endowment Effect; *Vol. 3: Microeconomics:* Trust Game

Further Reading

Andreoni, James, Brian Erard, and Jonathan Feinstein. 1998. Tax compliance. *Journal of Economic Literature* 36: 818–60.

Forum on Tax Administration (FTA). 2010. Information note: Understanding and influencing taxpayers' compliance behaviour. Organisation for Economic Co-operation and Development (OECD). http://www.oecd.org/tax/administration/46274793.pdf (accessed September 30, 2016).

James, Simon, John Hasseldine, Peggy Hite, and Marika Toumi. 2001. Developing a tax compliance strategy for revenue services. *Bulletin for International Fiscal Documentation* 55: 158–64.

Kirchler, Erich. 2007. *The economic psychology of tax behavior.* Cambridge, UK: Cambridge Univ. Press.

Richardson, Maryann, and Adrian J. Sawyer, 2001. A taxonomy of the tax compliance literature: Further findings, problems and prospects. *Australian Tax Forum* 16: 137–320.

Slemrod, Joel, ed. 1992. *Why people pay taxes: Tax compliance and enforcement*. Ann Arbor: Univ. of Michigan Press.

TAX FORMS: U.S. FEDERAL TAX SYSTEM

The federal tax return is calculated on Form 1040, the granddaddy of tax returns. It was created in 1913 when the current tax code was enacted. How much a taxpayer owes in taxes or is due as a refund is figured each year during tax filing season. An individual's ultimate tax bill or tax refund calculations are made on this tax return.

There are, however, three versions of the federal tax form 1040 from which to choose. In addition to Form 1040, the Internal Revenue Service offers taxpayers Form 1040A and Form 1040EZ. Each of the three individual tax return forms offers different filing options and ways to possibly reduce a tax bill. Each tax form also has its own set of requirements.

While it is tempting to file the tax return that is the easiest to complete for one's filing situation, that could be a costly move. The most complex of the returns offers the most tax breaks.

Form 1040EZ

As the name indicates, Form 1040EZ is the easiest of the three individual tax returns. This single-page tax return generally is used by taxpayers who have a relatively uncomplicated tax life, such as students or young workers.

However, 1040EZ filers must meet 10 specific requirements, listed in the form's instruction booklet, before they can file the simplest income tax return. Tax software will also guide taxpayers through the tests they must meet in order to use the 1040EZ.

Most younger taxpayers easily meet the filing status test. A Form 1040EZ filer must be a single taxpayer or, if married, must file a joint return. In either filing situation, the taxpayer(s) cannot claim any dependents.

The form's earnings limit is generally not a problem for younger taxpayers. A 1040EZ filer's income must be less than $100,000. But how that money was acquired must also be considered. It must come only from wages, salaries, tips, taxable scholarship or fellowship grants, unemployment compensation, or Alaska Permanent Fund dividends. And if tips were earned, that compensation must be shown in boxes 5 and 7 of Form W-2.

Some interest earnings are allowed for 1040EZ filers, but only if the amount is less than $1,500 for the tax year. If other types of investment income, such as dividends or capital gains, are received, the taxpayer cannot file Form 1040EZ.

For most young filers, Form 1040EZ is the correct tax filing choice. But it offers few opportunities for a taxpayer to reduce a tax bill. The form lists a standard deduction amount for single filers and another for married filers. Other than that, the only tax break on the 1040EZ is the Earned Income Tax Credit, or EITC.

This tax break is designed for workers who do not earn very much money. Because it is a credit, it reduces a tax bill dollar for dollar. If the tax bill for a single person with no dependents is $1,000 and that taxpayer qualifies for a $506 EITC claim (this was the maximum amount for 2016; amounts are adjusted annually for inflation), that taxpayer's bill is cut to $494. Even better, the EITC is a refundable credit, meaning it could produce a tax refund if the taxpayer does not owe any or little tax. If a single taxpayer owes $300 and qualifies for a $506EITC claim, the filer would get a $206 refund.

Form 1040A

Many young taxpayers find that as they enter the workforce, their financial and tax situations become a bit more complicated. In these cases, they graduate to the next level of tax filing, Form 1040A.

More taxpayers can use Form 1040A because there are no income or filing status limitations. Taxpayers with dependents can use 1040A. This two-page tax return also offers several tax deductions and credits that are not found on Form 1040EZ.

The first set of deductions is found on page one of the form. Technically, the deductions are adjustments to income. There are four adjustments on 1040A: out-of-pocket expenses incurred by educators, traditional individual retirement account (IRA) contributions, student loan interest paid, and higher education tuition and fees. These amounts are subtracted from the 1040A filer's gross income, or total income, to arrive at adjusted gross income.

Additional tax breaks are found on page two of Form 1040A, including a variety of tax credits that reduce a tax bill dollar for dollar. Of particular interest to young taxpayers are the EITC; various education tax credits (the American Opportunity or Lifetime Learning credits); and the retirement savings contribution credit, which could produce a credit up to $1,000 when a taxpayer puts money into an IRA, Roth or traditional, or a workplace retirement account, such as a 401(k) plan.

A 1040A filer, however, does not have the option to itemize expenses; the standard deduction amount must be claimed. The standard deduction is a separate dollar figure for each filing status, adjusted annually for inflation, and is usually found directly on the 1040A. The deduction amount helps reduce the taxpayer income from the adjusted gross income level to a smaller taxable income amount.

Form 1040

Form 1040, the longest of the tax returns, allows the most deduction and tax credit options. The final section on page one of Form 1040 is labeled “Adjusted Gross Income.” This section contains more than a dozen ways to reduce the taxpayer’s total, or gross, income. The tax breaks named here are often referred to as above-the-line deductions because they are listed just before the last line, where adjusted gross income is entered, of the form’s first page.

In addition to the four adjustments to income found on the 1040A, Form 1040’s above-the-line deductions include the option to deduct moving costs. This could be of use to new graduates who are taking a job that is some distance from their previous home. The job-related moving expenses are claimed directly on Form 1040.

As for credits, the same ones that appear on Form 1040A also are found on Form 1040, as well as more specialized credits such as expenses for adopting a child and offsetting taxes paid to a foreign country.

The longest of the individual tax returns also offers filers a choice of claiming the standard deduction or itemizing expenses on Schedule A. Most taxpayers claim the standard deduction. The advantage is that it is easier, as there are no receipts to collect or added forms to fill out. However, if a filer has enough itemized expenses to exceed the standard deduction for filing status, claiming itemized expenses on Schedule A is the wiser tax move.

Itemized deduction options include medical and dental expenses once they exceed 10 percent of adjusted gross income; charitable contributions; state and local income taxes paid; real estate taxes paid; mortgage interest paid; and a variety of miscellaneous expenses that exceed two percent of adjusted gross income.

For each filing season, a Form 1040 taxpayer can choose whether to claim the standard deduction or itemize expenses.

Form Filing Deadline

All three individual income tax return forms have one thing in common: They are due on April 15. If that mid-April day falls on a federal holiday or a weekend, the tax deadline is extended to the next business day.

Taxpayers who cannot finish returns by the April date can get an automatic six-month extension by submitting Form 4868 to the Internal Revenue Service. This will allow taxpayers until October 15 to complete tax paperwork.

However, any due tax—or a close approximation of the amount—must be submitted with Form 4868 by April 15, or penalties and interest on the unpaid taxes will be assessed.

Kay Bell

See also: Tax Avoidance, Tax Evasion, and the Shadow Economy; Tax Compliance; Taxes; *Vol. 1: Foundations of Economics:* Capital Gains and Capital Losses; Internal Revenue Service; *Vol. 3: Microeconomics:* Tax Deferral

Further Reading

Bell, S. Kay. 2009. Truth #9—Why credits are better. In *The truth about paying fewer taxes.* Upper Saddle River, NJ: FT Press. http://www.informit.com/store/truth-about-paying-fewer-taxes-9780132643696 (accessed August 1, 2013).

Tax Policy Center. n.d. Historical standard deduction. Urban Institute and Brookings Institution. http://www.taxpolicycenter.org/taxfacts/displayafact.cfm?Docid=171 (accessed April 1, 2013).

Zelenak, Lawrence A. 2013. When we loved form 1040. *New York Times*, March 31. http://www.nytimes.com/2013/04/01/opinion/we-can-love-form-1040.html?_r=0 (accessed September 30, 2016).

TAXES

Governments at all levels (federal, state, local) need revenue to provide the public goods and services. While some people describe all government revenue as taxes, others describe government revenue as taxes, fines, fees, and licenses. Taxes are also a major topic of public debate and discussion. This is especially true regarding what the sources of government revenue should be and how much a government should tax.

Components of a Tax

All taxes have three things in common: First, all taxes have a tax base (that is, what is being taxed). The source of all taxes is either current wealth (income), accumulated wealth (property), or consumption (sales). Current wealth is defined as income and is associated with income taxes. Property taxes, estate taxes, capital gains taxes, or personal property taxes are examples of taxes where accumulated property is the source. Consumption is the source of sales taxes.

Second, a component of every tax is the tax rate. There are two types of tax rates: ad valorem or flat rate. *Ad valorem* is a Latin phrase that means “by value.” A tax whose amount is determined as a percentage of the base’s value is an ad valorem tax. A flat rate is a per-unit rate, such as an excise tax or a unit tax.

Third, every tax has a tax structure, also known as a tax system. The term *system* is relative to the accumulated effect of all taxes of an economic system. In addition, this same distinction is used to define the “structure” of a tax. There are three tax structures: A tax is classified as progressive, proportional, or regressive.

Taxes are often identified by their structure. If the burden of the tax increases as one’s income increases, the tax structure is progressive; a *progressive* tax system is one in which those with higher incomes pay a higher percentage of income as taxes. If the tax burden is equal to all regardless of income, the tax is *proportional*. If the tax is more of a burden on lower incomes, it is regressive; a *regressive* tax system is one in which the percentage of tax increases for those with lower incomes.

Then, of course, if the tax has the same burden on all income levels, it is proportional. A *proportional* tax system is one in which all income levels pay the same proportion of taxes. So while an individual tax will be regressive, progressive, or proportional, the goal of most tax systems (in a market economy) is for the system to be proportional. At the end of the day, a tax system can be of only one system: it is a progressive tax, a proportional tax, or a regressive tax.

While taxes are often the main topic of discussion and debate, from the dinner table to the halls of state and national capitols, much has been written about the relationship between taxes and tax revenues, taxes and standards of living, and taxes and public goods. One example of these theories is the correlation between tax rates and tax revenues. This theory promotes that tax rates will raise to a point at which consumers will begin to find ways to avoid taxes—participating in nontaxable activities such as black markets, getting paid in cash, bartering goods and services, and other measures. This relationship is exhibited in the theory attributed to the economist Arthur Laffer.

Federal Taxes

At the federal level, the primary tax base for generating revenue is current wealth with the personal and business income taxes. But the federal government also relies on accumulated wealth with an estate tax and current wealth with a business tax and capital gains tax on investment earnings. The federal government generates revenue on the consumption base, with excise taxes such as those imposed through utilities and telephone or communications usage. The most used tax rate at the federal level is the ad valorem ("by value") or percentage rate.

Most people who pay federal income tax are familiar with the personal income tax schedules seen every year before "Tax Day," April 15. Federal business and

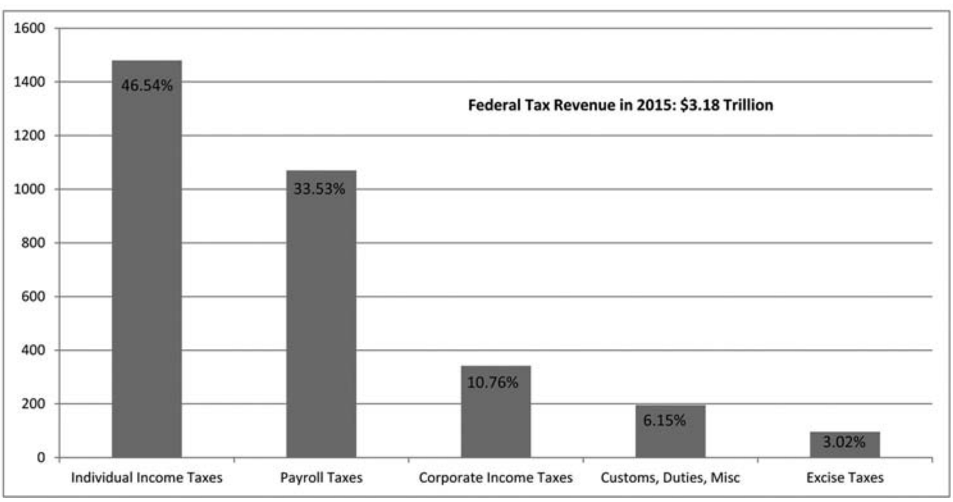

Figure 1. Components of 2015 federal tax revenues
Source: "Federal Revenue: Where Does the Money Come From?" National Priorities Project, https://www.nationalpriorities.org/budget-basics/federal-budget-101/revenues/.

investment taxes use ad valorem tax rates. Political debates on taxes often center around what level of tax rate is appropriate and fair for a particular tax base. The estate tax is also determined on an ad valorem rate. The excise or unit tax rate is also used to raise federal tax revenue. Many utility bills or telephone bills include a federal excise tax to tax our use of these services.

Historically, the federal government has tried to tax consumption of such specific goods as luxury cars or yachts, but with mixed success.

The federal tax structure is designed to be progressive, so that those whose income and wealth are greater pay a larger percentage of their income in taxes. The progressivity of the federal tax structure is tempered by the use of tax deductions, tax credits, and income or wealth thresholds and limitations. Instituting deductions, credits, and limitations is an attempt to bring the tax structure into a more proportional range. This is why the federal tax schedules for personal income taxes range from 0 percent to 39 percent. Tax schedules have historically been as high as 95 percent on the wealthiest individuals. This also accounts for only those estates that are valued at over $2 million being subject to the federal estate taxes.

State Taxes

Each state has a unique range of taxes and tax component combinations. Generally, most states strive for a proportional tax structure, even though in some states the main source of revenue is a regressive sales tax. States often neutralize the regressive sales tax by exempting the goods and services most used by everyone, such as food and prescription drugs. A state may also provide some tax credits on people's personal income taxes, based on income, to alleviate the burden of the sales tax on a family's or household's total income. Many states also impose what are often referred to as "sin" taxes: taxes levied on consumption goods that considered hazardous to one's health, such as alcohol, cigarettes, and other smoking items. These are often excise or unit taxes (specific amount per unit of good).

Many states also apply a tax on the current wealth base of income. However, some states are eliminating this tax base in favor of a broader consumption or sales tax. Most states also impose some form of business income tax or accumulated wealth tax on business inventories. Accumulated wealth is also taxed in several states through a personal property tax and business taxes. In these states, individuals pay a tax on the value of personal items such as automobiles.

A personal property tax levied by a state is an ad valorem tax rate, because the amount of tax levied is based on the value of the personal property being taxed. An automobile valued at $10,000 will have a lower personal property tax than one valued at $20,000. State sales taxes are ad valorem, as the amount of tax is a percentage of the sale.

Local Taxes

The most widely used tax base on the local level is accumulated wealth, with the property tax on real estate. The prominence of the real estate property tax at the local level dates back to agrarian communities, and the emphasis on property ownership as a statement of wealth. Local governments use the real estate property tax to fund and operate everything from the local library and public schools, to the local community college, to the upkeep of roads, to local police and fire protection. Virtually no one is exempt from paying some local real estate property tax. Real estate property taxes are paid directly through ownership of a home or property, or indirectly through rental payments on an apartment.

Larger local governmental units, especially large cities and counties, have also added taxes on consumption, with local sales taxes and excise taxes on goods such as alcohol and cigarettes. Another tax base added by large governmental units is on current wealth, with personal and business income taxes. Many large cities now levy a personal income tax on individuals who either live or work within their city limits.

The tax structure of local taxes is very mixed. Property taxes today in many locales are regressive in structure, since they no longer adequately reflect the relative wealth of the owner. Income taxes in larger cities tend to be proportional, while taxes on consumption are regressive, even when certain tax credits are applied to neutralize the regressive structure of sales tax.

Criteria of a Good Tax

While some may consider the term "good tax" an oxymoron, there is little debate that taxes are necessary for the functioning and delivering of public goods and services. Regardless of one's views on taxes, there are several criteria that determine when a levied tax is considered a good tax.

A tax is considered a good tax if the following criteria are met:

- Horizontal equity: People in same economic circumstances should pay the same taxes;
- Vertical equity: People with a higher ability to pay should pay a higher percentage;
- Stability: Regardless of the state of the economy, the tax can produce the same level of revenue;
- Sufficiency: Tax revenues should be able to fund government programs now and in the future;
- Simplicity: Administrative costs are low, in that the costs of administrating the tax are both efficient and low; and
- Neutrality: The implementation of the tax does not change either the willingness and ability of the producers to stay in the market or the willingness and ability of consumers to leave the market of the particular good or service being taxed.

Incidence of a Tax

Tax incidence is sometimes considered a component of a tax, like the base, rate, and structure. Other economists consider tax incidence a criteria for a good tax. Tax incidence refers to the question of who pays. A goal of a sales tax is to tax the consumer, since it is a consumption tax. The incidence of the sales tax is clearly on the consumer and is properly allocated, because the consumer does indeed pay the sales tax. A tax for which the incidence is not so clear is the corporate tax.

The corporate tax incidence is a topic of considerable debate. While the corporate income tax is calculated based on corporate income, does the corporation really pay the tax? Is the tax liability passed on to consumers in the form of higher prices? Do the employees pay with lower wages? Do the stockholders receive lower dividends, essentially paying the tax? Tax incidence is almost always a debate among economists, in terms of who is really paying the taxes. One thing is certain: People pay taxes, regardless of their business, personal, or social structure.

David A. Dieterle

See also: Laffer, Arthur; Laffer Curve; Public Debt; Public Goods; *Vol. 1: Foundations of Economics:* Private Property; Theory of Public Choice

Further Reading

Bartlett, Donald L., and James B. Steele. 1994. *America: Who really pays the taxes?* New York: Touchstone.

Internal Revenue Service. n.d. Homepage. www.irs.gov (accessed May 11, 2012).

La Bell, Laura. 2011. *How taxation works*. New York: Rosen Publishing Group.

Miller, Roger Leroy. 2014. *Economics today*. 17th ed. Upper Saddle River, NJ: Pearson Education.

Murphy, Liam, and Thomas Nagel. 2002. *The myth of ownership: Taxes and justice*. New York: Oxford Univ. Press.

Steuerle, C. Eugene. 1992. *The tax decade: How taxes came to dominate the public agenda*. Washington, DC: Urban Institute Press.

TINBERGEN, JAN

Born: April 12, 1903, in The Hague, Netherlands; Died: June 9, 1994, in The Hague, Netherlands; Nationality: Dutch; Professional Interests: econometrics, business cycle, economic policy, Nobel Prize (1969); Major Works: *Statistical Testing of Business-Cycle Theories: Business Cycles in the United States of America, 1919–1932* (1939), *Business Cycles in the United Kingdom, 1870–1914* (1951), *Economic Policy: Principles and Design* (1964).

Jan Tinbergen was an innovative Dutch economist who combined mathematics, statistics, and economic theory to develop new models in econometrics. In 1969, he shared the first Nobel Prize in Economics in memory of Alfred Nobel with Ragnar Frisch for his work developing and applying models to analyze the economic process. Tinbergen died in 1994.

Jan Tinbergen was born on April 12, 1903, in The Hague, Netherlands, the eldest of five children. His parents, Dirk Tinbergen and Jeannette van Eek, were both schoolteachers. He attended the Hogere Burger school in The Hague, which allowed middle-class Tinbergen to begin studies in 1921 at the University of Leiden after passing extra exams in Greek and Latin. Tinbergen's teacher Paul Ehrenfest proved a positive influence, as Tinbergen studied mathematics and theoretical physics. Tinbergen also started a social democratic student club and newspaper, which published his first works on unemployment and the economic depression of the 1920s. Tinbergen continued his doctorate studies under Ehrenfest, writing his thesis, titled "Minimization Problems in Physics and Economics," in 1929. This was one of the first examples of mathematical modeling. It was here that Tinbergen worked with many revered thinkers, such as Albert Einstein.

Dutch legislation allowed Tinbergen, who was a conscientious objector, to join the Central Bureau of Statistics in 1929. He remained associated with the bureau until 1945, when he became the director of the Central Planning Bureau (a position he held from 1945 to 1955). From 1936 to 1938, he worked for the League of Nations as a business-cycle research expert. In 1933, Tinbergen also became a professor of economics at the Netherlands School of Economics, Rotterdam, and taught there until 1973. Along with Ragnar Frisch, in 1969 Tinbergen was awarded the first Nobel Prize in Economics for his work creating the first macroeconomic models. His brother Nikolaas, a zoologist, also won the Nobel Prize—for physiology, in 1973—and his brother Luuk became famous for the scientific study of animal behavior.

In 1936, Tinbergen developed the first national and fully inclusive macroeconomic model for the Netherlands' economy. He later constructed econometric models of the United States and the United Kingdom, as well as for other countries. His work served as the groundwork for his business-cycle theory and strategies for economic stabilization. This application of mathematics and economics was especially useful for monetary policy. The Dutch government would later use these ideas as the foundation for their economic plans.

Tinbergen developed the idea that governments must have equal numbers of policy instruments and targets to achieve their economic goals. A target might be the unemployment rate or inflation rate, and an instrument might be some form of monetary policy. This notion of economic thought is now an underlying assumption for current economists.

Tinbergen also is known for his principle of wage ratios. The Tinbergen Norm states that if the maximum and minimum pay rates within a company exceed 1:5, the company will not work to its fullest potential.

In later years, Tinbergen continued to spotlight the need to help impoverished countries. From 1965 to 1972, Tinbergen worked as the chairman of the United Nations Committee for Development Planning, where he was advised such developing countries as the United Arab Republic, Turkey, Venezuela, Surinam, Indonesia, and Pakistan. He also advised such international organizations as the European Coal and Steel Community, the International Bank for Reconstruction and Development, and the United Nations Secretariat. He was a member of the Royal Academy of Science and an honorary doctor of 15 universities. In 1992, he received the Four Freedoms Award for his humanitarian efforts to encourage economic assistance to developing nations.

Jan Tinbergen died on June 9, 1994, in The Hague, the Netherlands.

Kathryn Lloyd Gustafson

See also: Macroeconomics; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics; *Vol. 3: Microeconomics:* Business Cycle; *Vol. 4: Global Economics:* International Bank for Reconstruction and Development

Further Reading

Henderson, David R., ed. 2008. Jan Tinbergen. In *The concise encyclopedia of economics.* Library of Economics and Liberty. http://www.econlib.org/library/Enc/bios/Tinbergen.html (accessed August 5, 2012).

Piazzo, Diego. 2009. *Conversations with great economists: Friedrich A. Hayek, John Hicks, Nicholas Kaldor, Leonid V. Kantorovich, Joan Robinson, Paul A. Samuelson, Jan Tinbergen.* New York: Jorge Pinto Books.

Timeline of Nobel Prize Winners.com. n.d. Jan Tinbergen. http://www.nobel-winners.com/Economics/jan_tinbergen.html (accessed August 5, 2012).

Tinbergen, Jan. 1939. *Statistical testing of business-cycle theories: Business cycles in the United States of America, 1919–1932.* Geneva: League of Nations, Economic Intelligence Service.

Tinbergen, Jan. 1951. *Business cycles in the United Kingdom, 1870–1914*. Amsterdam: North Holland.

Tinbergen, Jan. 1964. *Economic policy: Principles and design.* Amsterdam: North Holland.

Tinbergen, Jan. 1969. Prize lecture: The use of models: Experience and prospects. http://www.nobelprize.org/nobel_prizes/economics/laureates/1969/tinbergen-lecture.html (accessed August 5, 2012).

TOBIN, JAMES

Born: March 5, 1918, in Champaign, Illinois; Died: March 11, 2002, in New Haven, Connecticut; Nationality: American; Professional Interests: macroeconomics, monetary policy, neo-Keynesian economics, portfolio theory, Nobel Prize (1981); Major Works: *Essays in Economics* (Vols. 1–4, 1987–96), *Full Employment and Growth* (1996).

James Tobin was an American economist who spent his long career explaining and developing John Maynard Keynes's *General Theory of Employment, Interest and Money*, leaving a legacy as an essential neo-Keynesian. Tobin was a strong advocate of government intervention in the economy to avoid recessions and stabilize output. He made numerous significant economic contributions, including his portfolio theory, which won him the 1981 Nobel Prize in Economics. Other notable contributions by Tobin included Tobin's q, the Tobin tax, and the Tobin model. Tobin died in 2002.

James Tobin was born on March 5, l918, in Champaign, Illinois. His father was the publicity director for the University of Illinois athletics department, and Tobin attended University High School, which was run by the University of Illinois College of Education. Tobin graduated summa cum laude in economics from Harvard University in 1939 and stayed to complete his MA degree in 1940. He interrupted his doctoral studies to work at the Office of Price Administration and Civilian Supply and the War Production Board in Washington, D.C., before World War II. Following the attack on Pearl Harbor, Tobin enlisted in the U.S. Navy. After serving on the USS *Kearny* destroyer for four years, he returned to Harvard. He finished his PhD in 1947 and then remained at Harvard as a junior fellow until 1950.

In 1950 he began his career at Yale University, becoming a full professor in 1955 and becoming the Sterling Professor of Economics in 1957. He formally retired in 1988 but stayed at Yale to continue working on his theories.

Tobin became interested in the subject of economics for two reasons: He enjoyed the intellectual challenge, and he wanted to use economics to comprehend world events. Tobin saw economics as a means to prevent human misery from recurring. His fundamental concern was how economic policies affected people's lives. He believed that the federal government could use fiscal and monetary measures to benefit society. At Harvard as a freshman, he quickly became a convert to the new theories of Keynes. He spent the rest of his life explaining and developing theoretical supports to Keynesian economics. He wrote extensively as a pioneer in the development of macroeconomics.

Besides continuing his treasured teaching at Yale, Tobin also served as director of the Cowles Foundation for Research in Economics from 1955 to 1961 and again from l954 to 1965. Tobin occasionally left his professorial post at Yale, commonly as a visiting professor at another academic institution or as a consultant, but one significant departure from academics was serving on the Council of Economic Advisers at the express request of President John F. Kennedy during l961–1962. The council produced the Economic Report of l962, which the media dubbed the "new economics." Tobin himself described this report as a comprehensive account of the theories and practices for economic growth.

Tobin was author or editor of 16 books and over 400 articles concerning economics. The topics ranged from econometrics to macroeconomics, monetary theory, monetary policy, fiscal policy, public finance, and portfolio theory and asset markets. Tobin is remembered for his work in financial analysis—especially the portfolio theory, which explained that investors should balance their portfolios with both low- and high-risk assets to minimize risk. Tobin described his portfolio theory as not putting all of one's investment eggs in a single basket.

It was accepted monetary policy that interest rates could influence capital investment. Tobin felt, however, that there was another important consideration. He developed *Tobin's q*, a measure to predict whether there will be an increase or a decrease in capital investment. The "q" is a mathematical ratio between the market value of an asset and the cost to replace it. If the ratio is greater than 1, new investment will be profitable. If the ratio is less than 1, new investment in similar equipment will not be profitable. Tobin suggested that at this point companies tend not to invest in new plants and equipment, deciding instead to purchase existing companies.

Another Tobin idea is the Tobin tax. The *Tobin tax* is a small tax on currency transactions in international markets to reduce short-term currency speculation. Tobin felt that such a tax would help stabilize exchange markets without being a burden on free trade. Today, his tax idea is often proposed as a way to raise revenue. He also developed a regression to analyze spending decisions; called the *Tobin model*, it's an econometric model investigating dependent variables within a model.

Tobin served in many professional associations and received numerous awards beyond the Nobel Prize in 1981. He was awarded the John Bates Clark Medal in 1966 and was president of the American Economic Association in l971. Tobin will be remembered through his prolific research and publications as one of the most influential macroeconomists of the 20th century, especially his lifelong contributions in explaining and elaborating on the theories of Keynes.

James Tobin died on March 11, 2002, in New Haven, Connecticut.

Jean Kujawa

See also: Heller, Walter; Macroeconomics; Monetary Policy; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; Nobel Prize in Economics

Further Reading

Breit, William, and Roger Spencer, eds. 1986. James Tobin. In *Lives of the Laureates, Seven Nobel Economists.* Cambridge, MA: MIT Press.

Nobelprize.org. 2012. James Tobin—Biographical. http://www.nobelprize.org/nobel_prizes/economics/laureates/1981/tobin-autobio.html (accessed August 6, 2012).

Tobin, James. 1958. Liquidity preference as behavior towards risk. *Review of Economic Studies* 25 (1): 65–86.

Tobin, James. 1969. A general equilibrium approach to monetary theory. *Journal of Money, Credit, and Banking* 1 (1): 15–29.

Tobin, James. 1979. *Asset accumulation and economic activity: Reflections on contemporary macroeconomic theory.* New Haven, CT: Yale Univ. Press.

Tobin, James. 1987–96. *Essays in Economics.* Vols. 1–4. New Haven, CT: Yale Univ. Press.

Tobin, James. 1996. *Full employment and growth.* London: Edward Elgar.

Tobin, James. 2003. *World finance and economic stability: Selected essays of James Tobin.* London: Edward Elgar.

Tobin, James. 2012. Prize lecture: Money and finance in the macro-economic process. http://www.nobelprize.org/nobel_prizes/economics/laureates/1981/tobin-lecture.html (accessed August 6, 2012).

Tobin, James, and Stephen S. Golub. 1998. *Money, credit, and capital*. New York: Irwin/McGraw-Hill.

TOO BIG TO FAIL

The phrase "too big to fail" is used to describe a concept that arose during the 2008 financial crisis to justify why the U.S. government needed to bail out certain companies. The concept focuses on how important it is to the United States that certain businesses survive and how the failure of these businesses would be disastrous for the country. In 2008, the term was often applied to some of the nation's largest banks, because the failure of these banks could have had serious consequences for the U.S. economy. Declaring a company "too big to fail" creates an obligation for the government to intervene if the company gets into a bad situation and is on the verge of collapse. While a government bailout or intervention may be vital to the survival of a company, some people feel that this method is counterproductive. Opponents of the "too big to fail" concept believe that the company should simply be allowed to fail.

While there have been examples throughout history of companies that have been saved under the "too big to fail" concept, most of these rescues occurred during the 2008 financial crisis, with the most prominent examples being AIG and Lehman Brothers, as well as Fannie Mae and Freddie Mac. To illustrate, AIG is one of the world's largest insurers, with most of its business being in traditional insurance. AIG became involved in credit default swaps: contracts to insure against the default of municipal bonds, corporate debt, and mortgage back securities. As the mortgages tied to swaps began to default, AIG was forced to raise millions in capital. As stockholders became aware of the situation, they began to sell their shares, making it even more difficult for AIG to cover their swaps. This left AIG with not enough cash to pay the swap insurance. The government classified AIG as "too big to fail" and bailed it out, because AIG's failure would in effect trigger the bankruptcy of many financial institutions that had purchased the credit default swaps.

Another good example of this concept would be the investment bank Lehman Brothers. Unlike AIG, however, the government did not bail out Lehman Brothers. In 2008, the Treasury secretary at the time, Hank Paulson, said no to bailing out the bank. This left Lehman Brothers with no option but to file for bankruptcy. The following Monday, the Dow dropped by nearly 350 points. Widespread panic swept through the financial markets, and eventually a $700 billion bailout was needed in order to recapitalize major banks (Amadeo n.d.).

The Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) dominated the secondary mortgage market. As the guarantors of 90 percent of all home mortgages, by the end of 2008 Fannie Mae and Freddie Mac were also deemed "too big to fail." The Treasury endorsed $100 million of their mortgages—in effect, returning them to government ownership. If Fannie Mae and Freddie Mac had gone bankrupt, the housing market crisis would have been much worse (Amadeo n.d.).

To prevent this from happening in the future, in July 2010 Congress passed the Dodd-Frank Wall Street Reform Act. This act regulates the financial markets and makes other economic crises less likely by preventing any additional banks from becoming too big to fail. This is accomplished by oversight by the Financial Stability Oversight Council, which searches for risks affecting the entire financial industry. The council also oversees nonfinancial firms such as hedge funds. In the event that any of these companies gets too big, the council may recommend that the Federal Reserve regulate the financial institution. The Fed can ask the institution to increase its reserve requirement.

An additional part of the Dodd-Frank legislation is the Volcker Rule. This rule also helps to end the "too big to fail" phenomenon by limiting the amount of risk that large banks can take. This can be done by prohibiting banks from trading in stock, commodities, or derivatives for their own profit.

Lauren A. Drum

See also: Bernanke, Ben; Financial Reform Act of 2010 (Dodd-Frank Act); Federal Reserve System; Geithner, Timothy; Paulson, Henry M., Jr.; *Vol. 1: Foundations of Economics:* Banking; *Vol. 3: Microeconomics:* Subprime Mortgage Bubble and Crisis; Federal Home Loan Mortgage Corporation; Federal National Mortgage Association

Further Reading

Amadeo, Kimberly. n.d. What is too big to fail. With examples of banks. About.com News & Issues. http://useconomy.about.com/od/businesses/p/Too-Big-to-Fail.htm (accessed June 11, 2015).

Livingecon.org Staff. n.d. Too big to fail. Living Economics. http://livingeconomics.org/article.asp?docId=368 (accessed June 11, 2015).

Reinhart, Carmen, and Vince Reinhart. 2008. Is the US too big to fail? VOX: CEPR's Policy Portal. http://www.voxeu.org/article/us-too-big-fail (accessed June 11, 2015).

TRANS-ALASKA PIPELINE

The Trans-Alaska Pipeline System (TAPS) transports crude oil from the Prudhoe Bay oilfields on the North Slope of Alaska to the Port of Valdez and the world oil market. The pipeline system, constructed from 1975 to 1977, is an engineering marvel covering over 800 miles. Crossing sensitive environmental terrain, including mountain ranges, earthquake zones, and permafrost, the pipeline opened to drilling the environmentally sensitive North Slope, which is home to vast herds of caribou. The pipeline features prominently in some of the most important environmental developments in the United States.

Vast oil discoveries on the North Slope were first announced in 1968. The timing was important for two reasons. First, oil prices doubled between 1970 and 1973, increasing pressure for rapid development of the North Slope. Second, environmental concerns also increased during this period; the National Environmental Policy Act (NEPA) was passed in 1969. Importantly, NEPA required an environmental impact assessment of large-scale projects, and the TAPS was one of the first test cases for NEPA.

The environmental impact assessment for the Trans-Alaska Pipeline was conducted by the Department of the Interior. It identified short-term impacts (e.g., erosion and noise during construction), operational impacts (e.g., discharge from tanker ballast, oil releases from tank cleaning, heat loss melting permafrost and causing instability), long-term impacts (e.g., increased public access from roads, disturbances of fish and wildlife habitat), and cultural impacts (e.g., oil revenues and outside contact accelerating cultural change on the Native communities). Also warning about the likely danger of marine and terrestrial oil spills, in its impact assessment the department included the prescient statement "The salmon and other fishery resources of Prince William Sound would be especially vulnerable to such spills." The impact assessment was highly controversial and invited public comment and court cases.

NEPA required the evaluation of alternatives to the project. One viable alternative was a Trans-Canada land route, which would have avoided earthquake zones and risky marine trans-shipment. Moreover, this alternative would have delivered the oil to the more lucrative Chicago market. In fact, the Trans-Canada route may have dominated the Trans-Alaska route based on both economic and environmental concerns.

NEPA's performance in this important test case was mixed. In the end, the U.S. Congress exempted TAPS from NEPA and rejected the Trans-Canada alternative. This congressional settlement also resolved Alaskan Native land claims and conserved large tracts of Alaskan wilderness. Despite the exemption, NEPA likely did affect the actual construction of the pipeline, which featured technological innovations to reduce the risk of earthquake damage and to lessen the impact on the permafrost.

Without TAPS, the 1989 *Exxon Valdez* oil spill would not have occurred. This costly spill heightened attention to the environmental dangers of economic development. In addition, the concept of existence value and the contingent valuation method were developed as the subsequent court cases attempted to calculate the damages to the Prince William Sound.

TAPS makes further oil development on the North Slope of Alaska possible. In particular, opening the oil deposits in the Arctic National Wildlife Refuge (ANWR) would make use of TAPS. Without TAPS, the coastal breeding ground of the caribou in ANWR would not be as threatened.

While the maximum TAPS throughput is over 2 million barrels per day, current production is only 700,000 barrels per day and declining. In addition, global climate change may melt sections of the permafrost that supports the pipeline. Although the future of the system is uncertain, TAPS has played an important role in the development of environmental and energy policy.

Stephen P. Holland

See also: *Vol. 1: Foundations of Economics:* Natural Resource Economics; Resources; *Vol. 3: Microeconomics:* Common Property and Common-Pool Resources; *Exxon Valdez* Oil Spill; Peak Oil

Further Reading

Alexander, V., and K. Van Cleve. 1983. The Alaska pipeline: A success story. *Annual Review of Ecology and Systematics* 14: 443–63.

Brew, David A. 1974. *Environmental impact analysis: The example of the proposed trans-Alaska pipeline*. Geological Survey Circular 695. Reston, VA: U.S. Department of the Interior.

Busenberg, George J. 2011. The policy dynamics of the trans-Alaska pipeline system. *Review of Policy Research* 28 (5): 401–22.

Cicchetti, Charles, and A. M. Freeman. 1973. The trans-Alaska pipeline: An economic analysis of alternatives. In *Pollution, resources and the environment*, ed. A. C. Enthoven and A. M. Freeman. New York: Norton.

U.S. Department of the Interior. 1972. *Final environmental impact statement proposed trans-Alaska pipeline*. Vols. 1–6. Washington, DC: U.S. Department of the Interior.

TREASURY SECURITIES

U.S. Treasury marketable securities are debt securities that are similar to bond investments. The U.S. government issues these debt instruments to raise funds needed to manage the federal government. Additionally, the funds raised by the sale of government Treasury securities are used pay off previously issued maturing government debt. Due to the global confidence in the U.S. government, these are widely accepted as the most secure debt instruments available worldwide. Investors seeking safe investments for the cash and fixed portions of their savings and investing portfolios frequently turn to Treasury securities investments.

There are several varieties of Treasury securities with varying characteristics: Treasury bills, notes, bonds, Floating Rate Notes (FRNs), Treasury Inflation Protected Securities (TIPs), and savings bonds.

Treasury Bills, Notes, and Bonds

Bills, notes, and bonds are the staples of the Treasury security debt offerings. Treasury notes, bills, and bond securities are differentiated primarily by their term. *Term* indicates when the investor can redeem the bonds for full face value. Treasury bills are short-term securities that mature in one year or less. Treasury notes are intermediate-term debt instruments, and they mature 1 to 10 years from their issue date. Treasury bonds are long-term and mature in 30 years.

Treasury bills are unique from notes and bonds in that they are sold at a discount to face value and upon maturity can be redeemed at full value. The difference between the discounted purchase price and the face value determines the effective yield or interest rate. Treasury bills are sold in 4-, 13-, 26-, and 52-week terms.

Treasury notes have maturities of 2, 3, 5, 7, and 10 years, and they pay interest twice per year. The interest payment amount is stated as a percentage and is called the coupon rate (a term common to most bond investments). The *coupon rate* is determined when the bond is created. For example, a $1,000 5-year Treasury note with a coupon of 2 percent pays 1 percent, or $10, every six months.

Like Treasury notes, Treasury bonds are issued with a term of 30 years and they pay interest every six months. The interest payment or coupon rate is determined at issue, similar to the Treasury note, although Treasury bonds have higher coupon rates than Treasury notes due to the inherent riskiness of longer-term debt instruments. When an investor buys longer-term debt, there is more uncertainty regarding future interest rates; consequently, investors demand higher interest rates for longer-term securities than for shorter-term debt.

Treasury notes, bills, and bonds have several qualities in common. Their minimum purchase amount is $100. They may be purchased at the Treasury auction (from the treasurydirect.gov website) or in the secondary market from a broker or financial institution. They may be held to maturity, when they will be redeemed for face value, or they may be sold at market value prior to maturity.

When a debt security is sold before maturity, its redemption price varies depending upon the relationship of the security coupon rate, time to maturity, and market interest rate. If the market interest rate, and consequently the yield to maturity, is lower than the coupon rate, then the price of the bond will be higher than par (face value), if sold prior to maturity. For example, if a $1,000 treasury bill has a coupon rate of 3 percent and the market interest rate is 2 percent, the bill will sell for more than $1,000 if redeemed prior to maturity.

Floating Rate Notes

Initiated in July 2013, Floating Rate Notes (FRNs) are the newest addition to the government's portfolio of debt offerings. A FRN has a floating interest rate, or one that changes over time along with the market interest rates. Interest on FRNs is paid quarterly.

As market interest rates rise, so will the interest rate on the FRN. Conversely, as interest rates fall, so will the rate on the FRN. The interest rate will be tied to the highest rate of the most recent 13-week Treasury bill rate. This means that rates will adjust quite rapidly to changes in interest rates.

FRNs can be purchased at auction through the government Treasury securities website (treasurydirect.gov) in denominations as small as $100. Additionally, these securities may be obtained through a broker or financial institution. Like most other government securities, FRNs may be held until maturity for face value, or they may be transferred to a financial institution where they can be redeemed at the going market rate.

Savings Bonds

Savings bonds are offered by the Treasury in several varieties: EE/E bonds, HH/H bonds, and I bonds (discussed in the inflation protected investments entry).

EE/E bonds purchased between May 1997 and April 2005 earn a variable market-based rate of return. The interest rate on these bonds changes every six months, each May 1 and November 1 for new EE bonds. Those issued after May 2005 earn a fixed rate of interest, determined at purchase. Interest payments are added to the value of the bond each month and are paid out when the bond is cashed in.

The minimum purchase amount for EE bonds is $25. An individual is entitled to purchase up to $10,000 in EE bonds each year. These savings investments earn interest up to 30 years.

EE/E bonds may be redeemed for face value any time after the bond is one year old, although if the bond is redeemed before five years, the saver loses the last three months of interest. Regardless of when the bond is redeemed, the saver receives the face value of the bond plus any interest earned according to the previous stipulations.

HH/H savings bonds earn interest for up to 20 years. H bonds were last issued in December 1979 and HH bonds were issued from 1980 through August 2004. These bonds are no longer being issued, although existing HH bonds issued up to 2004 will earn interest until 2024.

Inflation Protected Government Securities

Treasury Inflation Protected Securities (TIPs) along with inflation I bonds are discussed in the "Inflation Protected Investments" entry in Volume 3.

Savings Bonds and College Planning

There are special tax benefits for savings bond holders if the proceeds of the bond are used to pay for qualified higher education expenses in their redemption year. The savings bond education tax exclusion enables holders of Series EE and Series I bonds issued after 1989 to exclude from their income all of the interest received.

Thus, the bond interest income is exempt not only from state and local taxes, but also from federal taxes.

More information about using savings bonds for college planning is available from IRS Publication 550, "Investment Income and Expenses," and on the treasurydirect.gov website.

Tax Consequences

All Treasury securities are subject to federal tax but exempt from state and local taxes. Those E/EE and I bonds used for qualified education expenses may be exempt from federal taxes as well. This makes them excellent choices for investors and savers in high tax locations.

The government's Treasury security offerings are not widely promoted by financial advisors, as the government does not financially compensate those advisors for their recommendation. Consequently, these excellent savings tools are frequently poorly publicized or understood. However, they are very safe investments for savers and investors.

Barbara A. Friedberg

See also: Debt; Federal Open Market Committee; Federal Reserve System; Financial Intermediation; Monetary Policy; *Vol. 1: Foundations of Economics:* Banking; Compound Interest; Financial Literacy; Investing; *Vol. 3: Microeconomics:* Bonds; Inflation Protected Investments; Interest Rates; Risk; Saving versus Investing; Savings Accounts; *Vol. 4: Global Economics:* Financial Account

Further Reading

TreasuryDirect. n.d. Home. http://www.treasurydirect.gov/tdhome.htm (accessed November 27, 2013).

TYSON, LAURA

Born: June 28, 1947, in Bayonne, New Jersey; Nationality: American; Professional Interests: macroeconomics, industrial competitiveness, trade, public policy; Major Works: *The Yugoslav Economic System and Its Performance in the 1970s* (1980), *Trade Economic Adjustment in Eastern Europe* (1985), *Who's Bashing Whom: Conflict in High Technology Industries* (1992), *The Global Gender Gap Report 2009* (2009).

Laura Tyson is an American economist and the S. K. and Angela Chan Professor of Global Management at the Haas School of Business at the University of California, Berkeley. She is an expert in trade and international competitiveness. In addition, she is a member of President Barack Obama's Council of Jobs and Competitiveness, of Obama's Economic Recovery Advisory Board (PERAB), and of former secretary of state Hillary Clinton's Foreign Affairs Policy Board. She was the first female chair of the Council of Economic Advisers (1993–1995) and she then served on the President's National Economic Council (1995–1996) during the Clinton administration. She has published books and numerous articles on industrial competitiveness and trade.

Laura D'Andrea Tyson was born on June 28, 1947, in Bayonne, New Jersey. Her father was a World War II GI veteran who became an accountant, and her mother was a housewife. Tyson majored in economics at Smith College, graduating summa cum laude in 1969. She went on to earn her PhD in economics from the Massachusetts Institute of Technology in 1974. Tyson worked as a professor of economics at Princeton University for three years before she moved to the University of California, Berkeley (UC Berkeley), in 1977. She served as the dean of the Berkeley Haas School of Business from 1998 to 2001 and as the first female dean of the London Business School from 2002 to 2006. She was the only woman to head a major U.S. business school (UC Berkeley), and she was the first woman to lead a top 10 international business school (London).

Tyson also founded the London Business School's Center for Women in Business. While Tyson was working in London, the United Kingdom's Department of Trade and Industry appointed her chair of a task force on nonexecutive directors; one significant contribution of the task force was an in-depth report on the recruitment and development of nonexecutive directors. Tyson has since returned to the UC Berkeley, where she is the S. K. and Angela Chan Professor of Global Management at the Haas School of Business.

As a part of the Obama and Clinton teams, Tyson greatly influenced the presidents' domestic and international monetary policy. As chair of the Council of Economic Advisers, she provided guidance and analysis on all economic policy concerns, the economic forecasts, and the annual *Economic Report of the President*.

Tyson has published many books and articles on trade, industrial competitiveness, and the transitions of European countries to market systems. Her studies include a focus on worldwide trends in gender gaps for women in education, economics, politics, and health. In academia, her work centers on globalization, trade liberalization, the impact of high technology, and domestic economics. She regularly promotes the benefits of globalization for domestic economies, yet some fear she may favor protectionist measures (due to the Berkeley campus's reputation for anti-globalization). Tyson advocates concern for issues such as global warming and environmental impact, but she promotes the ethical responsibility of the businesses involved.

In addition to her work at UC Berkeley, where she was cited as the winner of its Distinguished Teaching Award, Tyson is also a senior adviser at the McKinsey Global Institute, Credit Suisse Research Institute, and The Rock Creek Group. She continues to write opinion columns for such sources as the *New York Times*, *Business Week*, and *The Financial Times*. Tyson is a member of the World Economic Forum's Global Agenda Council; the National Academies' Board on Science, Technology and Economic Policy; and the National Academies Committee on Research Universities, to name a few. She serves on the boards of directors and advisory boards of companies such as Morgan Stanley, AT&T, Newman's Own, and the Peter G. Peterson Institute of International Economics.

Kathryn Lloyd Gustafson

See also: Council of Economic Advisors; Fiscal Policy; Macroeconomics; Summers, Lawrence

Further Reading

Cicarelli, James, and Julianne Cicarelli, eds. 2003. Laura D'Andrea Tyson (1947–). In *Distinguished women economists*, 202–5. Santa Barbara, CA: Greenwood Press.

Greenslade, Nick. 2006. The first lady of business. *The Observer*, May 20. http://www.guardian.co.uk/business/2006/may/21/theobserver.observerbusiness3 (accessed August 2012).

Hausman, Ricardo, Laura D. Tyson, and Saadia Zahidi. 2009. *The global gender gap report 2009*. Geneva: World Economic Forum.

PERAB staff. n.d. President's economic recovery advisory board: Member bios. http://www.whitehouse.gov/administration/eop/perab/members/tyson (accessed August 5, 2012).

Tyson, Laura. 1980. *The Yugoslav economic system and its performance in the 1970s* [(Research Series (University of California, Berkeley International and Area Studies)]. Berkeley, CA: Institute of International Studies, Univ. of California.

Tyson, Laura. 1985. *Economic adjustment in Eastern Europe*. RAND Report. San Diego, CA: RAND.

Tyson, Laura. 1992. *Who's bashing whom: Trade conflict in high-technology industries.* Washington, DC: Institute for International Economics.

Tyson, Laura, Dina Consolini, Dina Medland, and Anne Willcocks. 2003. The Tyson report on the recruitment and development of non-executive directors. London Business School. http://facultyresearch.london.edu/docs/TysonReport.pdf (accessed October 1, 2016).

U

UNEMPLOYMENT

Unemployment is the working state of someone who is willing and able to work but not working currently. Unemployment is measured in several different ways by several different organizations, some private and some public. The most widely accepted and quoted measure, the unemployment rate, is the responsibility of the Bureau of Labor Statistics (BLS), an agency of the Department of Labor.

Economists study unemployment as one barometer to achieving a major economic goal—high employment. The BLS collects data on a variety of employment and unemployment conditions. The BLS also determines the size of the labor force, which is a variable in determining the unemployment rate. It establishes the definition of an *unemployed worker*. Individuals are classified as unemployed if they are over 16 years of age and do not currently have a job, but are able to work and are actively pursuing employment. No measure of unemployment is precise. All measures of unemployment and methods of collecting data have some flaws along with their benefits. Unemployment rates and other unemployment and employment metrics give economists portions of the labor picture. It is up to economists, policymakers, and the public to take these aggregate measures in total to create an accurate picture of an economy's capacity for labor.

Economists recognize four categories of unemployment: frictional, cyclical, structural, and seasonal.

Frictional Unemployment

Frictional unemployment is a type of unemployment that occurs when a person is between jobs. Frictional unemployment is considered only temporary, since typically, as soon as the unemployment occurs the person begins to search for employment almost immediately.

There are many causes of frictional unemployment. People may decide to leave their jobs on their own accord. Their reasons for leaving may include low pay, little or no opportunity for growth, desire to further their education, and a difficult work environment or undesired location. Another cause is the fact that some people may overlook certain jobs because they feel that those jobs are below their skill level, or they may simply believe that an available position is "below" them. Likewise, an employer may look at the résumés of a pool of job candidates and decide that none of the applicants have the skills necessary to do the job, when in fact they do. Finally, frictional unemployment may be temporary due to certain life events, such as a woman taking maternity leave from her job, or a teacher taking a sabbatical.

Another way to understand frictional unemployment is to think of it as a period in which a person is searching for employment opportunities, or simply the period in between jobs. Unemployment is always present in the economy, resulting from temporary transitions made by workers and employers, or from workers and employers having inconsistent or incomplete information.

Cyclical Unemployment

Cyclical unemployment is job loss that occurs when the economy enters into a period of recession and there are more people seeking work than there are jobs available. In reaction to less consumer demand for goods and services, businesses lay off workers as production need decreases. These workers are then temporarily unemployed, until the cycle changes and employers can rehire when the economy expands and consumer demand increases. Cyclical unemployment is a part of the business cycle. The most common method economists apply to calculate the cyclical unemployment rate is to subtract the unemployment rate at the *bottom* of the business cycle from the unemployment rate at the *peak* of the business cycle. The difference between these two numbers is what economists call the cyclical unemployment rate.

Structural Unemployment

Structural unemployment is unemployment that occurs when an industry goes through a transformation in the way it produces the good or service of its industry, and the skills of the former employees do not match the new skills that are needed in the new industry.

Seasonal Unemployment

Seasonal unemployment occurs as a result of a job being able to be performed only during specific seasons of the year. Often the term *seasonal* conjures up visions of the summer jobs of high-school and college students or the part-time jobs that retail stores add during a holiday season. While those jobs are included in the Current Establishment Survey (see below), seasonal unemployment also includes jobs that are weather-dependent. More specific to northern states, seasonal unemployment includes career jobs such as highway construction and housing construction.

Natural Rate of Unemployment

Recall that the definition of *unemployed* applies to someone who is both willing and able to work. Frictional unemployment includes those who are between jobs and new entrants into the workforce. Between frictional unemployment and structural unemployment in some industries in the economy, it is virtually inconceivable to imagine that every person willing and able to work is working. The *natural rate of unemployment* refers to the lowest rate of unemployment that a society can reasonably achieve, knowing that there will always be some frictional and structural unemployment in the economy. What, then, is the unemployment rate at which the economy can be considered to be at full employment? The natural rate of unemployment can also be viewed as the point at which the economy is operating at full employment, or the point at which unemployment has reached equilibrium. The natural rate of unemployment is an arguable point between economists. Whether that unemployment rate is 3, 4, or 5 percent, economists agree that there is a percentage window at which full employment is considered achieved, even without the percentage being zero. At that point, most adults who want to be working are, in fact, working.

Non-Accelerating Inflation Rate of Unemployment

Under the philosophy of John Maynard Keynes, an economy can reasonably continue to add jobs—that is, lower unemployment—without creating demand-pull inflation, as long as the economy is in an economic downturn or recession. However, when the economy recovers and economic growth is at the peak of the business cycle, a significantly low unemployment rate translates into a large increase of people and money demanding goods and services. This scenario poses the challenge of determining what low unemployment rate will translate into too much new demand such that prices are forced to rise—that is, inflation. The lowest unemployment rate possible to achieve without translating into inflation is called the Non-Accelerating Inflation Rate of Unemployment (NAIRU). This unemployment measure enters economists' discussions when an economy is operating at close to or at full potential. At this point, economists become concerned about an overheating economy where inflationary prospects are high, often instigated by excessive consumer demand for goods and services.

Measures of Unemployment

For economists, politicians, and investors, unemployment measures are arguably the most awaited economic metrics. To get as clear a picture of the labor force as possible, three key types of measures are taken: household survey, establishment survey, and weekly unemployment claims. Each measure reveals a distinct aspect of the labor force. Unemployment data—which are collected and released by the Bureau of Labor Statistics (BLS), an agency of the Department of Labor—are released by the BLS on the first Friday of each month at precisely 8:30 a.m. The BLS makes revisions to its data as far back as two months. Sometimes these revisions can be quite significant and can impact or alter the decisions of investors and politicians. Since consumer spending is approximately two-thirds of the U.S. economy, unemployment data become a portrait of the economic spending habits and income profile of consumers.

Current Personal Survey (also known as the Household Survey)

The BLS collects the current personal survey data by surveying 60,000 homes across the country. All sectors of the economy are surveyed, including farm and nonfarm workers, domestic helpers, and those who are self-employed. According to the BLS, the response rate to the survey is approximately 95 percent. The survey includes questions on whether the respondent is employed or not, and if so, if the work is part-time or full-time, and if the respondent is not employed, is the respondent looking for work. With the data collected from the current personal survey, the BLS determines the size of the civilian labor force, the number of people employed, and the unemployment rate. Every survey has its shortcomings, and the household survey is no exception. The current personal survey suffers the same deficiency as all surveys, which is the honesty of the respondents.

Current Establishment Survey (also known as the Establishment Survey)

For the current establishment survey, also known as the payroll survey, the BLS surveys over 400,000 companies and government agencies in 500 different industries. The surveyed companies employ approximately 45 percent of the labor force, or 40 million workers. This survey is different from the current personal survey in a number of ways. First, it looks only at nonfarm workers and it is not concerned with age. Second, the current establishment survey does not distinguish between full-time work and part-time work. The key focus of this survey is to determine the number of jobs created or eliminated. Third, since the current establishment survey gathers data from only employers and workplaces, it does not count self-employed workers who work out of their homes. While both the current establishment survey and the current personal survey collect very different information, they tend to move in the same direction, showing similar unemployment pictures of the economy.

Weekly Unemployment Claims

The third unemployment measure is the weekly claims for unemployment insurance. This leading indicator is based on the actual numbers of unemployment claims filed, as recorded by each state's unemployment agency. Since this measurement of unemployment is obtained through actual claims numbers, its accuracy makes it a good indicator of future economic conditions. From the trend of these data, it is possible to gauge the number of unemployed who are no longer receiving payments, and potentially the number of discouraged workers.

A *discouraged worker* is an individual of working age who is unemployed and is not currently pursuing a job. Although they are usually willing and able to work, discouraged workers have given up finding gainful employment due to a variety of factors. Due to these real or perceived limitations in the job market, these individuals have become "discouraged." Discouraged workers are not included in the unemployment rate, and they are not considered to be in the labor force.

The level of employment can have a significant impact on the growth of an economy. An economy at less than full employment has underutilized resources, which translates into fewer people participating as both producers and consumers. Yet an economy at a level considered full employment is an economy with full, or close to full, utilization of the resources and capacity of consumers purchasing goods and services. There is often a fine line between the two scenarios.

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See also: Bureau of Labor Statistics; Department of Labor; Discouraged Workers; Gross Domestic Product; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics

Further Reading

About Education. 2016. Types of unemployment. http://economics.about.com/od/unemployment-category/a/Types-Of-Unemployment.htm (accessed October 8, 2016).
Baumohl, Bernard. 2008. *The secrets of economic indicators*. 2nd ed. Philadelphia, PA: Wharton School Publishing.
Miller, Roger Leroy. 2010. *Economics today*. 16th ed. Upper Saddle River, NJ: Pearson Education.
U.S. Bureau of Labor Statistics. n.d. How the government measures unemployment. http://www.bls.gov/cps/cps_htgm.htm (accessed October 25, 2013).
U.S. Bureau of Labor Statistics. n.d. Unemployment. http://www.bls.gov/bls/proghome.htm#unemployment (accessed October 25, 2013).
WiseGeek. n.d. What is frictional unemployment? http://www.wisegeek.com/what-is-frictional-unemployment.htm (accessed October 25, 2013).

UNITED STATES TREASURY

The United States Treasury is one of the oldest executive departments. It was created through an act of Congress in 1789. At its inception, the primary function of the Department of Treasury was to manage the monetary resources of the United States and issue reports on the public credit. However, the roles and responsibilities of the various bureaus have become increasingly complex.

The U.S. Treasury Department is an executive agency tasked with promoting the economic well-being and financial security of the United States. The mission of the U.S. Treasury Department is to sustain a stable economy and stimulate the conditions for economic growth, as well as to protect the reliability of the U.S. monetary and financial systems and manage the finances of the U.S. government. The Treasury Department is linked to the Federal Reserve System, which acts as the central bank for the United States Treasury.

The Treasury Department is the guardian of U.S. financial resources and is a key player in the world economy. It is organized into various departmental offices, which include domestic finance, economic policy, office of the general counsel, international affairs, legislative affairs, management, public affairs, tax policy, terrorism and financial intelligence, and the office of the treasurer. These departments, headed by assistant secretaries and undersecretaries, are collectively responsible for formulating policy and managing the department as a whole. The larger component of the Treasury is its several operating bureaus, which are responsible for carrying out specific tasks. These bureaus make up the overwhelming majority of the Treasury's workforce, and they include such divisions as the U.S. Mint, the Bureau of Engraving and Printing, and the Internal Revenue Service (IRS).

The Treasury's basic functions, carried out by the various bureaus, include collecting taxes, duties, and monies paid to and due to the United States; paying all bills of the United States; issuing bonds, currency, and coinage; managing government accounts and the public debt; supervising national banking institutions; enforcing federal finance and tax laws; and investigating and prosecuting tax evaders, counterfeiters, and forgers. This means the Treasury is responsible for regulating national banks, determining international economic policy, collecting income and excise taxes, issuing securities, and manufacturing coins and bills for circulation.

The U.S. Treasury is headed by the secretary of the Treasury, appointed by the president and confirmed by the Senate. To date, there have been 76 Treasury secretaries, from Alexander Hamilton in 1789 to Jacob (Jack) Lew (appointed by President Obama and confirmed by the Senate in 2013). As the chief financial officer of the government, the secretary of the Treasury reports to the president of the United States and serves as a member of the president's cabinet; publishes annual reports on the state of the nation's finances; and has the primary responsibility for formulating and recommending tax policy and other domestic and international economic and financial policy initiatives.

Another important role within the Treasury Department is the treasurer, who has oversight over the Bureau of Engraving and Printing and the U.S. Mint and deals with any issues pertaining to coinage and currency. There is also an inspector general, who reports to the deputy secretary with an independent and objective review of the department's operations. The inspector general must keep Congress fully informed about problems and deficiencies relating to the administration of the department's programs and operations.

The Treasury Department currently has a budget of about $13 billion, and a staff of more than 100,000 employees. The functions of the Treasury Department have become more expansive in response to the increasing needs of a more sophisticated and developed nation. The Treasury Department works with the White House administration to pursue policy initiatives that are in line with the presidential administration, such as raising the debt limit, making housing affordable, or reforming Wall Street.

The department also works with other federal agencies, as well as with foreign governments and international financial institutions. Its goals in doing so are to encourage global economic growth, increase standards of living, and, if possible, predict and prevent economic crises. The Treasury Department does what it can to improve national security by identifying security threats and supporting the financial systems by providing safeguards against those threats. A reorganization of the department in 2003 moved several law enforcement agencies out of the Treasury Department, including the Bureau of Alcohol, Tobacco and Firearms, which moved to the Department of Justice; and the Secret Service and Customs Service, which moved to the Department of Homeland Security.

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See also: Bureau of Engraving and Printing; Taxes; United States Treasury Bills, Notes, and Bonds *Vol. 1: Foundations of Economics:* Internal Revenue Service; United States Mint

Further Reading

Federal Reserve System. n.d. The federal reserve in the U.S. payments system. http://www.federalreserve.gov/pf/pdf/pf_7.pdf (accessed September 30, 2016).

Sunner, Michael William. 2012. *Borrowing through the U.S. treasury's fast money tree: The need to balance austerity and growth in the 21st century*. Bloomington, IN: AuthorHouse.

U.S. Department of the Treasury. n.d. Home. http://www.treasury.gov/Pages/default.aspx (accessed September 30, 2016).

Wann, Peter. 1989. *Inside the U.S. treasury market*. Westport, CT: Quorum Books.

UNITED STATES TREASURY BILLS, NOTES, AND BONDS

Treasury bills (T-bills), notes (T-notes), and bonds (T-bonds) are marketable securities from the U.S. government. The government sells these savings and investment instruments to the general public, banks and other financial institutions, investment and brokerage houses, wealth sovereign funds, and other nations. The funds raised are used to pay off maturing government debt and raise the cash needed to operate the federal government. Investors not actually receive a certificate with the purchase of a U.S. Treasury bill, note, or bond. The investment is followed in a system of accounts that generates continuing statements and balances. What differentiates T-bills, T-notes, and T-bonds is that each has a longer term to maturity (T-bills are the shortest and T-bonds the longest). Each has a stated interest rate, paid semiannually until the Treasury matures.

Treasury Bills

Treasury bills are short-term obligations issued with a term of less than one year. Because they are sold at a discount from face value, they do not pay interest before maturity. The interest is the difference between the purchase price and the face value. They are often used for achieving the same saving goals or purpose as a money market fund or a savings account. Since their short maturity provides liquidity, holders of the bills often use them to allow easy access to the money. Conversion from a Treasury bill to cash can be quickly completed by a bank or a broker.

A Treasury bill is also similar to the popular zero-coupon bond. Unlike the T-bill's cousins, the T-note or T-bond, a zero-coupon bond does not make periodic interest payments. A Treasury bill is purchased at a discount from its face value (par value). The receiver of the bill will then receive the full face value at the time of maturity.

Treasury Notes

Treasury notes are intermediate to long-term investments. The maturities of T-notes are typically 2, 3, 5, 7, and 10 years. Treasuries of this maturity are often purchased by individuals for their long-term savings or investment needs. Because interest is paid twice a year, T-notes make sound, safe investment tools for retirement or other long-range goals.

Treasury Bonds

For the Treasury, the goal is to provide additional debt that will appeal to investors while keeping financing costs low. Bonds are sold by the U.S. Treasury Department. Treasury bonds cover terms from longer than 10 years to 30 years. Interest is paid semiannually, as with the T-note.

Treasury bonds are often called floating-rate notes, or "floaters." Floaters are securities with rates set periodically. Floaters can offer shorter-term safety, hedging against the potential of rising interest rates.

U.S. Savings Bonds

For the noninvesting, nonfinancial career person, probably the most popular of all the U.S. Treasuries is the U.S. Series EE or Series I savings bond. An individual can purchase up to $5,000 in any given year. The bond can then be redeemed at any time after 12 months. If the bond is redeemed before 12 months, an interest penalty is imposed. A popular gift among parents and grandparents, the Series EE savings bonds are sold at one-half their face value. So to buy a $100 Series EE U.S. savings bond as a gift only costs $50. If the bond purchase is made electronically, the face value can range from $25 up to $5,000. Paper Series EE bonds are sold in the more traditional denominations ($10, $25, $50, $100, etc.).

The interest rate paid at maturity on Series EE bonds depends on when the government issued the bond. If the bond was issued later than May 2005, the interest rate is fixed based on the 10-year U.S. Treasury note. The "fixed" interest rate is a bit of a misnomer, since the 10-year U.S. Treasury note interest rate is adjusted semiannually. Series EE bonds issued between May 1997 and April 2005 earn interest based on a floating rate.

The holder of the Series EE bond does not receive the interest until the bond is redeemed. If the bond is redeemed within five years, three months' interest is forfeited. The U.S. Treasury guarantee is the maturity date of Series EE bonds does not go beyond 17 years. If investors really want to earn interest on Series EE bonds, they can let the bonds earn interest for up to 30 years.

Many of the characteristics of the Series EE bonds apply to the Series I saving bonds. The major difference between them is the built-in inflation adjustment mechanism of the Series I bond. The main distinction is the way in which interest is paid. A Series I bond pays interest that is partially fixed and partially adjusted for inflation. Another benefit of holding Series EE or Series I bonds is that the income tax on the interest earned does not have to be paid until the bonds are redeemed. Parents and grandparents are big fans of the Series EE and Series I bonds as a way to help pay for college.

Treasury Inflation-Protected Securities

Treasury Inflation-Protected Securities (TIPS), were introduced by the U.S. Treasury in 1997 as a hedge against inflation. These securities used the Consumer Price Index (CPI) to determine and adjust the value of the principal, taking into account the current impact of inflation on the principal's real value. TIPS pay a fixed rate of interest, paid semiannually on the new inflation-adjusted value of the principal.

When TIPS mature, the holder receives either the higher inflation-adjusted principal (if inflation has impacted the initial value), or the original principal amount (if deflation—a general decrease in the price level—has occurred). Due to this inflation-adjusted mechanism, interest rates on TIPS are usually lower than other Treasuries with the same maturity.

There are several ways to purchase U.S. Treasuries. They can be bought, and redeemed, through commercial banks, brokers, or investment professionals. They can be purchased directly from the government, usually by broker-dealers, although some individuals can go the direct route. Another way to own U.S. Treasuries is to buy into a mutual fund specializing in Treasuries. The popular Series EE bonds can be purchased at local banks or directly from the U.S. Treasury. Some employers offer a Series EE bond-buying program as a benefit to their employees.

Maura Donnelly
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See also: Deflation; Federal Open Market Committee; Federal Reserve System; Inflation; Inflation, Measures of; United States Treasury

Further Reading

Mobius, Mark. 2012. *Bonds: An introduction to the core concepts*. New York: Wiley.

Roger, Arnold A. 2014. Chapter 26: Stocks, bonds, futures, and options. In *Macroeconomics*. 11th ed. Mason, OH: South-Western Cengage Learning.

SIFMA Staff. n.d. About government/agency bonds. http://www.investinginbonds.com/learnmore.asp?catid=9&subcatid=50&id=104 (accessed November 30, 2013).

Smith, Clifford. 2008. Bonds. In *The concise encyclopedia of economics*. Library of Economics and Liberty. http://www.econlib.org/library/Enc/Bonds.html (accessed November 30, 2013).

TreasuryDirect Staff. n.d. Treasury securities & programs. http://www.treasurydirect.gov/indiv/products/products.htm (accessed November 30, 2013).

V

VOLCKER, PAUL

Born: September 5, 1927, in Cape May, New Jersey; Nationality: American; Professional Interests: financial economist, monetarist, chairman of the Federal Reserve Board (1979–1987); Major Work: *Good Intentions Corrupted: The Oil-for-Food Scandal and the Threat to the U.N.* (with Jeffrey A. Meyer and Mark G. Califano) (2006).

Paul Volcker became chairman of the Federal Reserve Board in 1979, during a period of historically high inflation rates accompanied by low economic growth rates, a condition known as stagflation. During such periods, economic policymakers are presented with a dilemma, since the policy to control inflation will often result in depressed economic conditions, including high unemployment. Volcker, unlike previous Federal Reserve Board chairmen, implemented an unpopular monetary policy in order to lower inflation rates. At the time, his actions were widely criticized. Although the policy was unpopular and had negative consequences, Volcker was successful in lowering and controlling the inflation rate.

Paul Adolph Volcker was born on September 5, 1927, in Cape May, New Jersey, and grew up in Teaneck, New Jersey. He graduated from Princeton University in 1949, obtained an MA from Harvard University in 1951, and studied at the London School of Economics after graduate school. Volcker has been awarded more than 50 honorary degrees recognizing his contributions as an economist.

Volcker's first job, as an economist at the Federal Reserve Bank of New York, began in 1952. In 1957, he left government employment to become a financial economist at Chase Manhattan Bank. In 1962, he returned to government service in the Department of Treasury as the director of financial analysis; in 1963, he was promoted to deputy undersecretary for monetary affairs. Volcker returned to the private sector in 1965 as vice president of Chase Manhattan Bank. Again returning to government service in 1969, he was appointed to the position of undersecretary for monetary affairs at the Treasury Department. While serving in this capacity, he was an important participant in ending the Bretton Woods agreement, which had established exchange rates based on gold, and removing the United States from the gold standard. With the Bretton Woods agreement dissolved, the dollar and other currencies were allowed to float in determining their values. Next, Volcker became a senior fellow at the Woodrow Wilson School of Public and International Affairs at Princeton University in 1974, before becoming president of the Federal Reserve Bank of New York from 1975 to 1979.

Volcker was appointed chairman of the Federal Reserve Board in 1979. His appointment took place in the midst of an economic period known as stagflation. During stagflation, inflation rates are abnormally high and economic growth rates are low. Inflation peaked at 13.5 percent in 1981. Immediately upon becoming chairman, Volcker implemented a monetary policy targeting money supply growth as a way to drastically lower inflation rates. To accomplish this, Volcker increased the federal funds rate to a high of 20 percent, and the prime rate rose to 21.5 percent in 1981. This policy was widely criticized, since the effect was to radically increase unemployment (9.7 percent in 1982 and 9.8 percent in 1983) and produce high interest rates (30-year fixed mortgage rates exceeded 13 percent), which further slowed economic activity. However, by 1983 the inflation rate was down to 3.2 percent; Volcker's policy worked and inflation was brought under control. For many Americans, he went from being the villain to being the conqueror. Volcker left the chairman position of the Federal Reserve Board of Governors in 1987, and he was replaced by Alan Greenspan.

After leaving the Federal Reserve, Volcker joined the small investment banking firm of James D. Wolfensohn Inc. In 1996, he became chair of the Independent Committee of Eminent Persons (which became commonly known as the Volcker Commission), investigating money held in Swiss banks by Holocaust victims. The result of the Volcker Commission's investigation was to draw attention to a relationship between the Swiss banks and the Nazis. The commission's findings led to a $1.25 billion settlement to Holocaust survivors and their families.

Volcker has served on a number of committees and foundations, including as chairman of the International Accounting Standards Committee Foundation (2000–2006); as head of an investigation of accounting practices of Arthur Andersen, which was responsible for auditing Enron (2002); as the lead the UN's investigation of the UN oil-for-food program for Iraq (2004–2005); and as chairman of the Economy Recovery Advisory Board under President Barack Obama (2009–February 2011).

While serving on the Economy Recovery Advisory Board, in 2009 he proposed what became known as the Volcker Rule, which would have severely restricted commercial banks from capital market and trading activities—hedge funds, private equity funds, commodities trading, and derivatives—by separating commercial banks from investment banks. The rule he proposed was not enacted, but a less stringent version was passed in the Financial Reform Act of 2010.

Descriptions of Volcker include phrases like irascibly honest, an inflexible man of integrity, Mr. Incorruptible, and a fair and strong leader in troubled times. At six feet seven inches tall and armed with a determined personality, Volcker has been an imposing and unyielding policymaker who did what other chairman were unable to do. He reined in inflation during a time of double-digit inflation rates, but is also criticized for putting the American economy into recession. Politically, Volcker is considered a Democrat; however, during his government service he maintained a reputation for being non-partisan. Volcker's economic perspective is one of caution, faith in markets, and common sense.

Jean Kujawa

See also: Bernanke, Ben; Federal Open Market System; Federal Reserve System; Fischer, Stanley; Friedman, Milton; Greenspan, Alan; Monetarist Economic Thought; Monetary Economics; Monetary Policy; Money Supply; Yellen, Janet

Further Reading

Meyer, Jeffrey A., Mark G. Califano, and Paul Volcker. 2006. *Good intentions corrupted: The oil-for-food scandal and the threat to the U.N.* New York: Public Affairs.
Morris, Charles. 2009. *The sages: Warren Buffett, George Soros, Paul Volcker, and the maelstrom of markets.* New York: Public Affairs.
Neikirk, William R. 1987. *Volcker: Portrait of the money man.* New York: Congdon & Weed.
Silber, William L. 2012. *Volcker: The triumph of persistence*. New York: Bloomsbury Publishing USA.
Treaster, Joseph. 2011. *Paul Volcker: The making of a financial legend.* Hoboken, NJ: Wiley.
Volcker, Paul A., and Toyoo Gyohten. 1992. *Changing fortunes.* New York: Times Books.

W

WAGE AND PRICE CONTROLS, 1971

The inflation of the Vietnam War era would combine with the elimination of the gold standard to create U.S. price and wage inflation at uncontrollable levels. On August 15, 1971, President Richard Nixon announced a series of economic measures to address accelerating inflation, which was approaching 6 percent. The price controls Nixon announced and his removal of the gold standard created major short-term and long-term economic changes, but inflation would not be fully resolved until the 1980s. (It would peak at 15 percent in March 1980.) The period would become the standard reference point for the impact of inflationary pressures on American business.

Although the wage and price controls imposed by President Nixon had mixed results, the event marked the problem of inflation that marred the decade of the 1970s. The wage and price controls bought time for Nixon to win the 1972 election, but the decade-long inflation trend continued unabated for years. Ultimately, it would take a recession in 1980 and a tight money policy by the Federal Reserve to end the brutal inflation of the 1970s. In the short run, the U.S. effort to fight inflation would lead economists to use monetary policy to address the problem of inflation. In the long term, the removal of the gold standard would lead to free-floating currency values.

The origin of the crisis goes back to a surge of spending for the Vietnam War and the Great Society programs of President Lyndon Johnson in the late 1960s. By 1969, inflation was on the rise. The public had a mixed view of inflation. The big unions were protected with contractual cost-of-living adjustments to their wages and salaries. People on fixed incomes or employees lacking cost-of-living adjustments faced a major loss in purchasing power. Most were pleased with the rise in housing prices; however, prospective new owners were being priced out of the market. Price increases for food, cars, and consumer goods were looked at as a major negative. Still, others enjoyed the high rate of return on their savings.

The U.S. government was running large deficits, but the economy was picking up as the Federal Reserve was easing its monetary policies. Inflation was causing major problems in international markets as well, especially once the United States moved off the gold standard. More accurately, there was a de facto gold standard that allowed the Federal Reserve to continue to print money beyond the point where the currency had 100 percent gold backing. The dollar was losing value, causing Arab oil barons to view their petro-dollars—the U.S. dollars that they were paid for their oil—as devalued. The gold coverage of the dollars printed dropped to 22 percent, which created a lack of confidence in the dollar among foreign countries. The dollar was eroding further, as foreign countries demanded gold in exchange for their dollars, and the U.S. Treasury was being drained of its gold reserves. Germany was the only country aggressively addressing inflation with its economic policies, as they feared it more than deflation, having suffered superinflation in the 1930s.

Starting in 1969, the United States entered a period of high prices and shortages. Newspapers fueled the fire with stories of price-gouging. The public worried as countries such as France demanded gold in payment for its dollars, thus taking gold out of the United States. The value of the dollar fell, and headlines in the United States newspapers blamed the problems on an exchange crisis caused by foreign countries. The huge increase in the U.S. money supply was being overlooked. The Nixon administration wanted both low interest rates and low unemployment and encouraged the Federal Reserve to print money to get those results. High housing costs were causing trouble for the postwar baby boomers who were about to enter the housing market. Public opinion was demanding that the government take action to address these problems.

On August 15, 1971, President Nixon announced a three-pronged approach: a wage and price freeze, a 10-percent import surcharge, and the end of the convertibility of the U.S. dollar to gold. In the short run, the approach worked; but it had many long-term ramifications. By 1976, the world's major currencies were floating and their values were no longer under government control. The long-term impact of Nixon's policies on the American economy is clouded by other major economic shocks, such as the Arab oil embargo.

Historically, price-fixing has shown few positive effects. The policy was tried on a major scale by the ancient Romans, by the Soviet Union, and during the French Revolution and World War II. The results were the development of black markets in goods and material shortages. For decades, the black market was a way of life in the price-controlled Soviet Union. Adam Smith had predicted this 200 years earlier. Even America with its wartime price controls on meat had learned a hard lesson after World War II. These controls eventually led to scarcity of the product whose price was being controlled. Consumers even rejected the policy, realizing that a cheap price for meat was of little value if there was no meat available to buy.

Nixon was well aware that price controls would create shortages, but the political environment required some action. Nixon's wage and price controls were short-lived, but his decision to end the convertibility of the dollar into gold remained the long-term legacy of his actions against inflation. The great wave of inflation returned in 1974, fueled by the Arab oil embargo and the pushing of the money supply to keep unemployment low. Eliminating the gold standard freed the Federal Reserve to pump unlimited amounts of money into the system.

The wage and price controls did little to change the underlying causes of the 1970s inflation. Another result of the 1970s inflation and stagflation was a rethinking of Keynesian economic policies. Before the 1970s, Keynesian economists believed inflation and unemployment were inversely related; that is, high inflation meant low unemployment. This relationship was known as the Phillips curve. The thought behind the Phillips curve was that the high demand (reflected in high prices) seen in times of inflation required more workers to be hired, thus driving down unemployment.

The stagflation of the 1970s, however, showed that high inflation and high unemployment could coexist. Milton Friedman led the rethinking of Keynesian theories. Friedman showed that the Phillips curve shifted in the 1970s as businesses adapted to long periods of inflation. Workers and management started to take inflation into account in their wage negotiations. The bottom-line result of the 1971 wage and price controls was that they signaled the beginning, not the end, of an economic crisis. Inflation would continue into double digits, and a new economic condition that would be known as stagflation occurred: the United States was in an economic recession yet inflation continued to rise.

Quentin R. Skrabec Jr.

See also: Federal Reserve System; Friedman, Milton; Gold Standard; Panic and Global Depression, 1873; *Vol. 1: Foundations of Economics:* Keynesian Economics; Smith, Adam; *Vol. 3: Microeconomics:* Savings and Loan Crisis, 1986; *Vol. 4: Global Economics:* Arab Oil Embargo Crisis, 1973

Further Reading

Gali, Jordi. 2008. *Monetary policy, inflation, and the business cycle: An introduction to the new Keynesian framework.* Princeton, NJ: Princeton Univ. Press.
Rockoff, Hugh. 2004. *Drastic measures: A history of wage and price controls in the United States.* Cambridge, UK: Cambridge Univ. Press.

WAGNER ACT. *See* National Labor Relations Act of 1935

WAR FINANCING CRISIS, 1776

America had been in and out of major wars since the 1740s, but seeking its independence by going to war with Great Britain created special economic problems for the colonies. Because Great Britain was the main holder of colonial debts, war with Britain would relieve some debt problems for the colonies; however, the colonies themselves lacked gold and silver to back the printing of their own currency. The war would also cause America to lose its main trading partner: Great Britain.

Money would be needed to purchase such key war materials as gunpowder. As in past conflicts, American factories could be ramped up to manufacture some war materials, but not everyone supported the war. Furthermore, some merchants, traders, manufacturers, and businesses were suspicious of paper money after the inflationary problems of the 1740s, 1750s, and 1760s. They were leery of beginning to produce war material only to be paid with worthless currency.

The American Revolution would be as much a financial crisis as a political conflict, and victory would be as much financial as military. The colonists, however, realized that continued economic ties with Britain provided no better future either. It was time for economic freedom as much as for political freedom. Not surprisingly, the northern urban centers and the southern plantation owners were the centers of support for revolution, as they had been the most negatively affected by the British mercantilism that had harmed and constricted the colonial economy for decades.

By 1774, the die of war was cast. British soldiers were in the colonies enforcing oppressive regulations and acts of Parliament. The colonists were organizing a boycott, and the British were blockading major ports. The First Continental Congress met in Philadelphia. A major boycott was being planned; but before that, merchants such as Robert Morris of Philadelphia sent many ships filled with flour to Europe to obtain goods and establish credit before the fighting began. Credit had already been tightened in anticipation of a major conflict with Great Britain.

Congress formed the Committee of Safety and filled it with prominent merchants. The committee's first assignment was to arm 4,500 soldiers. The most critical need was for gunpowder, and Robert Morris was given the first government contract. Fulfilling the contract was a high-risk investment of Morris's ships, but the profit would be more than 30 percent, high enough that one successful shipment could pay for two or three lost shipments. American merchants like Morris would find war to be profitable. Morris was able to establish a European trade that had gunpowder, cannon, and arms flowing into America before the Declaration of 1776. Congress started to print continental dollars and to let contracts for war materiel. The public lacked confidence in paper money, but there was little silver or gold available for Congress to use in the fight.

In late 1775, Robert Morris was a key member of many congressional committees and had procurement responsibilities for the Congress. Many in Congress were upset with the profit margins of the merchants, but these profits brought victory by giving merchants the incentive to risk their money and property against the British navy. British blockades began in 1776 as the war officially started.

Benjamin Franklin was able to get a secret credit deal from France that would prove critical to the American war effort.

Morris established a trading network throughout Europe and the colonies. He had, for example, been given sole responsibility for the Virginia tobacco trade. American ships were also sailing in search of British ships to capture for their cargo and money. The economics of war often received little attention, but the America victory depended on it. Morris's network supplied the muskets, gunpowder, blankets, lead, and money to support Washington's famous Christmas Eve crossing of the Delaware to defeat the Hessians. During this campaign, the enlistment period was up for many of Washington's soldiers, and they were due to return to their homes in the next few days. Washington offered a $10 bounty for soldiers to sign up for another year. Morris was able to collect the necessary funds in coin to hold on to the soldiers.

It would be a long war and would involve a string of financial ups and downs. Congress considered imposing new taxes to support the war, but that was politically impossible as the war was being waged over British taxes. In 1777, Congress, hoping to borrow money to help pay for the war, approved the issuance of $5 million in certificates paying 4 percent. There was a lot of competition with individual states, which were issuing their own certificates at the 4-percent rate. The bonds found few takers until Congress raised the interest rate to 6 percent. Still, by the end of 1777, more French loans were needed to pay for the war. Morris set up an informal bank that sold six-month certificates, and the bank circulated paper notes to be used as currency. This bank was successful with providing credit for merchants, who preferred bank notes to continental dollars.

As 1780 approached, all forms of paper money that had been issued were highly inflated. The state of circulating currency was a mass of state-issued paper, continental dollars, and some interest-bearing bank notes. The crisis peaked in 1781, when 10 regiments of Pennsylvania soldiers, tired of the lack of supplies and pay, marched on Congress. This was not an isolated rebellion, but it was the largest to directly threaten Congress. Congress was printing money to pay for the war, with no formal agreement between the individual states to back the money—that is, to accept the responsibility to pay back the debts after the war. Congress decided that the currency and the war financing required central control, and Robert Morris was named superintendent of finance. The need for unity in taking responsibility for the war spending ultimately resulted in the ratification of the Articles of Confederation.

Morris founded a private national bank to issue currency backed by silver and gold. The idea was to attract patriotic investors and French support. Most important, Morris used the bank as a central bank to control the value of the currency. Under the bank, all states would share the war debt. However, Morris planned to use poll taxes, import taxes, excise taxes, and land taxes to pay off the debt. He used a 6-percent interest rate to attract foreign money. Morris also aggressively sold grain to Spain for gold and silver to back his new bank. Many critics looked at Morris as a financial alchemist, and they could not understand why he was buying back continental dollars and bank paper while limiting new money. The French were still giving loans to the colonies because manufacturing gunpowder and other war supplies had created an economic boom for France, and France's earlier investments required them to stay for the long haul or lose everything.

Morris also proved creative in saving money on supplies for the army. He replaced an elaborate system of government agents and army supply officers with contractors who became responsible for collecting and delivering supplies to the army. This also allowed the army to put more troops in the fight. The use of contractors was years ahead of its time, but the system worked extremely well in the North. Merchants lined up to bid on contracts at the rate of 10 cents per soldier per day. If supplies were captured by the enemy, the government would cover the loss. The concept would come to be frowned on by the professional armies of Europe, however, because of the lack of control over contractors. (The idea would be resurrected by the Bush administration during the Iraq War.) The problem of pay, however, was not to be resolved for over a decade.

George Washington had spent years begging soldiers to stay on with little money available for pay. Some of these soldiers still had worthless paper dollars from the French and Indian War. The average soldier was patriotic, but the soldiers were also farmers and laborers with families to feed. The years of fighting had taken their toll, and although a military end was in site, inflation and a lack of hard cash were big obstacles to success. Even Washington's ultimately successful southern campaign to Yorktown was in jeopardy for lack of funds. But the arrival of the French fleet brought not only troops but also kegs of silver coins for the soldiers' pay.

The American victory at Yorktown brought money from Holland—the first major loan outside of France. The financial work of Robert Morris had been behind the ultimate American victory, but it took another 10 years to settle the debt created. The pattern of war, boom, inflation, peace, and recession that had been seen in the past was repeated during the Revolutionary War period and would be repeated in the future.

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See also: Money; *Vol. 4: Global Economics:* Currency Appreciation and Depreciation; Tariffs

Further Reading

Egnal, Marc, and Joseph A. Ernst. 1972. An economic interpretation of the American revolution. *William and Mary Quarterly* 29 (1): 3–32. http://www.jstor.org/stable/1921325 (accessed November 30, 2013).

Rappleye, Charles. 2010. *Robert Morris: Financier of the American revolution.* New York: Simon & Schuster.

WATER POLLUTION

The economics of water pollution is complicated by several features. Water pollution causes externalities or third-party effects—usually (and literally) downstream effects. Unless those external costs are internalized by the polluter, there will be downstream effects. Rivers and lakes or surface water, groundwater, and oceans are all at risk for water pollution. Additionally, there are multiple sources of water pollution that require different solutions or policies. These sources include point source pollution, nonpoint source pollution, atmospheric deposition of pollution, groundwater contamination, and ocean pollution. Finally, the pollutants entering the water bodies may be either fund pollutants or stock pollutants. The environment has some absorptive capacity for *fund pollutants*; common examples of fund pollutants are nitrogen and phosphorous, which are not harmful in small quantities but can cause eutrophication in larger quantities. *Stock pollutants*, on the other hand, are those for which the environment has little or no absorptive capacity; these are persistent pollutants that accumulate in water bodies and in the food chain.

Point source pollution can be traced back to a specific discharge pipe, making it easier to control and to monitor. The timing of pollution can also be determined with some accuracy. Pollution control authorities have focused (until recently) control efforts on point sources such as sewage treatment plants and production facilities such as paper mills.

Nonpoint source pollution is pollution that runs off the land when it rains. Runoff from farms, roads, golf courses, and residential lawns is included in this category. Predicting the timing and quantity of nonpoint source pollution is difficult, so until recently, this type of pollution was ignored. Now, however, it is understood that nonpoint source pollution accounts for a majority of water pollution, so recent attention has focused on regulations and incentives for controlling nonpoint source pollution.

Groundwater contamination usually results from toxic or harmful substances leaching into underground aquifers. For oceans, the main sources of pollution are ocean dumping and oil spills. Oil spills from tankers and from offshore drilling sites are not uncommon. Ocean pollution from trash is becoming a large problem in certain areas, where plastics are accumulating.

Water bodies are also becoming polluted when air pollution falls to the ground. Called atmospheric deposition, this occurs when it rains (wet deposition) or when pollutants become heavy and fall to the ground (dry deposition). Air pollutants like sulfur dioxide cause acid rain, and heavy metals such as mercury (a by-product of burning coal and trash) contaminate water and are found in fish tissue. Most food products made from freshwater fish and many saltwater fish are listed with fish consumption advisories for children and women of childbearing age due to mercury contamination.

Traditionally, water-pollution control policies have relied on command and control, or regulations limiting the amount of pollution that can be discharged into a water body. Early examples in the United States include the 1899 Refuse Act (a part of the broader Rivers and Harbors Act) and the Water Pollution Control Act of 1948. The Water Pollution Control Act of 1948 included regulations on waste discharges as well as economic incentives in the form of subsidies for the construction of wastewater treatment plants. Subsidies lowered municipalities' costs for building expensive wastewater treatment plants that might not have been built otherwise. The 1972 amendments to the Water Pollution Control Act, or the Clean Water Act (CWA), gave the EPA authority over setting effluent limits for water-quality protection. The CWA requires that dischargers of pollutants obtain permits called National Pollutant Discharge Elimination System (NPDES) permits for their discharges. Other, more recent policies include the Safe Drinking Water Act of 1972, the Total Maximum Daily Load (TMDL) program of the Clean Water Act, and laws on ocean dumping.

Most of these policies rely on expensive command-and-control regulations. The regulations do not offer flexibility or cost-effectiveness, but are based on industry-wide or technology-based standards. Recently, however, watershed-based trading (or water-quality trading) has gained attention as a way to achieve a standard at lowest cost. Pollution trading of any kind relies on the idea that polluters (facilities, factories, sewage treatment plants, etc.) tend to have very different costs for pollution control. Trading works if there is enough variation in costs that high-cost sources can buy allowances from lower cost of control sources. If high-cost-of-abatement sources buy allowances at less than their marginal cost of cleanup and low-cost sources sell for higher than their marginal cost of cleanup, the same standard can be reached, but at a lower total cost.

Many trades have taken place across similar types of polluters (e.g., point source to point source). But watershed-based trading may also be an appealing option for point sources that have already been forced to clean up a significant portion of their discharge—so much so that additional treatment could be extremely expensive. If those point sources instead subsidized the treatment of a nonpoint source, the same reductions could be met at much lower cost. For example, the marginal (additional) cost of abatement rises with abatement. Imagine two sources: one point source that is half-way up its own marginal cost schedule, and a nonpoint source that has not cleaned up at all. The nonpoint source may have higher overall marginal costs of cleanup, but is not yet on the curve (abatement = 0). In this case, the total cost of abatement is lowest if the nonpoint source, rather than the point source, cleans up the next unit. An example is Lake Dillon, Colorado. Lake Dillon was experiencing excess phosphorous pollution. The sewage treatment plant opted to build a buffer around a local golf course to keep phosphorous from fertilizer out of the lake, rather than build additional sewage-based treatment.

Some watershed-based trading, however, relies on complicated ambient trading ratios, which restrict trades. The Long Island Sound nitrogen trading program in Connecticut functions more like an ambient tax than an ambient trading program. The ambient trading ratios change with distance north and east of the hotspots in Long Island Sound. As such, the price is not determined by the market, but is set by the state. Still, a tax program offers an incentive for pollution control and is more cost-effective than a strict regulation. This program is expected to save $200 million, or 20 percent over the life of the program, compared to command-and-control approaches.

While rarely used for water-pollution control in the United States, effluent charges, or taxes, have been used extensively in Europe. Some of these are combined with effluent standards, while others are used as incentives for firms to reduce pollution more than is required by the standards. Most recently, charges have been used for heavy metals.

Policies related to oil spills rely heavily on the legal system, but oil spills—in particular, the *Exxon Valdez* spill of 1989—opened the door for nonmarket valuation methods such as the contingent valuation method to become valid tools for natural resource damage assessments.

For ocean pollution, the complexities include enforcement and the vast expanses the pollution can travel over. Oil spills, toxics, and plastics pollution in the ocean are all harmful to marine life and to beach recreation. While liability for an oil spill might be obvious, sources of plastics pollution are many and diffuse.

Do the benefits of water-pollution control policy exceed the costs? The evidence is mixed. The benefits of water-pollution control policy are tricky to estimate, and policies that rely on command and control are expensive to implement. Co-benefits from air-pollution control policies further complicate the measurement of benefits. For example, policies aimed at reducing sulfur dioxide emissions from coal-fired power plants have reduced emissions considerably. These reductions have also improved water-quality conditions.

Using cost-effective policies would help reduce costs considerably while leaving benefits unchanged. Moving toward policies that utilize economic incentives will help. Water-quality trading is one step in that direction. Economic incentive approaches offer flexibility and can stimulate change.

Lynne Lewis

See also: Externality; Regulation; *Vol. 1: Foundations of Economics:* Marginal Analysis; *Vol. 3: Microeconomics:* Clean Water Act; *Exxon Valdez* Oil Spill

Further Reading

Griffiths, C., and W. Wheeler. 2005. Benefit-cost analysis of regulations affecting surface water quality in the United States. In *Cost-benefit analysis and water resources management*, ed. Roy Brouwer and David Pearce. Northampton, MA: Edward Elgar.

Ohlmstead, Sheila M. 2010. The economics of water quality trading. *Review of Environmental Economics and Policy* 4 (1): 44–62.

Tietenberg, Tom, and Lynne Lewis. 2012. Chapter 18: Water pollution. In *Environmental and natural resource economics*. 9th ed. Upper Saddle River, NJ: Pearson.

U.S. Environmental Protection Agency. n.d. National pollutant discharge elimination system (NPDES). http://cfpub.epa.gov/npdes/ (accessed September 30, 2016)

WEBER, MAX

Born: April 21, 1864, in Erfurt, Prussia; Died: June 14, 1920, in Munich, Germany; Nationality: German; Professional Interests: political economy, social sciences, sociology, economic systems; Major Works: *The Protestant Ethic and the Spirit of Capitalism* (1904–1905), *Economy and Society* (1921–1922).

Max Weber was an influential German political economist and sociologist. His work traced the roots of capitalism from within the Protestant religion. He also examined the connections between religion, culture, and economic systems of Chinese Confucianism and Taoism, Indian Hinduism and Buddhism, and ancient Judaism. Many would consider Weber, as well as Karl Marx and Emil Durkheim, a founder of modern social science. Weber died in 1920.

Maximilian Weber was born on April 21, 1864, in Erfurt, Prussia, the oldest of six children. His father, Max Sr., a lawyer and politician, and his mother, Helene Fallenstein, well educated with strong Calvinistic convictions, created a prosperous and intellectually engaging household. Weber's brother Alfred eventually became a noted economist and sociologist as well. Weber studied law, economics, and history at the University of Heidelberg in 1882 and then at the University of Berlin in 1884. In 1886, he passed his "Referendar" examination (similar to the American Bar examination) and earned his doctorate in law magna cum laude in 1889. His dissertation focused on South European trading companies of the Middle Ages. Weber earned notoriety after he conducted research into the conditions of rural laborers in the East Elbian provinces of Prussia and recommended breaking up large estates for use by workers and as an incentive to keep workers in the area. In 1894, he accepted a position as a professor of political economy at Freiburg University. In 1896, he moved on to the University of Heidelberg.

In the summer of 1897, Weber and his father had a notable confrontation regarding Weber Sr.'s treatment of his mother. Weber's father died shortly thereafter, without the two reconciling. Weber began to suffer symptoms of a nervous breakdown, causing him to spend the summer and fall of 1900 in a sanatorium forcing him to give up his professorship in 1903. Weber slowly returned to academia as a private scholar, writing many influential works. He later helped to shape the well-known social science journal *Archiv fur Sozialwissenschaften und Sozialpolitik* with Edgar Jaffe and Werner Sombart.

At the beginning of World War I, Weber founded and managed nine military hospitals as part of the Reserve Military Hospitals Commission. During World War I, Weber's political views slowly became more public, until in 1917 he campaigned for constitutional reform of postwar Germany with universal suffrage and the empowerment of parliament. At the end of the war, Weber was asked to join the German Armistice Commission at the Treaty of Versailles as well as to help draft the Weimar Constitution. In 1919, he taught at the universities of Vienna and Munich and continued to write.

Throughout his life, Weber did not shy from either controversy or political debate. He ran unsuccessfully as a liberal Democrat for a parliamentary seat. His wife, Marianne Weber, became a leader of women's rights and Weber also publically supported universal suffrage. Their home in Heidelberg became a gathering place for intellectuals and writers.

Weber was a founder of modern sociology. He believed that a social scientist's work should be value-free; he advocated a rigorous separation of fact and value. His most famous work, *The Protestant Ethic and the Spirit of Capitalism*, is a comparative study of world religions and economic systems. In it, Weber argues that the morality of Protestantism, specifically Calvinism, is the catalyst for entrepreneurship and capitalism. The Protestant work ethic, he states, encourages people to accumulate wealth. Protestantism also encourages thoughtful, rational stewardship, which means that Protestants are likely to reinvest their wealth rather than spend it. Weber's analysis of Protestantism is accompanied by various explanations of why capitalism does not develop in places with different religions.

In another influential work, *Economy and Society,* Weber describes rationalization as a shift from value-oriented social organization and action to one of goal-oriented organization and action. He darkly describes this change as a "polar night of icy darkness" that ultimately traps human life in the control of bureaucratic organizations.

Weber's methodology and his systems of classification are also noteworthy. Weber introduced the distinction between social class (one's relationship to the market), status class (religion and reputation), and party class (political affiliations), as the three classes that work together to determine one's potential future.

Weber felt that the study of economics should also include economically relevant and conditioned phenomena, or as he described it, social economics. He advocated for interdisciplinary work between economics and sociologists.

Max Weber died in Munich on June 14, 1920, from pneumonia.

Kathryn Lloyd Gustafson

See also: Engels, Friedrich; *Vol. 1: Foundations of Economics:* Capitalism; Economic Systems; Marx, Karl

Further Reading

Bendix, Reinhard. 1978. *Max Weber: An intellectual portrait.* Berkeley: Univ. of California Press.

Weber, Marianne. 1988. *Max Weber: A biography.* New Brunswick, NJ: Transaction.
Weber, Maximilian. 1930. *The protestant ethic and the spirit of capitalism.* London: Allen & Unwin.
Weber, Maximilian. 1978. *Economy and society: An outline of interpretive sociology.* 4th ed. Guenther Roth and Claus Wittich, eds. Berkeley: Univ of California Press. (Orig. pub. in German 1922.)

WELFARE STATE

A welfare state emphasizes programs that provide citizens with a minimum standard of living, seek to redistribute income, and bridge the gap of inequality that exists.

A welfare state contributes to short-term stability for those who meet requirements for welfare (or social welfare) programs. A welfare state may include such public programs as Temporary Aid to Needy Families (TANF), unemployment compensation, and other transfer payments, such as Social Security and Medicare, that work to aid those who meet the criteria for benefits. The effect of these programs is to redistribute equity based on taxes and transfer payments. The welfare state may also include some private benefits that employees receive from their employers, nonprofit charities, or government subsidies. One example of this is health care insurance—in which employees pay only a portion of their health care costs, with the rest being covered by the employer.

The welfare state is heavily tied to full-employment policies that are meant to support it. If more people are working, there are more people paying taxes, and some of this tax revenue can be used to support the welfare state. In addition, programs like unemployment compensation allow workers to be selective about accepting a job; this may cause some to remain unemployed longer while they hold out for a higher-paying job.

The modern welfare state is attributed to the programs of Otto von Bismarck of Germany in the 1870s. Bismarck's programs included sickness insurance and medical care, pensions, and a minimum wage. These programs helped him to win the support of Germany's working class, and by 1913, most of Germany's workers were covered by social programs. These ideas later spread to other countries, such as the United Kingdom, in the 1900s. The United States adopted welfare-state programs in the 1930s during the Great Depression.

The extent of a welfare state varies by country and region. There tends to be a more extensive welfare state in Europe than in other regions. Market economists such as the late Milton Friedman and supply-side economists such as Arthur Laffer argued that countries with an extensive welfare state have less economic growth compared to countries with fewer government-sponsored provisions. The two economists believed that low-skilled workers hurt the economy, pushing wages down and increasing unemployment rates.

Comparatively, the United States can be said to be a partial welfare state, with fewer provisions compared to European countries. The effectiveness or level of a welfare state relates to other factors, such as unemployment and fiscal policy. There are more demands on a welfare state when there is high unemployment or when the economy is struggling, such as during a recession or a depression. If a country has high debt, this generally means there is less money available for a welfare state.

The United States began to establish the infrastructure of a modern welfare state as a result of the Great Depression and the New Deal programs instituted by President Franklin D. Roosevelt. The Social Security Act of 1935 gave benefits to retirees as well as to the unemployed and disabled. Initially, the intent of the program was to help alleviate the poverty of the large numbers of people who were unemployed as a result of the Great Depression. Before passage of this act, the elderly were dependent on charity and personal savings when they could no longer physically work. The program was later expanded through the Federal Income Tax Contributions Act of 1937 in order to collect payroll taxes from people who were employed. The revenue from these taxes was to be used to fund Social Security payments to those receiving benefits.

In the 1960s, the U.S. welfare state expanded under President Lyndon B. Johnson's Great Society War on Poverty programs. President Johnson drew much attention to poverty and the standard of living in the United States; he signed Social Security Amendments in 1965, which established the Medicare and Medicaid programs. The programs aimed to provide health insurance for the elderly and the poor, and the programs were a result of years of research on poverty and income inequality. The implementation of these programs led to a further study of the welfare state, and it was realized that poverty must be addressed to help people achieve a higher standard of living.

In a modern welfare state, most social programs are created to benefit the unhealthy and the poor. Sometimes the welfare state is referred to as "workfare," because people need to meet certain requirements, such as having a job, in order to receive benefits. Workfare works best when unemployment is low. Political parties and interest groups also play a role, and some seek to reexamine the benefits that people receive as a result of the welfare state.

Today, there are many political and economic pressures on the welfare state. Conservatives favor retrenchment when it comes to the welfare state, while progressives and populists favor expansion. The conservatives fear that if unemployment becomes too high during periods of economic recession, the welfare expansion will place too large a burden on government spending. Progressives promote expansion of the welfare state in order to ensure that the social safety net covers all who are entitled.

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See also: Entitlements; Fiscal Policy; Great Society; Social Security Act of 1935; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; Keynesian Economics; New Deal; Poverty; Roosevelt, Franklin D.

Further Reading

Alesina, Alberto, Bruce Sacerdote, and Edward Glaeser. 2001. Why doesn't the United States have a European-style welfare state? *Brookings Papers on Economic Activity* 2001 (2): 187–277. https://www.brookings.edu/wp-content/uploads/2001/06/2001b_bpea_alesina.pdf (accessed October 25, 2016).

Atkinson, Anthony Barnes. 1996. The economics of the welfare state. *The American Economist* 40: 5–15.
Barr, Nicholas. 2012. *Economics of the welfare state*. Oxford, UK: Oxford Univ. Press.
Folbre, Nancy, and Douglas Wolf. 2013. The intergenerational welfare state. *Population and Development Review* 38: 36–51.
Hacker, Jacob S. 2002. *The divided welfare state: The battle over public and special benefits in the United States*. Cambridge, UK: Cambridge Univ. Press.
Huber, Evelyne, and John D. Stephens. 2001. *Development and crisis of the welfare state: Parties and politics in global markets*. Chicago: Univ. of Chicago Press.
Khodour-Casteras, David. 2008. Welfare state and labor mobility: The impact of Bismarck's social legislation on German emigration before World War I. *The Journal of Economic History* 68: 211–43.
Korpi, Walter. 2003. Welfare-state regress in western Europe: Politics, institutions, globalization, and Europeanization. *Annual Review of Sociology* 29: 589–609.
Lindbeck, Assar. 1997. Full employment and the welfare state. *The American Economist* 41: 3–14.
Palier, Bruno, ed. 2010. *A long goodbye to Bismarck? The politics of welfare reform in continental Europe*. Amsterdam: Amsterdam Univ. Press.
Pierson, Paul. 1996. The new politics of the welfare state. *World Politics* 48: 143–79.
Sheikh, Anwar. 2003. Who pays for the "welfare" in the welfare state? A multicountry study. *Social Research* 70: 531–50.
Social Security Administration. n.d. Social security. http://www.ssa.gov/ (accessed September 30, , 2016).
Vogel, Joachim. 2003. Welfare state. *Social Indictors Research* 64: 373–91.
Waddell, Brian. 2001. Limiting national interventionism in the United States: The warfare-welfare state as restrictive governance paradigm. *Capital & Class* 74: 109–39.
Wildasin, David E. 2004. Economic integration and the welfare state. *CESifo Forum* 5: 19–26.
Wilensky, Harold L. 1975. *The welfare state and equality: Structural and ideological roots of public expenditures*. Berkeley: Univ. of California Press.

WHISKEY REBELLION, 1794

As part of Alexander Hamilton's initiative to pay down the federal war debt, tariffs and excise taxes were used to raise money for the new United States. In 1791, President George Washington and Treasury Secretary Alexander Hamilton imposed an excise tax on whiskey, believing it to be one of the least offensive taxes possible. The tax would be used to pay off the national debt, to support road building, and to bolster the national bank, all of which these officials believed would benefit frontier areas such as Pennsylvania. Hamilton also preferred this excise tax to a further increase in tariffs, which had become the federal government's major source of income. The excise whiskey tax, however, would hit small farmers in western Pennsylvania particularly hard. The Whiskey Tax Rebellion would be the first armed challenge to the new government and its authority to collect taxes, as well as the first antigovernment military action by citizens since Shays' Rebellion in 1786–1787.

Rye whiskey was a mainstay of western Pennsylvania's Scotch-Irish farmers. Whiskey was a favorite manufactured product of grain farmers, because grain was a low-density, low-cost commodity not worth the cost of transporting long distances. Monongahela rye distilled in Pennsylvania, for example, was easy to transport down the Ohio–Mississippi River system, making its way via New Orleans and the Atlantic to the East Coast and to the taverns of Europe. When Pennsylvania was a British colony, its whiskey production had been controlled and taxed, but the remoteness of the Monongahela Valley outside Pittsburgh made it almost impossible for British tax collectors to do their work. In fact, the area had been populated by Scotch-Irish citizens who moved there to avoid British taxes on whiskey and iron. The resistance to British taxes had been part of the American Revolution, and feelings ran deep in the country and in the valley against the new government's right to impose taxes. Although the Scotch-Irish were a major segment of the nation's population and had been loyal supports of the revolution, the whiskey rebels themselves were a very small minority.

General John Neville, a local Revolutionary War general, was chosen to enforce the whiskey tax, even though he had initially opposed it. The tax schedule varied, ranging from 6 to 10 cents a gallon (a gallon of rye whiskey sold for a dollar). For months, the resistance was modeled after the colonists' resistance against British taxes. The resistance to the whiskey tax also had national support in the western counties of Maryland, Virginia, North Carolina, and South Carolina. Even within the Washington administration there was division: Thomas Jefferson opposed Hamilton on such a federal tax. The Pennsylvania Scotch-Irish mustered a militia and burned the estate of tax collector General Neville. The rebels also burned the estates of distillers who paid the tax.

This Whiskey Rebellion was the first test of the strength of the new federal government to act within the individual states. Jefferson was publicly sympathetic to the whiskey rebels, but Hamilton thought the rebellion required decisive action by the government. For months, Scotch-Irish militia roamed western Pennsylvania attacking federal agents. The predominantly Scotch-Irish frontier was split politically over the tax, with anti-tax followers in the Jeffersonian Republican Party and supporters of the tax in the Federalist Party. This political and ideological divide was an early example of a basic political split that exists to this day. The fact was that less than one percent of the area's whiskey distillers were delinquent in paying their taxes. Most were supportive of the federal government because the government had been one of the biggest purchasers of their whiskey for army rations.

The radical core of the rebellion was the local Democratic-Republican clubs. In August 1792, they held a convention in Pittsburgh to discuss options. The convention had few moderates in attendance, with the exception of Albert Gallatin, a future secretary of the Treasury under President Jefferson. Gallatin had served on the Pennsylvania constitution ratification committee, which had voiced opposition to taxes but had supported a strong federal government. This position was more consistent with that of the majority of voters. Gallatin was elected to Congress in 1790 to represent Allegheny, Washington, and Fayette counties. This congressional district included Pittsburgh and was the heart of pig iron production and use. He was elected to the United States Senate in 1793, when the Pittsburgh convention failed to obtain a solution from the federal government.

By 1794, the crisis had reached a peak, and federal agents were determined to collect the back taxes that were due in western Pennsylvania. A rebel army of 600 men was mustered at Braddock's Field, eight miles from Pittsburgh, to oppose the tax collectors. The army swelled to 7,000 as they marched on the city of Pittsburgh. The rebel leader, Revolutionary War general James MacFarlane, was killed in the clash.

While following Hamilton's advice, Washington proved as adept as always at handling these early challenges to a strong central government. Congress had already passed the Militia Act of 1792, which required a judge to deem federalization of troops necessary. In addition, the president had to issue a formal order for the rebels to stand down. Still, western Pennsylvania was the frontier and wanted total economic freedom. Washington and Hamilton reacted, federalizing an army of more than 12,000. As the federal army marched toward Pittsburgh, the insurrection fell apart, and its leaders fled to Kentucky and Tennessee. Some of the leaders were arrested and tried, but Washington pardoned the two who were found guilty of treason; further, he refused to impose any form of retribution or to succumb to the pressure of many critics who wanted him to require loyalty oaths from the rebels. Washington's popularity rose dramatically throughout the nation after his skillful handling of the Whiskey Rebellion.

The Scotch-Irish people were fiercely independent, which naturally drew them to the wild frontier areas of the new country. After the Whiskey Rebellion, the Scotch-Irish distillers in Pennsylvania moved west again to avoid federal taxes. Many left the Monongahela Valley for Kentucky and Tennessee, which would become the center of the American whiskey industry. Many Scotch-Irish stayed, however, and built banking and manufacturing empires in Pittsburgh. Elections in the following years showed strong support for the authority of the government to apply "sin taxes" like the whiskey tax. The Whiskey Rebellion had a lasting impact on America's politics and government. It actually created a political rift within the Scotch-Irish community: a group of Federalists and capitalists supported a strong federal government, and an independence-minded group supported the Jeffersonian model of more limited government. One lesson the federal government also learned was that it needed to proceed slowly on the use of its taxing authority. Few additional internal taxes were needed by 1795, as the trade tariffs that were already imposed gave the government healthy surpluses with which to pay down its debt. The federal government also responded to the western Pennsylvania protest by providing the local area with more military protection and increased road-building.

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See also: Hamilton, Alexander; Taxes; *Vol. 4: Global Economics:* Tariffs

Further Reading

Buck, Solon J., and Elizabeth Hawthorn Buck. 1968. *The planting of civilization in western Pennsylvania.* Pittsburgh, PA: Univ. of Pittsburgh Press.

Hogeland, William. 2006. *The whiskey rebellion: George Washington, Alexander Hamilton, and the frontier rebels who challenged America's newfound sovereignty.* New York: Scribner.

McDonald, Forrest. 1982. *Alexander Hamilton: A biography.* New York: Norton.

WHITE, HARRY DEXTER

Born: October 9, 1892, in Boston, Massachusetts; Died: August 16, 1948, in Fitzwilliam, New Hampshire; Nationality: American; Professional Interests: economist and U.S. Department of the Treasury official instrumental in creating the Bretton Woods Agreement.

Harry Dexter White was an U.S. Department of the Treasury official and an American Keynesian economist. He was one of the founding fathers of the post–World War II economic system known as the Bretton Woods System. This system paved the way for the West to win the Cold War, dominating the 20th century. Harry also influenced the development and design of the economic system's institutions, which included the International Monetary Fund (IMF) and the World Bank.

Harry Dexter White was born on October 9, 1892, in Boston, Massachusetts, to Joseph Weit and Sarah Magilewski—Jewish immigrants from Lithuania, which then was a part of the Russian Empire. Harry later adapted the American spelling of Weit to White and added his middle name Dexter later in life. White worked in his family's hardware business and was a first lieutenant in the infantry of the U.S. Army during World War I. As a first lieutenant, he served in the European theater of war between April 1917 and February 1919. When White returned home, he directed the American Expeditionary Force Orphan Asylum for two years. He did not begin his serious university studies until he was 30 years old. In 1922 White attended Columbia University; then he attended Stanford University, where in 1924 he received his bachelor's degree and in 1925 his master's degree. White went on to receive his PhD from Harvard University.

White taught at Lawrence University in Appleton, Wisconsin, until 1933. In 1933, Harvard University Press published White's PhD thesis, titled "The French International Accounts, 1880–1913." His PhD thesis won the David A. Wells Prize, which is awarded annually by the Department of Economics at Harvard University.

In 1934 Jacob Viner, an economist at the Treasury Department, offered White a position at the department. He became a top advisor to Secretary of the Treasury Harry Morgenthau Jr. on international financial affairs. On November 1, 1934, White became principal economic analyst in the Treasury Department's Division of Research and Statistics. This marked the beginning of his government career, and eventually led him to the position of assistant secretary. He was later sent to England to research monetary and economic questions; he met several British economists there, which led him to gain a new sense of monetary cooperation between the United Kingdom and the United States. White was also able to meet the father of Keynesian economics: John Maynard Keynes. In 1936, White became assistant director of the Division of Monetary Research, and in 1938 he became its director. He was appointed assistant secretary of the Treasury, in charge of the Division of Monetary Research. In 1941, Harry Morgenthau Jr. placed him in charge of all of the Treasury Department's international matters.

Harry Dexter White drafted the U.S. blueprint for the IMF. He also was influential in formulating the Morgenthau Plan and in developing Harry Morgenthau's monetary proposals after World War II. Once the war was over, White organized institutions of the Bretton Woods System, including the forerunner of the World Bank (International Bank for Reconstruction and Development) and the IMF. He designed those systems with the intent to avoid a repeat of the complications that had led to the Great Depression.

In 1946, President Harry Truman named White the first IMF Executive Director, although he resigned just a year later. Toward the end of World War II White had an advisor, Professor Ray Mikesell, who stated that Harry wanted a closer cooperation with the Russians. In August 1948 White was accused of spying for the Soviets and was brought before the House Un-American Activities Committee. He denied all the charges.

Many believe the stress of the hearings led to White having a heart attack three days after the hearings. Harry Dexter White died on August 16, 1948 in Fitzwilliam, New Hampshire.

Taylor Brown
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See also: *Vol. 1: Foundations of Economics:* Keynes, John Maynard; *Vol. 4: Global Economics:* Bretton Woods Agreement; Bretton Woods Conference; International Bank for Reconstruction and Development; International Monetary Fund; World Bank

Further Reading

Boughton, J. M. 1998. Harry Dexter White and the international monetary fund. *IMF Finance &Development* 35 (3). http://www.imf.org/external/pubs/ft/fandd/1998/09/boughton.htm (accessed September 30, 2016).

DocumentsTalk.com Staff. n.d. White, Harry Dexter (1892–1948). documentstalk.com/wp/white-harry-dexter-1892-1948/ (accessed September 30, 2016).

Nye, James. 2013. Revealed: The banker who shaped the modern financial world after WWII was a Soviet spy who wanted America to become communist. *DailyMail*, March 5. dailymail.com: www.dailymail.co.uk/news/article-2288294/The-Banker-shaped-modern-world-WWII-Soviet-spy-wanted-America-communist-.html (accessed September 30, 2016).

Steil, Benn. 2013. *The battle of Bretton Woods: John Maynard Keynes, Harry Dexter White, and the making of a new world order*. Princeton, NJ: Princeton Univ. Press.

WILLIAMS, WALTER

Born: March 31, 1936, in Philadelphia, Pennsylvania; Nationality: American; Professional Interests: government in economy, minimum wage, private property, libertarianism; Major Works: *The State against Blacks* (1982), *South Africa's War against Capitalism* (1990), *Do the Right Thing: The People's Economist Speaks* (1995), *Race and Economics: How Much Can Be Blamed on Discrimination?* (2011).

Walter Williams has served as the John M. Olin Distinguished Professor of Economics at George Mason University in Fairfax, Virginia, since 1980. He is the author of 10 books and over 150 publications, his work appearing in scholarly journals such as *Economic Inquiry* and the *American Economic Review* as well as popular publications such as *Newsweek* and *National Review.* He frequently appears on television and radio programs such as *Nightline, Face the Nation*, and *The Rush Limbaugh Show*. He is known for his libertarian views, including the limited role of government intervention with respect to minorities.

Walter Edward Williams was born on March 31, 1936, in Philadelphia, Pennsylvania. William's mother, Catherine, raised him in a single-parent home, living at one point in the Richard Allen housing projects. He is second cousin to basketball player Julius Erving, otherwise known as "Dr. J." After graduating from Philadelphia public schools, Williams spent two years as a taxi driver before becoming a private in the U.S. army. Williams began college as sociology major at California State College in Los Angeles before switching to economics. Although he earned a D in his economics first course, he persevered and ultimately earned his bachelor's degree in economics from California State College in Los Angeles in 1965. He received his MA in 1968 and his PhD in 1972, both in economics from the University of California, Los Angeles. Williams studied under Nobel laureates Armen Alchian and Milton Friedman. He also began a lasting friendship with visiting economist Thomas Sowell. Williams began to question whether government social programs like minimum wage and affirmative action were truly helping those in need. Williams taught for eight years at Temple University in Philadelphia before joining the economics faculty at George Mason University in Fairfax, Virginia, in 1980.

Williams's work is doubtful of the effectiveness of government social programs to promote prosperity. In his 1982 book, *The State against Blacks,* Williams argues that government initiatives such as affirmative action only serve to hurt minorities and stifle their economic progress. He writes that college admission requirements should be equal for all, and that minorities do not benefit from artificial measures designed to boost their enrollment numbers. Williams believes that substandard test performance by minorities is the result of substandard secondary education and family breakdown. He writes that the government has a monopoly on public education, which leads to low quality with a lack of competition. Government programs such as welfare reward childbirth out of wedlock, thus contributing to the collapse of black communities. PBS used his book *The State against Blacks* as the basis for its documentary *Good Intentions.*

In addition, Williams argues that minimum wage laws price low-skill workers out of the market and increase unemployment. In 1977, the Joint Economic Committee of Congress asked him to write about minimum wage. Williams reported that black teenage unemployment was lower than white teenage unemployment before minimum wage and higher after. His research also found that the Davis–Bacon Act of 1931, which required high worker wages for federally financed construction projects, was designed to discriminate against workers based on their race.

Similarly, in *South Africa's War against Capitalism* (1990), Williams argues that South African apartheid was not created for white exploitation but as a reaction to World War I, designed to encourage the hiring of higher-paid white workers. Williams again promotes his belief that capitalism without government intervention will provide the highest standard of living for all.

Williams's overall support for deregulation and laissez-faire government can be described as libertarian. Williams is one of the few scholars to defend individuals' right to sell their body organs. He continues to write a nationally syndicated weekly column that is carried in approximately 140 newspapers and on multiple websites. He regularly participates in national debates, conferences, and lectures, as well as providing expert testimony before congressional committees on public policy issues. He serves on the boards of Grove City College, the Reason Foundation, and the Chase Foundation and on the advisory boards of the Cato Institute, the Landmark Legal Foundation, the Institute of Economic Affairs, and the Heritage Foundation. He has received numerous awards, including the Foundation for Economic Education Adam Smith Award, and he is a Hoover Institution national fellow and a Ford Foundation fellow. Williams is a member of the Mont Pelerin Society and the American Economic Association.

Kathryn Lloyd Gustafson

See also: Friedman, Milton; Hazlitt, Henry; Macroeconomics; Property Rights; *Vol. 3: Microeconomics:* Sowell, Thomas

Further Reading

Farrar, Ronald T. 2013. *A creed for my profession: Walter Williams, journalist to the world*. Columbia, MO: Univ. of Missouri Press.

Lamb, Brian. 2013. Q&A with Walter E. Williams. *C-SPAN*, January 7. https://www.c-span.org/video/?304675-1/qa-walter-williams (accessed August 2012).

Miller, John J. 2011. Walter Williams. *Hey Miller*, March 19. http://www.heymiller.com/2011/03/walter-williams/ (accessed August 2012).

Riley, Jason L. 2011. The state against blacks. *Wall Street Journal*, January 22. http://online.wsj.com/article/SB10001424052748704881304576094221050061598.html (accessed August 2012).

Williams, Walter. 1982. *The state against blacks.* New York: McGraw-Hill.

Williams, Walter. 1990. *South Africa's war against capitalism.* Rev. ed. Cape Town, South Africa: Juta.

Williams, Walter. 1992. *The spirit and the flesh: Sexual diversity in American Indian culture*. Boston: Beacon Press.

Williams, Walter. 1995. *Do the right thing: The people's economist speaks.* Stanford, CA: Hoover Institution Press.

Williams, Walter E. 2010. *Up from the projects: An autobiography*. Stanford, CA: Hoover Institution Press.

Williams, Walter. 2011. *Race and economics: How much can be blamed on discrimination?* Stanford, CA: Hoover Institution Press.

WORKS PROJECTS ADMINISTRATION

In 1935, as part of the Emergency Relief Appropriations Act, President Franklin D. Roosevelt signed an executive order creating the Works Progress Administration (WPA). (The name was changed in 1939 to the Works Projects Administration; Congress dissolved the WPA in 1943.) The federal agency's primary goal was to put to work millions of mostly unskilled laborers who had been left unemployed as a result of the Great Depression. As the largest of the federal New Deal assistance programs enacted by President Roosevelt, the WPA provided employment in projects such as highways, parks, public buildings, and other public works. More than three million employees were paid mostly subsistence wages, working for a monthly average of $42.

Managed by Harry Hopkins, Roosevelt's close adviser and the national director for the program, the WPA was designed to provide government jobs for employable workers on government relief and give them an incentive to seek more stable work elsewhere. Both Hopkins and Roosevelt posited that the WPA could reduce the number of able-bodied "reliefers." Thus the Roosevelt administration went on to spend more than $10 billion, leaving the unemployable to be cared for by the state. According to Hopkins, it was worth it to administer the more-costly WPA as a work relief program rather than to dole out direct relief, since the WPA gave workers pride in earning an income while taxpayers received government services.

The main purpose of the WPA was to direct those most affected by the Great Depression—namely, unskilled and semiskilled workers—into various projects, including the construction of such infrastructure as dams, bridges, roads, airport runways, buildings, and schools; another parts of the WPA focused on school lunches, concerts, plays, books, works of art, and other public works. The majority of those employed worked in construction. The WPA was designed to employ 3.5 million workers at a $5 billion cost. After continual taxpayer criticism of prior agencies simply giving out handouts or overpaying for services—as did the WPA's predecessor, the Civil Works Administration—the government moved away from direct relief to low-wage work relief. The consequence was an organization that provided useful work at a relatively low cost.

The lion's share of WPA workers, roughly 80 to 90 percent, was male. However, a women's division was created to offer appropriate work and commensurate pay for women. Women's influence in this division, called the Division of Women's and Professional Projects, was much greater than the overall 12–19 percent representation women had in the WPA.

Francisco Ortega

See also: *Vol. 1: Foundations of Economics:* Economic History; Keynesian Economics; Keynes, John Maynard; New Deal; Roosevelt, Franklin D.

Further Reading

History.com Staff. 2009. This day in history: FDR creates the WPA. http://www.history.com/this-day-in-history/fdr-creates-the-wpa (accessed January 15, 2014).

National Archives. n.d. Guide to federal records: Records of the work projects administration (WPA). http://www.archives.gov/research/guide-fed-records/groups/069.html (accessed January 15, 2014).

Taylor, Nick. 2009. *American-made: The enduring legacy of the WPA: When FDR put the nation to work*. New York: Bantam Books.

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YELLEN, JANET

Born: August 13, 1946, in Brooklyn, New York; Nationality: American; Professional Interests: macroeconomics, unemployment, fiscal policy, monetary policy; Chair, Federal Reserve System Board of Governors; Major Work: *The Fabulous Decade: Macroeconomic Lessons from the 1990s* (with Alan Blinder) (2001).

Janet Yellen has served the academic sector in the classroom and served the public sector as an advocate for the American people. She shared her knowledge of economics at Harvard University, the London School of Economics and Political Science, and the University of California, Berkeley, and she applied that knowledge while serving on the board of governors of the Federal Reserve System. Yellen assumed the position of the chair of the Board of Governors of the Federal Reserve System in 2010.

Janet Louise Yellen was born on August 13, 1946, in Brooklyn, New York. She graduated summa cum laude from Brown University in 1967 with a degree in economics, and she earned her PhD from Yale University in 1971. Yellen taught at Harvard as an associate professor from 1971 until 1976. She also taught at the London School of Economics and Political Science from 1978 until 1980, when she accepted a position with the University of California, Berkeley (UC Berkeley). She is professor emeritus at UC Berkeley's Haas School of Business and has served as the Eugene E. and Catherine M. Trefethen Professor of Business and Professor of Economics, also at UC Berkeley. She specializes in macroeconomics with an emphasis in the causes and effects of unemployment.

President Bill Clinton nominated Yellen as the chair of the Council of Economic Advisers in 1997, after she served as a member of the board of governors of the Federal Reserve, a position she was appointed to in 1994. Her efforts were focused primarily on the stabilization of foreign exchange rates and international trade. Her work during the 1990s helped lead her into numerous leadership positions during the latter part of the decade and into the 21st century.

Yellen was named president and chief executive officer of the Twelfth District Federal Reserve Bank at San Francisco in 2004. Her work on the current state of the U.S. economy has prompted her testimony toward guiding appropriate macroeconomic and monetary policy for the betterment of the American people. She believes that policy should improve the lives of those it governs. Her emphasis has been on promoting policy that will reduce the breadth, depth, and frequency of economic downturns as well as focus on long-term, sustainable growth over time. These policy changes are paramount in promoting a higher standard of living for the American people. Her work has emphasized understanding the disparity of wage increases over the past 30 years, at the same time that she has explored the implications of attaining education and the impact of technology on the workforce.

Yellen's contributions to the economic community are vast, as she has worked in both the Federal Reserve System and the classroom. She has written papers, taught classes, and helped shape monetary policy in the United States.

Aside from these positions, she was a member of the Council on Foreign Relations, the American Academy of Arts and Sciences, the Group of 30, the executive committee of the Bay Area Council, and a research associate of the National Bureau of Economic Research. She served as president of the Western Economic Association, vice president of the American Economic Association, and fellow of the Yale Corporation, and has worked with a number of other organizations.

After serving as vice chair since 2010, Janet Yellen was named chair of the Federal Reserve System Board of Governors in 2014, a position she will hold through January 2018. She is also chair of the Federal Open Market Committee.

William S. Chappell

See also: Bernanke, Ben; Federal Open Market System; Federal Reserve System; Fischer, Stanley; Friedman, Milton; Greenspan, Alan; Monetarist Economic Thought; Monetary Economics; Monetary Policy; Money Supply; Volcker, Paul

Further Reading

Akerlof, George, Andrew Rose, Janet Yellen, and Helga Hessenius. 1991. East Germany in from the cold: The economic aftermath of currency union. *Brookings Papers on Economic Activity* 1991 (1): 1–106.

Blinder, Alan S., and Janet L. Yellen. 2001. *The fabulous decade: Macroeconomic lessons from the 1990s.* New York: Century Foundation.

Board of Governors of the Federal Reserve System. n.d. Janet L. Yellen. http://www.federalreserve.gov/aboutthefed/bios/board/yellen.htm (accessed October 30, 2012).

Council of Economic Advisers. n.d. Dr. Janet L. Yellen. http://clinton4.nara.gov/WH/EOP/CEA/html/yellen.html (accessed October 30, 2012).

Lang, Kevin. 2007. *Poverty and discrimination.* Princeton, NJ: Princeton Univ. Press.

Yellen, Janet. 1998. The continuing importance of trade liberalization. *Business Economics* 33 (1): 23–26. http://www.jstor.org/stable/23487688 (accessed October 30, 2012).

Yellen, Janet. 1998. *The inequality paradox: Growth of income disparity.* Washington, DC: National Policy Association.

Yellen, Janet, George Akerlof, and Michael Katz. 1996. An analysis of out-of-wedlock childbearing in the United States. *Journal of Economics* 111 (2): 277–317.

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Linfield, Leslie E.
Institute for Financial Literacy

Linn, Joshua
Resources for the Future

Livingston, Morgan
Independent Scholar

Lohr, Samantha
HCS Early College High School

Loomis, John B.
Colorado State University

LoPiccolo, Angela M.
Dakota High School

Luu, Lien
University of Northampton

Lynne, Gary
University of Nebraska

Macksood, Mallory
Independent Scholar

Mahmoudi, Elham
University of Michigan

Major, Lauren
Walsh College

Maly, Kenneth
Independent Scholar

Maschek, Michael
University of the Fraser Valley

McCain, Roger
Drexel University

McEvoy, David M.
Appalachian State University

McInnes, Angelique N. S.
Central Queensland University

Meier, Stephan
Columbia University

Millimet, Daniel L.
Southern Methodist University

Minkler, Lanse
University of Connecticut

Mohr, Tanga McDaniel
Appalachian State University

Molis, Elena
University of Granada

Moore, John
Northwood University

Moretti, Angelo
Independent Scholar

Morgan, O. Ashton
Appalachian State University

Morris, Sean
Independent Scholar

Mortz, Wynter
Independent Scholar

Mousavi, Shabnam
Johns Hopkins University Carey
Business School

Muehlbacher, Stephan
University of Vienna

Mullan, Katrina
University of Montana

Murillo, Alais
Independent Scholar

Murray, Brian C.
Duke University

Nakamura, Tamotsu
Kobe University

Nemer, Alex
Independent Scholar

Noonan, Douglas
Indiana University–Purdue University Indianapolis

Norman, Catherine S.
Johns Hopkins University

Novkovic, Sonja
Saint Mary's University

Nowell, Clifford
Weber State University

Nute, Carol Lynn
River Bluff High School

O'Connor, David E.
Edwin O. Smith High School and University of Connecticut

Ortega, Francisco
Los Angeles Unified School District

Ortmann, Andreas
Center for Social Impact, Australian School of Business

Oxoby, Robert
University of Calgary and Canadian Institute for Advanced Research

Palmer, Karen
Resources for the Future

Pattanayak, Subhrendu K.
Duke University

Phelps, Charlotte D.
Emerita, Temple University

Pingle, Mark A.
University of Nevada, Reno

Pisapati, Surya M.
The PFM Group

Probert, Andrew
Academy of the Pacific

Pyrett, Megan
Independent Scholar

Razek, Yasmine H. A.
The American University in Cairo and Egyptian Gulf Bank

Richardson, Robert B.
Michigan State University

Ripley, Tracy L.
New Buffalo High School

Roberts, Michael J.
University of Hawaii

Robinson, Jeremy
Farmington Harrison High School

Rötheli, Tobias F.
University of Erfurt

Rowland, Martha R.
The University of Michigan–Dearborn

Roy, Jayjit
Appalachian State University

Rubin, Jonathan
The University of Maine

Sadaghiyani, Shima
Avondale High School

Sam, Abdoul G.
The Ohio State University

Sansani, Shahar
College of Management Academic Studies

Sardo, Kadie
Independent Scholar

Schilling, Timothy P.
Davenport University

Schmid, Alfred Allan
Michigan State University, East Lansing

Schnier, Kurt E.
University of California, Merced

Schuhmann, Peter W.
University of North Carolina Wilmington

Schwabe, Kurt
University of California, Riverside

Schwartz, Hugh
University of the Republic

Schwarz, Peter M.
University of North Carolina Charlotte

Scorse, Jason
Monterey Institute of International Studies

Segerson, Kathleen
University of Connecticut

Servátka, Maroš
University of Canterbury

Sheatzley, Meredith
Independent Scholar

Sheldon, Ian M.
Texas A&M University

Simmons, Kathleen C.
Alamo Community College

Skrabec, Quentin R., Jr.
University of Findlay

Smith, Gabrielle
Independent Scholar

Smith, Martin D.
Duke University

Smith, Trenton G.
University of Otago

Snyder, Gracie
Independent Scholar

Stafford, Sarah L.
College of William and Mary

Standen, Sara
Carman-Ainsworth High School

Staudacher, Francine
Independent Scholar

Stephenson, Matthew
Columbia University

Stoelhorst, Jan-Willem
University of Amsterdam

Talwar, Daniel S.
Walsh College

Tan-Soo, Jie-Sheng
Duke University

Teraji, Shinji
Yamaguchi University

Thomas, Amber
Central Carolina Community College

Thomas, Lincy
FCA Services, USA, Inc.

Tipton, Collin
Independent Scholar

Tomer, John F.
Emeritus, Manhattan College

Trajkov, Nevena
Eastern Michigan University

Travillian, Andrea
Independent Scholar

Trupiano, John E.
Desert Mountain High School

Tyszka, Tadeusz
Kozminski University

Vadoviĉ, Radovan
Carleton University

Vallus, Adam
Lamphere High School

Van Houtven, George
RTI International

Vila, José E.
University of Valencia

Weck, Michael
Independent Scholar

Weglarz, Joseph A.
University of Detroit, Mercy

Weinhold, Diana
London School of Economics

Wellman, Whitney
Independent Scholar

Whitacre, Xavier
Grand Blanc Community High School

Whitehead, John C.
Appalachian State University

Wilkening, Tom Stuart
University of Melbourne

Williams, Adrian
Independent Scholar

Woolley, Jennifer L.
Santa Clara University

Wright, Joshua D.
George Mason University School of Law

Yang, Bijou
Drexel University

Yang, Ninee Shoua
Centers for Disease Control and Prevention

Yaniv, Gideon
College of Management Academic Studies

Yücel, Mine K.
Federal Reserve Bank of Dallas

Zafirovski, Milan
University of North Texas

Zaleskiewicz, Tomasz
University of Social Sciences and Humanities

Zapata, Oscar
University of Calgary

Zetland, David
Aguanomics.com

Zielonka, Piotr
Warsaw University of Life Sciences SGGW

Index

Boldface numbers refer to volume numbers.

Economics

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The Definitive Encyclopedia from Theory to Practice

Volume 3: Microeconomics

DAVID A. DIETERLE, EDITOR

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Contents

Volume 1: Foundations of Economics

Preface

When I was in graduate school a professor described the subject of economics as the "clothesline of life." There were several meanings to his phrase. One, there are many ways to approach the world of economics. Two, economics is a living, breathing discipline we use to play out our lives every day. Economics is part art, part science, part history, and all human behavior. If one digs down into the subjects of life, one will find a component of economics in virtually every subject. Economics surrounds us daily. *Economics: The Definitive Encyclopedia from Theory to Practice* has been created in a way to make economics come alive. Within our four volumes, including the comprehensive glossary, document excerpts, and other appendices, *Economics: The Definitive Encyclopedia from Theory to Practice* explores all corners of economic history, the individuals who gave economics life, the economic events that have shaped our world, and the foundational concepts and ideas that make, define, and sculpt our economic world.

We began this project with several goals. Our first, and most important, was to assemble a comprehensive and varied collection of entries on economic history, personal finance, money and banking, environmental, and behavioral economics, to name a few of the subdisciplines that hang from the "economics clothesline." An extension of that first goal was to provide a comprehensive, readable, one-stop resource for the general reader as well as for students, teachers, and researchers of economics, personal finance, and entrepreneurship.

To do so required assembling a diverse collection of economics material. Contained within the four volumes of the *Definitive Encyclopedia* are the people who laid the groundwork for economics as a science, the historical events upon which economics grew, and the concepts and ideas on which they built their legacy. I strongly believe we have accomplished these goals.

Volume 1, Foundations of Economics, is the "economics clothesline." In Volume 1 we present the people, concepts, history, the events, and places and institutions on which economics is built. It includes basic economic concepts such as opportunity cost and marginal analysis. Also included are the business tycoons who shaped the early U.S. economy, such as Henry Ford and John D. Rockefeller. No book on foundations of economics would be complete without the economists who laid the groundwork for economics such as Adam Smith, John Maynard Keynes, and Friedrich Hayek. Not to be forgotten are the political leaders whose contributions to their respective economies during their lives is still with us today, including U.S. president Ronald Reagan, Great Britain's Margaret Thatcher, and the Soviet Union's Joseph Stalin.

Volume 2, Macroeconomics, is our big picture volume. As the title suggests, Volume 2 focuses on the institutions, people, events, and places that have shaped the roles and responsibilities of the economy as a whole—the macroeconomy. Volume 2 presents the different methods and ways in which economies are measured and also explores government's role in the economy. Macroeconomics is about the institutions that measure our economies, such as the Bureau of Economic Analysis (BEA) or the Bureau of Labor Statistics (BLS). Key political figures such as Winston Churchill and President Franklin D. Roosevelt are featured for their economic contributions to world history.

Volume 3, Microeconomics, takes on markets, prices, and looking at the economy under the proverbial microscope. Volume 3 presents how markets function and the institutions that allow markets to work more efficiently and equitably for both the producer and the consumer. In Volume 3 you will find the concepts, economists, institutions, and historical events along with major market events such as the transitioning of the automobile industry and the economic bubbles, such as the "dot-com" bubble, that have determined the behavior and interaction of producers and consumers in today's modern economy. In Volume 3 we explore subfields such as environmental economics with entries such as "Tragedy of the Commons," "Clean Water Act," and "Clean Air Act," along with other environmental issues. Personal finance is a highlighted subfield in the "Annuity," "Debt Credit Counseling," and "Health Insurance" entries.

Volume 4, Global Economics, is the volume of the future. Volume 4 encapsulates the first three volumes in the context of an ever-growing global economy. Barring a cataclysmic event, today's world will continue to get smaller and smaller, translating into a more global economic community. Volume 4 includes concepts such as "Comparative Advantage" and "Balance of Payments." Volume 4 introduces the reader to the individuals changing the world, such as Muhammad Yunus and his Grameen Bank. As the new rules of a global community take shape to include all of the world's 7 billion inhabitants, at the forefront of those conversations and debates are the global institutions: the International Monetary Fund (IMF) and the World Bank, along with the United Nations.

Of equal value to the teacher, student, and researcher are primary documents in economic history; a list of Nobel laureates in economics; a timeline of economic events; and a glossary. The Primary Documents section includes 27 documents, such as the Tariff Act of 1930 and the Financial Reform Act of 2010, better known as the Dodd-Frank Act. The *Definitive Encyclopedia* would not be complete without highlighting some of the most important documents that have shaped the economic landscape of the United States. The Appendix of Nobel laureates highlights those individuals who have changed the course of economics. The Timeline presents key events in the global economy from 1776 to 2016. The Glossary presents a second layer to the all-inclusive nature of the *Definitive Encyclopedia*. Approximately 1,000 additional concepts, people, and events in the Glossary go beyond the four volumes' 850-plus entries.

Throughout my career in economics and economic education one of my main concerns has been that economics often has been presented as a subject beyond the scope of the average reader. In compiling *Economics: The Definitive Encyclopedia from Theory to Practice* we took aim at that notion head-on. Our goal was to bring to both the general and experienced student of economics a readable source to better understand the economic world around them. I strongly believe we have succeeded in this goal.

Of course, a project of this magnitude would not be possible without a team of highly dedicated contributors. I owe a huge debt of gratitude and big thank-you to the contributors without whose efforts this project would not have succeeded. My team of contributors possessed the quality and expertise needed for this project. As some of the best college professors and high school AP economics teachers anywhere, they represent all that is good about economic education. I am humbled they would give of their precious time to be part of the team. I owe them a major debt of gratitude. I owe a debt of gratitude as well to Jillian Davidson for her research and editing assistance.

I would like to thank Brian Romer for bringing me onto this project and then passing the baton into the capable hands of Hilary Claggett, Patrick Hall, and the rest of the ABC-CLIO team who had a hand in this project's development. Thanks for making us look good. I also need to thank my many colleagues, students, and friends who also provided support, feedback, and a kick in the pants when necessary. Most of all I need to thank my family and friends for putting up with me during this time. There were times I was a bit like the candy bar commercial. I owe a big thanks to each and every one of them for their patience and understanding. Finally, I dedicate this project to my mom and my four daughters—Branda, Laura, Jillian, and Mary. They say behind every successful man is a woman. Well, I don't know about being successful but I do have five very precious women behind me. This is for you.

David A. Dieterle

Introduction to Volume 3: Microeconomics

The next time you make a trip to your local grocery store, play a little game. Take a moment to look at the variety of products you purchased and ask yourself, "How did they know I was going to come into this store for these items at this minute so that they had the items on the shelf for me to purchase? I did not phone ahead or place my order by email; yet when I arrived my items for purchase were here waiting for me. How did they know?" The answer might surprise you. Then again, this being an economics essay, maybe not. The answer: the miracle of markets.

Adam Smith called it the "invisible hand." Alfred Marshall called it "the scissors." However one describes it, the powers of the market are insurmountable. The market may lose a game or two early on, but in the end the market will always win out. That is why the term *market forces* is so powerful. The market is a force to be reckoned with daily. It will always get its way or serious economic consequences will result.

The power of the market lies in its simplicity. Unfettered (we will return to this in a moment), the power of the market is in the information it provides the market participants: the buyer and the seller. The market provides an economic traffic light. It tells both buyers and sellers when to go, when to slow down, and when to stop.

Before we get too far ahead of the story, let's define a market. A market is any transaction that includes a buyer and a seller. Every transaction, from exchanging toys with the neighbor as a child to global exchange rate transactions, takes place in a market. Markets are everywhere, whether we are aware of them or not. We participate in several markets a day. Every market has three components: a buyer, a seller, and a market price.

An economy is made up of many markets. Some are at the macro level, including the product, resource, financial, and foreign markets. Within these macro markets are literally thousands of smaller markets, each with a seller, a buyer, and a market price. It is important to point out that a "smaller" market is a relative distinction. Within the macro's resource market is the labor market. By size of participants, the labor market is hardly small yet it is only one component of an economy's total resource market available to producers. From the study of these many smaller markets we get the term *microeconomics*.

In any market, when a buyer and seller agree on an acceptable value for the exchange to occur, they have arrived at a market price. The market price gives the buyer important information for that market. It tells the buyer that the seller is willing and able to produce the good at that price. It provides the buyer comparable value information with other products. Knowing a true market price informs the buyer about the opportunity cost and trade-off value of the product. In return, the market price informs the seller about the willingness and ability of the buyer to purchase the good or service. It also provides the seller with valuable opportunity cost and trade-off information in the allocation of the resources necessary to produce the good or service. The market price is the traffic signal of the market. It conveys to both buyers and sellers when the allocation of resources are proportionately allocated to the willingness and ability of buyers to exchange their money for the product. The market price indicates “go,” “slow,” or “no” in allocating resources in that particular market.

One final, critically important point is that the market price provides this information regardless of whether the buyer and seller know each other. The last time you bought a loaf of bread, did you know the farmer who raised the wheat, or the miller who ground the wheat, or the baker who baked the bread, or the delivery person who brought the bread to the store, or the store manager or clerk who put the loaf of bread on the shelf just for you? We might know one or two of the individuals in this supply chain but almost certainly not all. Those within the supply chain probably don’t know everyone involved. The miracle of the market is that all of these individuals have faith that the market price will accurately reflect buyers’ willingness and ability to exchange their money for that loaf of bread. It is Adam Smith’s invisible hand truly at work.

But what happens to markets when the market price is not allowed to function properly and does not give accurate market information? What actions of buyers and sellers occur when there is inaccurate market information? When the market gets distorted through a party other than the buyers and sellers involved in the transaction, inaccurate information produces other-than-optimum market results.

Market distortions appear when a third party, usually the government, makes the decision to intervene in the market transaction process between buyers and sellers. Market distortions are overt decisions by a third party to interfere with a free market transaction. Either the third party believes the market price is too high or that it is not high enough. In both cases, the decision to intervene changes the information buyers and sellers receive from the new set price.

If the third party wants to benefit the buyers, it will intervene with a price ceiling. A price ceiling tells both buyers and sellers that the set price for the good or service is below the market price. This move makes for happy buyers, and so many more buyers will enter the market. Sellers, on the other hand, will not be so happy. The lower price discourages some sellers from being in the market, so they either exit the market or don’t enter at all. This new information results in many more happy buyers who now want to participate in the market. However, the sellers are unhappy, so this new information results in fewer sellers. The market result of the price ceiling intervention is a shortage of the product—too many buyers and too few sellers. Rent controls imposed by cities are a prime example of a price ceiling and the resulting shortage.

The other market intervention is when the third party believes the market price is too low. In this case, it will counter with a price floor. Again, a price floor informs buyers and sellers that the market price is unacceptable, but for a different reason. A price floor is a guarantee of a minimum price to the seller regardless of the market conditions. The price could be more, but it will go no lower than the price floor. Price floors make the sellers very happy. The information they receive from a price floor is that they can produce all they are able to and sell it at a guaranteed price. Potential sellers recognize the opportunities and enter the market, resulting in many more sellers. The buyers, however, are not as happy. They know they will have to pay a higher-than-market price for the product. Some will find substitute products and leave the market. The new nonmarket price information creates a market with many more sellers producing more than the buyers who remain are willing to buy, resulting in a surplus. Two popular examples of a price floor are agricultural price supports and minimum wage. In both instances, surplus agricultural product and labor result.

Finally, there are times when the buyers and sellers do not play nice with each other and a referee is necessary. The referee is usually the government, which sets rules to encourage the two parties to play fairly. The breadth and depth of government's role as a referee has been and always will be debated ad nauseam. However, there are instances when either the buyers or the sellers need a credible court system to protect them from those who can't play by the rules. This is especially true in market economies, and private property is the cornerstone. Only with a highly credible court system and rule of law to protect the property rights of both buyers and sellers can an economy function and reach its highest potential. Peruvian economist Hernando de Soto suggests that the lack of a credible court system to protect the rule of law and property rights is a key distinction between developed and developing nations.

Markets are the engines of any economy. Market forces are just that—forces. Throughout history, nations and both economic and political movements have tried to harness these forces and have ultimately lost. Microeconomics is the study of how an economy can get the most efficient and optimum allocations so that those economic engines operate to their maximum potential.

As you explore the world of microeconomics, may the market force be with you.

A

AFFORDABLE CARE ACT CASES

It is rational to assume that virtually all Americans will enter the health care market at some time in their lives. In addition, it is safe to infer that without health insurance (the financial means to pay for products and services in the health care market) many Americans will experience economic hardship during this exchange. Some will not be able to pay at all. For them, the products or services are provided without cost. The cost is shifted to those with the means to pay. Thus, the consequences of this market on the nation are to economically burden the individuals who have the ability to pay and redistribute income to pay the cost of health care for those who cannot. As in the case of Social Security, the authority of the federal government to attempt to remedy financial shortcomings and aid the general welfare comes into question with *Health and Human Services v. Florida et al*. This case was a combination of two other cases, all three of which posed fundamental constitutional questions. The Supreme Court viewed this case not in terms of whether it was good or poor public policy but rather from the perspective of whether Congress had adhered to constitutional principles. The court upheld the power of Congress to change the market of an economic good—in this instance, the health care market—by requiring most Americans to purchase health insurance.

Case Summary

There is an adage that history tends to repeat itself; however, people learn little from history and in the future will repeat the arguments of the past. This was a case where the United States headed straight back to the future. In both *Pollock v. Farmers' Loan and Trust Company* (1895, income tax) and *Helvering v. Davis* (1937, Social Security tax), when government exercised its taxing power, the debate began anew. In 2010, Congress passed the Patient Protection and Affordable Care Act (ACA). Congress crafted this piece of legislation and the accompanying taxes to deal with negative externalities and social issues related to the health care market. This sparked a national debate on the appropriate role of government within the market system as well as a lively discourse on what constitutes taxes, commerce, and states' rights.

Historically, the roots of health care in the United States were in private enterprise, subject to the rules of the marketplace. The majority of the nation's health care infrastructure was owned by private companies, either for profit or nonprofit. Health care was delivered through practitioners in medical fields that, over the years, have increased and specialized. These providers functioned within a market system and were vital in promoting the general health and well-being of citizens. Any intervention deemed appropriate for the government was restricted to state legislatures. Two centuries later, this structure has evolved into a joint effort, both public and private. The facilities and practitioners have remained mostly private. The unique factor that differentiates this market is the means by which payment is made. Today, this is known as health insurance. The time when a physician could be paid with a chicken and Aunt Sophie's apple pie has mostly disappeared. The health care market and the health insurance industry are inextricably entwined. Private and public health care facilities and insurance companies exist together. Currently, government programs provide the majority of health insurance. These include Medicaid (government health insurance for the indigent); Medicare (government health insurance for the elderly); Children's Health Insurance (government health insurance for indigent children); TRICARE (civilian health benefits for military personnel, retirees, and their dependents); and the Veterans Health Administration (government health care for disabled veterans). Most Americans not covered by these programs purchase health insurance through their employers or other private companies. In all cases, whether private or public sources, the choice to purchase insurance had always been up to the consumer. This free entry into the market changed with the passage of the ACA.

The cost impact of the existing mixed public-private system is controversial, but what remains constant is that health care as a percentage of the U.S. gross domestic product (GDP) is substantial. From a market perspective, this system of third-party payment removes the consumer from the role of main determinant affecting the cost of products and services. Instead, government health insurance providers reimburse at rates that may not reflect the natural equilibrium of the market. Add to this other medical factors, such as higher-priced technologies, more extensive diagnostic testing, and new treatments with various nonmedical practices, and the result is cost shifting from government rates to higher rates for the same services from private payers. As a consequence, the overall cost of health care in the United States has increased.

In March 2010, the ACA became law, creating considerable changes in health insurance. The goals of the act included making affordable health insurance available for all Americans and reducing the costs of health care for individuals and the government. It proposed mandates, subsidies, and insurance exchanges as mechanisms to reach these goals. The main tools for increasing insurance coverage were creating state-based insurance exchanges and expanding Medicaid eligibility. A central component of this legislation was the health insurance mandate, requiring all Americans to buy health insurance or pay a fine for not participating.

Soon after the ink dried on President Obama's signature, Florida and 25 other states, two individuals, and the National Federation of Independent Business (NFIB), among others, filed lawsuits against the federal government challenging the constitutionality of the individual mandate. They claimed that the expansion of Medicaid, wherein the states either followed federal directive or lost their original money from Washington to provide health care for the indigent, was unconstitutional. Judge Roger Vinson of the U.S. Federal Court for the Northern District of Florida agreed with the plaintiffs that the commerce clause of the Constitution limits Congress's authority and declared the entire law unconstitutional. This case, along with others, was appealed to the Eleventh Circuit Court of Appeals, where a three-judge panel affirmed Judge Vinson's decision regarding Medicaid and the individual mandate, claiming that it exceeded Congress's authority as enumerated in the Constitution. This set the stage for a showdown in the U.S. Supreme Court.

The Supreme Court took the appeal and combined three cases: *Florida et al. v. Department of Health and Human Services et al.*; *National Federation of Independent Business et al. v. Kathleen Sebelius, Secretary of Health and Human Services, et al.*; and *Department of Health and Human Services et al. v. Florida et al*. The responsibility of the Roberts Court in this case was to determine whether or not Congress had exceeded its constitutional powers by requiring the individual mandate and whether the requirement to the states to expand Medicaid or lose funding was coercion. In addition, there was discussion of whether or not the right to sue the government over a tax before the tax had been paid was even admissible under the Anti-Injunction Act of 1867.

The Court scheduled an unprecedented six hours of oral argument (a normal case would take only one hour) in an effort to anticipate the complexity and significance of this case.

The justices listened to and questioned seven different attorneys. At the end of the day, the Court ruled that the Anti-Injunction Act did not bar the Court from hearing this petition. It also found that Congress does have the authority under the commerce clause and the taxing and spending clause of the Constitution to require that most Americans purchase health insurance. Finally, the Court ruled that Congress did exceed its powers of federalism when it pressured states into the conditions imposed on them if they did not expand Medicaid, as proposed by the guidelines of the ACA.

Chief Justice Roberts wrote the majority opinion. He stated clearly that the Court did not impose an opinion as to the law itself but rather determined if the law was constitutional. With regard to the mandate, the Court held that the goal of affordable health coverage would not be obtainable without nationwide participation. This was how insurance companies functioned, having enough healthy participants to cover those in need. This provided for the general welfare and was within the realm of Congress's power. However, the idea that states could be coerced into compliance with federal mandates by withholding funds for crucial services was indeed a violation of states' rights.

In politics, a national crisis is often seen as an opportunity to pursue an agenda. This was not an easy agenda. Health care never has been. But neither was the 16th Amendment or Social Security, and some would argue that the crisis for that legislation was even more acute. In his dissent, Justice Kennedy, along with Justices Scalia, Thomas, and Alito, stated that the commerce clause of the Constitution did not permit Congress to create commerce where it did not already exist but rather to regulate it where it was already happening. They thought that the framers of the Constitution would not condone this type of intrusion upon the market. Scalia argued that mandating that all Americans purchase funeral insurance because eventually we would all die was absurd. The Constitution protected the right of consumers to decide what products or services they would purchase, and Congress did not have the police power to preempt this right.

There has been much political discourse regarding health care. There will be much more. What is clear is that this case established as constitutional the most significant health care reform in a generation.

Kathleen C. Simmons

See also: *Vol. 1: Foundations of Economics:* Supreme Court; *Vol. 2: Macroeconomics:* Entitlements; Gross Domestic Product; Public Goods; Social Security Act of 1935; Taxes; *Primary Documents:* Patient Protection and Affordable Care Act of 2010; Social Security Act of 1935

Further Reading

#11-398, In the Supreme Court of the United States. (Petition of certiorari from Florida to the Supreme Court.) http://now.iscotus.org/healthcare/11-398_brief-in-opposition_1.pdf (accessed July 1, 2016).

#11-398, In the Supreme Court of the United States. (Brief in response for private respondents.) http://now.iscotus.org/healthcare/11-398_brief-in-opposition_1.pdf (accessed July 1, 2016).

#11-398, In the Supreme Court of the United States. (Brief for state respondents.) http://now.iscotus.org/healthcare/11-398_brief-in-opposition_2.pdf (accessed July 1, 2016).

#11-398, In the Supreme Court of the United States. (Reply brief for petitioners.) http://now.iscotus.org/healthcare/11-398_reply.pdf (accessed July 1, 2016).

#11-398, In the Supreme Court of the United States. (Brief of state petitioners on Medicaid.) http://now.iscotus.org/healthcare/States%20brief%20as%20petitioner%20(Medicaid).pdf (accessed July 1, 2016).

#11-398, In the Supreme Court of the United States. (Brief for respondents on Medicaid.) http://now.iscotus.org/healthcare/U.S.%20brief%20(11-400%20Medicaid).pdf (accessed July 1, 2016).

#11-398, In the Supreme Court of the United States. (Appendix A, B, C, D, E for a writ of certiorari [court of appeals decision; order granting summary judgment; district court order; order on motion to dismiss; constitutional and statutory provisions].) http://now.iscotus.org/healthcare/11-398_petition_appendix.pdf (accessed July 1, 2016).

In the Supreme Court of the United States. (Copy of the petition for a writ of certiorari.) http://www.justice.gov/healthcare/docs/hhs-v-florida-petition-certiorari.pdf (accessed July 1, 2016).

AGRICULTURAL DEPRESSION AND THE DUST BOWL, 1930s

By 1933, the Great Depression had spread to all parts of the U.S. economy and throughout the world, but farming would be hit harder and longer than the general economy. In particular, the high plains of Texas, Oklahoma, New Mexico, Kansas, Colorado, and parts of other midwestern states would see steep economic declines. Windstorms and soil erosion affected more than 100 million acres of farmland, and more than a million farmers lost their farms.

Although the Great Plains are prone to drought and even dust storms, the climatic conditions of the 1930s were considered a 300-year event. Farmers had suffered for most of the early 1930s as rapid deflation destroyed crop prices and the Depression gripped the world. Many were on the verge of bankruptcy when the drought and winds came in the late 1930s. The soil-laden winds not only took away precious topsoil but also destroyed homes and equipment. Farmer bankruptcies soon drained the remaining small-town banks that had proved resistant to the industrial downturn; in the late 1930s, small-town banks were failing at a higher rate than urban banks.

The devastating combination of economic and climatic conditions destroyed millions of lives and caused a great migration to California. More than 2.5 million residents migrated out of the Great Plains. State and local governments were in no financial position to handle such a huge interstate migration, and in the places where they relocated, the local residents often resisted these "Okies." The homeless migrants were often forced to settle in camps. Early on, California was a favored destination, but by the late 1930s most migrants were going north to the factories. By the late 1930s, the agricultural depression had become a unique combination of problems, requiring government involvement at many levels.

The roots of the Dust Bowl go back to the farming boom of the late 1920s. Higher crop prices throughout the world brought more American land into cultivation. The amount of land under cultivation tripled between 1925 and 1930. Rapid cultivation, at times, led to poor soil management. In 1931, a series of droughts spread throughout the plains states. In 1933, a wave of windstorms started to hit the American plains. These storms would often last days, moving millions of tons of soil east. The dust often covered eastern cities and included unusual phenomena, such as red snow in New England. The year 1935 was famous for its so-called "black blizzards," which occurred throughout the Dust Bowl. These black blizzards turned day to night and reduced visibility to five or six feet. Many died of dust pneumonia.

In 1932, peanuts dropped to under three cents a pound. The first response of Congress was to offer low-cost loans to peanut growers, but this did little for the small farmers and not much for the large ones. The New Deal Congress of 1933 tried to introduce direct price supports for peanuts, but this was a failure. The New Dealers saw the farm and peanut problem as a supply/price issue. So the next step was to restrict production and pay farmers not to grow. To finance the payments, taxes were placed on the peanut processors. The program ended when the Supreme Court ruled the processing tax unconstitutional. In general, price support and management programs had mixed results at a very high cost. Another problem of government interference was the passing of high tariffs, which other countries joined. Tariffs had minimal effects on industrial production but did force crop prices down and reduce exports.

By 1933, the economic impact of the lack of crops and soil erosion was overwhelming; the problem of a shortage of animal feed followed. Land price deflation and bankruptcies brought more economic problems. Some farmers abandoned their farms. President Franklin D. Roosevelt was forced to fight the Depression on two fronts. His agricultural program was aggressive; some parts of it were eventually deemed unconstitutional. In 1935, the Natural Resource Conservation Service was established to address soil conservation. In addition, the Federal Surplus Relief Corporation (FSRC) was formed. With meat prices falling and production costs rising, the FSRC purchased six million pigs to stabilize prices. The meat was packed and distributed to the poor. In 1935, Roosevelt formed the Drought Relief Service, which purchased cattle (most were unfit for human consumption) for as much as $20 a head to save farmers from bankruptcies.

The Roosevelt administration tied its employment programs to farm relief programs with the Civilian Conservation Corps, which consisted of men between the ages of 18 and 26, selected from the public welfare rolls. The men were relocated to camps with free room and board. They earned $30 a month, of which $25 was sent back to their families. Enrollees served six months and could re-enroll up to two years. By the time the operation concluded in 1942, more than 3 million people had served. One of the main projects was the planting of tree wind breaks throughout the country. More than 3 million trees were planted. In addition, the corps trained farmers in soil conservation and antierosion practices. The government also paid farmers a dollar an acre to implement these programs. It is estimated that these practices reduced wind erosion by 50 to 70 percent. Farmers also shifted away from corn and wheat to animals and hay to diversify their farms.

Quentin R. Skrabec Jr.

See also: Subprime Mortgage Bubble and Crisis; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; New Deal; Roosevelt, Franklin D.; *Vol. 2: Macroeconomics:* Great Recession, 2009; Panic and Global Depression, 1873; *Vol. 4: Global Economics:* Tariffs

Further Reading

Bonnifield, Matthew. 1979. *The dust bowl: Men, dirt, and depression.* Albuquerque: Univ. of New Mexico Press.

Worster, Donald. 2004. *Dust bowl: The southern plains in the 1930s.* New York: Oxford Univ. Press.

AIR POLLUTION

Air pollution typically results from negative production externalities where some activity like driving, generating power, or manufacturing creates a spillover that affects third parties. Excessive levels of airborne chemicals are typically broken down into two categories: criteria pollutants (e.g., lead, ozone, sulfur dioxide) and toxics (i.e., carcinogens). Both can cause adverse health outcomes and other harmful impacts like limestone deterioration, crop damage, and unsightly skylines. Unpriced in markets, these negative effects offer prime examples of market failures or incomplete markets as their producers do not take the external harm into account in their decision-making.

The resulting overproduction of air pollution also has textbook remedies, including conventional command-and-control (CAC) regulations, Coasian property rights–based approaches, and Pigouvian-style emissions taxes. Rigid CAC mandates traditionally dominate air pollution policy. They control pollution by regulating the technologies used to emit or abate (e.g., catalytic converters, smokestack scrubbers) or by setting performance standards (e.g., New Source Performance Standards, ambient ozone concentration limits). Most notable of these efforts is the 1970 Clean Air Act (CAA) and its subsequent amendments. Significant reductions in emissions and improvements in air quality in the United States followed many of these regulations.

Incentive-based approaches like emissions charges or tradable emissions permits are increasingly popular alternatives to CAC for air pollution control. Permits and charges have different strengths and design issues, although in principle either can achieve efficient air quality. Tradable permits or cap-and-trade programs serve to create markets and promise cost-effective abatement. The theoretical advantages of this approach to curbing air pollution actually got tested when the SO_2 Trading Program of the 1990 CAA Amendments was implemented. (SO_2 stands for sulfur dioxide.) This cap-and-trade program was successful in both environmental and economic terms. Southern California also successfully implemented an extensive NO_x cap-and-trade program, the Regional Clean Air Incentives Market (RECLAIM).

Basic regulatory tools of permits, charges, or standards are applied to air pollution emissions or ambient concentrations. Permits, tradable or not, target quantity controls, whereas charges address prices. Standards-based approaches typically mandate technologies for emitting or abating or set thresholds for emissions or ambient concentrations that might require additional efforts to attain. Standards have proven popular among policymakers despite the disconnect with the fundamental nature of air pollution externalities. Restricting polluters' choices is an inefficient substitute for aligning their private costs of pollution with social damages.

The economics of air pollution control distinguishes between uniformly and nonuniformly mixed pollutants. Lower-atmosphere pollution involves nonuniformly mixed pollutants, where the emissions' harm depends on their source location. Cost-effective control policies for these pollutants require spatially differentiated rules or penalties (and typically dispersion modeling to predict source-specific impacts at one or more receptor sites).

Measuring the economic value of air pollution damage helps us to understand the scope of the problem and design policy solutions. For example, Pigouvian taxes derive from these marginal damage estimates. Some of the earliest research in nonmarket valuation involved air pollution. Economists frequently use hedonic pricing to identify the implicit value of air quality improvements from variations in housing sale prices. Another revealed preference method, averting behavior, measures economic value by observing how people invest in things like air filters to avoid pollution damage. Economists also use the contingent valuation method to directly measure the value individuals place on air quality improvements. Recent valuation work has emphasized responses to air quality variation across markets in a general equilibrium sense (e.g., people's willingness to pay for cleaner air may change after they relocate and housing prices change in response to air quality changes).

For nonuniformly mixed pollutants, this local variation in air quality implies that the damage caused by emissions depends on their time and place as much as the quantity emitted. Properly designing a Pigouvian tax scheme or a permit market to account for this spatial and temporal complexity can complicate matters. Cap-and-trade allows pollution in some areas to rise, halting the SO_2 trading market. Cost-effective policies, possibly leading to localized air pollution hot spots, pose thorny environmental justice considerations, especially in light of how people cluster nonrandomly. Recent studies, however, find no evidence that minorities or the poor fared worse under the SO_2 or RECLAIM trading schemes.

Polluters respond to changes in air pollution regulations by reducing emissions and also by relocating their activity. Regions with stricter regulations under the CAA see business move to locations with lower restrictions, which act as pollution havens. Grandfathering or exempting older technologies may enhance political feasibility of some regulations, but it also results in more inefficiencies and environmental damage. The flexibility under cap and trade facilitated switching to low-sulfur coal and shifting pollution control efforts to plants with lower abatement costs. As expected, innovation under CAC focuses on reducing compliance costs (e.g., scrubbers with lower operating costs) while innovation under cap and trade advances environmental effectiveness (e.g., better removal efficiency for scrubbers).

Producing information as a public good has also been used to address air pollution externalities. Local air quality advisories, for instance, both inform averting behavior and offer opportunities to voluntarily curb emissions on peak days. Unsurprisingly, the strongest behavioral impacts occur for sensitive populations reducing exposure, while altruistic emission reductions are harder to detect. The Toxic Releases Inventory informs the public about firms' toxic air releases, letting them adjust their home-buying choices or investment decisions to avoid toxic assets.

Air quality trends reflect the idea that, despite the growing scale of economic development, firms can shift to greener activities and the dirty industries that remain can operate more cleanly. The frontiers of air pollution control involve difficult challenges, such as better addressing mobile sources, air toxics, indoor air, and interactions among various pollutants (e.g., NO_x and SO_x, criteria pollutants, and greenhouse gases) and greater cooperation among regulatory regimes.

Economic analysis shows how major efficiency gains can be achieved through adopting incentive-based policies. Yet these approaches are limited in practice, especially where transaction and information costs are high. Moreover, as air pollution remedies initially focused on cleaning the air, and then reformed to do so more efficiently, they now seem to be under increasing pressure to do other things, like advance equity, jobs, and climate change goals.

Douglas Noonan

See also: Cap and Trade; Clean Air Act; Coase, Ronald; Coase Theorem; *Vol. 1: Foundations of Economics:* Environmentalism; *Vol. 2: Macroeconomics:* Externality; Property Rights

Further Reading

Chay, Kenneth Y., and Michael Greenstone. 2003. The impact of air pollution on infant mortality: Evidence from geographic variation in pollution shocks induced by a recession. *The Quarterly Journal of Economics* 118 (3): 1121–67.

Schmalensee, Richard, and Robert N. Stavins. 2013. The SO_2 allowance trading system: The ironic history of a grand policy experiment. *The Journal of Economic Perspectives* 27 (1): 103–21.

Stavins, Robert N. 1998. What can we learn from the grand policy experiment? Lessons from SO_2 allowance trading. *The Journal of Economic Perspectives* 12 (3): 69–88.

AKERLOF, GEORGE

Born: June 17, 1940, in New Haven, Connecticut; Nationality: American; Professional Interests: social economics, Nobel Prize (2001); Major Works: "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism" (1970), *Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism* (2009).

George Akerlof is known for his work in growth theory and how markets work. As a Keynesian economist, he had a unique perspective, emphasizing the social aspect of economics. His economics is interdisciplinary in scope, incorporating sociology, psychology, and social psychology into his economic thought and writings. Examples of the topics he popularized in his work and writings are looting and bankruptcy. He won the Nobel Prize in Economics with Michael Spence and Joseph Stiglitz in 2001 for their work on asymmetric information in markets.

George Arthur Akerlof was born on June 17, 1940, to a Swedish father and German-Jewish mother in New Haven, Connecticut. His father, an accomplished chemist, relocated on several occasions, finally settling in Princeton, New Jersey, where young Akerlof spent his formative school years. While in elementary school, he remembers his first insights into the world of economics. During a period when his father was unemployed, Akerlof realized there was a spin-off effect by which others would also lose their jobs, resulting in less money being spent in the economy. Even at an early age, he realized that this domino effect would create an ever-shrinking economy. Young Akerlof had had his first encounter with Keynesian economics.

Growing up during two great American events, the Great Depression and World War II, Akerlof had a very inquiring social perspective as a young man. His interests ranged widely in the social sciences from history to economics. His brother, who frequented the lab with their father, followed in their father's footsteps to become a scientist. Such was not the path for young George Akerlof.

His interests and academic intrigue led his studies in the direction of economics and the social sciences. Contrary to his family's advice to pursue a career in law, Akerlof went to Yale and excelled in his studies as a young economist. He received his bachelor's degree from Yale in 1962. He continued his graduate studies in economics, earning his PhD at the Massachusetts Institute of Technology (MIT) in 1966. He accepted a position at the University of California, Berkeley, receiving tenure in 1969. It was during this time at Berkeley that he wrote "The Market for 'Lemons,'" which would later be the work on which his Nobel Prize was based.

In 1973 and 1974, Akerlof served on the Council of Economic Advisers as a senior economist during President Nixon's presidency. Due to his lack of a research background, lack of ability to write like a bureaucrat, and lack of loyalty when it came to party politics, he considered himself ill-suited for the position. However, professionally, he considered the experience quite rewarding, broadening his skills in the areas of both labor economics and empirical economics.

Having failed to receive a promotion to full professor at Berkeley, Akerley served on the Federal Reserve Board in Washington, D.C., for a year. He then accepted a position at the prestigious London School of Economics. During his appointment at the London School, he was the Cassel Professor of Economics with Respect to Money and Banking.

Upon his return to Berkeley, where he still had a faculty appointment, Akerley's research focus changed. He had previously focused on the macroeconomic impact of microeconomic structures, including asymmetric information and jobs. His research now addressed issues such as fairness and the social traditions regarding unemployment. The paper he wrote and presented on involuntary unemployment led to his interest in sociology, which led to additional writings on economic theory with a sociology base.

Several theories and ideals were made popular by Akerlof through his writings. One was "identity economics" as discussed in the *Quarterly Journal of Economics* (2000). The topic of looting was addressed in "The Economic Underworld of Bankruptcy for Profit" (1993), which he coauthored with Paul Romer. His paper "Efficiency Wage Models of the Labor Market" was coauthored with his wife and fellow economist, Janet Yellen. Continuing his integration of the social sciences with economics, Akerlof and coauthor Robert Shiller proposed a macroeconomic framework that incorporates human behavior in their book *Animal Spirits*. Incorporating all the idiosyncrasies of human behavior, they explore economic policy issues joining economics and psychology.

During his career as an economist, George Akerlof was honored with many prizes, awards, prestigious fellowships, and positions. His accomplishments include the Lawrenceville Medal, serving as the nonresident senior fellow at the Brookings Institution, the Guggenheim Fellowship, the Richard and Rhoda Goldman Distinguished Professor in the College of Letters and Science, studying as a Fulbright fellowship scholar, and serving as a fellow of the Econometric Society and a fellow of the American Academy of Arts and Sciences.

The Nobel Prize in Economics, the most prestigious honor in economics, was bestowed on Akerlof in 2001. The prize was awarded jointly to George Akerlof, Michael Spence, and Joseph Stiglitz for their analyses of the asymmetric information nature of markets. The study for which Akerlof is most noted is his previously mentioned study on asymmetric information in reference to the used-car market. "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism" discusses how imperfect or asymmetric information in the market for used cars creates market failures and alters behavior in consumers. This Nobel-honored article was first published in the 1970 *Quarterly Journal of Economics.*

Akerlof has served as the Koshland Professor of Economics at the University of California, Berkeley. He is married to a fellow economist, Janet Yellen, who serves as current chair of the Federal Reserve Bank's Board of Governors and is a professor of economics at the University of California, Berkeley. His son, Robert, currently serves as postdoctoral associate in applied economics at his father's graduate alma mater, MIT.

Victoria Green

See also: Shiller, Robert; *Vol. 1: Foundations of Economics:* Bankruptcy; Economic Sociology; Keynesian Economics; Nobel Prize in Economics; *Vol. 2: Macroeconomics:* Federal Reserve System; Unemployment; Yellen, Janet; *Vol. 4: Global Economics:* Spence, Michael; Stiglitz, Joseph

Further Reading

Akerlof, George. 1970. The market for "lemons": Quality uncertainty and the market mechanism. *The Quarterly Journal of Economics* 84 (3): 488–500.

Akerlof, George. 2011. Autobiography. Nobelprize.org. http://nobelprize.org/nobel_prizes/economics/laureates/2001/akerlof.html (accessed March 1, 2011).

Akerlof, George. n.d. Prize lecture. Nobelprize.org. http://nobelprize.org/nobel_prizes/economics/laureates/2001/akerlof-lecture.html (accessed March 10, 2011).

Akerlof, George, and Rachel E. Kranton. 2000. Identity economics. *The Quarterly Journal of Economics* 115 (3): 715–53.

Akerlof, George, and Paul Romer. 2005. Looting: The economic underworld of bankruptcy for profit. In *Explorations in Pragmatic Economics: Selected Papers of George A. Akerlof*, 232–74. New York: Oxford Univ. Press.

Akerlof, George, and Robert Shiller. 2009. *Animal spirits: How human psychology drives the economy, and why it matters for global capitalism.* Princeton, NJ: Princeton Univ. Press.

Akerlof, George, and Janet Yellen. 1986. *Efficiency wage models of the labor market.* Cambridge, UK: Cambridge Univ. Press.

George Akerlof wins Nobel Prize in Economics. n.d. *Campus News*, University of California, Berkeley. http://berkeley.edu/news/features/2001/nobel/index.html (accessed March 10, 2011).

Scheib, Arielt. n.d. George Akerlof. Jewish Virtual Library. http://www.jewishvirtuallibrary.org/jsource/biography/akerlof.html (accessed March 18, 2011).

Vane, Howard R., and Chris Mulhearn. 2010. *James A. Mirrlees, William S. Vickrey, George A. Akerlof, A. Michael Spence and Joseph E. Stiglitz*. Cheltenham, UK: Edward Elgar.

ALTERNATIVE ENERGY

Alternative energy is a catch-all term that encompasses any new form of energy generation used or promoted in order to avoid the negative consequences of energy forms currently in use. Historically, there has never been a perfect energy source. All forms of energy production have exhibited some negative consequences, be they bads such as waste and garbage outputs or negative externalities including air pollution and unpleasant visual effects. The search for an alternative energy source that alleviates the most harmful negative consequences of whatever energy source is currently predominant has been an ongoing quest.

The first alternative energy source can be considered to be coal, as a substitute for wood. Prior to the Industrial Revolution, wood was prevalent, cheap, and easy to burn, but its overuse devastated entire forests in Europe. In addition, burning wood in small, often windowless abodes led to pollution and safety hazards. At different times in history, coal, whale oil, and petroleum have all been seen as alternative energy sources and as solutions to then-prevalent energy problems.

The most popular alternative energy sources today are solar power (including photovoltaics and solar thermal power) and wind power. They are considered alternatives to fossil-fuel-based energy generation (from coal, petroleum, and natural gas), which predominate worldwide energy production at the start of the 21st century. Both solar and wind power solve what is seen as the most prevalent negative consequence of fossil-fuel-based energy generation: air pollution. This includes air pollution from chemicals, particulate matter, organic compounds, toxic materials, and the emissions that lead to climate change.

Solar and wind power are also popular because they are renewable sources of energy production and so do not suffer the negative consequence of diminishing supplies. They are also domestic sources of energy production and so are not dependent on imports from what may be hostile countries. Finally, solar and wind power have the technical capability to be distributed, meaning they are what is sometimes referred to as decentralized energy generation sources. They can be placed on individual homes and in small areas and do not rely on large, single generation stations that can be susceptible to large-scale blackouts, terrorist attacks, or other centralized vulnerabilities.

Other alternative energy sources that are popular today include geothermal, hydrogen, fusion, algaeoleum, and tidal power production. Geothermal, algaeoleum, and tidal power are all renewable energy resources, and so they relieve the negative air pollution consequences of today's fossil-fuel-based energy production techniques. They are also, for the most part, domestic-based energy resources and so help to alleviate national security concerns. None of them are necessarily decentralized forms of energy generation, however, and their relative technical immaturity (as compared to solar and wind power) is a drawback.

Hydrogen and fusion are not officially renewable energy resources. Hydrogen could be considered a renewable if a renewable energy source was used to power the electrolysis process involved in production, but this is not always the case. While both hydrogen and fusion may be domestic-based energy resources, they are based on relatively immature technologies and so suffer from that drawback as well.

There are some renewable energy technologies that are only controversially considered alternative, and they include nuclear power and hydropower. Both nuclear power and hydropower are emission-free and so alleviate the most common negative consequence of fossil-fuel-based energy production: air pollution. However, they suffer from other environmental problems that make them unattractive to some advocates of alternative energy solutions.

Nuclear power produces highly radioactive wastes that must be stored and safely disposed of for long periods of time, and hydroelectric power traditionally comes from large dams that block free-flowing rivers and disturb natural riverine ecosystems. Newer forms of smaller, run-of-river hydroelectric plants avoid the negative consequences of large dams and reservoirs, but their potential physical implementation is limited, and so they will never serve as the predominant solution to worldwide energy needs. Nuclear power and hydropower, therefore, as with most alternative energy sources, solve some problems but not others. In the end, the bottom line remains that there still is not a clear winning alternative energy solution.

The viability of any particular alternative energy source is also greatly tempered by practical implementation considerations. Large-scale switching to any of the alternative energy solutions mentioned would be extremely costly. Capital costs would be incurred in building the new generation plants (and retiring the old fossil-fuel-based plants, especially if they were to be retired early), and it is likely that energy distribution mechanisms (for example, the electricity grid or the network of automobile refilling stations) would have to be revamped or entirely rebuilt as well. Such switching costs are not given as much attention in the academic literature (or the press) as the basic R&D and generating costs for producing alternative energy, but they are likely to be considerable and would hamper efforts to switch to any true alternative energy solution before the technology and benefits of doing so are absolutely certain.

This becomes a bit of a chicken-and-egg problem. In order to switch to an alternative energy solution, more consumers need to demand it to make the switch cost-viable. But until the alternative energy solutions are cost-viable, few cost-conscious consumers will demand them. Overcoming the high burden of substantial switching costs will be difficult for any single potential alternative energy solution or any proposed combination of solutions.

This implies that, as has historically been the case, alternative energy solutions tend to penetrate the market slowly, over many decades, and often in companion with traditional energy solutions. They rarely disrupt entire markets but instead slowly infiltrate them. Alternative energy solutions, when developed, are long-term goals, not short-term salvations.

Lea-Rachel Kosnik

See also: Air Pollution; Renewable Energy; *Vol. 2: Macroeconomics:* Energy Policy; Externality

Further Reading

Dresselhaus, M. S., and I. L. Thomas. 2001. Alternative energy technologies. *Nature* 414: 332–37.

Kruger, Paul. 2006. *Alternative energy resources: The quest for sustainable energy*. Stanford, CA: Wiley.

AMERICA INVENTS ACT OF 2011 (LEAHY-SMITH ACT)

The America Invents Act of 2011 updates the patent system to encourage innovation, job creation, and economic growth. The last major patent reform was the Patent Act of 1952. The America Invents Act of 2011 was sponsored by House

Judiciary Committee chairman Lamar Smith (a Republican representative from Texas) and Senator Patrick Leahy, a Democrat from Vermont. On September 16, President Obama signed the America Invents Act of 2011 into law.

Patents encourage innovation and business growth, providing inventors and innovators protection from duplication and copycat theft. The act helps the nation's innovators and job creators, who rely on the patent system to make new products. The act implements a first-inventor-to-file (FITF) standard for patent approval and creates a postgrant review system to filter out bad patents.

The America Invents Act affects three main parts of the economy: job creation, patent office reforms, and legal reform. For job creation, the act protects the rights of inventors for their original inventions and encourages business growth by speeding up the patent process so that entrepreneurs and innovators can quickly turn their inventions into businesses. The adoption of the FITF system ends the need for expensive discovery and litigation to establish priority dates while also ensuring priority dates through simple and inexpensive provisional applications.

The act also builds on the Bayh-Dole Act, which permits universities and small businesses to keep title to their inventions in exchange for fulfilling a series of obligations: disclosing the invention to the federal agency funding the research, electing to retain title, and filing patent applications. The 2011 America Invents Act adds extra patent protections to the previously mentioned Bayh-Dole Act while also changing various timing requirements, such as the contractor having to file a patent application within one year. The America Invents Act also assists the Patent and Trademark Office (PTO) in addressing the backlog of patent applications.

Its 15 percent surcharge (which became effective September 26, 2011) aided the PTO's hiring of new examiners and other personnel. The act also provides some relief to patent owners to practice their inventions. Before this act, failure to mark the product as patented meant the patent-marking statute operated as a forfeiture of damage. Since the act was implemented, however, patent owners no longer have to include the patent number on the product. Instead, they can merely put "patent," along with an address of a website that posts the patented article with the patent number, saving the cost of new manufacturing equipment every time the patent changes.

The America Invents Act of 2011 influences legal reform. The act not only creates an administrative program for review of business method patents, it also provides additional options to challenge the validity of an issued patent. It adds a new procedure called the postgrant review (PGR). A petition for PGR can be based on lack of enablement, lack of utility, and/or failure to comply with written description requirements. If the petition is granted, oral proceedings and a chance for the patent owner to amend the patent may be allowed.

Lastly, the America Invents Act affects patent office reform. It creates an anti-fee diversion (before this act, the patent application fees were diverted by congressional appropriators to other government programs) and ends the practice of fee diversion at the PTO. This effectively lowers taxes on innovators and innovation. It also ensures continued congressional oversight by both the judiciary and the Appropriations Committee in the House and Senate. The act allows the PTO director to adjust fees to better accommodate market conditions and reduce the time it takes to review and issue a patent to get the product into the market quickly and efficiently. To summarize, the America Invents Act creates cost-effective alternative legal forums that will provide a simpler way to review questions of patentability, reducing the costs of frivolous litigation against job creators.

Shima Sadaghiyani

See also: Trademarks and Patents; *Vol. 1: Foundations of Economics:* Entrepreneurship; *Vol. 4: Global Economics:* Protectionism; *Primary Document:* America Invents Act of 2011 (Leahy-Smith Act)

Further Reading

American Intellectual Property Law Association. 2016. The Leahy-Smith America Invents Act. http://www.aipla.org/advocacy/congress/aia/Pages/default.aspx (accessed September 30, 2016).

Bryant, Tracie L. 2012. The America Invents Act: Slaying trolls, limiting joinder. *Harvard Journal of Law & Technology* 25: 687–711.

Jeruss, Sara, et al. 2012. The America Invents Act 500: Effects of patent monetization entities on U.S. litigation. *Duke Law & Technology Review* 11: 357–89.

Rantanen, Jason, and Lee Petherbridge. 2011. Toward a system of invention registration: The Leahy-Smith America Invents Act. *Michigan Law Review First Impressions* 110: 24–62.

Stanford University Office of Technology Licensing. n.d. The America Invents Act (AIA). http://otl.stanford.edu/inventors/resources/inventors_aia.html (accessed September 30, 2016).

The United States Patent and Trademark Office. n.d. Leahy-Smith America Invents Act implementation. http://www.uspto.gov/aia_implementation/ (accessed September 30, 2016).

ANNUITY

An annuity is a type of insurance contract that provides the owner with a stream of payments for a fixed term or lifetime in return for an upfront payment or payments (Ferro 2010). Annuities originated centuries ago in ancient Rome. The present forms of annuities are sold by insurance companies to individuals desiring a monthly payment during retirement. Annuities are a combination investment/insurance product.

Although retirees in the United States receive annuity payments from the government in the form of Social Security, this benefit was not designed to provide 100 percent income replacement for all retirement expenses. The Social Security annuity gives workers a monthly payment during retirement. The payment is calculated based on the amount retirees contributed to their Social Security account during their working years. Since the Social Security payment is less than the amount earned while working, many individuals save and invest for retirement in order to supplement government Social Security payments.

An annuity is an income option for an individual or couple's retirement financial management. The annuity holder receives regular payments to create a secure retirement income stream. A major drawback for the annuity purchaser is that since annuity contracts depend on one's life expectancy, if the annuitant dies sooner than expected, he or she may forfeit thousands of nonrefundable dollars paid in advance to the insurance company.

Funding an Annuity

Before the holder receives annuity payments, the annuity must be funded. The money for the annuity may be paid to the insurance or investment company in a lump sum, through regular salary transfers, or in several lump sums. The insurer structures the payments so that ultimately the insurance company pays out less in benefits than it earns in aggregate. Some policyholders may receive more in benefits than they paid in, while others receive less. After receiving the annuity payments, depending on the stipulations of the contract, the annuity policy issuer invests the funds in either fixed or variable securities (stocks, bonds, or other financial assets) in order to compound the returns of the initial contribution.

Types of Annuities

Annuities convert current or previous funds into income for the future. There are a myriad of contract, fee, and payment structures. The annuity product is extremely complex with hundreds of varieties.

This section breaks down the basic types of annuities into immediate and deferred. Within each of these categories there are fixed or variable payment options. The terms and conditions vary from contract to contract, and the documents are long and complicated. It is important for the annuity purchaser to review them to understand the benefits (Zook 2013).

In the case of a single-life annuity, the payment continues until the annuitant's death. A joint-life with last survivor annuity makes payments to the annuitant, and upon his or her death, the payments continue to a second designated party, usually the annuitant's spouse, until that person's death. This type of annuity typically carries a lower payment to the individual than a single-life annuity because it is paid out over two lives (the individual annuitant and the spouse).

Immediate or Deferred Annuity

The two broad categories of annuities are immediate and deferred. Their aptly named categories describe the relationship between payment into the annuity and withdrawal.

The immediate annuity is the simplest type of annuity. Investors pay in a lump sum and receive guaranteed monthly payments for life or for a predetermined period. According to the Standard Insurance Annuity Answer Booklet, "The U.S. Tax code dictates that every annuity payment is a combination of return of principal (is not taxed) and payout of income (is taxed at normal-income rates)." This spreads tax obligations out over time.

A deferred annuity has two phases: accumulation and distribution. Accumulation is the period during which the annuity is funded, frequently through salary transfers. While accumulating, the funds in the annuity grow tax-free and may be invested in a variety of financial assets. Upon the withdrawal phase, the annuitant can take income monthly or in a onetime lump-sum payment.

Fixed, Variable, and Equity Index Annuities

Within each broad type of annuity, immediate and deferred, there are a variety of categories. Fixed, variable, and equity index annuities describe how payments are calculated and in what type of assets the annuity funds are invested.

A risk-averse individual might choose a fixed annuity. The payout guarantees a fixed minimum payment set at the time the annuity is purchased. The disadvantage with this type of contract is that in periods of high inflation, the payment does not increase. There are also fixed-rate annuities in which the interest rate paid on the annuity is set at purchase and is guaranteed not to fall below a minimum level.

Variable annuities are riskier than fixed. The annuity funds are invested in mutual funds, usually selected by the annuitant with the hope of growing the annuity funds by investing in equities that have a history of higher growth rates than cash assets. The risk is that at withdrawal equity markets may decline, thereby reducing the funds available for payout. The annuitant may choose a minimum payment option for additional security.

Equity index annuities are a combination of fixed and variable annuities. The funds are invested in a broad stock market index such as the Standard & Poor's 500 (S&P 500), and the annuity value is tied to the growth of the index. Minimum payouts are set and may be increased based on the growth of the benchmark stock index.

Annuity Considerations

Gustavo Ferro (2010) cautions that purchasing an annuity entails weighing the possibility of losing one's funds due to early death against that of outliving one's retirement savings. In order to counteract the possibility of dying soon after annuity payments begin, there are contracts that guarantee a minimum number of payments.

Another consideration for an annuity purchaser is the complexity of the annuity product itself. According to Hube (2011), there are approximately 1,600 types of annuity products. In addition to the basic annuity structures listed above, there are countless variations, including structures with tax advantages and interest rate, inflation, and investment risk protections. The magnitude of differing annuity products makes the decision to purchase an annuity cumbersome and confusing.

The security of the annuity is of prime concern. Since the purchaser is depending on the financial strength of the issuing company to provide lifetime income, one must be certain that the issuer of the contract is in stable financial condition. Rating agencies such as A. M. Best and Standard & Poor's rate the stability of insurance companies, according to *Consumer Reports Money Advisor* (2011).

The fees and commissions can be quite high. Thus, the annuity purchaser needs to understand in what way and how much the issuer is being compensated as well as any ongoing fees.

Recently, discount investment brokers such as Vanguard and Fidelity entered the annuity marketplace with lower-cost and higher-benefit annuity options. Without a direct sales force, compensated solely through commissions, discount brokers may offer more economical annuity options for retirees.

If annuity payments are not tied to inflation, the annuitant runs the risk of a loss in purchasing power due to increases in the inflation rate. If one receives $750 per month at the outset of retirement and inflation increases at the historical rate of 3 percent per year, in 20 years, the $750 per month will only have the purchasing power of $407 per month. Retirees without an inflation increase in their annuity payment can lose close to half of the value of their payment during the next 20 years, according to the inflation calculator at Vertex42.com.

As Americans live longer, there is a growing need for a product that gives lifetime monthly income. The annuity is an important option for retirees to fund their future. Although as with any financial product, when choosing an annuity, it is important to research the options and consider fees to ensure the purchaser receives the greatest income payment for the annuity cost.

Barbara A. Friedberg

See also: Bonds; Index Mutual Funds; Mutual Funds and Exchange Trade Funds; Risk; Stocks; *Vol. 1: Foundations of Economics:* Investing; Social Security

Further Reading

Ferro, Gustavo. 2010. Annuities: An overview of the main issues. *The IUP Journal of Risk & Insurance* 7 (4): 18–37.

Hube, Karen. 2011. Special report—retirement: With their steady income payments, annuities are suddenly hot. *Barron's* magazine (June 20). http://online.barrons.com/article/SB50001424053111904472004576392401608661120.html#articleTabs_article%3D1 (accessed April 28, 2013).

Inflation calculator. n.d. Vertex42. http://www.vertex42.com/Calculators/inflation-calculator.html (accessed April 28, 2013).

The Standard. 2011. *Annuity Answer Booklet—Explanations of Annuity Concepts and Language* (April). http://www.standard.com/annuities/eforms/11334.pdf (accessed April 28, 2013).

Zook, Jack. 2013. Annuities offer retirees money like clockwork. *Pennsylvania CPA Journal* (January): 1.

ARBITRAGE

Arbitrage is buying a good and then immediately reselling it in another market for a higher price or a profit. Arbitrage opportunities can be found in most markets but are usually short-lived due to the adjustment in prices based on the supply and demand for the arbitrage good in both markets. Arbitrage opportunities usually exist for three primary reasons: there is a difference in how the good is valued between markets, the good is priced incorrectly, or there is an advantageous exchange rate fluctuation.

In order to take full advantage of an arbitrage opportunity, the markets in which the arbitrage good is purchased and then immediately sold must participate in free trade. If protective tariffs or quotas exist between these markets, the arbitrage opportunity will be limited. First, to explore a difference in the value of a good between markets, one needs to establish that there are two countries that currently do not trade. If country A can easily produce the good but the citizens of country A do not value the good, that creates a very low price for the good (surplus and very little demand). The citizens of country B place a high value on the good but because of their limited factors of production for the good, they are not able to produce enough to meet the demands of their citizens, which causes the price of the good to be very high (shortage and high demand). If these countries trade, the citizens of country A will produce the good and sell it to the citizens of country B for a larger economic profit compared to simply selling it to the citizens of country A. This arbitrage opportunity will be short-lived because eventually the increase of supply in country B (provided by country A) will drive down the price in country B, and the decrease in supply in country A will drive up the price in country A, creating a "world" price for the good. Both countries would essentially share the "world" demand and the "world" supply of the good, creating a true "world" price.

Natural disasters often create arbitrage opportunities based on the value of the good between markets. Imagine that a hurricane devastates South Florida, which creates a larger than normal demand for generators. It is reasonable to suspect a resident of Michigan would purchase as many generators as he could in Michigan, load them in a truck, and sell them to the citizens of South Florida for a steep profit. Many communities have laws against this type of arbitrage to protect their citizens from price gouging; but one might question whether citizens are truly helped by this protection. Without the profit incentive to deliver these generators to the citizens of South Florida, they may be forced to live without electricity for a few extra days.

Arbitrage opportunities exist for goods that are priced incorrectly. Instead of two countries, as in the previous example, consider two markets that could be in the same community. Imagine a consumer walks into market A, notices that a good is extremely underpriced, and purchases as much of this good as she can. She then sells the good for a profit in market B at the established market price. This arbitrage opportunity will exist until market A realizes that the good is priced incorrectly or until the supply and demand for the good balances in each market, creating a single price for the good in both markets.

The last opportunity for arbitrage is a large fluctuation in exchange rates with prices remaining stable in both countries. Comparing countries again, if the exchange rates in both countries A and B were equal to each other (one A currency equals one B currency) and then the central bank of country B vastly increases the money supply of country B, which would depreciate the currency of country B, creating a new exchange rate of one A currency equaling two B currency. Prices have not changed in either country. Citizens in country A could purchase twice as many goods in country B by exchanging their currency for the currency of country B, purchasing twice as many goods in country B, and reselling them for a profit in country A.

This will be much easier to understand if we use an example with real numbers. If a citizen of country A took $100 of A currency and exchanged it for $200 of B currency, purchased 200 dollar-store items in country B, and then shipped those goods to country A and sold them in a country A dollar store, that citizen would now have $200 of country A currency. This arbitrage opportunity would also be short-lived because as the citizens of country A continued to demand the currency of country B, the value of the currency of country B would continue to increase until the arbitrage opportunity was eliminated.

While arbitrage opportunities do exist, they often have short life spans due to the changes in supply and demand in each market, government regulations prohibiting arbitrage opportunities, and trade restrictions.

Xavier Whitacre

See also: Markets; *Vol. 1: Foundations of Economics:* Investing; *Vol. 4: Global Economics:* Exchange Rates

Further Reading

Ballard, Frederic L. 2007. *ABCs of arbitrage: Tax rules for investment of bond proceeds by municipalities*. Chicago, IL: American Bar Association Press.

Clark, Ephraim, and Dilip Kumar Ghosh. 2004. *Arbitrage, hedging, and speculation: The foreign exchange market*. Westport, CT: Greenwood Publishing Group.

Moore, Keith M. 1999. *Risk arbitrage: An investor's guide*. New York: John Wiley & Sons.

ARROW, KENNETH

Born: August 23, 1921, in New York City; Nationality: American; Professional Interests: general equilibrium theory, welfare theory, economic growth, Nobel Prize (1972); Major Work: *Social Choice and Individual Values* (1951).

Kenneth J. Arrow is an American economist. In 1972, he, along with Sir John Hicks, won the Nobel Prize in Economics for his work on general equilibrium and welfare economics. Arrow is also known for his work in the area of public choice; he introduced and defended the impossibility theorem in his dissertation.

Kenneth Joseph Arrow was born on August 23, 1921, in New York City. He did his undergraduate work at the City College of New York, where he received a bachelor of science in social science with a major in mathematics in 1940. He went on to receive an MA in mathematics from Columbia University in 1941. At that point, he switched to the Economics Department at Columbia for further graduate work, having completed his PhD course work in 1942, although he was still in search of a dissertation. His dissertation research was interrupted by military service during World War II in the U.S. Army Air Corps, where he served as weather officer, rising to the rank of captain. It was here that he had his first published paper, "On the Optimal Use of Winds for Flight Planning."

Upon his return from the military, Arrow was at Columbia for a brief period before joining the Cowles Commission at the University of Chicago in 1947. Time spent with other young econometricians and mathematically oriented economists proved to be a significant influence on him.

Arrow became affiliated with the RAND Corporation in 1948 and continued that relationship into the 1970s. It was early in his time at RAND that he arrived at an idea for his dissertation. He sought to apply the newly emerging field of game theory to large groups, such as countries. His research was published in 1951 under the title *Social Choice and Individual Values*. The work introduced the "impossibility theorem," which stated that, given certain assumptions, it was impossible to find a voting construct that would provide an outcome that most voters preferred. This provided and continues to provide great insights into social welfare theory as well as voter behavior in the public arena.

In 1949, Arrow joined the Economics Department at Stanford University, where he would stay until leaving to join the faculty at Harvard in 1968. While at Stanford, some of his most significant early works were published: the aforementioned *Social Choice and Individual Values*, several articles on competitive equilibrium with Leonid Hurwicz from 1958 to 1960, and his contribution to "Toward a Theory of Price Adjustment" in *Allocation of Economic Resources* edited by Moses Abramovitz in 1959. Also while at Stanford, Arrow won the John Bates Clark Medal in 1957 and began his research into economic growth. His article "The Economic Implications of Learning by Doing" is a precursor to modern growth theory and the role of human capital.

In 1968, Arrow accepted a position at Harvard University. He would remain on the faculty at Harvard until he returned to Stanford in 1979. While at Harvard, Arrow continued his work in the areas of information, market efficiency, and public choice, producing several articles and books of note. These include *Public Investment, the Rate of Return, and Optimal Fiscal Policy* (with Mordecai Kurz) in 1970; *Essays on the Theory of Risk-Bearing* in 1970; *General Competitive Analysis* (with Frank Hahn) in 1971; and *The Limits of Organization* in 1974. Each of these provided insights into the role of information in markets or decision-making. Arrow also produced significant research in the economics of discrimination and of health care.

Upon his return to Stanford in 1979, Arrow became the Joan Kenney Professor of Economics and professor of economic research. During this second period at Stanford, he continued his work on the impact of information in the market and decision-making as well as providing important insights into topics as widely divergent as income distribution and globalization.

Arrow retired in 1991 but remains professor emeritus at Stanford. He continues his research into areas of information economics, growth, and the environment.

Timothy P. Schilling

See also: *Vol. 1: Foundations of Economics:* Environmental Economics; Nobel Prize in Economics; Theory of Public Choice; Welfare Economics

Further Reading

Arrow, Kenneth J. 1951. *Social choice and individual values*. Hoboken, NJ: Wiley.
Arrow, Kenneth J. 1959. Toward a theory of price adjustment. In *Studies in Resource Allocation Processes*, ed. Kenneth Joseph Arrow and Leonid Hurwicz, 380–90. Cambridge, UK: Cambridge Univ. Press.
Arrow, Kenneth J. 1971. *Essays on the theory of risk-bearing*. Chicago, IL: Markham.
Arrow, Kenneth J. 1973. *Theoretical issues in health insurance*. Essex, UK: Univ. of Essex.
Arrow, Kenneth J. 1974. *The limits of organization*. New York: Norton.
Arrow, Kenneth J. 1983. *Behavior under uncertainty and its implications for policy*. No. TR-399. Stanford, CA: Center for Research on Organizational Efficiency, Stanford Univ.
Arrow, Kenneth J. 1987. *Handbook of mathematical economics*. Vol. 1. Handbooks in Economics. Amsterdam: North Holland.
Arrow, Kenneth. 2012. Social choice and individual values. New Haven, CT: Yale Univ. Press.
Arrow, Kenneth J. n.d. Autobiography. Nobelprize.org. http://www.nobelprize.org/nobel_prizes/economics/laureates/1972/arrow-autobio.html (accessed April 28, 2013).
Arrow, Kenneth J., and Frank H. Hahn. 1971. *General competitive analysis*. Amsterdam: North Holland.
Arrow, Kenneth, and Mordecai Kurz. 1970. *Public investment, the rate of return, and optimal fiscal policy*. Washington, DC: RFF Press.
Chichilnisky, Graciela, ed. 1999. *Markets, information and uncertainty: Essays in economic theory in honor of Kenneth J. Arrow*. Cambridge, UK: Cambridge Univ. Press.
Hammer, Peter J., Deborah Haas-Wilson, Mark A. Peterson, and William M. Sage, eds. 2003. *Uncertain times: Kenneth Arrow and the changing economics of health care*. Durham, NC: Duke Univ. Press.
Kenneth Arrow. n.d. In *The concise encyclopedia of economics*, ed. David R. Henderson. The Library of Economics and Liberty. http://www.econlib.org/library/Enc/bios/Arrow.html (accessed April 28, 2013).
Kenneth Arrow. n.d. The RAND Corporation. http://www.rand.org/pubs/authors/a7arrow_kenneth.html (accessed February 14, 2011).
Kenneth Arrow. n.d. Stanford University. http://economics.stanford.edu/faculty/arrow (accessed March 2011).
Scheib, Ariel. n.d. Kenneth Arrow. Jewish Virtual Library. http://www.jewishvirtuallibrary.org/jsource/biography/arrow.html (accessed October 30, 2012).

ASSET BUBBLES

An asset bubble occurs when the price of a financial asset reaches levels that are well above historical norms or intrinsic value. Considering that intrinsic value can vary widely, a bubble is considered to be a result of the misconception that an asset's intrinsic value has increased or that the asset is worth more today than it once was.

Furthermore, some bubbles are easily detectable, such as stock market bubbles. This is because traditional valuation methods can be used to identify areas of extreme overvaluation. For example, a financial valuation metric such as an equity index that is trading at a ratio twice that of historical trading value is a good indicator of a potential bubble. On the other hand, some bubbles are harder to detect and can only be identified in retrospect.

Some common themes identified throughout the history of asset bubbles is that most individuals involved tend to ignore the multitude of red flags that signal a bubble on the horizon. Another common theme apparent throughout history is the bigger the bubble, the greater the damage it inflicts when it finally bursts. Five of the largest asset bubbles in history included the Dutch tulip bubble, South Sea bubble, Japan's real estate and stock market bubble, the dot-com bubble, and the most recent housing bubble.

Dutch Tulip Bubble

One of the earliest records of an asset bubble occurred in the 1630s in Holland. Between November 1636 and February 1637, tulip prices increased by 20 percent before plummeting by 99 percent in May of 1637. According to Earl A. Thompson, a former UCLA economics professor, this incident is known as "tulipmania," and it consumed most of the Dutch population. At its peak, some bulbs cost more than a luxury home.

South Sea Bubble

Formed in 1711, the South Sea Company was promised a monopoly by the British government on all Spanish colonies of South America. With the assumption that the South Sea Company would have the same success as the East India Company, investors jumped at the opportunity to buy shares. As directors of the company exaggerated the potential success, shares surged more than eight times from January to June in 1720 before finally collapsing in subsequent months, causing severe economic crisis.

Japan's Real Estate and Stock Market Bubble

This bubble is a good example of how an overly stimulated monetary policy can fuel an asset bubble. In the early 1980s, the Japanese yen surged by 50 percent and triggered a recession in 1986. In order to counteract this incident, the government created a program of monetary and fiscal stimulus. This attempt was speculatively successful and resulted in Japanese stocks and property values tripling by the peak of the bubble in 1989; at that point, the property value of the Imperial Palace in Tokyo was greater than that of the entire state of California. The bubble burst in 1990.

Dot-Com Bubble

Following the introduction of the Internet, hundreds of dot-com companies achieved multibillion-dollar valuations immediately after going public. The NASDAQ Composite, which houses most of the dot-com companies, skyrocketed to a peak of over 5,000 in March 2000. The index crashed shortly after, plunging nearly 80 percent by October 2002, leading to a recession in the United States.

U.S. Housing Bubble

From 1996 to 2006, U.S. housing prices nearly doubled, with most of that surge occurring from 2002 to 2006. Coupled with the record high housing prices, there were several other cautionary signals in the market at the time, such as mortgage fraud and subprime borrowing. U.S. housing prices peaked in 2006 and then fell to roughly one-third of their value by 2009. The U.S. housing boom and bust had rippling effects throughout the global economy and caused the largest recession since the Great Depression in the 1930s.

Lauren A. Drum

See also: Stock Market; Stocks; *Vol. 1: Foundations of Economics:* Asset Allocation; Investing

Further Reading

Business Pundit. 2011. 10 most bizarre economic bubbles in history (March). www.businesspundit.com/10-most-bizarre-economic-bubbles-in-history/ (accessed March 15, 2016).

PBS. n.d. Famous bubbles. Frontline. www.pbs.org/wgbh/pages/frontline/shows/dotcon/historical/bubbles.html (accessed March 15, 2016).

Picardo, Elvis. 2015. Five of the largest asset bubbles in history. Investopedia. www.investopedia.com/articles/personal-finance/062315/five-largest-asset-bubbles-history.asp (accessed March 15, 2016).

ASYMMETRIC INFORMATION

Asymmetric information refers to a situation where one individual in a transaction has access to information that is important to the potential outcomes of the other individual(s) but where this information can be kept private until after the transaction is complete. Asymmetric information is important in the study of economics as individuals with private information can use it to their advantage. This can lead to an imbalance of power and to exchanges that disadvantage the uninformed party.

When an individual's private information, such as regarding religion, relates to a fixed preference of an individual or an immutable characteristic of an object, such as a home's location, asymmetric information gives rise to an adverse selection or hidden information problem.

The term *adverse selection* was originally used in insurance to describe a situation where an individual's propensity to buy insurance is positively correlated with his or her likelihood of needing such insurance. If all individuals are offered an identical insurance policy with a premium equal to the average payout, safe individuals will opt out of the policy, leaving an adverse pool of remaining policyholders. To compensate for this adverse pool, an insurer must raise the premium. However, this increase in price will lead to even more individuals opting out of the policy. This unwinding process may give rise to a "market for lemons," where only individuals with high levels of risk are willing to accept insurance contracts and insurance premiums are extremely high.

To prevent market failures, hidden information can be partially reduced through signaling and screening. A signaling strategy is when individuals who have private information take actions that may be costly to them by revealing the private information, but doing so in such a way that individuals with different characteristics don't have an incentive to follow. For example, in the context of the hiring process, a potential employee's ability and productivity may be private information. However, a potential employee may signal such ability through his or her educational attainment. By doing so the potential employee risks others doing the same and increasing competition. Screening strategies are adopted by individuals to induce the other party to reveal information through his or her choices. A screening strategy typically involves offering a menu of choices and letting the informed party pick the one that is best for him or her. For example, an airline offers a first-class seat with a high price and high level of service and an economy-class seat with a lower price and a lower level of service. Individuals, whose initial willingness to pay for service is private, self-select into the product best suited to them. This self-selection reveals information about individuals' preferences.

When an individual's private information relates to his or her potential future actions, asymmetric information gives rise to a moral hazard problem or a hidden action problem. In a moral hazard problem, an individual—typically referred to as the agent—may take an action that improves the expected outcome to the other party—the principal—but which is costly and unobservable. For example, an individual who parks a car at a gas station and wants to run in to buy something may find it convenient to leave his or her car running to keep it warm. This action increases the potential the car will be stolen but is hard for the insurance company to observe. In order to make the car owner less likely to take such risky actions, the insurance company will impose a deductible to make the owner more cautious. Or, a finance company and its employees might engage in highly risky investments if the prospective returns are high but the risks are borne by other parties. To avoid such behavior requires decision-makers to bear the costs of their risky choices.

Tom Stuart Wilkening

See also: Akerlof, George; *Vol. 1: Foundations of Economics:* Behavioral Finance; Decision Costs; *Vol. 2: Macroeconomics:* Moral Hazard and Behavioral Economics

Further Reading

Akerlof, George A. 1970. The market for "lemons": Quality uncertainty and the market mechanism. *Quarterly Journal of Economics* 84: 488–500.
Bolton, Patrick, and Mathias Dewatripont. 2005. *Contract theory*. Cambridge, MA: MIT Press.
Spence, Michael. 1973. Job market signaling. *Quarterly Journal of Economics* 87: 355–74.
Stigler, George J. 1961. The economics of information. *Journal of Political Economy* 69: 213–25.

AUMANN, ROBERT

Born: June 8, 1930, in Frankfurt, Germany; Nationality: Israeli; Porfessional Interests: mathematician, game theory, Nobel Prize (2005); Major Work: *Lectures on Game Theory* (1989).

Robert Aumann was the first to introduce the formal analysis of infinitely repeated games, focusing on noncooperative encounters, a subject of game theory. Game theory is a branch of both economics and applied mathematics. Economics is like a game in which action is or is not taken based on the anticipated actions of other players in the game. Outcomes result from the encounters between players who have mixed, similar, or opposing interests from each other. Based on these interests, players may or may not cooperate for any set of outcomes. Aumann's research showed that noncooperative relations or encounters, over the long run, hold up—this is known as the "folk theorem." In 2005, Aumann was awarded the Nobel Prize in Economics.

Robert John Aumann was born on June 8, 1930, in the city of Frankfurt (on the Main), Germany, into an orthodox Jewish family. His mother was college educated in London, and his father made a comfortable living as a wholesale textile merchant. In 1938, the family lost all their assets as the Nazis were coming to power. They then emigrated to New York. While in high school, Aumann found a passion for mathematics, especially working mathematical axioms, proofs, and Euclid's geometry constructions. In college, Aumann's passion for mathematics grew as he found analytic and algebraic number theory fascinating.

Aumann completed his PhD at the Massachusetts Institute of Technology (MIT). In his undergraduate years, he preferred to study classical mathematics; however, at MIT his interests moved toward modern branches of mathematics, such as algebraic topology. His focus was in knot theory, a branch of algebraic topology. Aumann's thesis was published in the *Annals of Mathematics* in 1956.

According to Aumann, his knowledge of game theory was limited to early conversations he had had with MIT instructor John Nash (also a Nobel economics laureate). After earning his PhD, Aumann began his research in game theory in order to solve a problem given him as a consultant for the Analytical Research Group (ARG): How do you defend a city from an attack by an air squadron, knowing that most are decoys, yet a few of the aircraft have nuclear weapons?

Aumann is most recently known for sharing the 2005 Nobel Prize in Economics with Thomas C. Schelling. The cowinners described their contribution to economics and game theory as the ability to use game-theory analysis to broaden the understanding of conflict and cooperation.

Aumann's research and publications include extensive collaborations with over 30 award-winning scientists. His notable collaborators include Thomas C. Schelling, Lloyd Shapley (coauthored the book *Values of Non-Atomic Games*), and Michael Maschler. He has also collaborated with John Harsanyi, Reinhard Selten, Gérard Debreu, Dick Stearns, Herb Scarf, Harold Kuhn, Jim Mayberry, Jacques Dreze, Mordecai Kurz, Sergiu Hart, Bezalel Peleg, Adam Brandenburger, Frank Anscombe, Abraham Neyman, Benjy Weiss, Micha Perles, Joe Kruskal, Roger Myerson, Roberto Serrano, and Motty Perry.

Steven Downing

See also: Game Theory; Nash, John; Schelling, Thomas; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics

Further Reading

Aumann, Robert J. 1989. *Lectures on game theory.* Boulder, CO: Westview Press.

Aumann, Robert J. n.d. Autobiography. Nobelprize.org. http://nobelprize.org/nobel_prizes/economics/laureates/2005/aumann.html (accessed March15, 2011).

Aumann, Robert J., and Michael B. Maschler, with collaboration of Richard E. Stearns. 1995. *Repeated games with incomplete information.* Cambridge, MA: MIT Press.

Aumann, Robert J., and Lloyd S. Shapley. 1968. *Values of non-atomic games.* Santa Monica, CA: RAND.

Robert J. Aumann. n.d. Hebrew University of Jerusalem. http://www.ma.huji.ac.il/~raumann (accessed October 30, 2012).

AUTO IMPORT CHALLENGE, 1965

The decline of the American auto industry has resulted in more permanent job losses than any other event in American history. The auto decline has meant millions of lost jobs and the bankruptcy of American cities such as Detroit, Flint, and Akron. The first signs of this new world order came in the 1950s in auto manufacturing. The story of the rise of Japanese imports and Toyota in the United States is really a story of America's entrance into the global economy.

In the late 1950s, Toyota and Nissan's small cars offered little threat to the big luxury car market of the United States. Toyota struggled even to find a good price for its vehicles. The year 1965 would be the start of a revolution in the American auto industry and the beginning of the end of American manufacturers in their home market. This economic crisis had deep roots that would end more than 40 years later with General Motors and Detroit in bankruptcy.

In the mid-1960s, these first few foreign car imports into the United States targeted a niche in the American market. This had been a prewar goal of Japanese automakers. In 1936, the Japanese government passed the Automobile Manufacturing Industries Act with the express purpose of breaking the American car monopoly. Toyota and Datsun took the lead before the war and then took up the old goals after the war, taking advantage of favorable trade laws. A small but growing import market arose in postwar America with the entrance of the Volkswagen Beetle, which was launched in 1949. Although the sale of a small Toyota in the American market was hardly noticed by the American press, it was a strategic project, not a tactical move. To the Japanese automaker, it was guerilla warfare, like Apple and Microsoft working quietly in the shadow of giant IBM. Toyota was looking to be a major player in America, but the plan was difficult from a product standpoint.

Toyota opened its headquarters in Hollywood more as a statement than as a functioning office. In 1958, the sale of the first Toyota Toyopet at America's first Toyota dealer in San Francisco hardly started a flood of imports; in fact, the Toyopet proved unsuccessful in the American market. The Toyopet was a small, scaled-down car that was never popular in the United States, but the experience changed the future of imports. The failure of the Toyopet model inspired the development of the Toyota Corona for the American market in 1964. The Corona was a six-passenger car with a lower price tag, higher quality, and better gas mileage than the sedans of the Big Three U.S. automakers.

In 1965, Toyota Corona sales hit 6,400 vehicles, and by 1967, sales reached 71,000 vehicles and continued to double every year until 1971. Toyota's quality became its trademark as it captured the small-car market in the United States; the cars were carefully inspected before delivery to the United States. With a growing reputation for quality, Toyota introduced the Crown, a semiluxury car. In 1969, Toyota launched the Corolla, which would become the best import seller and America's favorite small car.

America had risen to the small-car challenge only to be thwarted by quality and safety issues with its cars. General Motors had released its Corvair in anticipation of the foreign challenges. The Corvair had an air-cooled engine and rear-wheel drive, which challenged a popular import—the Volkswagen Beetle. The Corvair had many revolutionary design elements and was named Motor Trend Car of the Year for 1960. It was also on a 1960 cover of *Time* magazine, which hailed its engineering.

Even with all the safety concerns that arose, the Corvair proved highly successful, and GM sold 1.8 million of the cars in the 1960s. In the first four years of its sales, however, the Corvair was hit with more than 100 lawsuits, but these remained below the public's radar until the 1965 publication of Ralph Nader's *Unsafe at Any Speed.* The major impact of the book would be the unanimous passage of the 1966 National Traffic and Motor Vehicle Safety Act, which addressed the rising fatalities and injuries in cars in the 1960s. The act represented a major shift in safety responsibility from the individual consumer to the federal government and forced auto manufacturers to add such features as safety belts and stronger shatter-resistant windshields. General Motors and the American automakers would stop producing smaller cars for a time, effectively ceding the small-car market to their overseas rivals.

Quentin R. Skrabec Jr.

See also: Chrysler Bankruptcy, 1979; General Motors Bankruptcy, 2009; *Vol. 2: Macroeconomics:* Detroit Bankruptcy, 2013; Rapid Deindustrialization, 1975

Further Reading

Liker, Jeffrey. 2003. *The Toyota way*. New York: McGraw-Hill.
Liker, Jeffrey, Michael Hoseus, and Center for Quality, People, and Organization. 2008. *Toyota culture: The heart and soul of the Toyota way.* New York: McGraw-Hill.

AUTO PACT OF 1965

The Auto Pact of 1965 was a free trade agreement between the United States and Canada specifically in the automotive sector, which included both vehicle parts and newly produced/assembled vehicles. A significant impact of the Auto Pact of 1965 was that it provided evidence that free trade agreements can increase economic prosperity. The Auto Pact of 1965 was the forerunner of future free trade agreements such as the 1994 North American Free Trade Agreement (NAFTA). There were many positive outcomes of this trade agreement, but perhaps the most meaningful was the evidence that free trade creates wealth through comparative advantage and specialization.

The Auto Pact of 1965 allowed the major North American automotive manufacturers to aggregate and integrate their production processes in the United States and Canada to engage in a greater degree of specialization between the U.S. and Canadian automotive markets. This specialization created greater economies of scale and reduced production costs for all manufacturers. In addition to specialization, the Auto Pact of 1965 integrated U.S. and Canadian automotive markets. This integration created a single automotive market and allowed for the streamlining of marketing strategies between the U.S. and Canadian automotive markets as well as increasing the consumer base for each market. The Auto Pact of 1965 led the way for the globalization of the major automotive manufacturers as well as the automotive market.

Even though the Auto Pact of 1965 greatly reduced protective automotive tariffs between the United States and Canada, it did not completely eliminate them. In order for an automotive part or assembled vehicle to avoid tariffs, it had to satisfy a myriad of requirements. Vehicles or parts produced outside of North America were still subject to preexisting tariffs. While the Auto Pact of 1965 was a true test of the theory of comparative advantage and the economic theory that free trade creates wealth through specialization, it was extremely limited in scope. However, the Auto Pact of 1965 was considered by most economists to be highly successful for both the automotive manufacturers and automotive consumers of the United States and Canada. In addition, it was proof that trade liberalization policies could create wealth in each country. It was also evidence that trade barriers could be removed without a major disruption in the size of the domestic labor force.

Xavier Whitacre

See also: Auto Import Challenge, 1965; Corporate Average Fuel Economy; *Vol. 4: Global Economics:* North American Free Trade Agreement; Trade Policy; Trade, Measures of; *Primary Documents:* Auto Pact of 1965; North American Free Trade Agreement (1994)

Further Reading

Fuss, Melvyn, and Leonard Waverman. 1986. The Canada-U.S. Auto Pact of 1965: An experiment in selective trade liberalization, Working Paper No. 1953. Cambridge, MA: National Bureau of Economic Research. http://www.nber.org/papers/w1953.pdf?new_window=1 (accessed April 10, 2014).

Grossman, Gene M., and Elhanan Helpman. 1991. *Innovation and growth in the global economy.* Cambridge, MA: MIT Press.

NAFTA revisited: Achievements and challenges. https://www.dpc.senate.gov/hearings/hearing28/schott-chapter.pdf (accessed April 10, 2014).

B

BANDWAGON EFFECT

The character of Robinson Crusoe has been used to describe the rational behavior of the economic person. Crusoe, shipwrecked on a deserted island, makes decisions independent of others, since there are no others. He estimates costs and benefits as they appear to him alone, equates them at the margin, and a decision arises automatically in his consciousness.

However, in the real world, we are influenced by others. One type of influence is known as the bandwagon effect. Bandwagon behavior is also known as an "informational cascade" (Hirshleifer 1995). People copy the decisions of others regardless of what their own internal signals are telling them, leading to what some would refer to as irrational or bounded rational decisions.

Studies have shown that the probability that an individual will make such a substitution increases as the percentage of other people who have already made such a substitution rises. People "hop on the bandwagon" regardless of any underlying data. Gary Becker argues that an upward-sloping demand curve could result from the bandwagon effect. In his 1950 article, Leibenstein develops an upward-sloping demand curve that he calls a Veblen demand curve.

In the famous Asch experiments, Solomon Asch of Swarthmore College showed students a single line and a group of three lines next to it and asked which of the set of three was closest in length to the benchmark single line. Students who knew the purpose of the study replied first and answered incorrectly. The actual student participants then answered, also incorrectly despite the fact that the correct answer was obvious. Similar bandwagon effects were found in voting behavior. Among 180 University of Kentucky students, about 125 were given information about the expected winner of a political race. Among Independents, the majority favored whichever candidate, Democrat or Republican, they were told was expected to win.

The implications of being influenced by others leads to what Leibenstein refers to as bandwagon, snob, and Veblen demand curves. Here we focus on the bandwagon effect. In standard economic theory, the market demand curve is the horizontal sum of the individual demand curves. At price P1, Moe buys 5, Larry buys 6, and Curly buys 162. The market demand at P1 is 5 + 6 + 162 = 173. However, if Moe, Larry, and Curly are dependent on at least one of the others, the market demand will not be the horizontal sum of the individual demand curves. Rather, how much Moe buys depends on how much Larry buys, and Curly buys an amount that is dependent on how much Moe buys. This is because the utility received from a product is affected by external factors.

In Leibenstein's analysis, each individual's demand depends on his or her expectation of total demand. The individual's demand (D) when he or she expects total demand to be 200 is greater than when he or she expects it to be 100. In other words, D200 is to the right of D100. If we add up what all consumers would buy if they believe that total market demand is 100, we arrive at a market demand curve of 100. D200, D300, . . . , Dn is each a market demand curve if all consumers believe that total market demand is 100, 200, 300, and . . . Dn units, respectively. D100 is to the left of the other demand curves.

On D100, if the price is P3, Qd will be x1. If the price falls to P2, under standard economic theory, consumers will purchase more by moving down D100: Qd becomes x2. However, at the lower price, consumers believe that others are buying more—200. D100 shifts to the right to D200. Yes, contrary to economic theory, a price change leads to a change in demand. At P2 along D200, Qd is x3. Any reduction in price yields a larger increase in Qd. The bandwagon demand curve is thus more elastic than the normal demand curve.

Roger Frantz

See also: Becker, Gary; Snob Effect; Veblen, Thorstein; *Vol. 1: Foundations of Economics:* Relative Thinking

Further Reading

Asch, Solomon E. 1955. Opinions and social pressure. *Scientific American* 193 (5): 31–35.

Banerjee, Abhijit V. 1992. A simple model of herd behaviour. *Quarterly Journal of Economics* 107: 797–817.

Gisser, Misch, James McClure, Giray Ökten, and Gary Santoni. 2009. Some anomalies arising from bandwagons that impart upward sloping segments to market demand. *Econ Journal Watch* 6: 21–34.

Goidel, Robert, and Todd Shields. 1994. The vanishing marginals, the bandwagon, and the mass media. *The Journal of Politics* 56: 802–10.

Hirshleifer, David. 1995. The blind leading the blind: Social influence, fads, and informational cascades. In *The New Economics of Human Behavior*, ed. Mariano Tommasi and Kathryn Ierulli, 188–215. Cambridge, UK: Cambridge Univ. Press.

Leibenstein, Harvey. 1950. Bandwagon, snob, and Veblen effects in the theory of consumers' demand. *Quarterly Journal of Economics* 64: 183–207.

Salganik, Matthew J., and Duncan J. Watts. 2008. Leading the herd astray: An experimental study of self-fulfilling prophecies in an artificial cultural market. *Social Psychology Quarterly* 71: 338–55.

BANKING TRENDS: ELECTRONIC AND INTERNATIONAL

Traditionally, banks have delivered products and services to consumers through a physical bank and its branches. However, the financial services industry is transforming with the help of the Internet, technological evolutions, deregulation, globalization, and the impact of competitive and regulatory forces. As a means to adapt to the ever-changing industry, banks have started to rely on supplemental channels of distribution and alternative strategies to gain competitive advantages.

Electronic Banking

Considering the traditional methods, banks delivered their products and services to customers solely through physical banks and branches; as technology evolved and many businesses were forced to change their traditional modes of operations, banks were expected to do the same. It was apparent to banks that relying solely on the traditional modes of operation was no longer suitable given the evolution of the rest of the world.

The increased pace of technological advancements combined with the growing global economy set the stage for the banking system to change from its traditional operations to mobilizing and guiding financial resources more effectively. In an ever-increasing competitive environment, better financial distribution strategies reaching the maximum number of customers provides a competitive edge to banking institutions in the marketplace.

Specifically, electronic banking, also known as electronic fund transfer (EFT), uses computers and electronic technology in place of checks and other paper transactions. Moreover, transactions as such are initiated through devices like cards or codes that allow customers to authorize or access their accounts remotely. Many financial institutions use debit cards and personal identification numbers. Some common technological advances include ATMs, direct deposit, personal online banking, electronic check conversion, and debit card purchases or payment transactions.

International Banking

International banks surpass the functions of domestic banks by linking financial partners across countries and helping people and businesses engage in international trade and finance. Additionally, international banks aid in foreign currency exchange rates and holding inventories of foreign currencies.

Over the last three decades, international banking has expanded tremendously. Its prominence and geographical coverage reflect the two most important aspects of the role international banks play in the global economy. Namely, international banking has been an important element aiding in a broader process of globalization and integration. Historically, it has expanded simultaneously with international trade and performed key functions for the business of international firms. Additionally, the foreign banks involved in local operations have helped to spark the development of financial systems in emerging markets while also helping to alleviate communication gaps. In the future, the demand for financial services from multinational corporations and rapidly growing markets will help to solidify the continual shaping of international banking and its contribution to economic progress.

Moreover, the role of international banks in the global economy is closely related to that of international financial markets. Each function performs and assumes complementary responsibilities that together create resilient market infrastructure and overall healthy financial systems. For example, international capital markets often ease the funding strains of large corporations when bank credit contracts. Conversely, banks are the main source of external financing for households and medium-sized companies, whose access to credit markets can be restricted by asymmetric information issues.

Lauren A. Drum

See also: *Vol. 1: Foundations of Economics:* Banking; *Vol. 2: Macroeconomics:* Financial Intermediation

Further Reading

Federal Trade Commission. 2012. Consumer information: Electronic banking. www.consumer.ftc.gov/articles/0218-electronic-banking (accessed March 6, 2016).

Sarlak, Mohammad Ali, and Asghar Abolhasani Hastiani. 2011. E-banking and emerging multidisciplinary processes: Social, economical and organizational models, 1–227. www.igi-global.com/chapter/global-banking-trends/46226 (accessed March 6, 2016).

Szulczyk, Ken. 2015. Functions of international banks. *Money, banking, and international finance*. Boundless (July 21). www.boundless.com/users/233416/textbooks/money-banking-and-international-finance/international-banks-4/international-banks-25/functions-of-international-banks-64-15162/ (accessed March 6 2016).

BARGAINING POWER

Bargaining power is the ability to claim a share of a pie commensurate with one's resources and potential in a dispute against several (one or more) competitors. A pie can be explicit, such as birthday cakes, partition of inheritance, or collective bargaining agreements between employers and employees. Other examples, such as decisions of boards of directors, parliamentary votes over a legislation bill, or sanctioning decisions of the United Nations Security Council, implicitly feature several competing partitions of the available resources, wherein the winning proposal entitles each voting party to its particular share, such as corporate dividends, benefits to the party's electorate, or geopolitical advantages. Bargaining may also be said to take place in the market between parties—buyers and sellers—over the competitive price of a good. It is not simply a matter of supply and demand mechanically determining prices (Porter 1998).

The bargaining problem itself arises whenever (1) there are resources (potential surplus) to be divided, and (2) parties (players) have conflicting interests over this division. These characteristics allow the bargaining problem to be represented as a game (game theory) and warrant association of parties with players, shares with utilities, and resulting (predicted) partitions with game-theoretic solution concepts, such as the Nash equilibrium or the Shapley vector. The canonical formal definition of the bargaining power of a player is, then, the share of a pie attributable to the player according to the game-theoretic solution—that is, the ability of each player to claim his or her expected payoff in the game.

Measurement of bargaining power depends on the type of game, bargaining protocol (rules of bargaining), and solution concept. In bilateral negotiations, the general solution concept for an arbitrary (unstructured) bargaining game is given by the Nash bargaining solution (Nash 1950; see also Kalai and Smorodinsky 1975). This concept is silent about the bargaining process but characterizes its outcome as a maximized joint product between the shares s1 and s2 accrued to players 1 and 2, respectively, and the default payoffs (d1, d2) they receive if they fail to reach the agreement (the disagreement point). This value, (s1–d1) x (s2–d2) is called the Nash product and predicts an equal share where bargaining power is equal. But if certain parameters change, such as reducing the payoff to player 1 (she has less to lose if there is no agreement) this increases her bargaining power and ultimately her share of the pie. This solution has been extensively studied in applications and has been connected to the bargaining outcomes under sequential bargaining protocol.

In the Stahl-Rubinstein bargaining game protocol, two players make offers on how to divide the pie. Player 1 makes a proposal that player 2 may either accept, terminating the game, or reject, in which case the pie size shrinks by a discount factor and the move passes to player 2. The game continues and the pie size continues to shrink until one player accepts the offer. Rubinstein derives a unique subgame-perfect equilibrium in this game, where player 1, who moves first, should offer a particular share to player 2, who should immediately accept the offer. This solution captures the first-mover advantage of player 1, who has greater bargaining power from the outset.

Multilateral bargaining problems are addressed within the frame of cooperative games, on the basis of the Shapley vector, with nontransferable utility given by a finite set of players (N) and assigned values of utility to each subset (coalition) of players. Shapley and Shubik and Banzhaf use this concept in a multilateral bargaining framework. Suppose each of N players has a particular number of votes and may propose different divisions of a single pie. Now consider all possible sequences of gradual coalition formation and calculate all those instances at which some (pivotal) player, joining a particular coalition, makes it a winning instead of losing team. The bargaining power of every player is measured as the ratio of number of instances in which this player is pivotal to the number of all instances when any player is pivotal. Various generalizations of this index have been proposed for different bargaining protocols and are extensively applied in political science.

Alexis V. Belianin

See also: Game Theory; Nash Equilibrium; Nash, John; Shapley, Lloyd

Further Reading

Aumann, Robert J., and Lloyd S. Shapley. 1974. *Values of non-atomic games*. Princeton, NJ: Princeton Univ. Press.

Banzhaf, John F. 1965. Weighted voting doesn't work: A mathematical analysis. *Rutgers Law Review* 19: 317–43.

Baron, David P., and John A. Ferejohn. 1989. Bargaining in legislatures. *American Political Science Review* 83: 1181–1206.

Binmore, Ken, Ariel Rubinstein, and Asher Wolinsky. 1986. The Nash bargaining solution in economic modelling. *RAND Journal of Economics* 17: 176–88.

Le Breton, Michel, Maria Montero, and Vera Zaporozhets. 2012. Voting power in the EU Council of Ministers and fair decision making in distributive politics. *Mathematical Social Sciences* 63: 159–73.

Kalai, Ehud, and Meir Smorodinsky. 1975. Other solutions to Nash's bargaining problem. *Econometrica* 43: 513–18.

Nash, John. 1950. The bargaining problem. *Econometrica* 18: 155–62.

Porter, Michael. 1998. *Competitive strategy*. New York: Free Press.

Rubinstein, Arial. 1982. Perfect equilibrium in a bargaining model. *Econometrica* 50: 97–109.

Shapley, Lloyd S. 1953. A value for *n*-person games. In *Contributions to the Theory of Games*, Vol. 2, ed. Harold W. Kuhn and Albert W. Tucker, 307–17. Princeton, NJ: Princeton Univ. Press.

BAUMOL, WILLIAM J.

Born: February 26, 1922, in New York City; Nationality: American; Professional Interests: entrepreneurship, economic growth, industrial organization, antitrust economics, regulation; Major Works: "Detrimental Externalities and Non-Convexity of the Production Set" (1972); *The Theory of Environmental Policy*, 2nd ed. (1988); "On the Increasing Role of Economic Research in Management of Resources and Protection of the Environment" (2010).

William Baumol was born on February 26, 1922, in New York City. After receiving his BS from the College of the City of New York in 1942, he undertook graduate study at the London School of Economics, earning his PhD in 1949. He taught at Princeton University for 43 years, where he is now professor emeritus and senior research economist. He has also taught at New York University for more than 36 years, where he currently holds the Harold Price Professorship of Entrepreneurship in the Stern School of Business. Professor Baumol is the author of more than 40 scholarly books and has written over 500 articles published in peer-reviewed journals as well as the popular media. Among his many honors and awards, he was elected fellow of the Econometric Society in 1953, fellow of the American Academy of Arts and Sciences in 1971, and distinguished fellow of the American Economic Association in 1982.

Baumol's research in economics has covered diverse areas of the discipline, including, among others, entrepreneurship and innovation, economic growth, industrial organization, and antitrust economics and regulation. His seminal contributions include a model of the transactions demand for money, the sales-revenue maximization model, an analysis of cost disease, the theory of contestable markets, and the concept of super-fairness. Most recently, Baumol has focused on entrepreneurship and innovation, with *The Economist* magazine remarking that "thanks to Mr. Baumol's own painstaking efforts, economists now have a bit more room for entrepreneurs in their theories" (March 9, 2006).

In the field of environmental economics, Professor Baumol is best known for his textbook on the theory of environmental policy, coauthored with Wallace Oates. First published in 1975, this book has become a standard reference in many graduate-level classes in environmental economics due to its comprehensive coverage of both the theory of externalities and the design of environmental policy, with chapters on topics such as imperfect competition and externalities, optimal pricing of exhaustible resources, marketable emissions permits, and international environmental issues.

Specifically, Chapter 8 of the book, drawing on his joint work with David Bradford, concerns Professor Baumol's major contribution to environmental economics: understanding the relationship between externalities and the technical concept of nonconvexities in production sets. If an industry imposes a large enough negative externality on another industry, the normal conditions for maximizing social welfare break down due to the fact that the production set becomes nonconvex—that is, the production possibilities frontier is no longer concave in shape. Instead of the normal unique equilibrium where market-clearing prices ensure that a concave production possibilities frontier is tangent to a convex community indifference curve, there are potentially many local equilibrium outcomes in the presence of externalities. In such a setting, market processes may not result in a socially optimal outcome; instead, the point at which an economy ends up will have to be chosen collectively. As a consequence, Pigouvian taxes, designed to internalize the social costs of an externality, may actually move the economy away from a social optimum.

Ian M. Sheldon

See also: *Vol. 1: Foundations of Economics:* Economic Growth; Entrepreneurship; Environmental Economics; *Vol. 2: Macroeconomics:* Externality; Pigouvian Taxes

Further Reading

Baumol, W. J. 2010. On the increasing role of economic research in management of resources and protection of the environment. *Annual Review of Resource Economics* 2 (1): 1–11.

Baumol, W. J., and D. F. Bradford. 1972. Detrimental externalities and non-convexity of the production set. *Economica* 39: 160–76.

Baumol, W. J., and W. E. Oates. 1988. *The theory of environmental policy*, 2nd ed. Cambridge, UK: Cambridge Univ. Press.

BECKER, GARY

Born: December 2, 1930, in Pottsville, Pennsylvania; Died: May 3, 2014, in Chicago, Illinois; Nationality: American; Professional Interests: behavioral economics, economic growth, Nobel Prize (1992); Major Works: *The Economic Approach to Human Behavior* (1977), *Uncommon Sense* (2009).

Gary Becker was an American economist who applied to the study of economics the idea that individuals are rational, optimizing creatures seeking to maximize wealth or other utility. In doing so, he was able to offer explanations for many behaviors outside the traditional sphere of economic activity. In 1992, he won the Nobel Prize in Economics for his application of economic analysis to human behavior and interaction, including nonmarket activities.

Gary Stanley Becker was born on December 2, 1930, in the small coal-mining town of Pottsville, Pennsylvania. His family moved to Brooklyn, New York, when he was quite young. Upon graduating from high school, Becker attended Princeton University, graduating summa cum laude with a BA in 1951. He then went to the University of Chicago for graduate work, receiving an MA in 1953 and a PhD in 1955.

Becker held the post of assistant professor at the University of Chicago from 1954 to 1957. It was during this time that he developed several influential relationships, including with Milton Friedman (Nobel Prize 1976) and Theodore W. Schultz (Nobel Prize 1979). It was here that he worked on *The Economics of Discrimination*, which grew out of his PhD dissertation. In it, Becker used economic analysis to examine the effects of prejudice on the economic life of minorities, including earnings, employment, and occupations. Becker showed that, contrary to the Marxian view, discrimination hurt the person who discriminated, especially in competitive situations. The work received good reviews in major journals. However, Becker felt his research and work were not having an impact. Despite encouragement from Friedman, Schultz, and others, in 1957 Becker left the University of Chicago, accepting a joint appointment at Columbia University and the National Bureau of Economic Research (NBER).

While at Columbia, Becker began focusing on the role of human capital in the economy. He published *Human Capital*, which was a result of one of his first research projects for NBER in 1964. In 1967, he authored *Human Capital and the Personal Distribution of Income*. That same year, he won the John Bates Clark Medal. Becker recognized education as an investment in human capital and an important component for economic growth. While at Columbia, he began to produce articles on topics that had previously been viewed as "noneconomic," the economics of the family and the economics of crime. He also instituted workshops, modeled on the workshops at the University of Chicago, about labor and "related" subjects. But as he and his later codirector, Jacob Mincer, felt that most subjects were "related," the workshops were wide-ranging and drew significant student interest.

While he remained affiliated with NBER, Becker left Columbia and returned to the University of Chicago in 1970. It was at this time that he became friends with George Stigler, and they coauthored a number of articles. He continued to expand his own research in the studies of "noneconomic" activity.

The Economic Approach to Human Behavior was published in 1976. Becker saw family formation, family size, and family dissolution as choices subject to rational, utility-maximizing objectives. His *Treatise on the Family* was a major work on the subject and was followed by numerous articles using economics to shed light on family activity. In 1983, Becker was offered a joint appointment by the Sociology Department at the University of Chicago, which he accepted. This was verification that his method of analysis had gained validity outside of the economics profession.

In 1985, Becker was approached by *Businessweek* to write a monthly column on economic issues. He accepted on an experimental basis because he had previously written only for academic audiences. However, his writing style improved as he learned to make his case without using professional jargon and in a shorter format. He produced a number of books for general audiences, including *The Economics of Life* (with Guity Nashat-Becker) in 1996 and *Uncommon Sense* (with Richard Posner) in 2009.

In addition to being a member of the NBER, Becker was affiliated with the Hoover Institution and the American Enterprise Institute for Public Policy

Research. He was active in the American Economic Association (serving both as president and vice president), the Econometric Society, and the Economic History Association. Becker was elected to the Mount Pelerin Society, the American Academy of Arts and Sciences, the National Academy of Sciences, and the Pontifical Academy of Sciences.

He received honorary degrees from a number of institutions, including Hebrew University in Jerusalem, Princeton University, Columbia University, the Warsaw School of Economics, University of Economics in Prague, and Harvard University. In addition to winning the Nobel Prize for Economic Sciences in 1992, he received the National Medal of Science in 2000, the Heartland Prize in 2002, the Hayek Award in 2003, the Presidential Medal of Freedom in 2007, and the Bradley Prize in 2008. Becker died on May 3, 2014, in Chicago, Illinois, at the age of 83.

Timothy P. Schilling

See also: Household Decisions; Stigler, George; *Vol. 1: Foundations of Economics:* Decision Costs; Human Capital; Nobel Prize in Economics; *Vol. 2: Macroeconomics:* Friedman, Milton

Further Reading

Becker, Gary S. 1962. Investment in human capital: A theoretical analysis. *Journal of Political Economy* 70: 9–49.

Becker, Gary S. 1971. *The economics of discrimination,* 2nd ed. Chicago, IL: Univ. of Chicago Press.

Becker, Gary S. 1977. *The economic approach to human behavior.* Chicago, IL: Univ. of Chicago Press.

Becker, Gary S. 1994. *Human capital and the personal distribution of income: An analytical approach,* 3rd ed. Chicago, IL: Univ. of Chicago Press.

Becker, Gary S. 1996. *Accounting for tastes.* Cambridge, MA: Harvard Univ. Press.

Becker, Gary. 1997. *Prize lectures in economic sciences 1991–1995. The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel.* In *Nobel Lectures, Economics 1991–1995*, ed. Torsten Persson. Singapore: World Scientific Publishing.

Becker, Gary Stanley. 2009. *A treatise on the family.* Cambridge, MA: Harvard Univ. Press.

Becker, Gary. n.d. Autobiography. Nobelprize.org. http://nobelprize.org/nobel_prizes/economics/laureates/1992/becker-autobio.html (accessed October 30, 2010).

Becker, Gary S., and Gilbert Ghez. 1975. *The allocation of time and goods over the life cycle.* Cambridge, MA: National Bureau of Economic Research.

Becker, Gary S., and Kevin Murphy. 2003. *Social economics.* Cambridge, MA: Belknap Press /Harvard Univ. Press.

Becker, Gary S., and Guity Nashat. 1996. *The economics of life.* New York: McGraw-Hill.

Becker, Gary S., and Richard Posner. 2009. *Uncommon sense.* Chicago, IL: Univ. of Chicago Press.

Federal Reserve Bank of Minneapolis. n.d. An interview with Gary Becker. http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=3407 (accessed March 15, 2011).

Hoover Institution. n.d. Gary Becker. http://www.hoover.org/fellows/9904 (accessed December 10, 2010).

BEHAVIORAL LAW AND ECONOMICS

Behavioral economics is one of the most significant developments in economics over the past 30 years. The field combines economics, psychology, and sociology to produce a body of evidence that individuals' choices depart from those predicted by neoclassical economics in a number of decision-making situations. These departures from rational-choice behavior are said to be the result of "cognitive biases"—that is, systematic failures to act in one's own interest because of defects in one's decision-making process.

Emerging close on the heels of behavioral economics has been the "behavioral law and economics" movement, which explores the legal and policy implications of cognitive biases. This is derived from the Kahneman and Tversky (Kahneman 2003) heuristics or errors and biases approach to behavioral economics. The resulting regulatory agenda reflects a philosophy of so-called "libertarian paternalism," a seemingly oxymoronic phrase coined by proponents Richard Thaler and Cass Sunstein to describe legal interventions that both (1) increase the individual's economic welfare by freeing him from the limitations of his cognitive biases; and (2) thereby change the individual's behavior without limiting his choices. In other words, the promise of behavioral law and economics is to regulate so as to improve economic welfare by more closely aligning individuals' actual choices with their "true" or unbiased preferences without reducing their liberty, at least as it is represented by the choices available to them.

Critiques of behavioral law and economics and its promise of increasing welfare have raised three types of concerns: Behaviorists (1) cannot reliably discern an individual's "true preferences"; (2) consistently fail to account for the full social costs of a proposed intervention; and (3) threaten individual liberty.

Behaviorists reject the standard assumption among economists that, by choosing *x*, an actor reveals that he expects to be better off with *x*. Untethered from the standard economic approach to welfare, the behaviorists declare by fiat what they expect a rational individual would or should do—thereby justifying the imposition of "correct" choices by a third party, contrary to the behaviorist promise to maximize economic welfare by the individuals' own lights and undermining the behaviorist claim to the title of "libertarian."

A second concern regarding behavioral law and economics is that it proceeds from premises that ignore the often significant costs of intervention. For example, Sunstein and Thaler claim the selection of a default rule is "inevitable." This may be so, but it neither requires nor implies that the state—or anyone else—must be the one to select the default rule. Neither governments nor individuals can make error-free choices; the pertinent question concerns their comparative performance. Behaviorist prescriptions for intervention assume regulators enjoy a comparative advantage over private economic actors in recognizing, gathering, and processing the data required to identify each individual's "true preferences."

Finally, the behavioral law and economics regulatory agenda can present a substantial threat to individual liberty. John Stuart Mill argued for the value of autonomy for its own sake, that is, apart from what one does with one's autonomy or the consequences of its exercise. As Amartya Sen would later point out, this consideration relates to "the process aspect of freedom."

Behaviorists in general do not place any value upon the "the process aspect of freedom." Sunstein and Thaler in particular claim to preserve the choices now open to people; however, that is not always the case, and it is never without cost to the person whose preference is different from theirs. Limiting the range of decisions to be made by individuals or burdening those who would make an officially disfavored choice tends to infantilize the public. Effective decision-making is learned by trial and error, that is, by making a decision and either getting feedback about, or directly observing the success or failure of, one's decision as a means of reaching one's goal.

If individuals are to realize their full potential as participants in the political and economic life of society, they must be free to err in large ways as well as small. So long as behavioral law and economics continues to ignore the value of economic welfare and individual liberty of leaving individuals the freedom to choose—and hence to sometimes err (according to specific benchmarks)—in making important decisions, "libertarian paternalism" will not only fail to fulfill its promise of increasing welfare while doing no harm to liberty; it will pose a significant risk of reducing both.

Joshua D. Wright
Douglas H. Ginsburg

See also: Kahneman, Daniel; Preference Pollution; Sunstein, Cass; Thaler, Richard; *Vol. 1: Foundations of Economics:* Behavioral Economics; Paternalism

Further Reading

Kahneman, Daniel. 2003. Maps of bounded rationality: Psychology for behavioral economics. *American Economic Review* 93: 1449–75.

Rizzo, Mario J., and Douglas Glen Whitman. 2009. The knowledge problem of new paternalism. *BYU Law Review* 2009 (4): 905–68.

Sunstein, Cass R., and Richard H. Thaler. 2003. Libertarian paternalism is not an oxymoron. *University of Chicago Law Review* 70: 1159–1202.

Thaler, Richard H., and Cass R. Sunstein. 2008. *Nudge: Improving decisions about health, wealth, and happiness*. New York: Penguin Books.

Wright, Joshua D., and Douglas H. Ginsburg. 2012. Behavioral law and economics: Origins, fatal flaws, and implications for liberty. *Northwestern University Law Review* 106: 1033–88.

BENTHAM, JEREMY

Born: February 15, 1748, in London, England; Died: June 6, 1832, in London, England; Nationality: English; Professional Interests: utility theory; Major Works: *Defense of Usury* (1787), *An Introduction to the Principles of Morals and Legislation* (1789).

Jeremy Bentham was an English philosopher, jurist, and legal and social reformer. His concept of the utility of consumer satisfaction, and its impact on markets, is still a major influence on economic and political thought today. Bentham quantified the utility of individual actions on the basis of the utility (satisfaction) gained by the action. Bentham's approach to studying decision-making is known as utilitarianism. His utilitarian critiques of law helped to promote liberal social and legal reform. Bentham died in 1832.

Jeremy Bentham was born in Spitalfields, London, England, on February 15, 1748, to a wealthy Tory family. He was discovered reading a multivolume history of England as a toddler and went on to study Latin at age three. His grandfather and father were both lawyers and expected Bentham to follow in their footsteps. At the age of 12, he was sent to Queen's College, Oxford, where he earned his bachelor's degree. He continued at Lincoln's Inn to study law with a student seat in the King's Bench division of the High Court. Bentham earned his master's degree in 1766, trained as a lawyer, and was called to the bar in 1769.

Bentham disappointed his father by spending most of his time focused on the theoretical aspects of legal abuses within the English system rather than practicing law. Bentham was dissatisfied with the complexity of British law. He spent the remainder of his life criticizing the existing law and suggesting ways to improve it.

Bentham was influenced by philosophers of the Enlightenment and by thinkers such as John Locke, David Hume, Baron de Montesquieu, and Claude Adrien Helvetius. Bentham felt that many of the problems of his day resulted from the accumulation of inherited power in the hands of a few wealthy landowners.

Bentham emphasized reason over tradition and clarity in the use of terms. He sought to eliminate the use of any legal words that led to "fictitious" ownership. He did not believe in "natural rights," "natural law," or "social contracts." Bentham felt that any people within a society always had some kind of restriction imposed upon them. Laws were necessary for social order and well-being and must have government to enforce them. Without law, anarchy would result. Bentham believed that the individual's economic and personal best interest is reflected in the use of a government elected by the people.

Bentham wrote *Defense of Usury* in 1785 while visiting his brother, an engineer in the Russian armed forces. In it, Bentham shows himself as a follower of Adam Smith but critiques him for not following the logic of his own principles.

One of Bentham's most significant contributions was his moral principle of utilitarianism, outlined in his book *An Introduction to the Principles of Morals and Legislation* (1789). A basic tenet of utilitarianism is that pleasure and pain motivates all human action. This thesis is also known as psychological hedonism. The right action or choice is that which causes "the greatest happiness for the greatest number." All individuals refer to utility or satisfaction in their choices, either explicitly or implicitly, and it is morally appropriate to pursue the action that maximizes pleasure.

Bentham devised a method to assess the moral status of any action, called the hedonic or felicific calculus. The ancient Greek philosophy of hedonism promotes the idea that pleasure seeking is one's moral duty. Bentham's method of calculating the pleasures and pains of a course of action, however, allows for an objective public discussion. He advocated that it was the role of the legislature to identify different interests and make decisions to promote the most satisfaction for the most people.

This became known as utility theory, a way of measuring consumer behavior. The principle of utility theory emphasizes human equality, as each person's happiness counts the same as every other person's. Bentham's ideas proved influential to his peers. They helped to shape his student John Stuart Mill's viewpoints and became a significant part of liberal political objectives. Bentham was declared an honorary citizen of France due to his correspondence with leaders of the French Revolution. He also convinced Adam Smith to change his views on interest rates.

Bentham believed monetary expansion was the key to achieving full employment. He advocated the use of minimum wage and guaranteed employment to make this happen. His work laid the foundation for the maximization principle in the economics of the consumer, the firm, and the optimum in welfare economics.

Bentham is also credited with helping to shape contemporary philosophical and economic vocabulary with terms such as *international*, *maximize*, *minimize*, and *codification*.

His work greatly influenced political reform in England and neighboring countries. Upon his death, Bentham left his large estate to finance the University College of London—one of the first English universities to admit all regardless of family background or political belief. His cadaver, as his will instructed, was dissected, embalmed, dressed, and placed in a chair in a cabinet in the hallway of the main building of the University College of London. Although Bentham published few books during his lifetime, he was a prolific writer, producing 10 to 20 manuscripts daily until his death. The University College of London's Bentham Project is working to publish a complete edition of Bentham's works and correspondence.

Jeremy Bentham died on June 6, 1832, in London, England.

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See also: Utility, Experienced; *Vol. 1: Foundations of Economics:* Hume, David; Mill, John Stuart; Smith, Adam; Welfare Economics

Further Reading

Atkinson, Charles Milner. 1969. *Jeremy Bentham: His life and work.* New York: Kelly.

Bentham, Jeremy. 1788. *Defence of usury: shewing the impolicy of the present legal restraints on the terms of pecuniary bargains: in a series of letters to a friend: to which is added, a Letter to Adam Smith . . . on the discouragements opposed by the above restraints to the progress of inventive industry.* London: Messrs. D. Williams, Colles, White, Byrne, Lewis, Jones, and Moore.

Bentham, Jeremy. 1789. *An introduction to the principles of morals and legislation*. Oxford, UK: Clarendon Press.

Everett, Charles Warren. 1969. *Jeremy Bentham.* London: Weidenfeld and Nicolson.

Mack, Mary Peter. 1962. *Jeremy Bentham: An odyssey of ideas, 1748–1792.* London: Heinemann.

BLACK MARKET ECONOMY

The black market economy generally refers to illicit and illegal trade and economic activity. The market is not a physical place but rather includes collective illegal economic activities. Sometimes it is referred to as the underground market. The underground economy and black market are not synonymous. The black market engages only in illegal activity. Black market activities are usually controlled by either corrupt governments or organized crime.

The black market is said to have originated with rationing during World War I in the Soviet Union as a response to government regulations associated with the Communist era. It then emerged and expanded in Britain in World War II. Because the food supply and international trade were stymied by German U-boat presence around Britain's primary waterways, a food ration was put into effect. However, it also limited the availability of certain other desirable items, such as cigarettes, alcohol, sugar, and certain meats. Consequently, there was increased market demand to obtain illegal goods. *Spivs* was a term that was applied to those operating in the black market.

The activities of the mafia and gangsters during Prohibition are the most famous examples of the black market economy. The International Monetary Fund (IMF) asserts that illegal money or barter transactions that constitute the black market are stolen goods, drug dealing and manufacturing, prostitution, gambling, smuggling, and fraud, and could also include the illegal hiring of employees and tax evasion strategies. Most black market activities operate using cash transactions or barter since these are more difficult to track.

Since these activities operate outside of the regulations and sight of the government, they can skew the data of the real economy. These oversights can be problematic to larger themes of policy creation, enforcement strategies, social science, and foreign policy. Most illicit activity is in direct relation to regulatory changes within the government. For example, if gun control laws were to be tightened in the United States, the black market economy would grow to fill the void in the market. This would mean that government would also have to implement enforcement strategies to counteract this eventuality. Frequently, rogue actors of the black market gain cult hero status for rejecting government controls and embodying the rights of the people. However, there is also danger involved with their activities, especially in activities related to potentially harmful products like illegal alcohol, firearms trade, or tobacco.

The black market economy is extremely important because it recognizes the natural flow of activities during recessions and regulatory periods. It can often be seen as an indicator of the demands of the people that are not being filled or that are being restricted by economies. During recessions, the black market economy often creates job opportunities for the unemployed, even though that employment or activity might be illegal. Robert Capps of *Wired* magazine estimates that small, illegal, off-the-books businesses account for trillions of dollars in global commerce and employ half of the world's workers (Capps 2011). Furthermore, in many developing nations, unofficial business transactions and black market entrepreneurs represent the real growth opportunities in those economies. These could lead to future legal and economically stimulating partnerships and innovations.

In modern times, the online platform Silk Road represented a tangible black marketplace until its shutdown in 2013. The website operated using bitcoin, which was allegedly harder to track than regular currency. The site facilitated illegal activities from drugs and weapons sales to stolen goods to murder for hire. Despite the arrest and shutdown, the creator and administrator of the Silk Road, Ross William Ulbricht, asserts that the black market will always exist and evolve to fit the needs and desires of the people. The Silk Road represented an evolution of the black market economy that could pave the way for similar innovations in untraceable payments and online connectivity for the purpose of illegal activity. However, the collapse of the Silk Road should also signal the increase in cyber intelligence and tracking abilities of government enforcement agencies.

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See also: Markets; Underground Economy; *Vol. 1: Foundations of Economics:* Entrepreneurship; Ethical Production; *Vol. 4: Global Economics:* Import Quotas; International Monetary Fund; Protectionism; Silk Road

Further Reading

Capps, Robert. 2011. Why black market entrepreneurs matter to the world economy. *Wired Magazine Online*. www.wired.com/2011/12/mf_neuwirth_qa/ (accessed December 2, 2015).

Kain, Erik. 2013. The silk road shuts down, but the black market isn't going anywhere. *Forbes Online*. www.forbes.com/sites/erikkain/2013/10/02/the-silk-road-shuts-down-but-the-black-market-isnt-going-anywhere/ (accessed January 10, 2016).

Lippert, Owen, and Michael Walker. 1997. *The underground economy: Global evidence of its size and impact*. Vancouver, BC. The Fraser Institute.

Trueman, C. N. 2015. The black market. The History Learning Site. www.historylearningsite.co.uk/world-war-two/world-war-two-in-western-europe/britains-home-front-in-world-war-two/the-black-market/ (accessed December 2, 2015).

WiseGEEK. n.d. What is the underground economy? *WiseGEEK*. www.wisegeek.org/what-is-the-underground-economy.htm (accessed January 10, 2016).

BONDS

Bonds are financial instruments issued by a company, municipality, or government in order to raise capital for its financing needs. Bonds can be seen as a loan owed by an issuing entity (bond issuer) to the lenders (bondholders) with a set payment schedule. Bonds are classified as fixed income investments in the investing community, meaning they usually pay an interest payment (coupon) that is the same, or fixed, throughout the life of the bond.

As a result, the bondholders receive periodic interest payments at predetermined intervals over the life of the bond, usually once or twice per year. The interest payments are determined by the coupon rate at issue and are paid if a bond is held to the end of its issued life. Upon maturity of the bond, the principal value is repaid along with the final interest or coupon payment. For example, a semiannual 10-year treasury bond of $1,000 par value issued with a 3 percent coupon rate has interest payments of $15 (3% x 1,000 x 1/2) paid twice per year over a period of 10 years. At maturity—that is, at the end of 10 years—the principal of $1,000 is repaid along with the final $15 coupon payment.

Bonds are secured by the assets of the bond issuer and are said to be in default if the issuer misses a payment. In the case the bond issuer files for bankruptcy, bondholders as creditors have a right of lien on the bond issuer's assets.

Factors Affecting Bonds

The bond price is dependent on the coupon rate, the time to maturity, the credit quality of the issuer, and the current level of interest rates. When interest rates increase, bond prices fall, and when interest rates decrease, bond prices increase. The sensitivity in the price of a bond to changes in the interest rates is called *duration*. For example, when interest rates rise, a bond with duration of five years will fall in price more than a bond with similar characteristics but with duration of three years.

A bond with a higher default risk or lower credit rating is forced to pay a higher interest rate in order to compensate for its additional risk. Longer-term bonds usually pay higher interest rates than shorter-term bonds, holding all other factors steady. This is because the purchaser must wait a longer time to receive the return of his or her principal, and with time comes uncertainty.

Classification of Bonds

Bonds can be classified based on maturity, nature of interest payments, type of issuing entity, and credit characteristics. Bonds that are issued with a fixed coupon rate are called *fixed rate bonds*, and bonds that have a coupon rate tied to market-based interest rates like LIBOR (London Interbank Offered Rate) are called *floating rate bonds*. For example, a bond with a coupon of LIBOR + 100 basis points (bps) (1% = 100 basis points) is considered a floating rate bond, and the difference between coupon and the reference market rate (LIBOR, in this example) is referred to as *spread*. The above bond is said to have 100 bps spread over LIBOR.

Bonds are issued by various entities, including corporations, governments, municipalities, and educational institutions. Government-entity issued bonds are classified as treasury and municipal bonds. Corporate bonds are issued by companies and corporations.

Treasury bonds are the bonds issued by the U.S. government. They are marketable securities and are classified as treasury bills (maturity of less than one year), treasury notes (maturity between one and 10 years) and treasury bonds (maturity of over 10 years). Securities issued by national governments (other than U.S.) are referred to as sovereign bonds.

Municipal bonds are bonds issued by states, municipalities, and local government agencies to meet their funding needs and are secured by specified revenues coming from taxes or project-based revenues. Municipal bond interest payments are generally tax exempt, and this provides a tax advantage to the investors. Depending on the certainty around revenues associated with municipal bonds, most have lower interest rates than corporate bonds.

One might think that a municipal bond, secured by a city's revenues, would be quite safe. Unfortunately, if a city has financial troubles, the bondholders can suffer with loss of principal or missed coupon payments. Recently, Detroit, Michigan, has experienced deep financial difficulties, and its bondholders are plagued with uncertain coupon payments and redemptions.

Corporate bonds are the bonds issued by corporations; they are considered riskier than treasury and municipal bonds. As a result, the yield on these bonds is greater than that of the treasuries; the difference is referred to as *spread over treasuries*. The spread is determined by the credit quality of the issuer, a measure of the ability of the issuer to meet payment obligations.

Credit rating agencies like Standard & Poor's and Moody's rate the bond universe based on the quality of the issuer, and this forms the basis for the above classification. For example, bonds that are rated between AAA and BBB are considered investment grade, with AAA being the highest credit quality. These bonds generally have higher yields and lower risk of default. Bonds that are rated BB and lower are considered high-yield bonds (also known as junk bonds). Bonds that are rated C or below are considered to have very high default risk.

Although most bonds make coupon (interest) payments throughout the life of the bond, some bonds are issued without ongoing coupon payments. These bonds are called zero coupon bonds and are sold at a discount to their final maturity value. The interest rate is calculated using the difference between the discounted purchase price and the final maturity face value of the bond. Consider a five-year zero coupon bond bought for $8,000 and redeemed in five years at maturity for $10,000. The $2,000 difference between purchase and redemption values is equal to a 4.56 percent yield or interest rate.

What Is the Size of the U.S. Fixed Income Universe?

Other classifications of bonds include mortgage-related debt, money market funds, and asset-backed securities. According to Securities Industry and Financial Markets Association (SIFMA), as of June 2013, the total outstanding debt financed with U.S. bonds is $38.7 trillion, consisting of $11.3 trillion in treasuries, $9.4 trillion in corporate debt, $8.1 trillion in mortgage-related debt, $3.7 trillion in municipal bonds, $2.5 trillion in money market funds, $2.1 trillion in federal agency securities, and $1.6 trillion in asset-backed securities.

How and Why Do Investors Buy Bonds?

Bonds are not traded on an exchange, and investors are not able to buy and sell them through a broker as easily as equities (stocks). Many individual investors invest in the bond market by investing in bond mutual funds or bond exchange traded funds (ETFs). Some large individual investors and institutional investors buy individual bonds directly in their portfolio.

Bonds provide diversification to an all-equity portfolio because of their lower risk (higher in the capital structure) compared to equities. With the periodic interest payments, bonds are a source of regular income in a portfolio and hence are preferred by many investors.

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See also: Mutual Funds and Exchange Trade Funds; Stocks; *Vol. 1: Foundations of Economics:* Asset Allocation; Capital Gains and Capital Losses; Compound Interest; Investing; Standard & Poor's 500; *Vol. 2: Macroeconomics:* Debt; London Inter-Bank Offered Rate; Treasury Securities

Further Reading

Fabozzi, Frank J. 2007. *Fixed income analysis (CFA Institute Investment Series)*. Hoboken, NJ: John Wiley & Sons, 1–92.

BROKEN WINDOWS

The term *broken windows* refers to a class of social phenomena that conditions individual behavior on the signaling effect of the behavioral outcomes of other individuals, which are interpreted as the prevailing social norm. Examples of such signals include, but are not limited to, litter spread on the floor, graffiti on the walls, and broken windows in the surrounding houses (hence the name), which is typically observed in urban environments. The broken windows theory does not require or rely on observing actual behavior (breaking, littering) of other members of the society. Instead, it posits that people react on the observed evidence of other people's behavior and its imputed interpretations.

The term was coined by Kelling and Wilson in a popular article published by *The Atlantic* magazine in 1982 in the context of community policing, which remains a point of focus of broken windows theory. Their argument (inspired by an earlier experiment by Philip Zimbardo in 1969) was that people who live and act in a neighborhood with large social and physical disorganization and degeneration are systematically more inclined to antisocial behavior than the same people located in an integrated and dignified environment. When the evidence of disorder becomes sufficiently striking, reaching a tipping point, this induces ordinary people to switch to delinquent behavior, potentially leading to further vandalism, petty crimes, and general degradation and criminalization of the area.

One of the implications of this theory is that restoring order and dignity to the slummy city areas would improve people's behavior and eventually lead to the area's reincarnation, especially if properly supported by the authorities. On these premises, the city of New York (and some others) in the early 1990s adopted the policy of "quality of life" for its citizens and "zero tolerance" to all sort of crimes. Over the subsequent decade, the city experienced a dramatic improvement in living conditions, including a dramatic fall in crime rates. But the instrumental (causal) role of broken windows–related policy in repairing the quality of urban life remains questionable in the literature. Critiques of the broken windows theory, such as Sampson and Raudenbush, argue that correlation between criminality and the environment does not imply causation but is normally mediated by social cohesion, group identity, and other confounding factors, as well as endogeneity of the environment to crimes. Bad areas may be created by bad people just as bad people are made bad by their area of residence. But careful experimentation in various contexts appear to confirm the core premise of the broken windows theory. However, its general validity remains debatable, especially in cross-cultural contexts.

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See also: *Vol. 1: Foundations of Economics:* Behavioral Economics; Social Capital and Behavioral Economics

Further Reading

Harcourt, Bernard E., and Jens Ludwig. 2006. Broken windows: New evidence from New York City and a five-city social experiment. *University of Chicago Law Review* 73: 271–320.

Gladwell, Malcolm. 2000. *The tipping point: How little things can make a big difference*. New York: Little Brown.

Keizer, Kees, Siegwart Lindenberg, and Linda Steg. 2008. The spreading of disorder. *Science* 322: 1681.

Kelling, George, and Catherine Coles. 1998. *Fixing broken windows: Restoring order and reducing crime in our communities*. New York: Free Press.

Kelling, George L., and William H. Sousa Jr. 2001. Do police matter? An analysis of the impact of New York City's police reforms. *Civic Report* 22. New York: Manhattan Institute Center for Civic Innovation. http://www.manhattan-institute.org/pdf/cr_22.pdf (accessed September 30, 2016).

Kelling, George L., and James Q. Wilson. 1982. Broken windows. The police and neighborhood safety. *The Atlantic* magazine (March). http://www.theatlantic.com/magazine/archive/1982/03/broken-windows/304465/.

Lott, John Jr. 2000. *More guns, less crime*. Chicago, IL: Univ. of Chicago Press.

Sampson, Robert J., and Stephen W. Raudenbush. 2004. Seeing disorder: Neighborhood stigma and the social construction of "broken windows." *Social Psychology Quarterly* 67: 319–42.

Zimbardo, Philip. 1969. *Influencing attitudes and changing behavior*. Reading, MA: Addison Wesley Publishing.

BROWNFIELDS

The term *brownfield* or *brownfield site* means an industrial or commercial site that is idle or underused because of real or perceived environmental pollution. Examples of brownfield sites include factories, chemical plants, old dumps, rail yards, abandoned hospitals, dry-cleaning facilities, and by some classifications, former gas stations. Contamination may be actual (confirmed by tests) or perceived (based on past uses of the property). Some jurisdictions now designate property contaminated with controlled substances, such as meth labs, as brownfields.

Brownfield sites exist worldwide. Between one-half million and one million brownfield sites exist in the United States alone, depending on whether or not former gas stations are included. There are many more contaminated properties that have not been officially designated as brownfields as well as more severely contaminated properties that fall under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA); these severely contaminated properties are better known as Superfund sites.

The U.S. Environmental Protection Agency (EPA) has the responsibility of regulating contaminated properties. In 1995, during the administration of President Bill Clinton, the agency announced its Brownfields Action Agenda after it recognized that owners were abandoning less-contaminated properties in fear of being held liable under the existing Superfund legislation. The Superfund liabilities included holding past, present, and future property owners responsible for all cleanup costs.

In addition, the EPA cleanup standards often resulted in the property being restored beyond its original, predevelopment condition. The potential cost involved in such efforts discouraged any type of redevelopment or reuse. The EPA responded by granting the states considerable freedom to establish programs to evaluate and clean these less-contaminated properties as a way to encourage their redevelopment. The EPA, sometimes in conjunction with other government agencies, also provided small grants for evaluation, cleanup, and redevelopment of these sites. These funds attracted a few developers to participate in cleaning and reusing these properties.

Eight years after brownfields legislation was first proposed, Congress created the designation at the federal level by amending the CERCLA statute to add Title II, Brownfields Revitalization and Environmental Restoration Act of 2001. President George W. Bush signed the act into law in 2002. Title II codified those parts of the EPA program that were deemed successful. The brownfields designation, and exemption from CERCLA standards, sought to further encourage redevelopment by providing the following: limiting the financial liability for certain innocent owners and purchasers of the property as well as owners of adjacent properties; treating prospective redevelopers differently than the owners under whom the contamination originally occurred; authorizing the EPA to provide funding for site assessment, cleanup, technical assistance, and insurance for revitalization programs; and setting different cleanup standards depending on the planned use of the revitalized property, including the use of engineered barriers to allow contamination to be left in place instead of requiring the removal of all contamination. Brownfield site redevelopment projects continue to be regulated by the states, many of which have their own brownfields legislation, and by state environmental agencies with assistance from the federal government.

Revitalizing and reusing brownfields is of great consequence because these properties have a potentially large impact on their communities. Brownfields that are not redeveloped may become eyesores, dragging down neighboring property values and discouraging other revitalization programs in the surrounding area. Additionally, brownfields may become safety and health threats to the neighborhood, which typically are already lower income and disadvantaged. Another consideration is that, unable to develop brownfield land, developers will build on previously unused properties (greenfields) typically far from city centers, contributing to urban sprawl. On the other hand, without the potential Superfund-type cleanup costs looming, brownfield sites have much to offer potential developers. Most brownfields are found along existing transportation corridors, with utilities already in place, and many sites are near city centers, making them attractive for infill development. Redeveloping brownfields has the potential to revitalize depressed areas, provide jobs during cleanup and at the businesses established after redevelopment, increase the neighborhood tax base and property values around the revitalized property, and redress possible environmental inequities.

Redeveloping brownfields is not without controversy. The biggest question is whether the costs of cleaning and reusing brownfield sites are greater than the associated benefits. Currently, there is no way to generalize the successes since each property presents its own challenges to cleanup and redevelopment. Because insurance companies are increasingly willing to cover at least a portion of the developer's risk of unknown liabilities, another economic consideration is whether the use of federal and state funds to help in the evaluation and cleanup of these properties is an efficient use of scarce resources or whether to encourage a more market-based approach to revitalizing these sites. There is also a question about whether the legislation favors redeveloping brownfield sites that offer the largest return on investment as opposed to removing contaminated sites from impoverished areas. Finally, there is not yet enough experience with redeveloped brownfields to examine possible long-term health effects or to ensure that cleanup measures will be monitored and enforced over time.

Although the brownfields designation was intended to encourage redevelopment and reuse of such properties, obstacles remain. Many property owners resist the brownfields designation due to its perceived stigma. Private developers are often unwilling to take on the potential financial and market risks associated with redeveloping brownfields, especially in lower-income communities. Many nonprofit and community organizations that have attempted to redevelop brownfields in these neighborhoods have had difficulty obtaining the funding needed for assessment and cleanup due to the investment risk perceived by some lenders and investors. In addition, some sites may be too small for profitable redevelopment. Furthermore, conflicts may arise over the proposed reuse, and the community may ultimately resist the plans for redevelopment. For example, developers may favor industrial and commercial uses, while nearby residents may prefer parks.

The EPA has stated that cleaning and reusing brownfield sites provides economic, environmental, and social benefits. However, the costs of redeveloping brownfields must be measured against the benefits of such an undertaking. In addition, future efforts need to focus on removing any lingering obstacles. For example, expanding the role of the private sector, and market institutions such as insurance should not be neglected. Encouraging increased public–private collaboration and funding may also spur additional redevelopment projects. Finally, a more transparent method of prioritizing contaminated sites would help to ensure that those areas having the greatest potential value for redevelopment also have the greatest opportunity to attract the needed attention and funding.

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See also: *Vol. 1: Foundations of Economics:* Cost-Benefit Analysis; Environmental Economics; Environmental Protection Agency; *Vol. 2: Macroeconomics:* Externality

Further Reading

American Planning Association. n.d. Creating Community-Based Brownfields Strategies. Public Law 107-118 (H.R. 2869). Small Business Liability Relief and Brownfields Revitalization Act, signed into law January 11, 2002. http://www.planning.org/research/brownfields/ (September 30, 2016).

Stromberg, Edwin. 2010. Public law. U.S. Environmental Protection Agency, brownfields and land revitalization, guest editor's introduction. *Cityscape: A Journal of Policy Development and Research* (Special Issue on Brownfields) 12 (3): 1–5. http://epa.gov/brownfields (September 30, 2016).

BUBBLES

Economic "bubbles" develop when the price of a product or asset is much greater than its fundamental value, which is determined conventionally according to the efficient market hypothesis, which states that the price of an asset is backed by "fundamentals." In this case, the price of a stock is determined by a company's worth, its expected future earnings, and expected future dividends. When an asset's valuation is inaccurately high and a bubble is created, the asset's price can drop quickly when the bubble bursts. The recurrence of bubbles throughout history suggests that other factors must be involved in causing the price to be too high (or, in some cases, too low). These variables include behavioral and psychological factors, which can cause individuals to behave differently than how conventional economic theory predicts and lead them to value an asset more or less than its true worth.

There are several assets throughout modern history that have been subject to bubbles. The first documented bubble was the Dutch tulip bubble (1634–1637) followed, a century later, by the South Sea bubble (1720). The bursting of the U.S. stock market bubble in 1929 was a cause of the Great Depression, the greatest economic downturn in world history. More recent bubbles include the Japan stock market and housing bubbles (late 1980s), the worldwide Internet bubble (late 1990s), and the U.S. housing bubble that began to burst in 2006.

A "bubble" is a situation where a fast rise in the price of an asset (the formation of the bubble) is followed by a sharp drop in the price of the asset (the bursting of the bubble). Given that the inherent values ("fundamentals") of products and assets conventionally do not rise and drop so rapidly, researchers have looked to behavioral and psychological factors to help explain these sharp price changes.

One of the main behavioral factors relevant to bubbles is representative heuristics (Tversky and Kahneman 1974), which explains how individuals can extrapolate too much information from small samples of data. In other words, individuals may conclude that if the price of a stock, house, or tulip has recently increased, it will continue to increase. Another factor, belief perseverance (Lord, Ross, and Lepper 1979), states that people tend to hold on to the original opinion they form, even when presented with contrasting evidence. Therefore, with regard to bubbles, positive beliefs about a certain asset are likely to stay positive. In addition, Thaler and Johnson (1990) describe the "house money effect": Once someone has made money on an asset, he or she becomes less risk averse and may try to make even more money on that asset, thus pushing up its price and inflating the bubble further. Barber and Odean (2008) illustrate that people are more likely to buy stocks mentioned in the media, which would make them more likely to buy stocks involving new technologies, whether the breakthrough is radio in the 1920s or the Internet in the 1990s. "Herding" can also be a factor in the creation of bubbles. In the absence of perfect information, individuals follow the leader in their investment behavior, hoping that the other person knows better than they do the direction of price movements. All of these factors help to explain how asset valuing may diverge from fundamentals.

In addition to these behavioral and psychological factors, substantial changes in technology and in economic practices can also affect bubble formation. Perez (2002) posits that technological innovations bring seemingly limitless opportunities but also much uncertainty about the future of the new technology. This uncertainty creates challenges in accurately determining the value of companies associated with the new technology, leading to speculation. Examples include the difficulties in the mid-1990s (and still today) of evaluating the role of the Internet in our lives. Perez also documents similar situations that occurred prior to the stock market crash of 1929 (which, in addition to radio, included technological developments in electrical machinery and automobiles), such as the "canal mania" leading to the panic of 1797, and the "railway panic" of 1847 in Britain.

Changes in economic practices can also lead to and/or augment bubbles. For example, the U.S. housing bubble in the 2000s was formed in part by lending institutions granting subprime loans, leading to a large increase in housing demand and the price of real estate.

While there is a general consensus that bubbles exist, there is also debate as to the actual magnitude of a bubble because of the challenge of determining how much of a price increase is due to fundamentals. For instance, in examining the stock market crash of 1929, McGrattan and Prescott (2004) argue that given changes in intangible capital (patents) at the time, stocks were priced correctly. Researchers who favor the efficient market hypothesis (Malkiel 2003) explain that although bubbles exist, they are the exception rather than the norm. They argue that the efficient market hypothesis can still explain market behavior most of the time—market fundamentals simply need to be measured more accurately. On the other hand, Shiller (2000) and Akerlof and Shiller (2009) argue that bubbles are a critically important phenomenon in market economies that can't be explained using traditional economic theory and require the intervention of behavioral variables such as animal spirits and herding as core explanatory variables.

Shahar Sansani

See also: Akerlof, George; Bubbles; Efficiency Wage Hypothesis; Shiller, Robert; Thaler, Richard; *Vol. 1: Foundations of Economics:* Animal Spirits; Behavioral Finance; Tversky, Amos

Further Reading

Akerlof, George A., and Robert J. Shiller. 2009. *Animal spirits: How human psychology drives the economy, and why it matters for global capitalism.* Princeton, NJ: Princeton Univ. Press.

Barber, Brad M., and Terrance Odean. 2008. All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors. *Review of Financial Studies* 21: 785–818.

Lord, Charles G., Lee Ross, and Mark R. Lepper. 1979. Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence. *Journal of Personality and Social Psychology* 37: 2098–109.

Malkiel, Burton G. 2003. The efficient market hypothesis and its critics. *Journal of Economic Perspectives* 17: 59–82.
McGrattan, Ellen R., and Edward C. Prescott. 2004. The 1929 stock market: Irving Fisher was right. *International Economic Review* 45: 991–1009.
Perez, Carlota. 2002. *Technological revolutions and financial capital: The dynamics of bubbles and golden ages.* Cheltenham, UK: Edward Elgar.
Shiller, Robert. 2000. *Irrational exuberance*. Princeton, NJ: Princeton Univ. Press.
Thaler, Richard H., and Eric J. Johnson. 1990. Gambling with the house money and trying to break even: The effects of prior outcomes on risky choice. *Management Science* 36: 643–60.
Tversky, Amos, and Daniel Kahneman. 1974. Judgement under uncertainty: Heuristics and biases. *Science* 185: 1124–31.

BULLYING AND ECONOMIC EFFICIENCY

Workplace bullying is an important noneconomic variable that can have a direct and significant impact on productivity and, therefore, on the size of the economic pie and on a firm's competitiveness. Bullying outside of the workplace, including bullying at home or at school, across age cohorts, can have an indirect effect on productivity, impacting on the capability of the bullied individuals to increase their productivity over their life cycle. Conventional economics assumes that the key determinants of productivity are traditional variables such as increases in the capital stock employed per worker, firm size, formal education, on-the-job training, and technical change, where the latter is assumed to be exogenously given. The conventional model assumes that the quantity and quality of effort is fixed, if not maximized. In other words, it is maintained that firms are operating x-efficiently. Firms are doing the best they can, given their factor inputs (such as labor and capital), and given technology. Since bullying has its greatest impact on effort input, the potential impact of bullying on productivity is assumed away by assuming effort is fixed and that firms are x-efficient in production.

Workplace bullying is more pervasive than sexual harassment. Various estimates suggest that 20 to 30 percent of employees are subjected to different levels of workplace bullying. It generally takes the form of *persistent* mistreatment of individuals (the key being persistent), often taking the form of nonverbal, verbal, psychological, and even physical abuse. But the latter is not the dominant form of workplace bullying. More specifically, workplace bullying takes the form of overworking employees without reasonable compensation, unfair compensation for work done, stealing credit for work, persistently failing to acknowledge an employee's achievements, unfairly blaming (especially in public) an employee for the bully's or corporation's failures, blocking opportunities for career advancement, intimidation, setting up the employee to fail in assigned tasks, and isolating an individual from his or her peers or superiors.

Most workplace bullying stems from management—those further up in the corporation's decision-making hierarchy. But workers can also bully other workers in an environment where bullying is either tolerated or celebrated. Often individuals are humiliated and intimidated to get them to work harder or more effectively.

This can be viewed as a low-cost strategy, sometimes as part of a corporation's managerial culture, to induce employees to work in the interest of the corporation or its management or board. But workplace bullying often serves to increase the utility or level of satisfaction of the bully without having any anticipated positive productivity outcomes. For example, from the perspective of the bully, bullying enhances the bully's position within the corporation relative to those further down the corporation's hierarchy. And relative position is an important noneconomic determinant of many individuals' utility or level of well-being.

Workplace bullying increases stress levels of the bullied individuals and other employees. It signals the possibility that those employees who are not being bullied are next on the list. It pollutes the workplace environment and increases the extent of conflict within the corporation, which reduces the extent to which it can perform efficiently. Cooperative employer–employee relationships yield higher levels of productivity. Overall, bullying reduces the incentives for employees to work hard and well. It also increases the probability that the bullied and even their colleagues will retaliate against the bully and the organization by reducing the quality and quantity of their effort inputs. The former includes employee errors in the process of production, sabotage, workplace accidents, and litigation. Bullying increases absenteeism and quit rates, which also increase production costs. Workplace bullying negatively impacts on the overall well-being of an organization's workforce.

Given that the quality and quantity of effort is variable, the impact of workplace bullying on productivity can easily be identified. All other things remaining the same, lower productivity will increase average costs, and this could reduce the overall competitiveness of the firm. However, this need not be the case of organizations, such as government agencies or universities, that need not pass the test of the market, at least in terms of cost competitiveness. But even in the competitive sector, higher-cost organizations (where bullying increases production costs) can easily survive if protected from market forces by subsidies, tariffs, and tax breaks. Also, such organizations can survive if the reduced productivity is counterbalanced by lower wages or deteriorating working conditions, leaving average costs unchanged. If bully-induced productivity falls by 10 percent and the firm's labor and other costs fall by 10 percent, average costs will remain unchanged. Organizations dominated by bullying can, therefore, remain sustainable over time, even though they reduce society's per capita income.

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See also: Cooperative Organizations; Game Theory; *Vol. 1: Foundations of Economics:* Golden Rule and Behavioral Economics

Further Reading

Altman, Morris. 2005. Behavioral economics, rational inefficiencies, fuzzy sets, and public policy. *Journal of Economic Issues* 34: 683–706.

Glendinning, Peter. 2001. Workplace bullying: Curing the cancer of the American workplace. *Public Personnel Management* 30: 269–86.

Leibenstein, Harvey. 1966. Allocative efficiency vs. "x-efficiency." *American Economic Review* 56: 392–415.

Rayner, Charlotte. 1997. The incidence of workplace bullying. *Journal of Community and Applied Social Psychology* 7: 199–208.
Rayner, Charlotte, Helge Hoel, and Cary L. Cooper. 2002. *Workplace bullying: What we know, who is to blame, and what can we do?* London: Taylor and Francis.
Smith, Peter, Monika Singer, Helge Hoel, and Cary L. Cooper. 2003. Victimization in the school and the workplace: Are there any links? *British Journal of Psychology* 94: 175–88.

BURSTING OF THE DOT-COM TECHNOLOGY BUBBLE

Throughout history, assets such as gold, stocks, bonds, and even tulips became more expensive than their intrinsic value. Consumers and investors must recognize the causes and occurrences of asset bubbles in order to avoid participating in the herd mentality and underlying economic factors that lead to overvalued asset prices and inevitable corrections. The 2000 technology stock bubble and subsequent crash highlights the importance of understanding how bubbles can affect personal finances.

The technology stock bubble began as U.S. stock market prices accelerated from a 10.4 percent annual return between 1990 and 1995 to a 21.2 percent annual return between 1995 and 2000. The U.S. stock market capitalization (total number of shares outstanding multiplied by the share price for each corporation) tripled between 1995 and the stock market peak in 2000. International stock prices increased during this period as well, although not as rapidly as those in the United States, at an annualized rate of 7.9 percent (Kraay and Ventura 2007).

Driving the run-up in stock prices were the real and perceived increases in productivity. With the advent of groundbreaking technological advances and an exploding technology sector, investors believed that productivity advances would continue indefinitely. This persuaded investors to pay more and more for the "miracle" technology stocks.

A positive economic environment encouraged the asset price bubble. Low inflation and interest rates during the late 1990s aided the robust stock market advances. The historically low U.S. budget deficit and increased productivity during the 1990s led people around the world to invest their monies in highly efficient U.S. companies, further driving up stock prices. The highly productive technology sector led the advance in stock market prices. For example, during the 1990s, Intel (INTC), the stock market darling, exploded from a low split-adjusted price of \$0.79 in August 1990 to its peak of \$50.88 in March 2000. That level of growth represents an unrealistic and unsustainable 50 percent return per year.

Stock Market Psychology

Rational economic factors explain only part of the growing asset prices in this and most asset bubbles. Market psychology and behavioral finance factors explain another part of the excess run-up in stock prices. Market factors such as supply and demand imply that assets are fairly priced and for the short periods of time when a stock might be overvalued, demand will decline for that stock, causing its price to fall to fair value; however, this efficient market theory does not explain the whole story.

Behavioral finance helps to explain the occurrence of bubbles such as the technology stock bubble of the late 1990s. Herding, similar to that in animals, is also a well-documented human behavior observed in the context of economics as early as 1759, when Adam Smith (1723–1790), father of modern economics, described how individuals who imagine themselves in another's situation tend to mimic that person's behavior. John Maynard Keynes (1883–1946), another renowned economist, further popularized the idea that contagious "animal spirits" among investors can move the markets, another description of human herding behavior (Baddeley 2010).

When markets are moving upward, investors, afraid of missing the run-up in prices, rush in. Frequently, as prices become more and more overvalued, the prior stock price appreciation prods investors to buy in at inflated prices. This herd mentality, in direct contrast to the concept that individuals behave rationally, causes asset prices to rise beyond their intrinsic value.

Hyman Minsky (1919–1996) described bubbles as a natural outgrowth of periods of economic stability (Bodie, Kane, and Marcus 2011). Investors assume the stability will continue into the future and so are willing to take on more risk. This is an example of framing, another behavioral bias that says decisions are impacted by the perception of the environment in which they are made. In other words, during the late 1990s, the economy was strong, asset prices were rising, and investors believed this golden economic environment would continue indefinitely.

Alan Greenspan, former head of the Federal Reserve Bank, described this herding behavior as "irrational exuberance" (Pollock 2013). During the late 1990s, when Greenspan pointed out the inflated asset prices, another problem with asset prices was implied. The markets were inflated, but when they would return to fair value was uncertain. That reality describes a fundamental problem with asset price bubbles: even when one identifies overvalued assets, it is impossible to predict when the bubble will burst and the asset prices reverse course. Only hindsight correctly identifies the bursting of inflated asset prices.

The Upward Stock Market Trend Reverses

In 2000, the euphoria dissolved as markets finally reversed direction. According to the National Bureau of Economic Research, U.S. productivity fell in 2000, which ignited the stock market decline. Thus began the 30 percent drop in equity prices that occurred during the first three years of the 21st century. Investors were unwilling to buy overvalued assets from other investors. Thus, as demand declined, market forces pushed stock prices lower and lower.

Fiscal budget deficits began to rise in 2001 when the Bush administration came into office. These deficits were in stark contrast to the low budget deficits and small surpluses of the 1990s. The Middle East military conflicts added to the budget deficits.

By 2004, the U.S. budget deficit had reached 4.8 percent of the gross national product (GNP). U.S. public debt grew from 33 to 37 percent of GNP from 2001 to 2004 (Kraay and Ventura 2007). The National Bureau of Economic Research draws a relationship between the stock market bubbles, budget deficits, and current accounts (relationship between U.S. expenditures and income).

One theory states that as the bubble bursts, stock prices fall, and there are more sellers than buyers for the existing equity investments, the government offers more debt investments and gives investors an alternate place for their funds. Since stock values are declining, investors choose alternate opportunities, such as investing in government debt. This increase in government debt subsequently continues growing the budget deficit. Unfortunately for investors who previously enjoyed large capital appreciation from investing in the rapidly increasing stock market of the 1990s, government debt does not offer the same level of returns.

Just as the exaggerated increase in stock prices late in the 1990s was difficult to explain solely with economic factors, so was the rapid turnaround in market prices. Additionally, the theory that budget deficits and increased government debt is the benevolent U.S. government's solution to replace the inefficient and overvalued equities of the late 1990s is an insufficient explanation.

Behavioral economics also describes individuals' activities in a declining market. As investors follow one another to the exits and begin selling their assets, stock prices decline and the herding behavior works in the opposite way to burst the investment bubble.

During the 1990s, the U.S. economy, and to a lesser degree international markets, experienced a confluence of positive business and economic circumstances along with optimistic psychological factors. Asset prices exploded during this golden period, reaching unsustainable levels. The bursting of the dot-com technology bubble was inevitable. The wise consumer who understands historical economic and personal finance bubbles and subsequent reversals is more likely to avoid following the crowd into overvalued investment opportunities.

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See also: Interest Rates; Saving versus Investing; Stock Market; Stocks; Technological Innovation; *Vol. 1: Foundations of Economics:* Behavioral Economics; Behavioral Finance; Investing; *Vol. 2: Macroeconomics:* Greenspan, Alan; Debt; Deficit; Federal Reserve Bank; Gross Domestic Product; Gross National Product; Inflation

Further Reading

Baddeley, Michelle. 2010. Herding, social influence and economic decision-making: Socio-psychological and neuroscientific analyses. *Philosophical Transactions of the Royal Biological Sciences Society.* http://rstb.royalsocietypublishing.org/content/365/1538/281.full (accessed September 30, 2016).

Bodie, Zvi, Alex Kane, and Alan J. Marcus. 2011. *Investments and portfolio management*. New York: McGraw Hill/Irwin.

Kraay, Aart, and Jaume Ventura. 2007. The dot-com bubble, the Bush deficits, and the U.S. current account. In *G7 Current Account Imbalances: Sustainability and Adjustment*, ed. Richard H. Clarida. Chicago, IL: Univ. of Chicago Press. http://www.nber.org/chapters/c0124.pdf (accessed September 30, 2016).

New York Times. 2000. The dot-com bubble bursts (December 24). http://www.nytimes.com/2000/12/24/opinion/the-dot-com-bubble-bursts.html (accessed September 30, 2016).

Pollock, Alex J. 2013. Mugged by uncertainty: What can Alan Greenspan still teach us? American Enterprise Institute (December 29). http://www.aei.org/article/economics/financial-services/banking/mugged-by-uncertainty-what-can-alan-greenspan-still-teach-us/ (accessed September 30, 2016).

BUSINESS CYCLE

A business cycle is the overall fluctuation in the economy due to changes in production, aggregate supply, consumer aggregate demand, and unemployment. Fluctuations of the business cycle are periodical but not predictable. They are irregular ups and downs of economic activity measured by the fluctuations in gross domestic production and other macroeconomic variables, such as unemployment.

The business cycle defines four stages of an economy: contraction, when the economy starts slowing down; trough, when the economy hits bottom, also known as a recession; expansion, when the economy starts growing again; and peak, when the economy is in a state of exponential growth, usually resulting in inflation.

Periods of contraction are often indicated by widespread pessimism and negativity around the economy or an increase in unemployment. A declining stock market (bear market) can also be a signal of a contracting economy. A bear stock market is a market in which investors are very pessimistic about the economy and therefore the prices of securities. This pessimism leads to falling securities prices. As investors anticipate losses and continue selling, pessimism grows.

A positive economic outlook by both consumers and producers signals an economy in the expansion mode of the business cycle. An expansion will also include increasing employment and activity in stock markets, or a bull market. In a bullish market, financial securities go up.

Business cycles are important when countries are considering combining currencies. If the countries are not in the same business cycle, one country will lose by possibly having to devalue its goods and services to align with the country whose monetary policy fits the business cycle. In the contraction phase, GDP growth rates usually decline to the 1–2 percent level before turning negative. The 2008 recession was so impactful because the economy immediately shrank 2.7 percent in the first quarter of 2008, gained 2 percent in the second quarter, and fell another 2 percent in the third quarter, before declining 8.3 percent in the fourth quarter. The economy declined again in the first quarter of 2009 by 5.4 percent.

In the trough phase, GDP growth may still be negative but not as bad as in the contraction phase; this occurred in the second quarter of 2009, when GDP contracted a mere 0.4 percent.

In the expansion phase, GDP growth turns positive again and is expected to be in the 2–3 percent range. Managed well, the economy can stay in the expansion phase for years. The current expansion phase started in the third quarter of 2009, when GDP rose 1.3 percent. This was the result of stimulus spending from the American Recovery and Reinvestment Act. Four years into the expansion phase, the unemployment rate was still above 7 percent because the contraction phase was so harsh.

The peak phase is when the economy's expansion slows. The end of the peak phase is usually signaled by the last healthy growth quarter before a contraction begins. In the 2008 recession, the peak occurred in the third quarter of 2007, when GDP growth was 2.7 percent.

The business cycle is affected by the forces of supply and demand. When consumers are confident, they buy now because they know there will be future income from better jobs, higher home values, and increasing stock prices. As demand increases, businesses hire new workers, which further stimulates demand. This is the expansion phase. If demand is higher than supply, the economy can overheat. This combination of excess demand and the creation of risky derivatives created the housing asset bubble in 2005. If demand is not lowered with higher taxes (fiscal policy) or higher interest rates (monetary policy), the peak will not be far off. In addition to demand, the business cycle is heavily dependent on the availability of capital. Too much capital will turn a healthy expansion into a peak, often causing inflation. At this point, a stock market correction may indicate that assets are overvalued, creating fear and a contraction. The Federal Reserve lowers interest rates to spur the economy into expansion during a trough. It raises rates during an expansion to avoid too much of a peak.

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See also: *Vol. 2: Macroeconomics:* Bureau of Economic Analysis; Bureau of Economic Research; Contractionary Fiscal Policy; Contractionary Monetary Policy; Expansionary Fiscal Policy; Expansionary Monetary Policy; Federal Reserve System; Fiscal Policy; Monetary Policy; Gross Domestic Product; Gross National Product

Further Reading

Cooley, Thomas F. 1995. *Frontiers of business cycle research*. Princeton, NJ: Princeton Univ. Press.

Gerber, James. 2013. *International economics*, 6th ed. New York: Prentice Hall.

Hayek, F. A. 2012. *Hayek's triangles: Two essays on the business cycle*. Baltimore, MD: Laissez Faire Books.

BUSINESS STRUCTURES

Business structure is a term used to describe a specific type of business with certain characteristics and regulations. Business structures seek to earn a profit by providing a good or service to the public. A business structure can take many forms, including, but not limited to, a sole proprietorship, a general partnership, a limited partnership, a limited liability partnership, a corporation, or a limited liability company. Business structures also vary based on the number of owners, access to capital, length of life, and level of liability.

One common type of business structure is a sole proprietorship, in which one person controls the day-to-day operations of the business. This type of business is considered the easiest to form due to the lack of red tape and paperwork. Owners of this type of business assume all risk and reward for their business as they face unlimited liability and limited life. Another limitation is access to capital based on the individual's access to resources or loans. The business is not seen as a separate entity, and owners report profits or losses on their personal tax return. In some cases, businesses that begin as a sole proprietorship may expand into one of the other business structures.

Another type of business structure is a partnership, in which two or more people own a business. Partnerships are the only business structure that can be formed with a verbal agreement, although a formal partnership agreement is highly recommended to prevent any misunderstandings. Partnerships generally have access to more capital, and partners may bring specific skills to the business.

There are also several types of partnerships. In a general partnership, all partners are responsible for the losses or gains of the business. In a limited partnership, the limited partner is only responsible for his or her investment and does not play an active role in actually running the business. In this case, there is at least one general partner who handles the day-to-day affairs of the business. In a limited liability partnership (LLP) all partners have limited liability and are not responsible for the debts incurred by other partners. Examples of this include law and accounting firms.

A corporation is a business structure that is a legal entity separate from its owners. Forming a corporation requires more paperwork than other types of businesses and is subject to incorporation fees. This type of business involves the selling of stock to shareholders, who serve as the owners of the business. Usually a board of directors is selected by the shareholders to run the day-to-day affairs of the corporation. A corporation has limited liability and unlimited life but also faces heavy government regulations and high start-up costs. A major disadvantage of a corporation is double taxation, where it is taxed based on profits and shareholders must pay taxes on dividends earned. Corporations that are designated as S corporations do not face double taxation since they are taxed as a partnership.

A limited liability company (LLC) business structure includes elements of both a partnership and corporation, and the owners are referred to as members. Members of an LLC are not liable for debts of the business, making it similar to a corporation. However, a big difference from a corporation is that in an LLC income taxes are paid by its members through their personal income tax.

Individuals interested in setting a business structure must carefully weigh the advantages and disadvantages of each type when deciding which is best for them.

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See also: *Vol. 1: Foundations of Economics:* Entrepreneurship

Further Reading

Callaway, Cynthia A., Duane Wolf, and Dan Kramer. 2002. Choosing a business structure. *ASHRAE Journal* (April): 42–44.

Fay, Jack R. 1998. What form of ownership is best? *The CPA Journal* 68 (August): 47–50.

Gaff, Brian M., and Karl P. Fryzel. 2012. Starting a business: Which entity structure is best for you? *Computer* 45 (October): 10–12.

Internal Revenue Service. n.d. Business structures. http://www.irs.gov/Businesses/Small-Businesses-&-Self-Employed/Business-Structures (accessed April 13, 2013).

U.S. Small Business Administration. n.d. Limited Liability Company. http://www.sba.gov/content/limited-liability-company-llc (accessed April 13, 2013).

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CAP AND TRADE

Emissions trading, or cap and trade, is an environmental policy tool used to control pollution by setting a mandatory cap on emissions and allowing for flexible means of complying with these approaches. Successful cap-and-trade programs will possess characteristics such as strict environmental accountability without inhibiting economic growth, as well as reward innovation, efficiency, and proactive actions.

The policy tool first begins with setting a maximum amount of emissions per period—or in other words, an overall cap. This cap is chosen in order to achieve a desired environmental effect and is delegated to all sources of emission, which cannot exceed the cap limit. The other part of the equation, or the trade, creates a market for allowances, enabling corporations to meet or come in under their allocated emissions limit. The less they emit, the less they pay.

As stated previously, the cap sets a maximum allowable level of pollution and penalizes companies that exceed their emission allowance. The cap serves as a limit on the amount of pollution a source, or corporation, can emit and is measured in billions of tons of carbon dioxide, or equivalent, per year. Emitters of pollution are permitted allowances, such as one allowance per ton of carbon dioxide or other equivalent heat-trapping gases. The total amount of allowances will be equal to the cap, and companies may emit only the amount of allowance they are allocated. Moreover, the cap includes all major sources of pollution, thus limiting emissions throughout the entire economy. This includes electric power generation, natural gas, transportation, and large manufacturers. Each year the cap is lowered in order to reduce the amount of pollutants released into the atmosphere.

Some emitters will find it easy to match their number of allowances and thus reduce their carbon footprint. Others, however, may find it more difficult. The trading aspect of cap and trade allows corporations to buy and sell allowances. This leads to more cost-effective pollution cuts as well as an incentive to move toward greener, eco-friendly technology.

As an example, one company may be able to cut its pollution in a cheap and easy manner. This leaves the company with extra allowances, which it can sell to other companies. Conversely, a company may find it more difficult to reduce its emissions or may only be able to make long-term investments to reduce its emission level. The option to trade allowances gives companies the option to meet their cap. Overall, trading provides a significant incentive to reduce global emissions.

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See also: Alternative Energy; Coase, Ronald; Tragedy of the Commons; *Vol. 1: Foundations of Economics:* Association of Environmental and Resource Economists; Environmental Economics; Environmental Protection Agency; Environmentalism; *Vol. 2: Macroeconomics:* Externality; Property Rights

Further Reading

Environmental Defense Fund. n.d. How cap and trade works. http://www.edf.org/climate/how-cap-and-trade-works (accessed May 31, 2015).

International Emissions Trading Association (IETA). n.d. Cap & trade basics. http://www.ieta.org/index.php%3Foption%3Dcom_content%26view%3Darticle%26-catid%3D54:3-minute-briefing%26id%3D205:cap-%26-trade-basics (accessed May 31, 2015).

U.S. Environmental Protection Agency. n.d. Cap and trade: Essentials. http://www.epa.gov/captrade/documents/ctessentials.pdf (accessed May 1, 2015).

CARTELS

A cartel is an explicit arrangement among suppliers in an industry to manage output and prices in order to capture additional profit. The presence of an explicit arrangement distinguishes cartels from other forms of strategic interaction in oligopoly environments. A successful cartel must (1) identify a profit-enhancing level of sales for the cartel, (2) assign output or sales quotas to cartel members, (3) monitor cartel member sales, and (4) be able and willing to punish excessive sales by cartel members.

Since Adam Smith's *Wealth of Nations* was published in 1776 (or earlier), economists have taken note of cartel behavior. Smith wrote, "People of the same trade seldom meet together, even for merriment or diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices." Given the widespread benefits to suppliers that arise from forming a successful cartel, it is perhaps surprising that many industries are not so organized. The lack of widespread cartelizing may be evidence of the difficulties of maintaining a cartel, of the success of public policies against cartels, or both.

Because the profit-enhancing level of sales is below the competitive level of output, cartels will require some or all of their members to reduce sales. The resulting higher prices will leave members curtailing sales in which the marginal revenue from added output is greater than the marginal cost, presenting cartel members with the constant opportunity for short-run gain at the expense of other cartel members. The chief challenge a cartel faces is in maintaining member compliance, and quotas are given to curtail the constant temptation to cheat. Diversity of positions among cartel members—high-cost versus low-cost producers, short-term versus long-term time horizon, and so on will further complicate cartel operations.

When discussing natural resource cartels, economists have an easy example: the Organization of Petroleum Exporting Countries (OPEC). Unfortunately, OPEC is a bad example. OPEC only loosely satisfies the conditions of a rigorous definition of *cartel*, and most serious studies of the organization find it has failed to sustain world oil prices at higher than competitive levels. But there are several examples of durable natural resource cartels, and certain natural resource industries are particularly susceptible to cartelization. In addition, successful cartelization reduces industry output. Robert Solow claimed that conservationists and monopolists are philosophical friends, with a cartel also being the conservationist's friend. Natural resource economists have taken a special interest in cartelization for these reasons.

Historically, several natural resource industries have experienced attempts at cartelization, and some industries have sustained cartels for several years. Over the 20th and 21st centuries, cartels have emerged for diamonds, bauxite (aluminum ore), tin, magnesium, and yellowcake (uranium ore), among others. Unsuccessful or disputed cases of cartelization include petroleum and copper.

OPEC likely attracts the most attention, both among professional economists and the public, due to the high value of petroleum and the association between OPEC and the energy crises of the 1970s. Five members formed the organization in 1960, largely to protect exporting nations from a price cut imposed by the international oil companies, which exercised significant control over the world market at that time. The public took little notice of OPEC until Arab members imposed a boycott on exports to the United States in October 1973 and a subsequent tripling of world oil prices to over $12 a barrel in 1973 dollars. OPEC became a convenient scapegoat for politicians in oil-importing nations such as the United States.

At the time, the public took little notice of how U.S. price controls and associated policies created the domestic energy crisis and boosted OPEC's economic power, because lower prices discouraged domestic production and encouraged consumption. The repeal of petroleum price controls in the United States, along with the high-price-induced supply response by non-OPEC producers, diminished OPEC's economic influence after 1980. Although economic analyses of OPEC continue to support a variety of views of the organization's influence and success, many analysts have concluded that the apparent influence of OPEC is largely due to the actions of Saudi Arabia.

Cartelization in the diamond industry presents a clear contrast to the petroleum market experience, with the international diamond cartel perhaps being the most successful and longest-lasting cartel. The De Beers family of companies began in South Africa in 1888 and soon controlled over 80 percent of worldwide diamond production, successfully dominating marketing channels that took South African diamonds to European markets. Over the 20th century, as diamond mines in other countries were developed, the company expanded horizontally to maintain some control over supply and vertically to better manage distribution. The company quite willingly built up a large stockpile of diamonds to accommodate purchase agreements with suppliers while controlling the supply, and therefore the price, of diamonds reaching the consumer market. The stockpile also represented a potential threat to any supplier who wished to bypass the cartel, as it could easily flood the market with the quality and color of stone the supplier had to offer. At the beginning of the 21st century, increasing supply from producers outside of the De Beers organizations, principally from Australia, Canada, and Russia, and the increasing political taint associated with so-called "conflict diamonds" led the company to reduce its scale and shift its marketing strategies. However, De Beers remains in the business of promoting orderly competition in diamond markets.

In addition to the periodic market influence of OPEC in petroleum and the enduring market dominance of De Beers in the diamond business, other producer groups have struggled to capture the excess profits available through cartelization; some have succeeded. The International Copper Cartel, created in 1935, controlled about half of world production, but noncartel supply was too elastic in response to price increases, and the cartel was unable to significantly increase price. A cartel in mercury production was sustained by formal agreement from 1928 until 1950 and continued less formally afterward, aided by low-cost conditions and cartel-supporting government policies in Spain and Italy. The formal agreement was dissolved after an Italian mining company violated marketing restrictions. Informal cartelization continued to have influence through the 1960s but faded as low-cost production emerged in numerous countries around the world. The uranium ore (yellowcake) market was cartelized by a secret arrangement in 1972 among the largest non-U.S. producers, some privately owned and some state owned, in the face of inelastic and readily predictable demand driven by the growth of nuclear power. The cartel was aided by international agreements monitoring movements of uranium and by the enthusiastic support of the governments of exporting nations. When the agreement became public, however, it was rapidly abandoned in the face of pressure from importing nations.

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See also: Microeconomics; Monopoly; Oligopoly Markets; *Vol. 1: Foundations of Economics:* Resources; *Vol. 4: Global Economics:* Organization of Petroleum Exporting Countries

Further Reading

Alhajji, A. Fayçal, and David Huettner. 2000. OPEC and other commodity cartels: A comparison. *Energy Policy* 28 (15): 1151–64.

Levenstein, Margaret C., and Valerie Y. Suslow. 2006. What determines cartel success? *Journal of Economic Literature* 44 (1): 43–95.

Spar, Debora L. 2006. Markets: Continuity and change in the international diamond market. *Journal of Economic Perspectives* 20 (3): 195–208.

Taylor, June H., and Michael D. Yokell. 1979. *Yellowcake: The international uranium cartel*. New York: Pergamon Press.

CERTIFICATE OF DEPOSIT

Certificates of deposit (CDs) are a cross between bank savings deposits and investment vehicles such as bonds. They are usually purchased at banks and include characteristics of basic savings accounts. The depositor places funds in the bank and receives interest payments. The interest rates paid on CDs are usually higher than those paid on savings accounts.

Certificates of deposit, like some investment products, have a term or maturity attached. For example, CDs may be bought to mature in three, six, or nine months or in one to several years. Like a traditional bond, when the CD comes to maturity, the holder receives the original or face value back plus the interest earned. CD owners who redeem the CD before maturity sacrifice a week's to three months' interest in exchange for the early withdrawal (called an early withdrawal penalty). Some banks automatically reinvest or roll over the proceeds from the CD at maturity.

Interest Calculation

The interest calculation on a certificate of deposit influences the ultimate return to the investor. There are several methods of calculating interest. Annual percentage yield (APY) is the effective annual rate of return and considers the impact of compounding interest or the interest paid on prior interest earned. The annual percentage rate (APR) is calculated using simple interest and does not pay interest on the prior interest received. Thus APY is higher than APR. When comparing CD interest rates, it's important to note which type of interest rate is used.

For example, Lily purchases a $1,000 five-year CD at State Bank with a 3 percent interest rate paid and compounded semiannually (APY). At the end of six months, she receives $1,000 x 0.5 x .03 = $15. Add this amount to $1,000 and her CD is worth $1,015 after six months. At the end of year one, she receives $1,015 x 0.5 x .03 = $15.23. The value of Lily's CD at the end of year one is $1,015 + $15.23 = $1,030.23.

Had the interest been calculated with the annual percentage rate and not compounded (APY), her CD would have been valued at $1,030 at the end of year one, since the 3 percent return was paid only on the original $1,000 ($1,000 x .03 = $30). With APR interest the CD earns $15 every six months. In contrast, with APY interest, each interest payment is greater than the last because the 3 percent interest is paid on a growing base.

Safety and Insurance

Certificates of deposit are considered safe investments for several reasons. The redemption amount is clearly stated at the time of purchase and will not vary. For example, buy a $1,000 one-year CD with a 2 percent interest rate (APR) paid at maturity and in one year the CD can be redeemed at $1,020. There is no risk of losing principal or interest as one might in a stock or bond. The only uncertainty is inflation risk. If inflation increases, the purchasing power of that $1,020 will decline and the same dollar amount will buy less.

Banks offer insurance to depositors through the Federal Deposit Insurance Corporation (FDIC). All deposits held at insured banks are protected against loss if the bank fails. All types of deposits, including CDs, are covered by FDIC insurance up to $250,000 per depositor per bank.

Types of CDs

Historically, CDs were designed as simple investments. The traditional CD pays a fixed interest rate over a predetermined period. At the end of the term, the investor withdraws the money or uses the funds to buy a new CD, called a rollover.

New types of CD emerge as the finance industry evolves and consumers demand more sophisticated products. Bump-up CDs answer the concern that interest rates might rise during the tenure of a CD and cause the investor to miss out on higher yields. These adjustable-rate CDs allow investors to exchange their current interest rate for a higher one if rates on new CDs of a similar term rise during the investment period. This option is usually offered as a onetime rate increase during the life of the CD.

There is a liquid CD for investors willing to trade a lower interest rate for greater flexibility. This account allows investors to withdraw all or part of the account penalty free. A callable CD gives the bank the right to recall the CD after a set period. In contrast with the liquid CD, a callable CD typically pays a higher interest rate in exchange for the uncertainty of the instrument's term. Banks will issue these types of CDs when they are concerned that interest rates will decline.

A zero coupon CD does not pay annual interest and generally promises a higher interest rate. The CD is bought at a discount to the final redemption value. The interest is calculated by comparing the final payment with the initial amount invested. Although annual interest is not paid, tax is usually due each year on the proportion of reinvested interest.

Brokered CDs are purchased in investment brokerage accounts and issued by national banks. These offerings give investors flexibility to invest outside a hometown or an online bank. In fact, investors can purchase brokered CDs from several banks in their investment brokerage account. Because they are issued by a bank, the FDIC insurance applies. Brokered CDs can be bought and sold from other investors through a brokerage account after issue in the secondary market.

Who Invests in Certificates of Deposit?

Certificates of deposit are safe investments for consumers to gain higher interest payments than they would with traditional savings accounts. These investments are great for targeted expenses. For example, if you are saving money for a down payment on a home in three years, you need to keep the money readily accessible (or liquid) and safe. If you buy a three-year CD, your money will be available when you need it, and it will earn a bit more interest than if you'd left it in your savings account.

Certificates of deposit are among the safest places for consumers to invest their cash for any short- and medium-term (five years or less) financial needs.

Barbara A. Friedberg

See also: Bonds; Interest Rates; Liquidity; Risk; Savings Account; *Vol. 1: Foundations of Economics:* Banking; Investing; *Vol. 2: Macroeconomics:* Federal Deposit Insurance Corporation

Further Reading

Federal Deposit Insurance Corporation. n.d. FDIC insurance coverage basics. http://www.fdic.gov/deposit/deposits/insured/basics.html (accessed on August 10, 2013).

Wall Street Journal. 2008. What is a certificate of deposit (CD)? (December 17). http://guides.wsj.com/personal-finance/banking/what-is-a-certificate-of-deposit-cd/ (accessed September 30, 2016).

CHRYSLER BANKRUPTCY, 1979

The late 1970s saw the appearance of the Four Horsemen in the American auto industry. Imports of foreign-made cars due to free trade, old plants and assets, global labor competition, and increases in the price of gasoline as a result of the energy crisis devastated the Big Three automakers: General Motors, Ford, and Chrysler. Chrysler would be the first to feel the impact of a flood of Japanese imports in the 1970s. With its big cars, Chrysler was also hit particularly hard by the energy crisis, though it seemed to have been able to beat the energy crisis of 1974 and reported a profit in 1977. The fall of the shah of Iran sent gasoline prices soaring in 1978, and by 1979 Chrysler was facing a billion-dollar loss.

A Chrysler bankruptcy seemed likely as the nation entered a recession. Chrysler accounted for about 8 percent of the American auto market, and a bankruptcy threatened the loss of 200,000 jobs and a potential devastating blow to an auto-supply chain under great pressure from Japanese parts. The possibility of a Chrysler bankruptcy sent fear across the nation, so dealers, suppliers, and the United Automobile Workers pushed for a political solution to prevent it. In response, Congress passed the Chrysler Loan Guarantee Act on September 7, 1979. Chrysler then scaled back its operations significantly, which helped fuel the 1982 recession. Still, the government loan guarantee resulted in a turnaround for Chrysler, and the company paid back the loan by 1983 with a profit of $350 million for the government.

Chrysler's problems started with the Arab oil embargo of 1973. The American auto industry was caught off guard with large gas-guzzlers in their showrooms. Sales of imported gas-efficient cars surged, and even though the embargo lasted only six months, buying patterns were changed forever. Oil had been less than $5 a barrel, but at the end of the six-month embargo, oil would be $18 a barrel with daily movements as high as $22 a barrel. By the mid-1970s, the Japanese had captured 18 percent of the American car market. With its lineup of big cars, Chrysler lost the most.

The problem of Chrysler's big cars was exacerbated by the Corporate Average Fuel Economy (CAFE) regulations enacted by the U.S. government in 1976 as part of its environmental movement and fuel-saving efforts. However, the measures hit American automakers in the worst period in their struggle against imports and oil shortages, forcing them to reduce car size and weight and sell more small cars, even if they were not profitable. The combination of the oil crisis and these regulations ended American dominance in the world auto industry. More than 27 auto plants closed, resulting in the loss of more than 500,000 jobs. Chrysler lacked the capital to retool its factories and accounted for 13 of those closings.

Chrysler had a brief market reprieve in 1978 when consumers started buying big cars again, but the fall of the shah of Iran sent gasoline prices soaring once more and sent consumers running to buy small cars. That same year Chrysler hired Lee Iacocca, who had been one of Ford Motor's most successful product managers and had the Mustang to his credit. At Chrysler, however, Iacocca came into a basically bankrupt company that had no money to pilot the production of new products. His first task was to go to Washington, D.C., to negotiate a bailout. It was clear that without government help the company faced bankruptcy. The popular belief was that even Chapter 11 bankruptcy could not save the company. The death of Chrysler augured a serious blow to a failing American economy in 1979. The United Automobile Workers represented a major political force at the time, and the potential for huge job losses in the industry made Congress amenable to a deal.

The political pressure from both sides resulted in what many see as a very balanced approach. The federal loan guarantee came with a number of attachments and requirements. The final deal looked much like Chapter 11 bankruptcy and certainly followed Chapter 11 guidelines for bankruptcy, unlike what happened during Chrysler's subsequent 2009 bankruptcy.

The deal allowed Chrysler, with the help of the secretary of the Treasury, to pressure its suppliers to allow Chrysler to pay off $600 million in debt for 30 cents on the dollar. Many small suppliers were hurt by this deal, but a full bankruptcy would have been worse. At least $700 million of preferred stock was reduced to nondividend equity. The agreement called for operating cuts, including a salary reduction program, that resulted in the loss of 62,000 white-collar jobs. These cuts were particularly hurtful to middle-class families in the midst of a recession. The company gained concessions of more than $600 million from the autoworkers' union, which meant Chrysler workers made $2 an hour less than General Motors and Ford workers. The government also helped by granting Chrysler more government contracts, although in 1982, Chrysler sold its Defense division to General Dynamics for $348 million.

Most observers still claim the bailout was a success. In the first quarter of 1983, Chrysler reported a $170 million profit. In September 1983, Chrysler repaid the full government loan, seven years ahead of schedule. Iacocca would bring on new products in the 1980s, such as the minivan. Chrysler went on to buy the American Motors Jeep brand in 1987. Some argue that, unfortunately, Chrysler's success came at the expense of Ford and General Motors as the domestic manufacturers' share of the American market continued to drop.

Quentin R. Skrabec Jr.

See also: Corporate Average Fuel Economy; General Motors Bankruptcy, 2009; *Vol. 2: Macroeconomics:* Detroit Bankruptcy, 2013; Rapid Deindustrialization, 1975; *Vol. 4: Global Economics:* Arab Oil Embargo Crisis, 1973

Further Reading

Taylor, Alex. 2010. *Sixty to zero: An inside look at the collapse of General Motors—and the Detroit auto industry.* New Haven, CT: Yale Univ. Press.

Yates, Brock. 1983. *The decline & fall of the American automobile industry*. New York: Empire Books.

CLAYTON ANTITRUST ACT OF 1914

The Clayton Antitrust Act of 1914 was written to strengthen the government's control of monopolies and monopolistic activities that weakened trade in the United States. The Clayton Act further strengthened the antitrust laws originally expressed in the Sherman Antitrust Act of 1890 by allowing people to sue if they could prove damage by an illegal arrangement to restrain trade. According to the Clayton Act, a successful plaintiff in such a case would be allowed to recover three times the damages sustained. The purpose of this rule was to encourage private lawsuits against conspiring oligopolists.

Historical Antitrust Legislation

For centuries, throughout England and the United States, judges have deemed agreements among competitors to reduce quantities and raise prices to be contrary to the public good and the free-enterprise system. They have therefore refused to enforce such agreements. The Sherman Antitrust Act of 1890 codified and reinforced this policy. The Sherman Act established a legal boundary for contract law. The act also stated that every contract or attempt to restrain trade or commerce among states or with foreign nations was illegal.

Under this original antitrust legislation, any person who monopolized or attempted to monopolize any part of the trade or commerce among states or with foreign nations would be deemed guilty of a misdemeanor with a punishment of a fine not exceeding $50,000 or by imprisonment not exceeding one year, or both punishments, at the discretion of the court.

The Clayton Antitrust Act, signed into law in 1914 by President Woodrow Wilson, supplemented the Sherman Antitrust Act. The Clayton Antitrust Act made the following illegal: price cutting, rebates, and exclusive contracts specifically for the purpose of eliminating the competition. The act excluded two groups: labor unions and agricultural cooperatives.

So long as they were peaceful, the act allowed strikes, pickets, and boycotts. It also restricted the court's ability to issue injunctions against organized labor for the purpose of strikebreaking. This particular piece of the Clayton Act expressly defined labor as not a commodity or "article of commerce." This was seen as a win for the labor force in the United States. Workers hailed the law as labor's backing force. Businesses, however, continued to assert that labor should not be protected in this way.

The act further increased the punishment for breaking said antitrust legislation. It became more punitive with the introduction of the triple damage rule. It also strengthened the government's powers and authorized private lawsuits.

The antitrust laws give the government various ways to promote competition. They allow the government to prevent mergers, and they prevent companies from coordinating their activities in ways that make markets less competitive.

It has been the job of the Federal Trade Commission and the Department of Justice's Antitrust Division to watch firms closely to ensure that they are not engaging in unfair trade practices. Actions such as predatory pricing, the formation of cartels and/or monopolies, are considered illegal under the current antitrust legislation.

Under the Clayton Antitrust Act, the government even has the power to prevent mergers that might lead to reduced competition and higher prices. The government must act carefully to make the right decision when considering the merging of two or more companies. While some mergers hurt consumers by reducing competition, others can actually leave consumers better off. Mergers that lower prices, provide more reliable products or services, and create a more efficient industry are allowed.

Antitrust Laws in Modern Times

Since the 1980s, government officials have had a difficult time proving monopoly power in the courts. Judges have mostly held that large companies are not bad just because they are large. If the market is promoting competition, company size should not be an issue and the government should not interfere.

In 1997, the Justice Department and the Federal Trade Commission released new guidelines for proposed mergers. Now, companies that want to merge have the chance to prove that the merger would lower costs and consumer prices or lead to a better product.

Before the Justice Department rules on whether to allow a merger, it tries to predict a merger's effect on prices and service. It is a fine balance between allowing market freedom and protecting consumers. The Supreme Court has embraced many antitrust principles that began in the 1980s.

Tracy L. Ripley

See also: Federal Trade Commission; Monopoly; Sherman Antitrust Act of 1890; *Primary Documents:* Clayton Antitrust Act of 1914; Sherman Antitrust Act of 1890

Further Reading

Mankiw, N. Gregory. 2011. *Principles of microeconomics*. Cincinnati, OH: South-Western/Cengage Learning.

McNeese, Tim. 2009. *The robber barons and the Sherman Antitrust Act*. New York: Chelsea House.

O'Sullivan, Arthur, and Steven M. Sheffrin. 2007. *Economics principles in action*. Upper Saddle River, NJ: Pearson/Prentice Hall.

CLEAN AIR ACT

The Clean Air Act (CAA), one of the most significant U.S. environmental protection laws, authorizes the Environmental Protection Agency (EPA) to issue regulations affecting almost every sector of the economy. The Office of Management and Budget (OMB) prepares a report to Congress each year on the costs and benefits of all federal regulations, and it has consistently found that air pollution regulations issued by EPA's air program account for the largest share of both costs and benefits across all federal regulations. In its 2012 report, OMB notes that the annual benefits of air regulations are between $82 and $557 billion (the large range is based partly on OMB assumptions about uncertainty in the value of mortality risk reductions), and annual costs are between $22 and $28 billion. These benefits and costs are primarily associated with reduced public exposure to just one air pollutant: fine particulate matter.

Passed in 1970, the CAA was significantly influenced by earlier legislation, including the Air Pollution Control Act of 1955, the CAA of 1963, and the Air Quality Act of 1967. These early laws began the process of defining the roles of federal and state governments in addressing air pollution, especially when it crosses state boundaries. The 1970 CAA was the first environmental legislation to grant far-reaching powers to the federal government to regulate air pollution sources and to establish ambient air quality standards that apply nationwide.

The 1970 CAA established National Ambient Air Quality Standards (NAAQS) to protect public health in polluted areas. To allow states some autonomy in addressing their own unique circumstances, the CAA gave state agencies flexibility in defining how the national standards would be achieved. Each state was authorized to prepare its own State Implementation Plan, although federal approval of the plan was still required. The CAA also requires New Source Performance Standards to limit air pollution emissions from stationary (industrial) sources, National Emission Standards for Hazardous Air Pollutants to reduce emissions of particularly toxic air pollutants (air toxics), and a mobile source pollution control program.

The CAA Amendments of 1977 established a New Source Review program for areas of the United States not attaining the levels of the NAAQS. This program mandated stringent controls on new industrial sources and required emissions to be offset by reductions from other industries in the area. Similarly, a Prevention of Significant Deterioration (PSD) program was established for areas attaining the NAAQS, with the goal of preventing air quality in these areas from deteriorating to levels that would exceed the NAAQS. PSD generally requires new or modified emissions sources to install modern emissions controls, improve workplace practices, or a combination of both.

The CAA Amendments of 1990 were developed to address several deficiencies that had been identified as the original CAA was implemented. In crafting the CAA Amendments of 1990, Congress particularly wanted to address three major environmental threats: acid rain, urban air pollution, and air toxics. Also, there was considerable interest in making the nation's air pollution permit program more workable and in improving compliance with regulations through a strengthened enforcement program. The 1990 Amendments included six major titles: Air Pollution Prevention and Control (Title I), Emission Standards for Moving Sources (Title II), General Provisions (Title III), Acid Deposition Control (Title IV), Permits (Title V), and Stratospheric Ozone Protection (Title VI).

One notable feature of the amendments was its reshaped air toxics program, which required the EPA to publish a list of source categories responsible for emissions of 189 air toxics and to issue Maximum Achievable Control Technology (MACT) standards for each category (the air toxics list was subsequently reduced to 188 when one air pollutant was determined to be nontoxic). A distinction was made between major sources, defined as facilities that emit at least 10 tons per year of any single air toxic or 25 tons per year of any combination of these pollutants, and area sources, which have toxic emissions that are less than these amounts. Examples of area sources are auto body shops and dry cleaners, which individually do not emit much pollution but, taken together, represent a large source of air pollution.

MACT standards for new sources are based on the application of emission control technology equivalent to the best controlled similar source found anywhere in the United States, although EPA is allowed to take into consideration costs, other environmental impacts, and energy requirements when considering whether to go beyond the required level of control. For existing sources, the standards are based on the average of the best-performing 12 percent of existing sources. To control emissions from area sources, EPA may elect to establish standards based on generally available control technologies or operating practices. Note that while MACT standards are technology based, EPA must examine health risk levels at regulated facilities after eight years and tighten the standards if necessary to reduce any remaining unacceptable risk (referred to as residual risk).

Another prominent feature of the 1990 amendments was the new permitting authority. Previously, a new facility's pollution control requirements may have been scattered among numerous state and federal regulations, some of which were hard to identify or contained conflicting requirements. The amendments attempted to simply this process by incorporating all of a source's permit obligations into a single permitting document (called a Title V Permit) and by having the source pay a single permit fee to cover agency administrative costs. This program was designed to simplify permitting requirements for both the source and the agency, to ensure compliance with all applicable requirements, and to facilitate enforcement.

The amendments addressed mobile sources in several ways. Tighter emission standards were established for both automobiles and trucks, and manufacturers were required to reduce emissions from gasoline evaporation during refueling. Fuel quality was also controlled by reducing gasoline volatility and the sulfur content of diesel fuel, by requiring cleaner (reformulated) gasoline for cities with serious ozone problems, and by specifying higher levels of alcohol-based oxygenated fuels to be produced and sold during the winter months in areas exceeding the federal carbon monoxide NAAQS.

The 1990 amendments added a number of market-based provisions to reduce emissions. The most successful of these was the Title IV program to reduce emissions that cause acid rain. The acid rain program established a federally managed cap-and-trade program that capped sulfur dioxide and nitrogen oxides (NO_x) emissions from power plants and set up a market for trading pollution allowances. In addition, Title I allowed for the use of economic incentives in developing regulations to reduce emissions of volatile organic compounds (VOCs) from consumer and commercial products. Any fees collected are to be placed in a special fund in the U.S. Treasury to carry out the activities of emissions reduction. An example of how this has been implemented in regulations is an EPA rule to reduce VOC emissions from manufacturing of coatings (e.g., paint). In this rule, a market-based option was included that enables companies to continue manufacturing architectural coatings with VOC contents higher than the limits included in the final rule through payment of a per-gallon exceedance fee amounting to approximately $2,500 per ton of excess VOCs. The CAA Amendments also provided for a fee-based incentive to encourage attainment of the national ozone standards. Severe or extreme ozone nonattainment areas that do not attain the standards by their attainment dates can be assessed a fee of $8,900 per ton of NO_x and VOC emitted (where exceeding 80 percent of a base amount).

Bryan Hubbell
Richard Crume

See also: Air Pollution; Health and the Environment; *Vol. 1: Foundations of Economics:* Cost-Benefit Analysis; Environmental Protection Agency; Natural Resource Economics; *Vol. 2: Macroeconomics:* Externality

Further Reading

Hubbell, Bryan J., Richard V. Crume, Dale M. Evarts, and Jeff M. Cohen. 2010. Regulation and progress under the 1990 Clean Air Act Amendments. *Review of Environmental Economics and Policy* 4 (1): 122–38.

Office of Management and Budget, Office of Information and Regulatory Affairs. 2013. *2012 Report to Congress on the benefits and costs of federal regulations and unfunded mandates on state, local, and tribal entities* (April). Washington, DC: Office of Management and Budget.

CLEAN WATER ACT

The principal law governing surface water pollution in the United States is the Federal Water Pollution Control Act, commonly referred to as the Clean Water Act, listed in Title 33, Chapter 26 of the United States Code. Originally enacted in 1948, this law was significantly revised and expanded in 1972 with its goal "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Major amendments to the act were passed in 1977 and 1987.

Federal action to control water pollution can be traced as far back as the Refuse Act, a section of the Rivers and Harbors Act of 1899, but this law was primarily aimed at promoting water navigation. The 1948 Federal Water Pollution Control Act was the first federal law designed specifically to reduce water pollution. It authorized the federal government to engage in research into water pollution, but the states remained responsible for their own local water quality.

However, in 1972, growing public awareness and concern for controlling water pollution led to amendments that consolidated the authority to regulate surface water pollution within the newly created Environmental Protection Agency.

The 1972 law established a still-unmet national goal of eliminating the discharge of pollutants into navigable waters by 1985, with an interim goal of establishing water quality sufficient for recreation and the protection and propagation of fish, shellfish, and wildlife by 1983. It also set the national policy of prohibiting the discharge of pollutants in toxic amounts, and it provided for federal financial assistance for the construction of publicly owned waste treatment works. Industries were required to install the best practicable control technology, and municipal wastewater treatment plants were required to meet secondary treatment standards by 1977. Industries were required to meet a stricter standard, the best available technology (BAT) economically achievable by 1983 (later extended to 1989).

In 1977, the law was amended and given its moniker, the Clean Water Act. These amendments established three categories of pollutants: conventional, nonconventional, and toxic pollutants. The BAT requirement was still applied to toxic and nonconventional pollutants, but a new level of treatment called the "best conventional technology" was created to deal with conventional pollutants (total suspended solids, biochemical oxygen demanding materials, fecal coliform, pH, and oil and grease). In 1987, another set of major amendments phased out the construction grants program, replacing it with the State Water Pollution Control Revolving Fund. Under this program, states contribute matching funds to a revolving loan fund for wastewater treatment, which is then repaid and made available for future construction in other communities.

The 1972 amendments shifted the authority for pollution control to the federal government and allowed EPA to set technology-based, numerical effluent limits on the amount of discharges that can come from point sources (discrete conveyances of pollution, such as pipes or man-made ditches). The limits are enforced by requiring point sources to hold a discharge permit specifying the pollutants that the source must control, numerical or narrative limits on those pollutants, and time periods for how often the source must monitor for that pollutant.

States are required to submit to EPA the designated uses for navigable waters (e.g., recreation, fish and wildlife propagation, public water supply, industrial and agricultural uses, etc.) and to submit water quality criteria identifying the maximum concentrations of various pollutants that support these designated uses. If the technology-based effluent limits do not achieve the designated use for a water body, the EPA may set a total maximum daily load (TMDL), which is the maximum amount of a pollutant from all sources that may be discharged into that water body. If all water quality standards are met, antidegradation policies and programs are required to keep the water quality at acceptable levels.

The Clean Water Act is primarily designed to control pollution from point sources (i.e., pollution that comes from readily identifiable sources) but has done little to address nonpoint-source pollution. Nonpoint sources may be contributing more than 50 percent of total water pollution today, but most are not subject to effluent guidelines. The 1987 amendments directed states to develop and implement nonpoint pollution management programs and did provide limited federal financial assistance, but it did not require federal pollution limits, and there is no federal enforcement mechanism for these sources. States (but not the EPA) may require nonpoint sources to implement best management practices to meet a TMDL.

The Clean Water Act continues to evolve, not only through Congressional amendments but also through court action. In 2009, the Supreme Court held that the EPA could use benefit-cost analysis in establishing technology-based standards for cooling water intake requirements for power plants. In 2012, the Supreme Court unanimously ruled that property owners had the right to challenge the government's threats to fine them for alleged Clean Water Act violations without waiting for the EPA to attempt enforcement.

The success of the Clean Water Act can be measured by the water quality benefits it produces. Since 1982, the EPA has valued the monetizable benefits of its actions under this statute using benefit-cost analysis. Over time, this valuation has improved and utilized more sophisticated water quality models, but the EPA is currently not able to value all of the benefits that it produces. Benefit transfer has proven difficult because of the lack of a single measure of water quality across states. It is possible to estimate benefits-based improvements in ecological outputs rather than water quality, but this requires ecological production functions that are often difficult to estimate. In addition, more recent stated-preference techniques may be needed to adequately measure the passive-use values that can contribute substantially to the total economic value of water quality improvements.

Charles W. Griffiths

See also: Clean Air Act; Health and the Environment; *Vol. 1: Foundations of Economics:* Cost-Benefit Analysis; Environmental Economics; Health Economics; *Vol. 2: Macroeconomics:* Externality; Water Pollution

Further Reading

Copeland, Claudia. 2010. *Clean Water Act: A summary of the law*. Congressional Research Service 7-5700.

Freeman, Myrick. 2000. Water pollution policy. In *Public Policies for Environmental Protection*, 2nd ed., ed. Paul R. Portney and Robert N. Stavins. Washington, DC: Resources for the Future.

Griffiths, Charles, Heather Klemick, Matt Massey, Chris Moore, Steve Newbold, David Simpson, Patrick Walsh, and William Wheeler. 2012. U.S. Environmental Protection Agency valuation of surface water quality improvements. *Review of Environmental Economics and Policy* 6 (1): 130–46.

U.S. Environmental Protection Agency. n.d. *Introduction to the Clean Water Act*. http://cfpub.epa.gov/watertrain/pdf/modules/IntrotoCWA.pdf (accessed September 30, 2016).

COASE, RONALD

Born: December 29, 1910, in Willesden, England; Died: September 2, 2013, in Chicago, Illinois; Nationality: English; Professional Interests: property rights, economics of law, Nobel Prize (1991); Major Works: "The Nature of the Firm" (1937), *British Broadcasting: A Study in Monopoly* (1950), "The Problem of Social Cost" (1960), *The Firm, the Market, and the Law* (2012), *How China Became Capitalist* (2012).

Ronald Coase wrote little compared to other famous economists, but what he did write made a tremendous impact on economic thought. Two of his journal articles have started new subfields of economics: the economics of property rights and the economics of law.

Ronald Harry Coase was born on December 29, 1910, in Willesdale, England, just outside London. His parents were not well educated, both of them having dropped out of school by the age of 12. As a boy, Coase's weak legs required him to wear metal braces; as a result, he was sent to a school for physically handicapped children. When he was 12 years old, he was admitted to a quality grammar school, and in 1929 he enrolled in the London School of Economics. In his last year at school, he took a study tour to the United States. During his visit he examined the structure of American industries. It was here, before he even graduated from college, that Coase developed the concept of transaction costs and gained his essential insight into the workings of companies, for which he was to become famous.

Upon graduation he taught at various British universities and, with the onset of World War II, entered government service, first for the Forestry Commission and then for the Offices of the War Cabinet. After the war, he continued to teach college classes and also worked on a doctoral dissertation. Upon earning his PhD in 1951, he immigrated to the United States, where he taught at the University of Buffalo, the University of Virginia, and finally the University of Chicago, from which he retired in 1979. After retirement, however, his work did not stop. He continued as a researcher at the University of Chicago in law and economics—a field that he himself had created.

When Coase visited the United States in 1931–1932, he collected data and made observations about how firms really work. In doing so, he stumbled across a question for which no one had produced an adequate answer: Why do firms (companies) exist? If people can specialize in whatever job gets them the most value, how could it possibly be efficient to hold workers captive in large companies? Should it not it be more efficient to make individual contracts with individual workers for each necessary task? Coase pointed out that all firms are like little socialist economies: Instead of individuals deciding what kind of economic activity to pursue, they have to follow orders from their managers.

In an article entitled "The Nature of the Firm," Coase solved this problem by discussing the idea of transaction costs. Each economic exchange has certain built-in costs, like bargaining costs, the costs to gather and interpret information, and the costs to protect trade secrets. These transaction costs interfere with market activity and provide an incentive for entrepreneurs to produce goods and services in-house by hiring workers and forming a company. Creating a hierarchy inside a firm can lower transaction costs, but only to a certain degree. Coase also noted that as a company gets larger, it becomes more difficult to manage, a problem called diseconomies of scale. Because of this, there is a limit to the size to which companies can grow (contrary to what Karl Marx believed). Rather, according to Coase, firms will begin to make contracts with individuals and smaller companies to do the work that is inefficient for the firm to do itself.

Coase's second groundbreaking article, "The Problem of Social Cost," came in 1960, 23 years after "The Nature of the Firm." In it, Coase attacked a generally held theory about how people interact in society, first posited by Arthur Pigou in 1920. Externalities (spillover costs) are the costs and consequences of one decision imposed upon third parties external to the transaction. According to Pigou, the government can tax the entity creating the externality (such as pollution) to make it stop the behavior or at least reduce it. The government could then use the tax money to deal with the effects of the behavior: in this case, to clean up the pollution.

Coase's insight into externalities was that the situation could be solved by simply assigning clear property rights, or if that is not possible, by making one of the parties legally liable for the spillover costs incurred. The surprising conclusion is that the final amount of spillover will be the same regardless of who is liable for it. If the two parties involved are free to negotiate and trade with one another, they will make a deal to get the end result they both desire.

For example, if a factory is made liable for polluting the nearby neighborhood, the factory will pay the neighbors for the right to pollute. Conversely, if the neighbors are held liable, they will pay the factory to pollute less. If there are no transaction costs (and this is a big "if"), the same amount of pollution will be produced either way, though the wealth of the parties involved may be different. This became known as the "Coase theorem," and it has had a definite real-world impact. Because of Coase's theorem, legislators and judges are now encouraged to define ownership (property rights) before issuing taxes or injunctions.

Primarily for his work on social costs and the Coase theorem, Ronald Coase was awarded the Nobel Prize in Economics in 1991. Coase spent much of the rest of his professional career editing the University of Chicago's *Journal of Law and Economics*.

At the age of 100, Coase was busy analyzing the growth of the Chinese economy and advising Chinese economists through the Coase China Society while coauthoring a book entitled *How China Became Capitalist*. Coase died at the age of 102 on September 2, 2013, in Chicago, Illinois.

Stephen H. Day

See also: Monopoly; Stigler, George; *Volume 1*: Foundations of Economics: Environmental Economics; Environmentalism; *Volume 2*: Macroeconomics: Externality; Pigou, Arthur Cecil; Property Rights

Further Reading

Coase, Ronald. 1937. The nature of the firm. *Economica* 4 (16, November): 386–405.

Coase, Ronald. 1950. *British broadcasting: A study in monopoly*. London: London School of Economics and Political Science.

Coase, Ronald. 1960. The problem of social cost. *Journal of Law and Economics* 3 (October): 1–23.

Coase, Ronald. 1994. *Essays on economics and economists*. Chicago, IL: Univ. of Chicago Press.

Coase, Ronald. 2012. *The firm, the market, and the law*. Chicago, IL: Univ. of Chicago Press.

Coase, Ronald. 2012. *How China became capitalist*. London: Palgrave Macmillan.

Coase, Ronald. n.d. Autobiography. Nobelprize.org. http://nobelprize.org/nobel_prizes/economics/laureates/1991/coase-autobio.html (accessed June 30, 2011).

Lai, Lawrence W. C. 2011. *The ideas of Ronald H. Coase: Market failure and planning by contract for sustainable development*. London: Routledge.

Overtweldt, Johan van. 2007. *The Chicago School: How the University of Chicago assembled the thinkers who revolutionized economics and business*. Chicago, IL: Agate B2.

COASE THEOREM

The Coase theorem is a nonmathematical description of the conditions under which two (or more) parties can bargain their way to a socially efficient allocation of disputed resources. In his 1960 article in the *Journal of Law and Economics*, "The Problem of Social Cost," Nobel Prize–winning economist Ronald Coase lays the foundation for this oft-discussed and oft-misinterpreted theorem. Because Coase himself did not set out to define a mathematical theorem, there are multiple ways to think about the Coase theorem and its implications for how economists think about property rights and markets and their role in the socially efficient allocation of environmental and natural resources.

While perhaps far from Coase's original intent in outlining the role of property rights in bargaining situations over a local externality (think a local factory polluting a small community), the starting-point version of the Coase theorem in economics usually addresses the role of free markets in solving a local property rights dispute. A firm pollutes because it feels like it has the right to produce, with emissions as a natural by-product of production. The victims feel they have the right to clean air. At issue is both parties believe they have the property right situation ill suited to bargaining. If I believe I am in the right, and you believe that you are in the right, neither party has the incentive to give up anything to get what he or she wants. Without a resolution of the property rights dispute, there will be no bargaining or market transactions, and there will always be a socially inefficient amount of pollution produced. If property rights are well established, regardless of to whom they are assigned, both parties will have incentives to bargain to the socially desirable outcome.

This free-market version of the Coase theorem goes something like this: As long as both parties are free to bargain, the final amount of pollution will be independent of the initial allocation of property rights.

The problem is not that the polluter is polluting. Pollution has its benefits to the producer and to the consumer of the produced product. The problem is that both the polluter and the third-party victim think they have ownership (the property right), and no legal authority has stepped in to clearly define the property rights. Markets operate efficiently only when ownership is clearly defined. So who owns the clean air? In the free-market version of the Coase theorem, the role of the legal system is to decide who gets the property rights and then get out of the way; bargaining between the two parties will achieve the socially optimal outcome.

To put it simply, if the polluter is assigned the property right, the victim of the pollution has the incentive to pay the polluter to not pollute. The polluter will accept payment to not pollute until the cost of preventing additional pollution exceeds the victim's willingness to pay for additional pollution reductions. Likewise, if the victim is assigned the legal property right to clean air, the polluter has an incentive to pay the victim to allow it to pollute, and the victim will accept payment as long as the payment exceeds the damages caused by additional pollution. In either case, the final amount of pollution is the same, and only the distribution of wealth is different. Because bargaining is assumed to be free, it does not matter to whom the property rights are assigned, just assign them to either the polluter or the victim and let bargaining (or the market) work. The result will be an efficient solution.

The free-market version of the Coase theorem fits nicely with other market-based solutions to externality problems, like Pigouvian taxes and subsidies. A properly set Pigouvian tax on emissions, or a properly set Pigouvian subsidy on pollution abatement, will result in the same final amount of pollution; the tax or the subsidy acts as a social price for pollution. The free-market Coasian bargaining solution does the same thing, only it allows bargaining to set the price for pollution. The market solves the problem. This version of the Coase theorem serves as a foundation for emissions trading schemes in which tradable pollution permits serve as a proxy for the property right to pollute.

There are a lot of assumptions embedded in the simple free-market version of the Coase theorem that render the theorem unrealistic in its simple form. In "The Problem of Social Cost," Coase's intent was to clarify the conditions under which bargaining might or might not efficiently resolve a property rights dispute. A more realistic fair-market version of the Coase theorem makes explicit one of the conditions that might keep the free market from efficiently solving the pollution problem: transaction costs or any other impediment to bargaining.

The fair-market version of the Coase theorem is this: In the presence of transaction costs, the final amount of pollution depends on the initial allocation of property rights.

The focus here is on the transaction costs. If the victim is assigned the property right, the free-market version of the Coase theorem says that the victim will be willing to sell that right up until the point that the monetary damage from one more unit of pollution exactly equals the amount the polluter is willing to pay for it. With transaction costs, the victim must also recoup the transaction costs in addition to the damages. The result is less pollution than we would get without the bargaining (transaction) cost. But, if the polluter has the property right, the transaction costs cause more pollution relative to the free-market version. The result is a different amount of pollution depending on who gets the initial property rights.

The legal system now has a bigger impact. The outcome ends up tilted toward the side with the initial property right. In this case, the free-market version of the Coase theorem is a corollary created by assuming away transaction costs.

These are probably the two most common versions of the Coase theorem. They focus attention on property rights and transaction costs, and the debate usually turns on whether we can assume away transaction costs in a bargaining situation. But the debate should not stop there. The Coase theorem serves to focus attention on a number of assumptions that need to be looked at before we declare a victory for the free market. Here's a brief discussion of two.

The two versions of the Coase theorem presented earlier ignore the possibility that the bargaining outcome creates wealth for the owner of the property right. If I have the right to clean air, any income I receive from selling that right might increase my demand for clean air. Just like getting a raise at work increases my demand for eating out; getting more money from selling my right to clean air might increase my demand for clean air. Likewise, increased profits to the polluter from selling pollution rights might increase the demand for emissions. Similar to the transaction cost case, the final emissions outcome depends on the initial allocation of property rights.

Further, the increase in profits from selling the property right might lead others to want to take advantage. If firms are free to enter the market, the assignment of property rights to the firms and the resulting profits from the sale of those rights creates an incentive for other polluting firms to enter the market. Similarly, assigning property rights to the victim, and creating wealth through bargaining, creates incentives for new victims to enter the market; for example, more people might move into a polluted neighborhood as a result of the increased wealth from the sale of property rights. The simple versions of the Coase theorem assume away entry by both new firms and new victims.

The Coase theorem is usually presented separately from other incentive-based solutions to environmental problems. However, the real beauty of the Coase theorem is that it focuses attention on the assumptions needed to make incentive-based solutions work or fail. Wealth effects are not unique to bargaining solutions: taxes and subsidies have the same problem. Taxes on pollution create potential wealth for the victim, and abatement subsidies create wealth for the polluter. If victims are compensated proportionately to their damages, they will have the incentive to incur more damages. Similarly, subsidies create a potential incentive for new firms to enter a polluting industry.

The conditions highlighted by the Coase theorem are not unique to bargaining solutions, and that is the real benefit of talking about Coase. Instead of trying to figure out the right amount of pollution, we now focus our attention on the set of conditions that help or hinder market-based solutions to environmental problems.

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See also: Coase, Ronald; Coase Theorem, Property Rights, and Endowment Effect; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics; Welfare Economics; *Vol. 2: Macroeconomics:* Externality; Property Rights; *Vol. 4: Global Economics:* Subsidies

Further Reading

Coase, Ronald H. 1960. The problem of social cost. *Journal of Law and Economics* 3 (1): 1–44.

COASE THEOREM, PROPERTY RIGHTS, AND ENDOWMENT EFFECT

The Coase theorem consists of a theoretical construction proposing a solution to the inefficient allocation of resources in society when competitive markets fail. In place of efficient competitive markets, the Coase theorem requires well-defined and enforced property rights and sufficiently low transaction costs. In such an environment, individuals can negotiate to a socially efficient allocation of resources in which the outcome of negotiations is mutually beneficial (Coase 1960). In this context, well-defined property rights imply that (1) the resources in question are exclusively owned by one party, either private or collective, who accrues all the privileges and obligations of the resource; (2) the owner can exchange these rights voluntarily; and (3) involuntary seizure by other parties, including the government, is prevented altogether (Hanley, Shogren, and White 2007).

The characteristics of rivalry and excludability in consumption determine whether a resource is referred to as private, public, or common pool. Resources being rival/excludable and nonrival/nonexcludable correspond to the private and public goods categories, respectively. Common-pool resources are rival and nonexcludable; the latter determines that, in the absence of effective property-right regimes, the property conditions for the Coase theorem are violated and the resources are overexploited, as in the case of open-access resources (Ostrom 1994), known as the tragedy of the commons. Experimental studies on the efficient management of common-pool resources are abundant and generally consistent with the principles proposed by Ostrom (1994) that success depends on the information and transaction costs of achieving a credible commitment among users, the existence of collective rules for self-monitoring, violators' sanctioning, resource appropriation and exclusion, and the institutional scheme being designed locally, not by an external authority. Reciprocity, reputation, and trust among resource users are behavioral traits that contribute to overcome the open-access problem (Ostrom 1998).

Under neoclassical rational choice theory and when income effects are small, willingness to accept (WTA) for selling a good and willingness to pay (WTP) for acquiring the same good are the same. This is a fundamental assumption for the validity of the principle of the Coase theorem. That is, the efficiency of the negotiated allocation depends on the existence and enforcement of property rights, not on the identity of the owner. However, evidence from experiments in laboratories and the field consistently support the existence of a gap between WTA and WTP. The difference between these two measures is known as the *endowment effect* and implies that people value a good more once it is in their possession.

Kahneman, Knetsch, and Thaler (1990) provide a series of experiments that clarify the causes and implications of the endowment effect. Strategic mistakes by bargaining parties (sellers rewarded by increasing WTA and buyers by reducing their WTP), considerations of the illegitimacy of the transaction that increase WTA, and subjects' misunderstandings are ruled out as determinants of endowment effect. Instead, reference positions on preferences, status quo biases that emerge from previous transactions or expectations, and loss aversion explain the existence of the endowment effect. As a consequence, the set of mutually acceptable trades in a bargaining situation shrinks and the efficient solution becomes more difficult to achieve.

Evidence suggests that the endowment effect is persistent even when income effects are small; it is persistent in the short and long term; it cannot be eliminated by training, experience, or market discipline; and it plays no role when perfect substitutes at lower prices are available. Kahneman, Knetsch, and Thaler (1990) find that the endowment effect plays no role with induced-value tokens, but it makes a great difference in valuation when goods are traded (e.g., coffee mugs).

Therefore, although the implementation of the Coase solution can survive the existence of transaction costs (up to a point) and the need for enforcement of property rights, the experimental evidence weakens the robustness of the Coase theorem in the presence of behavioral phenomena.

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Oscar Zapata

See also: Coase, Ronald; Coase Theorem; Status Quo Bias; Tragedy of the Commons; *Vol. 1: Foundations of Economics:* Behavioral Economics; Endowment Effect; *Vol. 2: Macroeconomics:* Ostrom, Elinor

Further Reading

Coase, R. H. 1960. The problem of social cost. *Journal of Law and Economics* 3: 1–44.
Hanley, Nick, Jason F. Shogren, and Benedict White. 2007. *Environmental economics in theory and practice*, 2nd ed. London: Palgrave Macmillan.
Kahneman, Daniel, Jack L. Knetsch, and Richard H. Thaler. 1990. Experimental tests of the endowment effect and the Coase theorem. *Journal of Political Economy* 98: 1325–48.
Ostrom, Elinor. 1994. Neither market nor state: Governance of common-pool resources in the twenty-first century. *International Food Policy Research Institute (IFPRI)*, Lecture Series number two. Washington, DC: IFPRI.
Ostrom, Elinor. 1998. A behavioral approach to the rational choice theory of collective action. *American Political Science Review* 92: 1–22.

COLLATERALIZED DEBT OBLIGATIONS

Collateralized debt obligations (CDOs) were created in the late 1980s and played a prominent role in the financial crisis of 2008. A CDO is a security whose value is collateralized (i.e., “backed”) by a pool of underlying fixed-income assets. Meant to reduce the risk of nonpayment, the CDO compartmentalizes prepayment risk by distributing cash flow over a series of classes, called *tranches*, that pay investors at different times and at different rates. About 40 percent of CDOs consisted of residential mortgage-backed securities (RMBS), and three-quarters of those were subprime loans and home-equity loans with a higher risk and a lower lien status. Much of the subprime trouble was caused by mortgage fraud and falsifications of credit reports, which helped to fuel the increase in home prices. As a result, credit scores, loan-to-value ratios, and ownership status became less reliable as indicators of actual creditworthiness. As more and more homeowners faced foreclosure, defaults skyrocketed and the value of many CDOs plunged. In the wake of the financial crisis, many investors claimed they were unaware the mortgages upon which their debt vehicles were based were at such a high risk of default.

CDOs are divided into tranches containing securities with varying degrees of risk. When homeowners make payments on their mortgages, the money is directed to the investors of each tranche. The “senior” tranche contains the safest securities (lowest risk). Payments are made in order of seniority, so the most junior tranche (otherwise known as the equity tranche or “toxic waste”) is at greatest risk

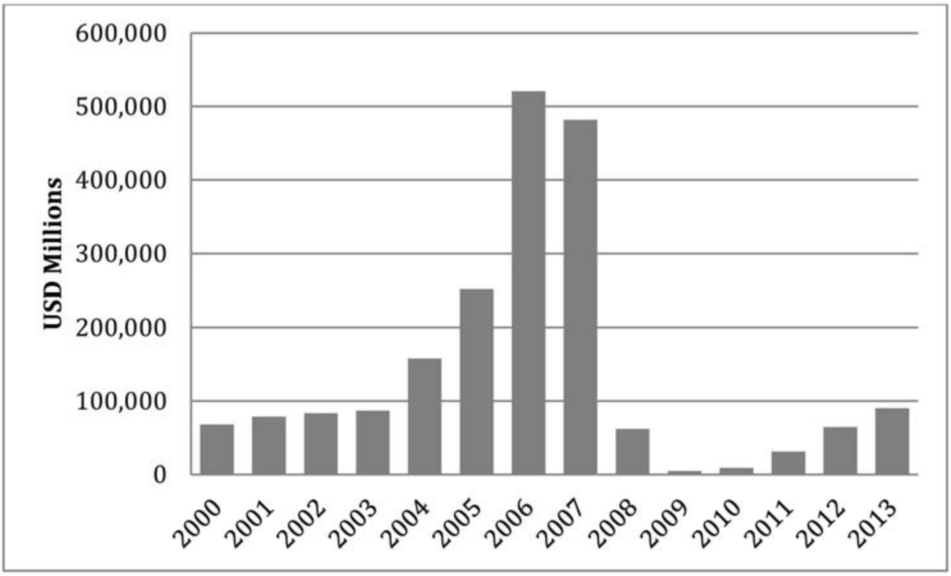

Figure 1. Global CDO issuance (SIFMA)

of not receiving a payment; it also offers the highest coupon payments to offset the increased risk of such a default.

For decades the government has made easy lending to low-income homebuyers a policy priority. The George H. W. Bush administration, the Clinton administration, the George W. Bush administration, Congress, and the U.S. Department of Housing and Urban Development all pushed government-sponsored mortgage companies Fannie Mae and Freddie Mac to encourage more and more subprime loans to low-income homebuyers. In the late 1990s, Fannie and Freddie rapidly increased their purchases of mortgages and securitized mortgages (also known as mortgage-backed securities) from the private-sector banks and mortgage companies.

The housing market first showed signs of weakness in 2006. With the housing bubble pushing inflation higher, the Federal Reserve raised interest rates in an effort to contain it. The cost of borrowing rose, and borrowers found they were no longer able to meet their mortgage payments; many people were forced to walk away from their homes and default on their mortgages. Lenders then sold these houses (the underlying security), but a declining housing market reduced the value of the securities. At this point, traders of CDOs looked for new ways to package the risk and generate additional business, making the financial crisis of 2008 far deeper and more devastating than it would otherwise have been. The CDO trading desks of Merrill Lynch, Citibank, and UBS have been cited as the biggest culprits of increasing trades of CDOs well into 2007. In spite of their high default rate during the financial crisis, global use of CDOs has been making a comeback over the past few years.

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See also: Federal Home Loan Mortgage Corporation (Freddie Mac); Federal National Mortgage Association (Fannie Mae); Interest Rates; Subprime Mortgage Bubble and Crisis; *Vol. 1: Foundations of Economics:* Investing

Further Reading

Bates Research Group. n.d. CDOs explained. https://www.batesresearch.com/BR_Publications/CDOExplained/CDO%20Explained.pdf (accessed February 14, 2015).

Kelman, Andrew. 2002. Mortgage-backed securities. *Community Investments* (March). http://www.frbsf.org/community-development/files/mbs.pdf (accessed February 14, 2015).

Thismatter.com. n.d. Collateralized mortgage obligations. http://thismatter.com/money/bonds/types/collateralized-mortgage-obligations.htm (accessed February 14, 2015).

Wolfe, M. n.d. What is a collateralized mortgage obligation & how are they created? http://homeguides.sfgate.com/collateralized-mortgage-obligation-created-2974.html (accessed February 14, 2015).

COMMODITIES

Historically, precious metals have been a primary form of value storage. After fiat money was introduced, it became common practice to exchange excess funds for gold, silver, and even diamonds. While it is less prevalent in the United States, this practice is still common in developing countries, especially those that have emerged from wars and other conflicts that devastated their economies. So, utilization of commodities is typically associated with instability.

Commodities do not generate additional value or cash flows in the future. People buy commodities today in the hope that in the future they can sell them for the same price or higher. This, in essence, is more speculation than investment. I will use the term *speculation* rather than *investment* to separate these two activities.

Commodity speculation has become increasingly common and involves more commodities than precious metals such as gold and silver, which have been used throughout history. The advances in the futures market allows many different classes of assets to be used for speculative purposes by individuals who are not directly involved in their production or use. Agriculture futures such as in coffee, wheat, corn, soybeans, lean hogs, and feeder cattle are some of the more commonly used futures contracts. The frozen orange juice market was the background for the cult-classic movie *Trading Places*, starring Dan Aykroyd and Eddie Murphy. A lesser-known commodity is also available in the futures market: mung beans. Many people don't know what a mung bean looks like, but it is a very popular agriculture commodity in China and the United States is one of its largest producers. You have most likely encountered mung beans without realizing it; the bean sprouts you see in the supermarket are from mung beans!

The precious metals market for gold and silver is very well developed. Not only can you hold the physical metals, you can also participate in the futures markets. As the world's economy becomes more industrialized, the needs for various metals also increases. This has been the driving force behind the growth in other precious metals markets, such as copper, aluminum, and rare metals. These commodities are essential for many industrial products, and price fluctuations significantly affect their material cost.

If you're not a true user of a particular commodity, you are a speculator. Imagine that you want to participate in corn futures because you think the price of corn will go up. If you are a corn user, buying corn futures allows you to lock in the price today. Likewise, if you're a corn producer, you can lock in a selling price for your products today. But if you're neither a producer nor a user, the only way you can profit is if the other side is wrong about future price fluctuations. By buying corn futures (establishing a long position), you're betting that the producers are wrong about the future price, and you're essentially providing an insurance policy for the price of corn for the producers. Likewise, if you established a short position in corn futures, you can only make money if the corn price turns out to be lower in the future. So, if you make money, it is either because the users are wrong about the price in the future or the other speculators are wrong. Either way, by participating in the commodity market, you essentially become an insurance underwriter for the commodity price.

The traditional argument for including commodities in an investment portfolio is that they typically have low correlation with the stock and bond markets. But using past correlation relationships as a guide to asset allocation is dangerous because this can change drastically as more and more people participate in these markets. And since most of these markets are relatively small, additional small outflows and inflows of funds can have a large effect on price movements. Furthermore, the historical return for commodities is poor by any standard. Even with its recent surge in price, gold's historical return is no better than inflation. Other more recent commodities provide not much higher return than medium-term treasury bonds.

The reasons for the low return over the long run are many. But the main reason is that most investors are led into buying commodities when their prices have risen drastically. When more funds are put into these markets, the price for the related commodities might rise in the short to intermediate term, but that could be driven by increases in demand from funds and not changes in fundamentals. As the fundamental conditions eventually return, the price will reflect the real demand and price momentum could reverse.

Participation in the commodities market is also incredibly risky. The risk comes from two sources: leverage and ease of market manipulations. To participate in the commodity futures market, you do not have to put up 100 percent of the fund for any specific contracts. Each commodity futures contract has its own requirement, set by the future exchange it is traded in. The typical requirement is less than 20 percent (a much lower margin requirement than for gold). So, your position will have at least 400 percent leverage. That means if the price declines by less than 20 percent, your initial investment could be completely wiped out.

Market manipulations, while less common due to increases in market regulations and enforcement, are nonetheless a real danger for small investors who choose to participate in commodity futures. The movie *Trading Places* tells the story of a futures broker that manipulates frozen orange juice futures by issuing false weather reports after it has established a strong position in the market. The

Brazilian government cornered the coffee market in the 1910s. The Hunt brothers (the Lamar Hunt Trophy, awarded to the winner of the NFL's AFC division, was funded by one of the brothers involved) were found guilty of cornering the silver market in the 1970s. More recently, the Vitol Group, a large hedge fund in the commodity market, was sued by the U.S. Commodity Futures Trading Commission for manipulating the oil futures market.

Furthermore, commodity markets typically generate a higher degree of interest after a large price surge. Since the oil price surge in 2006, most commodities have reached historic price levels. What is the chance of the price continuing to grow at such a high rate? Not likely. So, the chance of a negative return is also high.

Contrary to traditional finance theory, the commodities market is not an ideal market for individual investors due to the high degree of risk and low return. There are more and more mutual funds and exchange traded funds that specialize in the commodity market. These funds typically have lower risk than investing in the actual commodity or the futures markets. Still, the level of risk in these funds is very high. Some of these funds are also leveraged (they can do so due to regulatory loopholes) and present significantly higher risk.

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See also: Commodities Exchange Act of 1936; Derivatives; Hedge Fund; Market Risk; Markets; Mutual Funds and Exchange Trade Funds; Risk; Risk Premium; *Vol. 1: Foundations of Economics:* Investing; *Vol. 2: Macroeconomics:* Inflation; Treasury Securities; *Primary Document:* Commodities Exchange Act of 1936

Further Reading

Eichenwald, Kurt. 1989. 2 Hunts fined and banned from trades. *New York Times* (December 21). http://www.nytimes.com/1989/12/21/business/2-hunts-fined-and-banned-from-trades.html (accessed September 30, 2016).

Kirkland, Joel. 2014. Price-rigging probes jammed by oil industry bid to protect its secrets. *E&E News* (January 17). http://www.eenews.net/stories/1059993123 (accessed September 30, 2016).

New York Times. 1914. How Brazil cornered the world's coffee market. *New York Times* (May 25). http://query.nytimes.com/mem/archive-free/pdf?res=F70A17F63B5E13738DDDAF0A94DD405B828DF1D3 (accessed September 30, 2016).

COMMODITY EXCHANGE ACT OF 1936

Initially passed in 1936, the Commodity Exchange Act established federal regulation on all future trading activities and served as the successor to an earlier legislation that had proved to be ineffective in stopping the manipulation of commodity prices. Although the Commodity Exchange Act has been amended several times, and in its original form was found to be a flawed mechanism for regulating commodity markets, it has played an important role in history.

Prior to the enactment of the law in 1936, Congress adopted the Future Trading Act of 1921, which required all commodity futures trading to be conducted on an exchange licensed as a market by the federal government. This requirement was designed to allow federal regulation of trading commodity futures and to stop the speculation in commodity pricing.

In refute to the 1921 act, the Commodity Exchange Act prohibited the manipulation of commodity future prices while also maintaining that commodity futures be traded strictly on licensed contract markets. Fraud was prohibited, and brokerage firms handled customer orders; these were known in the industry as future commission merchants and were required to be registered with the federal government. The Commodity Exchange Commission was in charge of administering the Commodity Exchange Act and was composed of the attorney general and the secretaries of agriculture and commerce.

Moreover, daily regulatory responsibilities were delegated to the Grain Futures Administration, a bureau within the Department of Agriculture. Contrary to previous legislation adopted in the securities industry, no authority was given to the government to control the level of margins in the futures industry. Instead, the government was given the authority to limit the size of speculative positions of individual traders. The Commodity Exchange Act also sought to stop commodity options trading on regulated commodities, seeing such practices as highly speculative.

The Commodity Exchange Act proved to be ineffective in stopping manipulations or speculative abuses. One flaw in particular allowed the trading of options and futures on unregulated commodities, or those not listed in the Commodity Exchange Act. It was not possible for the act to be amended fast enough to keep up with the expansion of trading in options and futures on those unregulated commodities. In the early 1970s, this led to a large loss when unregulated commodity option firms collapsed, causing losses to many unsophisticated customers.

The large increase in commodity prices during that time raised concern in Congress and resulted in the Commodity Futures Trading Commission (CFTC). The CFTC is an independent federal agency that is meant to function much like the Securities and Exchange Commission (SEC).

The CFTC took over the powers of the Commodity Exchange Commission and was given additional powers, including the authority to impose civil penalties for each violation of the CFTC rules.

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See also: Commodities; *Vol. 2: Macroeconomics:* Department of Commerce

Further Reading

FCM 360. n.d. Commodities Exchange Act of 1936 causes prime brokers to close thousands of FX traders accounts. legcounsel.house.gov/Comps/Commodity%20Exchange%20Act.pdf (accessed March 15, 2016).

Markham, Jerry W. 2004. Commodities Exchange Act (1936). Major acts of Congress. Farmington Hills, MI: Gale Group. Encyclopedia.com. www.encyclopedia.com/topic/Commodity_Exchange_Act.aspx (accessed March 15, 2016).

U.S. Commodity Futures Trading Commission. n.d. Commodity Exchange Act. www.cftc.gov/lawregulation/commodityexchangeact/index.htm (accessed March 15, 2016).

COMMON PROPERTY AND COMMON-POOL RESOURCES

Goods and services can be classified based on their degree of excludability and subtractability. Excludability refers to an agent's ability to exclude others from consuming a good or service. For instance, upon purchasing a new vehicle one can exclude others from driving one's car via the legal rights conveyed with the purchase and the enforcement of those laws by the government. Subtractability refers to the degree to which one's consumption of a good reduces the ability of others to consume the good as well. For instance, if you have a pack of gum and you consume a piece, it reduces the amount available to either you or others by the unit consumed.

Goods and services that are excludable and subtractable are defined as private goods and services; ones that are excludable but nonsubtractable are deemed to be toll goods or services; ones that are nonexcludable and nonsubtractable are public goods and services; and those that are nonexcludable and subtractable are common-pool resources. In environmental economics, common-pool resources play a central role in the management of the environment. Examples of resources that are conventionally viewed to be common-pool resources are fisheries, oil reserves, and the atmosphere; these have all received considerable attention with regard to their efficient utilization.

The idea of the commons was popularized by Garrett Hardin's "Tragedy of the Commons" in which he outlined the incentive structure that results in the dissipation of resource rents within the commons: "Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons" (Hardin 1968, 1244). As an example of the incentive problem, he described a common grazing area in which agents are free to let graze as many cattle as they wish. He outlined that there are two components to the decision to add another head of cattle to the grazing area: (1) the utility gain of having another head of cattle to sell after grazing in the commons and (2) the disutility of overgrazing resulting from adding an additional head of cattle to the commons. Given that the disutility of adding an additional head of cattle is shared by all, whereas the utility gains of selling the head of cattle are private and borne solely by the decision agent, a rational decision-maker will add another head of cattle to the commons. Given this incentive structure, Hardin envisioned a commons area becoming overgrazed to the point at which it is no longer a viable grazing area for cattle; the rents would be completely dissipated.

Hanley, Shogren, and White point out an important distinction that needs to be made between common-pool resources and open-access resources. The commons, as referenced in Hardin's work, represents an environmental asset. A common-pool resource refers to the governance structure that endeavors to exclude some agents from the commons. On the other hand, open access implies a lack of governance that allows agents access to the commons. In Hardin's discussion, the rent dissipation is a result of open access to the commons; however, in a number of situations, governance structures and rights regimes have arisen that limit the dissipation of the resource rents in common-pool resources. Central to the development of these governance structures is an effort to create some degree of excludability in the commons because it transforms the commons to a private good.

A resource that well illustrates the tragedy of the commons as well as the problems that arise from open-access and common-pool resource governance is fisheries. H. Scott Gordon's seminal contribution to the fisheries literature analyzed the incentive structures present in the commons when fishermen have open access to the resource. Gordon illustrated that in the commons, the objective of fishermen is to equate total revenues with total cost versus maximizing the difference between the two. He furthermore outlined that in a spatial context, the fishermen's primary concern is the average productivity on a fishing ground versus the marginal productivity relative to the other fishing grounds they can fish. In equilibrium, the average productivity is equal across fishing grounds and fishermen may actually fish some grounds even when marginal productivity is negative. The incentives problem is well illustrated in his statement, "the fish in the sea are valueless to the fisherman, because there is no assurance that they will be there for him tomorrow if they are left behind today" (Gordon 1954, 135). This incentive problem is generated because the resource is not excludable; in the absence of a governance structure, a fishery is an open-access resource.

Gordon further discussed that the most efficient utilization of a fishery will occur when there is a sole owner of the resource. This is because the resource becomes excludable and the traditional marginal analysis, that which maximizes the rents derived from the resource, may be achieved. Expanding on the notion of sole ownership, Anthony Scott argued that sole ownership was not the only requirement to ensure the efficient use of the fishery and that the tenure of the rights need to be over the long run. If the rights were only for the short run, the sole owner would have a similar incentive to overexploit the resource, whereas in the long run the benefits of conservation and dynamic resource management could be ensured. The dynamically optimal use of a fishery was later theoretically illustrated in the seminal work of Colin Clark and Gordon Munro.

Sole ownership does not necessarily imply that only one agent has exclusive control of the resource. The efficient utilization of the resource can be similarly obtained by privatizing the resource using property rights. However, privatization is not the only governance structure that can be used to efficiently govern the commons. Other institutions are Pigouvian taxation and collective governance. The central theme of these governance structures is that they try to invoke some degree of excludability that is enforced via a formal or informal governance structure. The central benefit of privatization is that the owners of the resource can trade among themselves in a Coasian manner in an effort to ensure that the most efficient use of the resource is achieved. On the other hand, Pigouvian taxation seeks to internalize the costs imposed onto others via a tax that aligns the private incentives of an agent in the commons with the incentives generated under sole ownership. Lastly, collective governance has been well illustrated in the work of Elinor Ostrom; it relies on local communities to establish small-scale governance structures to identify the users and management of a resource.

An excellent real-world example of the role that privatization has played in the efficient use of the commons is the recent Bering Sea Crab Rationalization Program (BCRP). The BCRP was enacted in 2005 and allocated rights (defined as limited access privileges) to those fishermen operating within the federally managed crab fisheries of Alaska. Prior to the creation of this policy, there were approximately 250 vessels in the red king crab fishery and nearly 180 vessels in the snow crab fishery and the fishing season was only a few days long. These statistics are indicative of the rampant overcapacity in the race to fish generated by having open access to the commons. Following the creation of the BCRP, the number of vessels participating in the red king crab and snow crab fisheries contracted by approximately 65 and 53 percent, respectively, and their respective season lengths began to be measured in terms of months, all generating a more efficient use of the resource (Schnier and Felthoven 2013).

The ability of collective governance to manage the commons has been well illustrated in the work of Elinor Ostrom. She defined a number of key components that are central to the ability of a common-pool resource institution to effectively manage the commons. Bergstrom consolidated these factors into eight features that he defined as: (1) clearly defined resource boundaries; (2) appropriation rules defined for the specific community; (3) rules for collective choice; (4) the existence of monitoring and compliance; (5) penalties for noncompliance that vary depending on the gravity of the infraction; (6) access to conflict resolution mechanisms; (7) minimal recognition by national or regional government; and (8) multiple layers of governance for complex commons. Evidence of the effective utilization of collective governance is well illustrated in numerous case studies with contexts ranging from common grazing areas and water allocation regimes to small-scale fisheries.

Kurt E. Schnier

See also: Hardin, Garrett; Tragedy of the Commons; *Vol. 2: Macroeconomics:* Ostrom, Elinor; Property Rights; Public Goods

Further Reading

Bergstrom, T. C. 2010. The uncommon insight of Elinor Ostrom. *Scandinavian Journal of Economics* 112 (2): 245–61.

Clark, C. W., and G. R. Munro. 1975. The economics of fishing and modern capital theory. *Journal of Environmental Economics and Management* 2 (2): 92–106.

Gordon, H. S. 1954. The economic theory of a common-property resource: The fishery. *Journal of Political Economy* 62 (2): 124–42.

Hanley, N., J. F. Shogren, and B. White. 1997. *Environmental economics in theory and practice*. New York: Oxford Univ. Press.

Hardin, G. 1968. The tragedy of the commons. *Science* 162 (3859): 1243–48.

Ostrom, E. 1990. *Governing the commons: The evolution of institutions for collective action.* New York: Cambridge Univ. Press.

Schnier, K. E., and R. G. Felthoven. 2013. Production efficiency and exit in rights-based fisheries. *Land Economics* 89 (3): 538–57.

Scott, A. 1955. The fishery: The objective of sole ownership. *Journal of Political Economy* 63 (2): 116–24.

CONSUMER CREDIT AND DEBT

Consumer debt is defined as money borrowed to purchase goods or services. Consumer debt is incurred using a credit card or a store payment plan. When one buys anything with a credit card, such as clothes, electronics, or a dinner out, one incurs consumer debt until the balance due on the credit card is repaid. The terms *consumer debt* and *consumer credit* are sometimes used interchangeably, although they have slightly different meanings. Specifically, debt is an obligation incurred by the consumer. Consumer credit is offered so the borrower can buy now and pay later. Both terms involve buying consumer goods today with the obligation to pay for the items in the future.

Consumer credit is easily identified as money borrowed to purchase consumer goods with a credit card or payment plan. For example, a credit card gives the holder credit to buy goods and services up to a certain amount. This credit is actually a loan or debt. Consumer credit does not include borrowing money to buy a home but does include the big-screen television in the home's family room. In general, consumer credit is used with purchases that depreciate (decline) in value, such as cars, personal goods such as clothing, restaurant meals, and vacations.

Problems with Consumer Credit and Debt

It is quite easy to obtain a credit card to purchase goods and services on credit. The problem arises when the bill arrives. Payments are due every month for charges made on a credit card or payment plan. If the charges incurred during the month are not paid in full at the end of the month, the consumer is required to pay a portion of the total amount due, called a minimum payment. Any amount that is left unpaid incurs a charge that is carried over to the following month. The credit card company adds additional interest to the total charges. The cycle continues, and every subsequent month the bill is not paid in full, additional interest is incurred. Consumers who choose to pay the minimum on a credit card or payment plan and continue to accumulate additional consumer debt may ultimately pay double or more than the cost of the original charge.

There is a nationwide epidemic of failure to pay credit card bills in full. Many citizens continue to add to their consumer debt/credit over time and end up owing a lot of money to the credit card companies. The Federal Reserve Bank keeps track of consumers' debt as compared to their disposable (after-tax) income. This household debt service ratio (DSR) is considered an estimate of what percentage of a homeowner's or renter's after-tax income goes toward consumer debt repayment. For example, homeowners' consumer debt as a percentage of total disposable income ranged from 4.81 percent in 1982 to 6.39 in 2005. Renters had much higher consumer debt levels according to the Federal Reserve Board's *Household Debt Service and Financial Obligations Ratios* (2013). According to the New York Federal Reserve Bank, in the first quarter of 2013, aggregate consumer debt was $2.7 trillion. In 2013, the consumer debt level was $.58 trillion above its trough of $2.12 trillion in the first quarter of 2004. These debt levels include student loans, credit card debt, auto loans, and delinquencies.

Consumer credit and debt are integrated into societal consumption patterns in the modern world.

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See also: Credit Cards; Credit Cycle; Debt Collection; Debt and Credit Counseling; *Vol. 1: Foundations of Economics:* Bankruptcy; Budget; Financial Literacy; Interest Rates; *Vol. 2: Macroeconomics:* Debt

Further Reading

The Federal Reserve Bank of New York. n.d. Household debt and credit report. http://www.newyorkfed.org/householdcredit/ (accessed July 16, 2013).

The Federal Reserve Board. n.d. Household debt service and financial obligations ratios. http://www.federalreserve.gov/releases/housedebt/ (accessed June 17, 2013).

COOPERATIVE ORGANIZATIONS

"A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise" (International Cooperative Alliance, 1995).

Cooperative firms are business enterprises exercising collective governance, ownership, and decision-making. Cooperative members typically actualize their membership and control rights based on the user relationship with the cooperative. Cooperatives take many forms depending on their members and purpose. They exist as agricultural cooperatives, consumer cooperatives, housing cooperatives, worker cooperatives, financial or insurance cooperatives, service cooperatives, as well as multistakeholder cooperatives that encompass more than one type of member. A cooperative may be formed to coordinate activities and achieve favorable prices for its members' products or purchases, as is often the case in agricultural and consumer cooperatives. Worker cooperatives, on the other hand, are about creation of meaningful employment at a "living wage," and, often, about social justice.

The nature of cooperative organization and function is both social and economic. As collective problem-solvers, co-ops are known to possess a dual character: on the one hand, they are businesses driven by economic incentives and competition, while on the other they are associations with a social purpose and character. Cooperatives have often been portrayed by their members as businesses that combine a social mission with their economic goals, placing them in the category of enterprises operating in the social and solidarity economy. Connections to the social economy stem from the cooperative's purpose, its *modus operandi*, or both. When they deliver a product with a social purpose, such as public goods or services, they are more readily understood as social enterprises. In other cases, they fill the gap left by market or government failure to deliver a product or a service to a particular constituency.

Regardless of their purpose, cooperatives hold a special place in the economy as the only type of enterprise with well-defined ethical values and principles and a global social movement behind it. Seven International Cooperative Alliance principles of cooperation guide the international cooperative movement: (1) voluntary and open membership; (2) democratic member control; (3) member economic participation; (4) autonomy and independence; (5) education, training, and information; (6) cooperation among cooperatives; and (7) concern for community. Cooperative principles and values can be viewed as the crux of competitive advantage for cooperative enterprises and a source of cooperative business strategy.

Cooperative objectives are as varied as their membership bases, but more often than not they are rooted in social justice issues, ranging from job security and solidarity, through a "fair" price for their products in imperfect markets, or fair trade in international supply chains. A worker cooperative is a social network in which solidarity, equity, equality, and democratic governance are some of the guiding principles. In this case, and contrary to the dominant views in neoclassical economics, nonpecuniary incentives for a worker-member often offset the importance of the monetary gain. Trusting relationships, reciprocity, and values of equity and liberty play key roles in cooperatives and their networks (Zamagni and Zamagni 2010, 28). The strength of the cooperative is determined in the amount of social capital created, which is essential for effective collective entrepreneurship and collective governance. Cooperatives rely on participatory decision-making and on democracy as associations but also on upholding the subordinate role of capital as people-centered businesses. The user-control component separates them from investor-owned and -controlled enterprises as cooperative capital is a means to realize member-defined objectives and is typically not traded in the secondary capital market. A part of cooperative capital is also nondivisible, ensuring their longevity and adaptability as well as maintaining their collective character.

In the institutional-economic context, cooperatives are hybrid organizations lying on the continuum between markets and hierarchies, forming networks to reach scale economies and reap the benefits of cooperation in imperfectly competitive markets. Network governance is key to cooperation, but it also poses a challenge. Self-defined rules together with their self-enforcement are critical components of cooperative success.

Sonja Novkovic

See also: Dual Motives Theory and Dual Interest Theory; Game Theory; Trust Game; *Vol. 1: Foundations of Economics:* Behavioral Economics; Golden Rule and Behavioral Economics; Social Capital and Behavioral Economics

Further Reading

International Cooperative Alliance. 1995. What is a cooperative? http://ica.coop/en/what-co-operative (accessed September 30, 2016).

Novkovic, Sonja. 2008. Defining the cooperative difference. *Journal of Socio-Economics* 37: 2168–77.

Smith, Stephen C. 2004. Network externalities and cooperative networks: Stylized facts and theory. In *Ownership and Governance of Enterprises. Recent Innovative Developments*, ed. Laixiang, 181–201. London: Palgrave Macmillan and UNU/WIDER.

Zamagni, Stefano, and Vera Zamagni. 2010. *Cooperative enterprise: Facing the challenge of globalization.* Cheltenham, UK; Northampton, MA: Edward Elgar.

CORNING GLASS WORKS V. BRENNAN

Traditionally, women have struggled to gain equality with men in the workplace. The wage gap has been lessening since the Fair Labor Standards Act of 1938, but despite such federal legislation, pay disparities have continued between female and male workers and in various demographic groups. *Corning Glass Works v. Brennan,* 417 U.S. 188 (1974), was the first time the Supreme Court considered an Equal Pay Act claim based on an employer paying women less than men for the same work. While some wage discrepancies are due to differences in occupation, experience, skills, and other legitimate factors, there is still a considerable gap between men and women that exists without explanation. This case is a milestone in the long journey to remedy this market phenomenon. It determined that wage differences between female and male workers for the same work violated the Equal Pay Act of 1963.

Case Summary

Adam Smith expressed in *The Wealth of Nations* (1776) that the compensation of workers was the encouragement of production. Historically, women have struggled with enormous wage disparities. This unfair discrimination throughout the 19th century was exceptionally difficult for women. However, during the 20th century, much was accomplished. The Industrial Revolution ushered in manufacturing and commercial industries and moved women into the labor force in unprecedented numbers. The sweatshops and factories where women earned their wages were not always safe and secure environments. Work for women varied, but their pay remained unequal to that of men.

Corning Glass Works was a glass company started by Amory Houghton Sr. in the 1800s. Houghton helped Thomas Edison make the electric light a business success by producing the first glass light bulbs. Ever since, the company has invented and built an assortment of items, from baking dishes to missile nose cones. Corning's home office is in Corning, New York. In addition, Corning opened a plant in Wellsboro, Pennsylvania. In 1925, Corning plants operated production during the day and hired women to inspect the finished products. By 1930, Corning upgraded its manufacturing process and needed to hire night-shift inspectors to keep pace with the increased productivity. This included an additional night shift. However, New York and Pennsylvania state laws did not allow women to work at night. Furthermore, inspecting finished products had been the main job held by women and was labeled by male coworkers as "women's work." Men expressed the attitude that night-shift inspection work was demeaning, and they did not want to take a job that earned a woman's pay. Corning signed up men to work the night shift by agreeing to pay them more than their daytime female counterparts. In 1944, unionization of Corning Glass Works brought collective bargaining agreements that took the pay disparity away from day-shift workers but did not end the higher pay for night-shift inspection workers due to prohibitions still in place pertaining to women working between the hours of midnight and six in the morning.

In 1963, President John F. Kennedy signed the Federal Employees and Labor Laws Equal Pay Act of 1963 (EPA) as part of his New Frontier program. In passing the act, Congress added to the Fair Labor Standards Act of 1938. The act stipulated that companies were to pay men and women equally for similar work. By 1953, laws prohibiting women working at night had been rescinded in both states. After midyear of 1964, the Equal Pay Act was in effect, and the better-paying night inspection jobs opened up to women through process and replacement. In 1969, Corning agreed to pay day-shift and night-shift inspectors the same wage. However, there was an exception made for workers who were hired before 1969, most of whom were men, which still allowed them to earn wages higher than the day-shift inspectors. In the view of Secretary of Labor Peter Brennan, this clearly constituted a violation of the Equal Pay Act. Brennan filed two lawsuits, one in New York and one in Pennsylvania, claiming in each that Corning had violated the act. The New York plant cases were heard in the Court of Appeals for the Second Circuit and found that Corning was in violation of the EPA for paying different wages to men and women doing the same job for no other reason except gender. However, the Court of Appeals for the Third Circuit heard the Pennsylvania plant cases and reached the opposite conclusion. There was no violation, in its opinion, because night work was different from day work; time of day thereby created a pay differential, not gender.

In *Corning Glass Works v. Brennan*, the Supreme Court was asked to reconcile the conflict between two federal circuit courts, both involving cases against the Corning Glass Works plants in regard to wage inequities. The Supreme Court granted certiorari (a request by the Supreme Court to the lower court for the files of the case to be sent up for review). Corning Glass Works argued that the Equal Pay Act said companies could pay employees different wages if they worked under different conditions. The company claimed that working the night shift was less desirable and therefore constituted different conditions. The attorney for the labor secretary argued that “condition” referred to manufacturing facility and environment, not the time of day one worked. Furthermore, this was, in the opinion of the Department of Labor, a blatant case of gender discrimination, and short of equalizing pay, there was no other remedy.

In question was what the Equal Pay Act included as working conditions. In this case, it was incumbent upon Corning Glass Works to show that the facts of the case fit within one of four exceptions that did not constitute discrimination of pay. Those included a seniority system; a merit system; a system based on the amount or quality of production; and some other factor besides gender. Corning chose to emphasize the last exemption. It claimed that working at night was a different condition than working during the day. In addition, it claimed that the men were also paid more due to seniority. The burden was too much. In a 5–3 vote, the Supreme Court ruled that different times of day did not fit the exemption status. The Court stated that the act was clear in stating that working conditions included physical surroundings and hazards. The seniority system only served to perpetuate past discrimination. Justice Thurgood Marshall delivered the majority opinion, stating that the Equal Pay Act was constructed to end the idea that men could get paid more for doing the same work as women because of their role in society.

However, Chief Justice Burger joined with Justice Blackmun and Justice Rehnquist to write the dissenting opinion. He argued that the laws of New York and Pennsylvania had established barriers that did not allow Corning to hire women for the night shift. After these night prohibitions were lifted, there were transportation barriers that did not permit women to travel to and from evening work facilities without meeting particular guidelines. These barriers were not completely lifted until July 1965. Therefore, it was necessary to hire men for those positions due to exogenous legal circumstances. The only competitive hourly wage at which to hire a male was higher than any female wage at that time, and therefore Corning was adapting to the dictates of the market. The intention was not to violate the Equal Pay Act but to adapt to state mandates and bring the factories into compliance as soon as possible. Justice Stewart abstained from the case.

Women have worked alongside their male counterparts in many segments of American industry and have all too often been the victims of serious and endemic wage discrimination. The solution—to pass a law that requires equal work to be rewarded with equal wages—is simple in principle but has been just the opposite in practice. This landmark case lifted up the rule of law to the practices of ancient outmoded beliefs, contributing to the evolution of equality in the workplace.

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See also: *Vol. 1: Foundations of Economics:* Smith, Adam; Supreme Court; *Vol. 2: Macroeconomics:* Department of Labor

Further Reading

AAUW. n.d. Resources: Overview of Title VII of the Civil Rights Act of 1964. http://www.aauw.org/resource/title-vii-of-the-civil-rights-act-of-1964/ (accessed April 12, 2013).

Library of Congress. n.d. Labor unions and working conditions: United we stand. http://www.loc.gov/teachers/classroommaterials/lessons/labor/ (accessed April 12, 2013).

OYEZ, ITT Chicago, Kent College of Law. n.d. *Corning Glass Works v. Brennan*. http://www.oyez.org/cases/1970-1979/1973/1973_73_29 (accessed April 12, 2013).

Smith, Adam. 1776. *An inquiry into the nature and causes of the wealth of nations*. London: J. J. Tourneisen and J. L. Legrand.

U.S. Department of Justice. n.d. Title IX of the Education Amendments of 1972. http://www.justice.gov/crt/about/cor/coord/titleix.php (accessed April 12, 2013).

U.S. Equal Employment Opportunity Commission. n.d. Overview. http://www.eeoc.gov/eeoc/ (accessed April 12, 2013).

CORPORATE AVERAGE FUEL ECONOMY

Following the energy crisis of 1973, the U.S. Congress established Corporate Average Fuel Efficiency (CAFE) standards via the U.S. Energy Policy and Conservation Act of 1975 (PL94-163). The National Highway Traffic Safety Administration (NHTSA) was given the authority to determine the average standards for fuel efficiency that U.S. car and light-duty truck (pickup trucks, minivans, sport utility vehicles up to 8,500-pound gross vehicle weight) manufacturers must meet based on four statutory criteria: (1) technological feasibility; (2) economic practicability;

(3) the effect of other federal standards upon fuel economy; and (4) the need for the nation to conserve energy. The intent was to reduce fossil fuel (petroleum) consumption of cars and light trucks by increasing their fuel efficiency.

The CAFE regulations have been updated in response to new congressional laws that broaden the U.S. Environmental Protection Agency's (EPA) authority to regulate greenhouse gases (GHGs). EPA was given authority to regulate GHG emissions after the Supreme Court's 2007 *Massachusetts et al. v. EPA* decision that GHGs are air pollutants covered by the Clean Air Act (549 US 497). Following this decision, in 2009, the EPA administrator signed two findings: (1) the endangerment finding, stating that the administrator had determined that the current and projected concentrations of GHGs threaten public health and welfare, and (2) the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution. Because the primary method to reduce GHGs from vehicles is through improvements in fuel economy, EPA's authority to regulate GHGs is closely related to NHTSA's regulation of vehicle fuel economy. The transportation sector, as a whole, was responsible for 27 percent of U.S. GHG (31 percent CO_2) emissions in 2010. The on-road sector (cars, motorcycles, trucks, and buses) makes up 84 percent of this total.

The EPA and NHTSA now develop harmonized fuel economy and GHG standards. Thus, CAFE regulations, which had an initial justification and focus on energy security and fuel savings, are coordinated with standards for nonfuel economy GHG emissions from such additional factors as air-conditioning coolants (hydrofluorocarbons) and efficiency factors.

CAFE standards apply to all vehicle manufacturers based on their sales-weighted harmonic average fuel economy, measured in miles per gallon (mpg). There are separate standards for cars and light trucks, and imported and domestic fleets of cars are tracked separately. The effectiveness of CAFE standards in raising the light-duty vehicle fleet's fuel efficiency, and other effects of CAFE regulations, has been discussed in a large body of literature. Some debated whether the improvements in average fuel efficiency realized from 1978 (the first year that the CAFE standards went into effect) through 1987 were attained at a reasonable economic cost and whether the CAFE regulations induced undesirable changes in vehicles that could lower their safety. In addition, the CAFE standards themselves, by being less restrictive for trucks than for cars, likely had the effect of encouraging the shift in market share from cars to light-duty trucks. Higher vehicle fuel economy also lowers the cost per mile of driving, which induces additional driving (i.e., the rebound effect). While estimates of this additional driving differ, the EPA and NHTSA have most recently used a 10 percent rebound rate, which implies an increase of 5 percent in vehicle miles traveled when costs of driving are cut in half.

The concerns over safety and changes to vehicle fleets induced by CAFE regulations as well as a continued national interest in energy security and transportation GHG emissions have led to a number of reforms and expansions of CAFE regulations.

The Energy Independence and Security Act (EISA) of 2007 required an attribute standard that allowed NHTSA to change from a uniform standard to one based on the sales-weighted footprint (wheel base times track width) starting with model year (MY) 2011. The rationale for moving to this standard is that it reduces the incentive to change the size of vehicles for regulatory compliance. The footprint standard diminishes the incentive to reduce the size of a vehicle since doing so increases the stringency of its fuel economy target. There are separate footprint-based standards for cars and light trucks. Also, EISA broadened CAFE regulations to cover large sport utility vehicles from 8,500 to 10,000 pounds gross vehicle weight that were previously exempt from CAFE requirements.

The rules for MY 2012–2016 vehicles require that fleet-averaged fuel economy reach an equivalent of the estimated combined average emissions level of 250 grams/mile of CO_2 or 35.4 mpg by MY 2016 (using air-conditioning GHG credits by the EPA). Since CAFE standards as measured by NHTSA cannot take into account air-conditioning credits, this is equivalent to 34.1 mpg as calculated by NHTSA. In 2012, the agencies finalized rules for MY 2017–2025. The final standards are projected to result in an average fleet-wide level of 163 grams/mile of carbon dioxide (CO_2) in MY 2025, equivalent to 54.5 mpg if achieved only through fuel economy improvements and equal to 48–49 mpg using air-conditioning improvement credits. Compared to the standards in place through MY 2016, the EPA and NHSTA estimate that these CAFE standards provide significant savings for consumers in terms of expenditures on fuel. Higher costs for new vehicles will add, on average, about $1,800 for consumers who buy a new vehicle in MY 2025. Those consumers who drive their MY 2025 vehicle for its entire lifetime will save, on average, $5,700 to $7,400 (7 percent and 3 percent discount rates) in fuel compared to a vehicle meeting the MY 2016 standard.

Technically not part of CAFE regulations is the closely related Heavy-Duty National Program, which, for the first time, reduces GHG emissions and improves the fuel efficiency of medium- and heavy-duty vehicles. The EPA and NHTSA estimate that the standards will reduce CO_2 emissions by 270 million metric tons and save about 530 million barrels of oil over the life of vehicles built from 2014 to 2018, providing $49 billion in net benefits.

The details on specific rules have changed over time and differ between the light- and heavy-duty sector. Nonetheless, for compliance, manufacturers are generally allowed to carry back and carry forward CAFE credits in a three- or five-year window around each model year. Thus, the CAFE regulations are one of the first major U.S. regulations to allow for credit borrowing and banking. Other flexibility mechanisms also allow CAFE credit averaging between separate standards for cars and light trucks or within the same regulatory category (heavy-duty) for the same manufacturer and limited trading across manufactures of credits for the same vehicle category.

If a vehicle manufacturer's average mpg for a given compliance category (e.g., domestic passenger car) falls below the applicable standard, and the manufacturer cannot make up the difference by using credits, the manufacturer is subject to civil penalties of $5.50 for each tenth of a MPG that a manufacturer's average fuel economy falls short of the standard for a given model year, multiplied by the total volume of those vehicles in the compliance category. For some manufacturers (predominantly foreign manufacturers of performance vehicles), paying this civil fine is a cheaper alternative than compliance with the fuel economy regulations. NHTSA has collected $844 million from 1983 through 2011 (cumulative, nominal dollars) in CAFE penalties (NHTSA n.d.).

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See also: Jevons, William Stanley; Microeconomics; *Vol. 1: Foundations of Economics:* Environmentalism; Environmental Economics; *Vol. 2: Macroeconomics:* Oil Crisis of 1979

Further Reading

Crandall, R. W., and J. D. Graham. 1989. The effect of fuel economy standards on automobile safety. *Journal of Law and Economics* 32: 97–118.

Davis, S. C., S. W. Diegel, and R. G. Boundy. 2012. *Transportation energy data book: Edition 31*. Washington, DC: U.S. Department of Energy.

Greene, D. L. 1998. Why CAFE worked. *Energy Policy* 26 (8): 595–613.

Kleit, A. 1990. The effect of annual changes in automobile fuel economy standards. *Journal of Regulatory Economics* 2 (2): 151–72.

National Research Council. 2002. *Effectiveness and impact of Corporate Average Fuel Economy (CAFE) Standards*. Washington, DC: The National Academies Press.

U.S. Department of Transportation, U.S. Department of Energy, and U.S. Environmental Protection Agency. 2002. *Report to Congress: Effects of the Alternative Motor Fuels Act CAFE Incentives Policy*. https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/amfareporttocongress.pdf (accessed November 1, 2016).

U.S. Environmental Protection Agency. 2012. *EPA and NHTSA set standards to reduce greenhouse gases and improve fuel economy for model years 2017–2025 cars and light trucks*. Regulatory announcement.

CORPORATE ENVIRONMENTALISM

Corporate environmentalism, or voluntary pollution control by businesses, has become an integral part of U.S. environmental policy, along with the traditional legislative approach of directly regulating emissions, better known as command and control, and market-oriented instruments such as tradable permits. While command-and-control regulation remains the main pillar of U.S. environmental policy, the regulatory landscape has changed since the early 1990s with the increased recourse by federal and state agencies to voluntary pollution control mechanisms to improve environmental protection. These government-sponsored programs encourage businesses to take a comprehensive approach to pollution prevention so as to achieve reductions in pollutants that are not directly regulated and/or lower emissions beyond their targets for regulated pollutants.

In 1990, the Pollution Prevention Act (PPA) was passed to promote widespread adoption by businesses of voluntary pollution prevention (P2) activities. A P2 practice can occur by two different means. One, the practice reduces the amount of a pollutant or substance entering a stream or into the air. Secondly, the practice can reduce the hazards to either public health or the environment. Examples of P2 activities include equipment and material modifications such as substituting less toxic solvents for hazardous solvents, and procedural changes such as self-inspection and monitoring programs to discover spills or leak sources. The U.S. Environmental Protection Agency (EPA) has identified 43 P2 practices that firms can choose to implement voluntarily in order to reduce waste generation.

With the enactment of the PPA, the government hopes to induce voluntary corporate environmental investments and infuse a pollution prevention ethic within corporate management that will stimulate substantial pollutant source reductions across the board. To encourage the adoption of P2 practices and other voluntary environmental investments, the EPA provides matching grants, technical assistance, and access to valuable P2 information exchanges. The EPA has also embedded in its enforcement settlement process the option of reducing penalties against violators who perform P2 activities above and beyond the mandatory actions required to correct the violation.

In 1991, the EPA created the 33/50 program to reduce emissions of 17 high-priority toxic chemicals, including two ozone-depleting compounds, by a third by 1992 and by half by 1995 through voluntary action by firms. In early 1991, the EPA invited the 509 companies emitting the largest volume of 33/50 pollutants to participate in the program; these companies were responsible for over three-quarters of the targeted toxic releases. In July 1991, 4,534 other companies were invited to participate as well. With additions through 1995, the EPA invited a total of 10,167 firms to join the 33/50 program, and 1,294 firms accepted. The 33/50 program was purely voluntary, and its pollution reduction targets were not enforceable. Yet, the EPA cites some aggregate statistics as indicators of the program's success. Among reporting firms, total 33/50 chemical releases declined by over 52 percent between 1990 and 1996 compared to a 25.3 percent reduction in non-33/50 toxic emissions over the same period.

In 1992, the EPA introduced Energy Star, a voluntary labeling program designed to identify and promote energy-efficient products to reduce carbon dioxide emissions. To date, more than 20,000 organizations have chosen to participate in the Energy Star program. In the same vein, the EPA partnered with the U.S. Department of Agriculture in 1994 to create AgStar in order to induce voluntary reductions of methane emissions and protect water quality in concentrated animal feeding operations. AgStar promotes the use of anaerobic digesters to capture and combust methane so as to generate electricity.

The number of similar partnership programs between the EPA and businesses has grown rapidly to more than 50 today (www.epa.gov/partners); these programs are designed to address a wide variety of environmental issues related to air and water quality, climate change, energy efficiency, and product labeling. Furthermore, several state agencies have followed the EPA's lead to initiate their own voluntary programs. For example, over 160 businesses joined Ohio Prevention First in 1993, a voluntary program sponsored by the Ohio Environmental Protection Agency (Ohio EPA) to halve emissions generated throughout Ohio by the year 2000. More recently, in 2007, Ohio EPA launched the Tox-Minus Initiative, another partnership program with Ohio businesses to achieve meaningful reductions in toxic releases within five years.

In addition to government-sponsored voluntary pollution control mechanisms, many businesses and industries are taking unilateral steps to proactively improve their environmental management by adopting ISO 14001 standards and related environmental management systems, such as Total Quality Environmental Management (TQEM), that enable them to identify the environmental impacts of their products and internalize those impacts in their operational decisions.

Many leading firms have shifted away from a regulatory-driven approach to a more proactive and beyond-compliance strategy toward environmental management. For example, in the wake of a tragic gas leak that killed thousands in Bhopal in India, the chemical manufacturing industry responded by creating, on its own volition, the Responsible Care program to enhance environmental performance and occupational safety above and beyond member firms' legal obligations. The apparent success of Responsible Care led the BP Oil Spill Commission to recommend the creation of a like-minded program for the oil and gas industry. Notable examples of firm-led initiatives to rein in waste generation include the multinational conglomerate 3M's Pollution Prevention Pays (3P) program and Chevron's Save Money and Reduce Toxics (SMART) program. More recently, in 2006, DuPont announced that it will increase its spending on research and development of environmentally smart technologies by $400 million, while Walmart, McDonald's, and Coca-Cola have all received awards for voluntary efforts to reduce their environmental footprint.

The rise of corporate environmentalism has ignited an ongoing academic debate regarding profit-driven business motives to self-select into costly voluntary programs. Economists have advanced a number of theories to explain this seemingly puzzling behavior. First, firms' overcompliance with environmental norms may be driven by a differentiation strategy designed to attract a growing chorus of green consumers willing to pay a premium for environmentally friendly goods. Alternately, voluntary pollution reductions may shield firms from green political activism, that is, lobbying by environmental interest groups such as the Sierra Club, the Environmental Defense Fund, and the League of Conservation Voters to enact tighter regulatory standards that could significantly raise costs of doing business. In the same realm, corporate environmentalism may deter boycott campaigns by environmental interest groups. Furthermore, a research-intensive firm may engage in voluntary environmentalism as a strategy to hasten legislative or regulatory action that would ratchet up pollution standards to the detriment of its rivals. A less-talked-about potential motive is the desire to lessen the scrutiny of environmental authorities, reducing the frequency of costly environmental inspections and enforcement actions. Such rewards, whether promised implicitly or officially, may represent an optimal government policy to promote participation in a voluntary pollution reduction program.

Businesses in developing countries with notoriously weak and/or corrupt environmental enforcement agencies may embrace corporate environmentalism not necessarily to seek green premiums but to reassure upstream customers about their commitment to environmental quality; this is more likely to be the case for businesses in export-oriented developing countries. Indeed, anecdotal evidence indicates that many suppliers have faced pressure from their customers in developed countries to seek ISO certification. China, for example, has by far the highest number of ISO 14001-certified businesses in the world.

Researchers have sought to test the empirical validity of the theories listed earlier mostly using data on the EPA's 33/50 program, the Green Lights program, the WasteWise program, the Climate Challenge program, the Energy Star program, and firms' adoption of P2 practices and environmental management systems. Yet, after more than two decades of experience with voluntary pollution control programs and an intense empirical scrutiny, a good deal of controversy remains on how effective these programs have been at curbing pollutant emissions from levels that would otherwise have been produced.

Abdoul G. Sam

See also: Clean Air Act; *Vol. 1: Foundations of Economics:* Environmentalism; Environmental Protection Agency

Further Reading

Innes, R., and A. G. Sam. 2008. Voluntary pollution reductions and the enforcement of environmental law: An empirical study of the 33/50 program. *Journal of Law and Economics* 51 (2): 271–96.

Khanna, M., and L. Damon. 1999. EPA's voluntary 33/50 program: Impact on toxic releases and economic performance of firms. *Journal of Environmental Economics and Management* 37 (1): 1–25.

Koehler, D. 2007. The effectiveness of voluntary environmental programs policy at crossroads? *Policy Studies Journal* 35 (4): 689–722.

CORPORATE SOCIAL RESPONSIBILITY

Corporate social responsibility refers to the responsibilities that corporations, including transnational corporations (TNCs), have to workers and their families, consumers, investors, host governments, and indigenous peoples. At the heart of corporate social responsibility (CSR) is the understanding that harmonious relations among businesses, workers, governments, and other stakeholders are in everyone's best interests. Implied in the concept of CSR is that governments in advanced and developing countries create a positive business environment in which companies, including TNCs, can profitably operate. Good governance, the provision of a sound infrastructure, and macroeconomic stability help cement the working relationship between TNCs and the host country.

The concept of CSR has changed over time. During the early years of the Industrial Revolution in Europe and the United States, major corporations had a narrow view of CSR. That is, corporations existed to earn profits, a portion of which were reinvested in the firm and the remainder distributed in the form of dividends to the company's stockholders. During the 20th century, however, corporations were obliged to expand their view of good corporate citizenship. In part, the concept of CSR was broadened to accommodate a flurry of new laws and regulations designed to protect workers, consumers, investors, and the environment. The growth of civil society organizations (CSOs), including international nongovernmental organizations (INGOs), also caused corporations to reexamine their internal policies and act in more socially responsible ways. By the 1970s and 1980s, corporations and a number of international organizations devised voluntary "codes" to guide business conduct in domestic and global markets. Over time, these codes defined what it meant to be a socially responsible corporation.

One type of code is the "corporate code of conduct," which is written and implemented by individual corporations. Under a corporate code of conduct, the firm establishes standards to govern its treatment of workers, its dealings with indigenous peoples, and its use of the natural environment. Nearly all corporations today have adopted a corporate code of conduct. Nike, for example, strengthened its code of conduct after the firm suffered the ill effects of a global consumer boycott in the late 1990s. Nike responded to criticisms of sweatshop working conditions in the overseas plants of its subcontractors by pledging to strictly enforce its code. The Nike code promises a safe and healthy workplace, fair compensation, freedom of association, and limits on required work hours.

A second type of code is the "code of conduct for multinationals." Individuals or organizations outside of the corporate structure devise this type of code. The standards of behavior outlined in these codes resemble the corporate codes penned by the corporations themselves. One of the most recognized codes is the Guidelines for Multinational Enterprises, which was produced by the Organisation for Economic Co-operation and Development (OECD). Thirty-seven governments endorsed this code, including the 30 OECD countries and seven non-OECD countries. Its recommendations represent best practice for companies in the global economy. For example, the guidelines oppose business practices that result in environmental degradation, child and forced labor, workplace discrimination, and bribery and other forms of corruption. The guidelines support human rights, transparency, honesty in advertising and marketing, consumer safety and privacy, technology transfers, functional worker associations, and respect for local laws and cultures. The guidelines are widely supported by businesses and labor groups.

Other important corporate codes have surfaced in the global economy. The Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy, a document produced by the International Labour Organization (ILO), stresses partnerships among businesses, labor, and government. Key principles in this declaration are the promotion of human rights and sustainable development; full employment in a secure and nondiscriminatory environment; human capital development for workers and management; workplace reforms, including improved wages and benefits, working conditions, and abolition of child labor; and freedom of association, including the right to form unions, bargain collectively, and resolve disputes with management.

The United Nations' Global Compact, which was introduced in 1999 by UN secretary-general Kofi Annan, identified nine core principles to promote CSR. Since this time, 1,200 companies have signed the compact. The first category of principles, human rights, asks corporations to respect human rights and avoid any complicity in business activity that involves human rights abuses. The second category, labor rights, supports workers' right to unionize and calls for the abolition of compulsory labor, child labor, and workplace discrimination. The third category, environmental protection, calls on business to use the natural environment wisely and to develop and employ environmentally friendly technologies. In 2004, a 10th principle, anticorruption, was added to the original list. In 1999, the Reverend Leon H. Sullivan introduced the Global Sullivan Principles of Corporate Social Responsibility. This document promoted human rights, equal opportunity, freedom of association, fair pay, a safe workplace, fair competition, and an improved quality of life for all peoples in the global economy.

Corporate social responsibility has been a hot topic in the modern era of globalization. INGOs and other elements of civil society openly confront TNCs for not living up to their civic responsibilities. There is still considerable debate over the success of voluntary codes on business behaviors. Supporters of voluntary codes argue that effective monitoring of TNCs ensures compliance with international standards. Intense surveillance, by INGOs and CSOs, the International Organization for Standardization (ISO), and other groups, reinforces laws and regulations approved by national legislatures. Critics counter that voluntary codes are toothless and cannot prevent the abuse of the marginalized, voiceless element in the world's poorest economies. Critics note that low-skilled workers in the global supply chain continue to languish in sweatshops as TNCs implement cost-cutting strategies to pad corporate profits.

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See also: *Vol. 1: Foundations of Economics:* Nongovernmental Organizations; *Vol. 4: Global Economics:* Foreign Direct Investment; International Labor Organization; Organisation for Economic Co-operation and Development; Race to the Bottom; Transnational Corporations

Further Reading

Benioff, Marc, and Karen Southwick. 2004. *Compassionate capitalism: How corporations can make doing good an integral part of doing well.* Franklin Lakes, NJ: Career Press.

Hopkins, Michael. 2003. *The planetary bargain: Corporate social responsibility matters.* Washington, DC: Earthscan Publications.

Korten, David C. 2001. *When corporations rule the world*, 2nd ed. San Francisco, CA: Berrett-Koehler.

Kotler, Philip, and Nancy Lee. 2004. *Corporate social responsibility: Doing the most good for your company and your cause.* New York: John Wiley & Sons.

McIntosch, Malcolm, Ruth Thomas, Deborah Leipziger, and Gill Coleman. 2003. *Living corporate citizenship: Strategic routes to socially responsible business.* Paramus, NJ: Financial Times Management.

Schwartz, Peter, and Blair Gibbs. 1999. *When good companies do bad things.* New York: John Wiley & Sons, Inc.

COSTS

In economic terms, costs are the trade-offs of choosing one alternative over another. The costs incurred in economic decisions can be monetary or nonmonetary. There are many types of economic costs.

Fixed Costs

Fixed costs (FCs) are short-run costs independent of the output produced. Examples of fixed costs include rent on property, rental agreements on equipment with a time restriction, and labor costs as part of a labor contract. In the long run, fixed costs do not exist because the terms of agreements and contracts eventually expire.

Variable Costs

While fixed costs may be defined as short-run costs that do not vary with output, the level of variable costs (VCs) are dependent on total output. Examples of variable costs include a company's cost for commodities, raw materials used in the production process, and possibly some labor costs not determined by a union or other form of labor contract. In the long run, all costs are variable costs.

Total Cost

Total cost (TC) for a company is the sum of total variable costs and total fixed costs (TC = TFC + TVC). In the short run, a company could have both short-run fixed costs and short-run variable costs. In the long run, all of a company's costs are variable (TC = TFC + TVC where TFC = 0).

Average Fixed Costs

Average fixed costs (AFCs) are those costs found by dividing total fixed cost by output. AFC is represented by a continually downward-sloping curve. The downward slope represents the fact that as output increases, the total fixed cost is divided by the larger output; TFC divided by total output (Q).

For example, if output is 1 and total fixed cost is $100, average fixed cost is TFC / Q = $100 / 1 = $100 = AFC. If output is 10, total fixed cost remains $100 so TFC / Q = $100 / 10 = $50 = AFC. Average fixed cost continues to decrease per unit as quantity produced continues to increase.

Average Variable Costs

Average variable costs (AVCs) are those costs found by dividing total variable cost by output. AVC is represented by a downward-sloping curve until diminishing marginal input sets in, at which time AVC begins to increase per total output (see Figure 1).

For example, if output is 1 and total variable cost is $10, average variable cost is TVC / Q = $10 / 1 = $10 = AVC. If output is 10, total variable cost is $100 and TVC / Q = $100 / 10 = $50 = AVC. Average variable costs continue to increase per unit as quantity produced continues to increase.

Whitney Wellman
David A. Dieterle

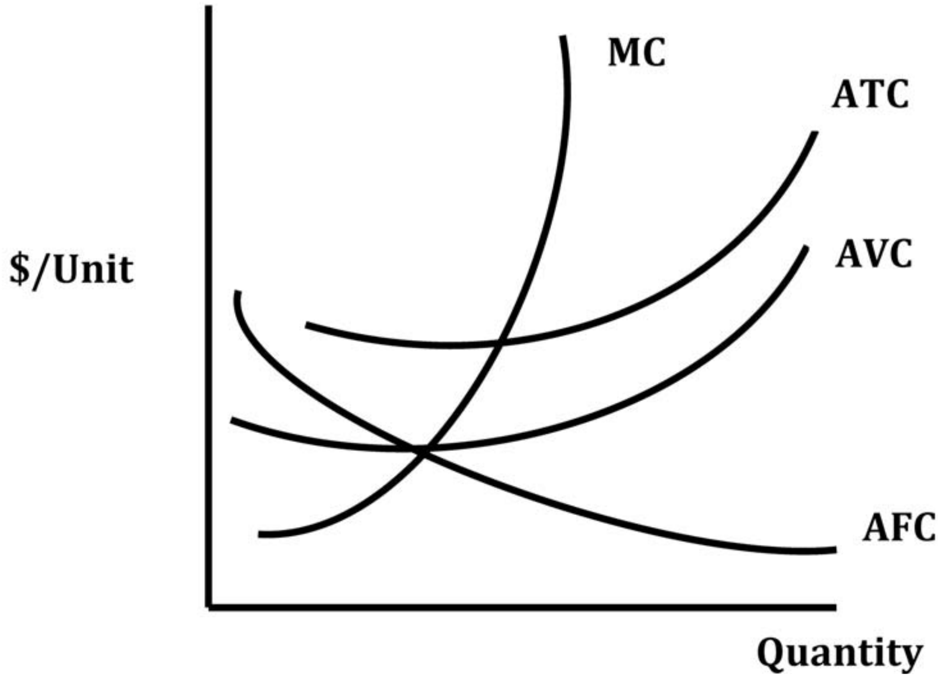

Figure 1. Short-run cost curves

See also: Business Structures; Monopolistic Competition; Monopoly; Oligopoly Markets; Perfect Competition; Revenue: Total, Average, Marginal

Further Reading

Businessdictionary. n.d. Average fixed cost. www.businessdictionary.com/definition/average-fixed-cost.html (accessed October 30, 2015).

Economics Online. n.d. Costs of production: Average fixed cost. www.economicsonline.co.uk/Business_economics/Costs.html (accessed October 30, 2015).

Economics Online. n.d. Costs of production: Fixed and variable costs. www.economicsonline.co.uk/Business_economics/Costs.html (accessed October 30, 2015).

Investorwords. 2015. Economic cost. www.investorwords.com/16381/economic_cost.html (accessed October 30, 2015).

Mayer, David A. 2010. *Everything economics book: From theory to practice, your complete guide to understanding economics today.* Avon, MA: Adams Media.

Stretton, Hugh. 1999. *Economics: A new introduction*. London: Pluto Press.

Yu-Lee, Reginald Tomas. 2001. *Explicit costs dynamics: An alternative to activity-based costing*. New York: Wiley.

CREDIT CARDS

A credit card is a small plastic card issued by a bank, financial institution, or merchant that enables the cardholder to purchase goods and services with borrowed funds.

Interest on the unpaid balance begins one month after purchase. If the card user pays the amount owed within the first billing cycle, there are no interest charges.

Credit cards have higher interest rates (around 19 percent per year) than most consumer loans.

Credit cards have become prevalent across all realms of both U.S. and international developed markets. Unfortunately, their overuse can lead one to accumulate excess debt and can cause financial problems.

History

Lending money with a card began in the 1800s when store owners and agricultural enterprises offered credit in conjunction with financial institutions. By the beginning of the 1900s, hotels and large department stores created paper "charge" cards for their important customers. These designated "creditworthy" customers used the cards in the issuing merchant's store in the same way consumers use credit cards today, and they had a predetermined upper credit limit.

Sears was one of the first companies to use a credit card to increase sales, and the strategy worked very well. Long before the Internet, Americans received a Sears catalog, which contained pictures of toys, tools, tractors, and every kind of household product sold in the Sears stores. With the innovation of credit cards, people could buy anything they wanted from Sears immediately—and pay for it later, with interest.

General purpose, as opposed to store-based, credit cards began in 1949 when Diners Club created its nationwide network card. Cardholders could charge goods and services from network members. Diners Club cards were initially designed for wealthy individuals to pay for entertainment and travel expenses. Merchants also appreciated the card, despite the 7 percent fee they paid to Diners Club, because card users tended to spend more than those who paid with cash.

As with most successful concepts, Diners Club inspired many competitors. By the late 1950s, Bank of America jumped into the credit card business with a national card. At that time, interstate banking laws prohibited banks from operating outside of state borders. Creatively, Bank of America circumvented the interstate banking laws with the credit card and reached a large national customer network. As the national network grew more complex, Bank of America separated its credit card business into what is now known as the Visa network.

In 1966, the MasterCard network emerged to compete with Visa. The credit card industry continues to grow with extensive competition for consumers. According to Douglas et al. (2005) in 2001, approximately 76 percent of American families own at least one credit card. Today, 92 percent of families with incomes over $30,000 have at least one credit card. The average number of credit cards for all households is 6.3 cards.

How Do Credit Cards Work?

To obtain a credit card, the consumer completes an application and the issuing company does a quick credit check to determine the applicant's ability to make the credit card payments. If the credit card company believes the applicant can repay the borrowed funds, it will issue a credit card with an upper spending limit.

The credit card is a plastic card with the customer's name and account number on the front. The account number, specific to each cardholder, applies to the credit card's network, bank, and account. On the back is a signature box, partial account number, and a three- or four-digit card identification security number along with a magnetic code strip.

This is how a college student might get his first credit card. Joachim completes a credit card application and the issuing company checks his credit and possibly his work history. If Joachim has a part-time job and is attending college, the bank will likely approve him for a credit card. Since his income is low, the card might have an upper limit of $800. That means Joachim can make purchases up to $800. Those with higher incomes and greater credit histories usually receive higher credit limits.

Every month, the cardholder receives a statement in the mail or online with the list of purchases, fees, and the amount owed along with the due date for payment. If the full balance of the card is paid off every month, no interest fees are charged. If a partial payment is made on the bill, interest begins to accrue or build up. If the consumer continues to pay only part of the total bill, more interest accrues and eventually the individual ends up owing a lot more money than he or she initially charged.

Advantages and Disadvantages of Credit Cards

Credit cards are convenient because they eliminate the need to carry cash. Using a credit card responsibly can help consumers build credit history. A good credit history is important if one wants to borrow money to buy a home or car. Some credit card companies protect the cardholder from false charges in case the card is stolen and do not hold the cardholder responsible for most of the charges made by the thief. Many credit cards also offer rewards such as cash back, airline miles, or gift cards. Using a credit card is also a method to keep track of expenses.

Credit cards allow consumers the opportunity to buy more than they can pay off in one month. This is both an advantage and a disadvantage. The advantage is that it boosts consumers' spending power and can help during times of unexpected expenses. The disadvantage of buying more than one can pay off in a month is that the consumer pays a very high interest rate on the unpaid credit card balance.

Credit cards make it easy to incur large amounts of debt, a major disadvantage. Some consumers charge a lot over the holiday season and end up paying the bills months after the holiday festivities are over.

Many merchants, such as hotels and rental car companies, require consumers to have a credit card on file in order to rent a car or stay at a hotel. This is a disadvantage if the consumer doesn't have a credit card.

In short, credit cards can be convenient when they are used responsibly by paying off the balance every month. Let the balance build up for many months and the convenience is converted into a serious financial disadvantage.

Barbara A. Friedberg

See also: Credit or Bond Rating Agency; Debt Collection; Debt and Credit Counseling; *Vol. 1: Foundations of Economics:* Financial Literacy; *Vol. 2: Macroeconomics:* Debt; Financial Reform Act of 2010 (Dodd-Frank Act); *Primary Document:* Financial Reform Act of 2010 (Dodd-Frank Act)

Further Reading

Akers, Douglas, Jay Golter, Brian Lamm, and Martha Solt. 2005. FDIC banking review: Overview of recent developments in the credit card industry. http://www.fdic.gov/bank/analytical/banking/2005nov/article2.html (accessed November 1, 2005).

CREDIT CYCLE

Cycles in bank lending had been treated in economic research even before the study of business cycles became a central research topic. Clemént Juglar (1962) and John Mills (1867) published early analyses. In order to understand credit cycles, it is helpful to consider various propositions concerning this prototypical financial cycle. The first and weakest proposition states that lending moves with the overall course of the economy. Hence, during expansions bank lending grows strongly, and in recessions credit grows slowly or even declines. This is uncontroversial since financing needs—that is, credit demand by firms and households—move with the economic tide. A second proposition holds that lending is not only cyclical but that it is excessively so. According to this notion of the credit cycle, banks tend to lend too much in the upswing—and with this lending finance inefficient projects—while curbing lending in recessions too much so that even efficient projects fail to find financing.

Behavioral propensities of borrowers who tend to be overly optimistic in boom times and overly pessimistic in recessions can make the inefficient wave of credit even stronger. The furthest-reaching proposition regarding the credit cycle is the notion that excesses in lending during economic upswings eventually bring about a financial crisis and a downturn in economic activity when investment projects go sour and creditors default. Summing up the possible effects of lending excesses, we note at the minimum an inefficient allocation of capital and possibly a role in the recurrence of economic recessions.

Research studies have elaborated various explanations as to why credit booms take place and why they are often followed by so-called “credit crunches.” One major effect draws on the connection between lending and the value of loan collateral. Lending booms often occur together with asset price booms because collateral values and bank lending drive each other up (Kiyotaki and Moore 1997). Other explanations turn on various frictions in the credit market concerning the effort that lenders put into gathering information regarding the creditworthiness of borrowers (Gorton and He 2008). Yet another mechanism that favors the emergence of inefficient cycles of bank lending concerns the dynamics of bankers’ expectations. Bankers with a limited experience span tend to behave in a boundedly rational manner. During boom times they are inclined to underestimate the occurrence of a recession and become overly optimistic, whereas in recessions they tend to become overly pessimistic (Rötheli 2012).

This mechanism leads to an underpricing of credit risk during long booms and an overpricing of credit risk in recessions. This means that in the period of upswing banks have a tendency to lend at excessively low interest rates, whereas in downswing periods they are liable to charge excessively high interest rates. Overall, the credit cycle must be reckoned as a major factor contributing to macroeconomic fluctuations.

Tobias F. Rötheli

See also: Credit Cards; Credit or Bond Rating Agency; *Vol.1: Foundations of Economics:* Animal Spirits; Financial Literacy; *Vol. 2: Macroeconomics:* Expectations

Further Reading

Gorton, Gary B., and Ping He. 2008. Bank credit cycles. *Review of Economic Studies* 75: 1181–214.
Juglar, Clément. 1862. *Des crises commerciales et de leur retour périodique*. Paris: Guillaume et Cie.
Kiyotaki, Nobuhiro, and John Moore. 1997. Credit cycles. *Journal of Political Economy* 105: 211–48.
Mills, John. 1867. On credit cycles and the origin of commercial panics. Transactions of the Manchester Statistical Society for the Session 1867–1868, 5–40.
Rötheli, Tobias F. 2012. Boundedly rational banks' contribution to the credit cycle. *Journal of Socio-Economics* 41: 730–37.

CREDIT OR BOND RATING AGENCY

In the finance world, it's important for investors to trust institutions that issue bonds and fixed-income debt. After all, if an individual or institutional investor purchases a 30-year bond for $1,000 that promises to pay a 5 percent coupon or interest rate, the investor must be certain that the issuer will be solvent and available to make the interest payments for the next 30 years.

Credit ratings, also called debt or bond ratings, give fixed-income debt issuers a score determined by their financial strength. This rating helps investors understand the likelihood of receiving their interest payments for the duration of the bond, with high credit ratings indicating financially stronger companies and low credit ratings denoting weaker corporations.

Credit Ratings Overview

Ratings agencies perform in-depth analysis of the creditworthiness of all major debt issuers, from companies to city and state governments to sovereign countries who issue bonds, and assign a credit grade or score. The raters investigate the economic conditions of a country when deriving the rating for a sovereign nation. A rating agency might also examine the political condition of a country. War-torn and economically unstable countries would receive lower credit ratings on their debt than would a more stable country such as the United States.

Corporations; city, state, and municipal governments; and countries all borrow money from the public and large institutions by selling bonds. Bonds function similarly to a loan, only the lenders are the individuals who buy the bonds.

For fixed-income investors to feel confident in purchasing the debt, they must understand what they are buying. That is where the rating agencies come in. These agencies review the entities that issue corporate bonds, municipal bonds, government bonds, and a stock–bond hybrid, called preferred stock.

There is an inverse relationship between ratings grade and possibility of default. Higher-rated securities have a lower risk of default. For example, Standard & Poor's credit rating scale begins with AAA, the highest available grade (AA+ is next highest) on down to C and D ratings. Those debt securities with ratings below BBB– are considered to be the riskiest and are called speculative or junk bonds. Only the most risk-tolerant investors should invest in the lower-grade debt.

History of Credit Rating Agencies

In 1913, John Knowles Fitch founded the Fitch Publishing Company, which published *The Fitch Stock and Bond Manual* and *The Fitch Bond Book*, compilations of financial statistics used by the investment industry. In 1924, Fitch introduced the AAA through D rating system. These grades laid the groundwork for modern investment product ratings.

Other players in the ratings industry include Moody's Investors Service, who published *Moody's Manual* in 1900, which included statistics and information about stocks and bonds. The modern iteration of this early organization was initiated in 1914 with the creation of Moody's Investor's Service. In the 1970s, Moody's began rating all types of debt instruments, including short-term government bonds, called commercial paper, and bank deposits. Moody's continues today as one of the premier rating agencies.

Henry Varnum Poor began his financial career compiling and detailing the financial information of the railroad industry. He first published *History of Railroads and Canals in the United States* in 1860. He continued publishing updated annual financial reports under the company he began with his son, the H.V. and H.W. Poor Company. In 1906, Standard Statistics published corporate bond, sovereign debt, and municipal bond ratings. In 1941, the two companies merged and formed the well-known Standard & Poor's Corporation. Although retaining the "Standard & Poor's" name, in 1966, the company was bought by The McGraw-Hill Companies, Incorporated. In addition to ratings, Standard & Poor's (S&P) creates many tools for securities analysis, including the gold standard of major stock market indexes.

Ratings Drill Down

The three prominent bond rating agencies—Standard & Poor's, Moody's, and Fitch—each use their own letter-based rating system. Although similar, with A ratings being higher than D ratings, the specific grades for each company vary.

Bonds are rated at issue and subsequently reviewed periodically to determine whether a rating change is warranted (based on changes in the issuing entity).

Table 1. Credit or Bond Rating Agency Grades

	Investment Grade				Not Investment Grade						
	Highest	High	Upper Medium	Medium	Not Investment Grade	Specu-lative Medium	Specu-lative Lower	Specu-lative Risky	Specula-tive Poor	No Payments/ Bankruptcy	In Default
Moody's	Aaa	Aa1, Aa2, Aa3	A1, A2, A3	Baa1, Baa2, Baa3	Ba1	Ba2, Ba3	B1, B2, B3	Caa1	Caa2, Caa3	Ca/C	—
Standard & Poor's	AAA	AA+, AA, AA-	A+, A, A-	BBB+, BBB, BBB-	BB+	BB, BB-	B+, B, B-	CCC+	CCC, CCC-	—	D
Fitch	AAA	AA+, AA, AA-	A+, A, A-	BBB+, BBB, BBB-	BB+	BB, BB-	B+, B, B-	CCC	—	—	DDD, DD, D

Source: http://www.investopedia.com/articles/bonds/09/bond-rating-agencies.asp

Ratings are very important to issuers as well as bond buyers. If a bond is expected to receive a high rating, the interest paid by the organization to the bond buyers is lower than a comparable entity with a lower credit rating. The lower the interest rate payments, the lower the cost of borrowing for the company. Clearly, an entity prefers to pay less in interest than more.

For example, if Company XYZ receives a credit rating of AAA, it might pay 3 percent interest on a 10-year bond, whereas if Company LMN receives a credit rating of C, it might have to pay 4.5 percent interest on a 10-year bond in order to entice investors to purchase its debt. The reason for this discrepancy is that investors must be compensated with higher interest payments for buying riskier bonds.

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See also: Bonds; Risk; Subprime Mortgage Bubble and Crisis; *Vol. 1: Foundations of Economics:* Banking; Bankruptcy; Investing; Standard & Poor's 500; *Vol. 2: Macroeconomics:* Debt; Financial Reform Act of 2010 (Dodd-Frank Act); *Primary Document:* Financial Reform Act of 2010 (Dodd-Frank Act)

Further Reading

Finney, Denise. 2009. A brief history of credit rating agencies (August 13). http://www.investopedia.com/articles/bonds/09/history-credit-rating-agencies.asp (accessed September 30, 2016).

Frankel, Alison. 2013. Moody's, S & P settle lawsuits over debt vehicle ratings. As reported in Robbins Geller Rudman & Dowd LLP. http://www.rgrdlaw.com/news-item-165.html (accessed September 30, 2016).

Investopedia. n.d. Bond rating agencies. http://www.investopedia.com/terms/b/bond-rating-agencies.asp (accessed May 31, 2014).

Investopedia. n.d. Definition of "credit rating." http://www.investopedia.com/terms/c/creditrating.asp (accessed May 31, 2014).

Taibbi, Matt. 2013. The last mystery of the financial crisis. *Rolling Stone*. http://www.rollingstone.com/politics/news/the-last-mystery-of-the-financial-crisis-20130619 (accessed September 30, 2016).

CREDIT REPORT

A credit report is a tool used by lending institutions such as banks to determine if you are a good credit risk and will pay back the loan you are applying for. The credit report contains information on your past and current financial transactions that involve debt, such as credit cards and loans, as well as information on judgments and past credit inquiries from credit rating institutions.

The credit reporting agencies are the companies that compile the data for your credit report and provide the information to banks and other institutions for a fee.

You are allowed to get one free credit report a year from each of the reporting agencies. You may also request a report when you are denied credit.

What Is on a Credit Report?

A credit report contains information related to your ability to pay back money that you borrow. It includes the following items:

- Personal identification information—this includes your name, address, social security number, and phone number. It may also contain information from your past, such as former names, addresses, employers, or possible people that you have a credit relationship with, such as your spouse.
- Outstanding debts—these are debts that you have not paid off in full. Examples are mortgages, car loans, student loans, and credit cards.
- Past debts—any debts that you have finished paying off will continue to show on your credit reports. As an example, once you have paid off a car loan, it will remain on your credit report as a debt paid in full. If you do not pay it in full and instead use a settlement, it will indicate that the debt was settled and closed.
- Payment history—your credit report will show if you made your payments on time or late. Typically, it will show on time, 30 days late, 60 days late, and 90 days or more late. After that point, the debt will typically be moved to a collection status, such as "referred to collection," repossession, or charged off. These last classifications indicate that you have not paid the debt as you had agreed to originally.
  Your positive information on your payment history will typically stay on your report indefinitely, and your negative information will go away after seven years. Bankruptcy will stay on your report for 10 years.
- Available credit (utilization)—your report will show how much you have available on revolving credit. Available credit is considered the available credit line minus your outstanding balance. Thus if your credit line is $20,000 and your balance is $5,000, you have available credit of $15,000.
  The lower your utilization the better it is for your credit score, and lenders look upon this favorably. If you are maxed out on your credit cards and are applying for more, it is not a good sign.
- Public records—your credit report will also include any items that are on the public record, such as tax liens, court judgments, and bankruptcies.
- Credit inquiries—anytime someone checks your credit it will show up on your credit report.
- Dispute statements—if you have an item that you disagree with on your report, you can file a dispute statement, and this will show up on your credit report. The credit-granting company you have the dispute with may also include its statement of what happened on the credit report.

Types of Debt

There are three types of credit that will appear on your credit report:

1. Revolving credit—This is when you don't have a final end date for paying of the debt; you are allowed to continually use the credit, pay it off, and then take out more. Examples of revolving credit are credit cards and home equity loans.
2. Installment loan—This type of loan has a fixed loan amount, a fixed payment, and a fixed payoff date. Examples are auto loans and mortgages.
3. Open debt—This is the least common among the types of debts and includes debts that must be paid in full every month. American Express offers credit cards like this. There is no credit limit, but you have to pay in full every month.

Purpose of a Credit Report

The purpose of the credit report is to help companies determine if you are a good credit risk. It is also used by insurance companies, employers, landlords, and when granting military security clearance. These companies and institutions typically use credit reports to determine if you are responsible and pay your debts.

For some jobs, such as in the banking industry, they want to ensure that you are able to handle the constant interaction with money and are responsible enough to manage money for others. In the military, it has been shown that most unethical or illegal acts are committed in order to gain money to pay off debts.

Credit Score

The credit report itself does not say you are a good or a bad risk. It is up to the lending institution to take the information from the report and make its own decision on your creditworthiness.

In an attempt to make this easier, a credit score was created to summarize your ability to pay. This is also known as your FICO score. This score is not part of your credit report. Companies pay extra to have this score given to them in addition to your credit report.

When you get your annual free report, it will not include your credit score unless you pay an additional fee to access it.

Reporting Agencies

Your credit report is compiled by a credit reporting agency, also known as a credit bureau. There are three major agencies: Experian, Equifax, and TransUnion.

Each one gathers information from lending agencies and public records to compile your report and score. While each company typically has very similar information on you, there may be small differences between each of the agencies' reports and the scores that they report to lending institutions.

These agencies are for-profit companies and make money by selling reports to lending institutions and others that want the information. You do have to grant the company requesting the credit report permission to access your report; the company cannot simply request it. For example, if your landlord wants to run a credit report, you must first sign an authorization form allowing it.

Lending institutions are not required to report any information on your debts but do so voluntarily to help create a complete picture of individuals' credit.

The reporting agencies are monitored by the Federal Trade Commission (FTC).

Disputing Information on a Credit Report

If you pull your credit report and determine that information is false, you can request that the reporting agencies remove it from your report. In order to do this, you must submit a request. Then the agency has 30 days to verify or remove the information.

However, it is possible the information may show up at a later time. This occurs when the bank or lending institution has the wrong information in its files. After the agency has removed the information, the bank will re-report the data and it will show up again on your report.

In order to guarantee that the debt will not show up again, you must work with the lending institution to remove the bad information from its files.

Andrea Travillian

See also: Consumer Credit and Debt; Credit Cards; Credit Cycle; Debt Collection; Debt and Credit Counseling; *Vol. 1: Foundations of Economics:* Bankruptcy; Financial Literacy; *Vol. 2: Macroeconomics:* Debt

Further Reading

Consumer Financial Protection Bureau. n.d. Credit reports and scores. http://www.consumerfinance.gov/askcfpb/ (accessed March 12, 2014).

Equifax. n.d. How long does information stay on my credit report? http://blog.equifax.com/credit/faq-how-long-does-information-stay-on-my-credit-report/ (accessed May 10, 2010).

Experian. n.d. How utilization rate affects credit scores. http://www.experian.com/blogs/ask-experian/2013/10/30/how-utilization-rate-affects-credit-scores/ (accessed October 30, 2013).

Debt.org. n.d. How being in debt affects military clearance. http://www.debt.org/veterans/military-security-clearances/ (accessed March 18, 2016).

CREDIT UNIONS

Credit unions are a type of financial institution that allows you to deposit your money and take loans, similar to a bank. However, unlike banks, their organizational structure is nonprofit and member owned. The focus of a credit union is to provide a low-cost source of loans and banking services while promoting community and education among its members. Credit unions are regulated by the government entity that grants them a charter. A charter is a license to operate as a financial institution. Charters are issued by the state government that the credit union is located in or from the federal government.

History

The first credit union was started in the 1850s in Germany by Franz Hermann Schulze-Delitzsch as a way for city shopkeepers, traders, and artisans to pool money for mutual benefit.

The idea behind pooling money is that a group of people could put their money together and those who needed to borrow could do so, while those who had extra could make additional money by loaning it out to the others. Thus the businesses that were in the middle of a slowdown could borrow for a reasonable cost from those that were doing well.

In the 1860s, another German, Friedrich Wilhelm Raiffeisen, took the concept to the rural areas and started credit unions for the poorer common workers who were not able to use traditional banks. These unions had special structures that allowed seasonal employees to make payments on loans when income was coming in and not when there was no income. In the early days, all positions were volunteer except for the cashier.

By the end of the 19th century, credit unions had spread throughout Europe. The first official credit union in the United States started in November of 1908 in Manchester, New Hampshire.

Today there are more than 6,900 credit unions throughout the United States and more than 55,000 worldwide.

How Credit Unions Are Different from Banks

While banks and credit unions offer many of the same products and services, credit unions have a different structure, purpose, and other features. Following are the main differences:

- Profit—Banks are for-profit institutions with the money going to the bank's owners or shareholders. Credit unions, on the other hand, are nonprofit. Once the costs of running the credit union and excess capital requirements are reached, the profits are returned to the members.

  Profits are typically returned in the form of higher interest rates (which they call dividends), lower fees for products, and lower interest rates on loans. Some credit unions even use the overage to offer additional services and benefits, such as scholarships and member appreciation days with giveaways.
- Management structure—Credit unions are governed by their members, who are the owners. Every member gets one vote to elect the board of directors, no matter how much money is in his or her account.

  For day-to-day operations, credit unions hire traditional banking employees to hold positions such as tellers, managers, and loan officers. However, top-level management is done by the members of the credit union on the board of directors.

  This board steers the strategy and decision-making of the credit union. They review interest rates, set policies, approve budgets, and hire the CEO or president, who runs the credit union on a daily basis.

  Board members are typically volunteers. The board of directors is elected by the entire membership, and committees are typically appointed by the board of directors. Typical committees include a credit committee and a supervisory committee.

Banks are governed by employees, shareholders, and outside directors. The board is elected by the shareholders, where the number of shares you own determines how many votes you get. Not everyone that is on a management board or committee is an actual customer of the bank, whereas all members of management in a credit union are account holders in the credit union.

- Insured and governed—Banks and credit unions are overseen and backed by different government entities. Federally chartered banks are under the control of the Federal Deposit Insurance Corporation (FDIC), and credit unions fall under the National Credit Union Administration (NCUA).

  Just as customers of banks have insurance against the banks closing from the government, credit unions also get that benefit. They are insured by the National Credit Union Share Insurance Fund, which is run by the NCUA.
- Who can join—With a bank, anyone can open an account as long as he or she meets the financial requirements set forth by the bank. Conversely, credit unions have nonfinancial requirements that are instead focused on where you work and live.

  For example, you might be required to live, go to school, or work in a specific county or city. Or if it is a company credit union, you must work for that company. After you meet those requirements, the opening deposits are much cheaper than a traditional bank; instead of $100 as with a traditional bank, one can typically open a credit union account with around $5.

  Once you are a member, you have lifetime membership even if you move or change jobs. Once you have membership, your immediate family members may also join even if they do not meet the requirements on their own.

Products

Like a bank, credit unions offer checking and savings accounts, loans, certificates of deposit, ATMs, and more. There are some minor differences in the names used for these items, although this is changing to make it easier for members to understand.

For example, here are some of the naming variations of credit unions:

- A checking account is a share draft account.
- A savings account is a share account.
- Certificates of deposit are share term certificates.

Additionally, some credit unions have begun adding outside services such as insurance and investment management.

The biggest difference between credit unions and traditional banks are the fees that you pay for services. In credit unions, most deposit accounts do not have any monthly fees, unless they have special benefits to them. Additional services such as wire transfers, cashier checks, and statement research are offered at a fraction of the price of traditional banks. For example, a wire transfer at a credit union runs around $10, whereas the banks charge about $30.

Credit unions are a competitive alternative to traditional banks for great cost savings. Plus, they serve an often-ignored segment of the population that has less money. By offering low fees and smaller account opening requirements, credit unions are better able to serve their members.

Andrea Travillian

See also: Certificate of Deposit, Interest Rates; Money Market Account; Savings Account; Saving versus Investing; *Vol. 1: Foundations of Economics:* Banking; Investing; Compound Interest; *Vol. 2: Macroeconomics:* Financial Intermediation

Further Reading

Credit Union National Association. 2014. http://www.cuna.org (accessed March 6, 2013).

Credit Unions for You. 2014. How to start up a new credit union. http://www.creditunionsforyou.com/start.html (accessed March 6, 2013).

World Council of Credit Unions. 2012. 2012 statistical report. http://www.woccu.org/publications/statreport (accessed March 6, 2013).

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DEBT COLLECTION

A debt is an obligation of a consumer to repay to a lender or vendor money that was borrowed. A debt collector is anyone whose job it is to obtain debt repayments. When people fail to pay their bills, they may be subject to debt collection. Initially, the lender attempts to collect the amount due from the borrower. A lender could be a credit card company for a retail store or national company, a bank, a vendor of services such as a cable company, a medical provider, a mortgage company, or any business with whom you have conducted a business transaction on credit. In sum, a lender is any type of organization that issues credit cards, sells goods or services on credit, or makes loans.

This entry groups lenders and businesses together and calls the creditor a lender. If the lender is unsuccessful in receiving the monies owed, he or she may transfer the debt to a debt collection agency or attorney whose job is to collect or recover all or part of the money owed.

When a consumer fails to pay his or her department store credit card bill, after a few months, the bill is transferred to a debt collector who attempts to collect the debt. This process occurs when an individual has financial problems and stops making payments or underpays the amount owed to the lender.

The Fair Debt Collection Practices Act

The federal Fair Debt Collection Practices Act (FDCPA) governs how debt is collected. This law was enacted to eliminate abusive debt collection practices. In the past, debt collectors engaged in abusive practices that led to personal bankruptcies, marital instability, loss of jobs, and invasions of individual privacy.

This law requires debt collectors, within five days of initial contact, to provide the consumer in writing with the amount of the debt, the name of the creditor to whom the debt is owed, and a statement that the debt is valid. If the consumer does not dispute the debt within 30 days, the debt is assumed to be valid.

If the consumer disputes the debt, it must be done in writing within 30 days of first contact. At that point, the debt collector is required by law to obtain verification of the debt in writing and mail it to the consumer. The verification must include the amount of the debt and the name of the original creditor to whom the debt is owed.

Debt Collectors May Not Engage in Abusive Practice

FDCPA clearly prohibits debt collectors from harassing, oppressing, or abusing anyone while attempting to collect a debt. Debt collectors can't lie in their attempts to collect debts. For example, collectors cannot misrepresent themselves as attorneys or officers of the U.S. government, nor can they falsely claim that the debtor will go to prison. Debt collectors may not call you at work, or early in the morning, or late at night. Nor can debt collectors levy additional interest, fees, or charges on top of the debt unless permitted to do so by state law or under the terms of the original credit contract.

Unless the debt collector sues the individual and wins a judgment, the collector may not garnish the creditor's wages. If the borrower believes the collector violated the law, the borrower has one year in which to sue a debt collector in state or federal court. The debt collector may also be reported to the state attorney general's office for abusive practices.

Debt collection is used when a borrower fails to pay money owed. This practice is regulated by the government and must be practiced in accordance with the law.

Barbara A. Friedberg

See also: Consumer Credit and Debt; Credit Cards; Debt and Credit Counseling; Credit or Bond Rating Agency; *Vol. 1: Foundations of Economics:* Financial Literacy; *Vol. 2: Macroeconomics:* Debt

Further Reading

Ellis, Blake. 2013. Debt collection horror stories. *CNN Money* (February 6). http://money.cnn.com/2013/02/06/pf/debt-collection/ (accessed June 28, 2013).

Federal Trade Commission; Bureau of Consumer Protection Business Center. n.d. Fair Debt Collection Practices Act. Amended July 2010. http://business.ftc.gov/documents/fair-debt-collection-practices-act (accessed June 28, 2013).

Federal Trade Commission; Consumer Information. 2013. Debt collection. http://www.consumer.ftc.gov/articles/0149-debt-collection (accessed June 28, 2016).

USA.gov. 2013. Debt collection; know your rights. http://www.usa.gov/topics/money/credit/debt/collection.shtml (accessed June 28, 2016).

DEBT AND CREDIT COUNSELING

Credit counseling (sometimes referred to as debt counseling) is designed to help people experiencing financial difficulty. Credit counseling assists those who are behind in their credit card payments, living paycheck to paycheck, having difficulty saving money, receiving calls from collection agencies, facing bankruptcy, or experiencing other financial hardships. Credit counselors advise consumers on managing money, budgeting, saving, debt, and assist in creating a money management plan. There are both for-profit and nonprofit agencies to help with financial problems.

Credit cards, payday loans, and a variety of other loans are widely available today. This ready credit encourages individuals to borrow in order to buy items they cannot afford. Additionally, emergency expenses, such as unexpected medical bills, create financial hardship. When an individual's bills become delinquent and expenses surpass income, credit counseling can help. Additionally, those facing bankruptcy are required to seek credit counseling.

For example, credit (debt) counseling may be needed in the following situation. If an individual charges a large amount on a credit card and does not pay the total amount due at the end of the month, interest is applied to the unpaid balance. If the bill is not paid in full in subsequent months and more charges are added, additional interest accrues. When this debt, combined with other debts, increases each month without the likelihood of paying the complete debt due, credit counseling services can instruct the consumer in how to manage debt and finances.

How to Locate a Credit Counselor

A reputable credit counseling agency will send free information about itself and its services without requiring any information from the consumer. Credit counselors can be found at universities, military bases, credit unions, housing authorities, Consumer Financial Protection Bureau (CFPB), and branches of the U.S. Cooperative Extension Service (for those located in rural locations).

It is usually preferable to choose a nonprofit credit counseling service; although nonprofit does not mean free. Additionally, it is important to understand that there are unscrupulous business people posing as credit counselors at both for- and nonprofit credit counseling organizations.

After locating a credit counselor, check the state attorney general and local consumer protection agency to determine whether complaints have been filed against the agency. The U.S. Department of Justice maintains a list of approved credit counseling agencies by state. Even if an agency is included on the Department of Justice's approved list, it is important to review fees and services to ensure it is appropriate.

The consumer must ask questions of the credit counselor to understand his or her services:

- What services do you offer?
- Do you offer a plan to help with both current and future financial problems?
- What are the fees, and what if I cannot afford the fees?
- Are you licensed?
- What are the qualifications of the counselors?
- How are the counselors paid? (Beware if counselors are paid more if the consumer signs up for special services or requests special contributions to the firm.)

Typical Credit Counseling Services

Basic services include budgeting, designing a financial management plan, and teaching basic money management skills. The agency may recommend a debt management plan (DMP) if the consumer has excess debt. The credit counselor works with creditors to arrange a payment plan and possibly lower interest rates and fees. With a DMP, the consumer deposits a predetermined amount of money with the credit counseling organization. The agency pays the unsecured debts, such as credit card bills, student loans, and medical bills, with the deposits. Consumers must follow up with creditors to confirm that the debt payment arrangement described by the credit counselor is valid.

On occasion, the credit counselor may recommend bankruptcy. Although non-profit credit counselors usually do not offer debt settlement, it is an alternative. This occurs when a for-profit credit counselor negotiates with creditors for a lump-sum payoff of the debt. This payment is usually lower than the full amount owed. Debt settlement can be risky for the consumer because of high fees, lack of transparency, and unscrupulous counselors.

Credit counselors are useful for consumers with significant financial problems, but consumers may also handle their financial situation on their own. Consumers may call creditors directly and attempt to negotiate their own repayment plan.

There is a wealth of free online resources to help those experiencing financial problems, such as the National Foundation for Credit Counseling (NFCC) and the mymoney.gov website.

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See also: Consumer Credit and Debt; Credit Cards; Credit Cycle; Debt Collection; Interest Rates; *Vol. 1: Foundations of Economics:* Bankruptcy; Budget; Financial Literacy; *Vol. 2: Macroeconomics:* Debt

Further Reading

Federal Trade Commission. n.d. Choosing a credit counselor. http://www.consumer.ftc.gov/articles/0153-choosing-credit-counselor (accessed November 1, 2012).

MyMoney.gov. n.d. U.S. government financial education. http://www.mymoney.gov/Pages/default.aspx (accessed July 9, 2013).

National Foundation for Credit Counseling. n.d. http://www.nfcc.org/ (accessed July 9, 2013).

Ray, Daniel P., and Yasmin Ghahremani. n.d. Credit card statistics, industry facts, debt statistics. http://creditcards.com/credit-card-news/credit-card-industry-facts-personal-debt-statistics-1276.php (accessed June 11, 2014).

United States Department of Justice. n.d. List of credit counseling agencies approved pursuant to 11 U.S.C. 111. http://www.justice.gov/ust/eo/bapcpa/ccde/cc_approved.htm (accessed July 7, 2013).

USA.gov. n.d. Credit counseling services. http://www.usa.gov/topics/money/credit/debt/out-of-control.shtml (accessed June 27, 2013).

DEMAND

Of all the concepts in the world of economics, demand (along with its partner, supply) is arguably the most famous and most used concept. Demand (and supply) is used to describe current, and predict future, prices and actions of consumers. All other things being equal, demand describes the behavior of consumers and how they respond to changes in prices.

Law of Demand

The law of demand describes the relationship between price and quantity demanded by consumers. It states that price and quantity demanded have an inverse relationship, all other things being equal. As the price of a good or service increases, consumers' willingness and ability to purchase the good or service decreases. Conversely, as the price decreases, consumers are more willing to purchase the product.

Demand Schedule

For each product or service there is a relationship between price and quantity demanded (aka, the law of demand). The relationship is determined through surveying the willingness and ability of consumers to purchase a product at various prices. The results of the survey create a data set of the quantities consumers are willing and able to demand at each price. The law of demand states that this relationship will be inverse. As price rises, quantity demanded will fall, and vice versa, all other things being equal. The data set is the demand schedule. For an analogy, consider the demand schedule to be a product's "story."

Demand Curve

The relationship between a set of prices and the quantities consumers are willing to produce at each price, the demand schedule, allows one to graphically depict the price/quantity demanded relationship. The graphical depiction is called the demand curve. From the law of demand, to the demand schedule, the graphical demand curve will illustrate this relationship by being downward sloping to the right. To extend the analogy, if the demand schedule is the "story," the demand curve is the "picture." The story/picture analogy is useful in determining whether a change is a change in quantity demanded or a change in demand. To do this, it is necessary to identify whether the "story" changes or just the price.

Determinants of Demand

Determinants of demand are those elements that change a consumer's willingness and ability to purchase a product at all prices. These determinants change the "story."

Examples of these determinants include:

- expectations of future price changes
- changes in income level
- effective marketing
- government policies, such as price ceilings or price floors
- price of a substitute or complementary good (A substitute good is a good that a consumer could be satisfied with in place of the original product. Complementary goods are goods that work together or affect each other. Peanut butter and jelly could be considered complementary goods. If the price of peanut butter changes, it could potentially change consumers' preference for jelly.)
- tastes and preferences, lifestyles, customs, common habits, changes in fashion, standards of living, religious values, age, and gender

Demand versus Quantity Demanded

One confusing aspect of demand is the difference between demand and quantity demanded. To determine whether a change is in demand or quantity demanded, think in terms of the earlier analogy. If the change is only the price, consumers' willingness did not change. The story remains the same. Since the story did not change, the picture did not change. When the picture does not change, it reflects a movement of price and quantity demanded along the original demand curve.

However, if one of the determinants identified earlier creates the change, consumers' willingness and ability at each price changes and we have a new story. The new story creates a new picture, that is, a change in demand and a new demand curve.

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See also: Derived Demand; Supply

Further Reading

BusinessDictionary.com. n.d. Determinants of Demand. www.businessdictionary.com/definition/determinants-of-Demand.html (accessed November 1, 2015).

BusinessDictionary.com. n.d. Income. www.businessdictionary.com/definition/income.html (accessed November 1, 2015).

Economicsdiscussion.net. n.d. 10 determinants of demand for a product. www.economicsdiscussion.net/demand/10-determinants-of-demand-for-a-product/3402 (accessed November 1, 2015).

DEMAND DEPOSITS

A demand deposit is a type of transaction account held at banks and financial institutions from which funds may be accessed on demand. Demand deposits data are used by the Federal Reserve System to measure the size of the money supply in the U.S. economy and to formulate monetary policy. The amount of demand deposits is also a primary determinate of reserve requirements for financial institutions.

Accounts that are classified by the Federal Reserve as demand deposits are those that have no maturity period or an original maturity period of less than seven days and are payable on demand or within less than seven days' notice. Accounts may also be interest bearing. Demand deposits have no eligibility requirements, and there is no limit on the number of withdrawals the account holder may make.

Demand deposits are considered money because they serve the three functions of money: as a medium of exchange, as a store of value, and as a unit of account. When bank deposits can be traded without being converted into actual currency, the deposits are considered money, which is anything considered a medium of exchange. If the bank deposit has the same value as physical currency in relation to the goods and services it can purchase, it is considered a store of value. Demand deposits also share the six characteristics of money: they are durable, portable, divisible, scarce, uniform, and acceptable.

Demand deposits are included in the money aggregate M1, which is money primarily used in transactions or as a medium of exchange. M1 is the narrowest definition and measure of the money supply and includes currency and coin held by the public, demand deposits, and other checkable deposits and traveler's checks.

The Federal Reserve System (commonly known as the Fed) is the central bank for the United States and holds regulatory authority over financial institutions that hold demand deposits. The Federal Reserve controls the money supply in its goal to achieve full employment, price stability, and economic growth. The three tools the Federal Reserve uses to expand or contract the money supply include open market operations, the federal funds rate, and the required reserve ratio.

Depository institutions report the value of demand deposits to the Federal Reserve Board of Governors, which uses the data to calculate required reserves, the dollar amount of deposits banks are required to hold as cash in their vault or as deposits at the District Federal Reserve Bank in relation to the amount of checkable deposits. The amount of reserves required changes as the amount of deposits increases. The banks' goal is to keep the amount held in reserves to a minimum, since they cannot earn interest on this money by loaning it out. Because these funds are not in circulation, they are not counted as part of the money supply. Any deposits that the bank holds in excess of the required reserves are called excess reserves and can be used to make loans or purchase government securities.

The Federal Reserve can change the reserve requirements to increase or decrease the supply of money in the economy. By lowering the required reserve, the Fed increases the money supply, allowing banks to loan out a higher portion of their deposits. Increasing the required reserve reduces the money supply by requiring banks to keep a higher ratio of deposits as reserves, which leaves less to circulate in the economy. The Fed may increase the supply of money in order to reduce interest rates. Lower interest rates stimulate consumption and investment. Consumers save less and borrow more. Consumers do not have an incentive to save money at a lower interest rate; instead, they will borrow at lower rates to purchase goods. Businesses will borrow money to invest in capital goods. Aggregate demand increases, which increases real GDP. The Federal Reserve can also change the money supply through open market operations, by buying or selling treasury securities, and by raising or lowering the discount rate, the rate at which banks can borrow funds from the Federal Reserve.

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See also: Interest Rates; *Vol. 1: Foundations of Economics:* Money, History of; *Vol. 2: Macroeconomics:* Aggregate Demand and Aggregate Supply; Federal Open Market Operations; Federal Reserve System; Gross Domestic Product; Money; Money Supply

Further Reading

Auerbach, Alan J., and Laurence J. Kotlikoff. 1998. *Macroeconomics: An integrated approach*. Cambridge, MA: MIT Press, 387.

Handa, Jaqdish. 2002. *Monetary economics*. New York: Routledge, 91.

McLean, William, and Michael Applegate. 2012. *Economics and contemporary issues*. Boston: Cengage Learning, 334.

DEREGULATION

Deregulation is the act of limiting the government's involvement in monitoring and controlling private companies and how much companies can charge customers. Deregulation favors a free-market approach, encouraging competition and eliminating the protection often offered to weaker businesses in a regulated market.

In the long run, this is considered healthy for the economy, but it can be hard on workers in the short run.

Effects of Deregulation

The results of deregulation depend on which side of the affected business you are on. In most cases, when new firms enter an industry, consumers receive lower prices, typically a better quality product, and more choices. Competition certainly increased in the airline, trucking, and banking industries when they were deregulated. With such rapid growth, the competition went wild, which in the short run is beneficial for consumers but not for current business owners. Deregulation causes current industries to compete with new firms, which usually means improving quality or lowering prices.

Deregulation often means new firms and thus new jobs are created; however, in the long run, the weaker firms will be weeded out of the industry and those jobs will be lost, thus balancing out employment.

History of Deregulation

From the turn of the century through the 1960s, the trend was for the government to become more involved with private companies. By setting minimum wage laws, child labor laws, and antitrust regulations, the government controlled some aspect of all businesses.

During the Progressive Era (1890s–1920s) most regulations were on big business and industry. Some of the most aggressive reforms were on trusts, breaking up monopolies, creating laws to protect consumers, the creation of the Federal Reserve system, the progressive tax structure, and helping American workers. Laws that shortened the work day; mandated higher wages, better living conditions, and safer working conditions; and protected labor unions created a nation that felt more socialist than free market.

From 1921 to the early 1930s, the government and presidents generally pursued a laissez-faire approach to the economy. However, after the Great Depression, President Roosevelt implemented major changes, and government involvement in the economy soared. The National Industrial Recovery Act placed drastic regulations on the trucking, airline, and communications industries.

Deregulation began to gain momentum in the 1970s, and transportation was the first major industry to feel its effects. The proposed legislation affected both railroad and trucking transportation, but not air. With the passage of the Railroad Revitalization and Regulatory Reform Act of 1976, the momentum for deregulation had begun.

In the 1970s and 1980s, Congress continued to pass laws to deregulate industries including airline, television broadcasting, banking, and natural gas. In the 1990s, several states deregulated their electricity companies to produce and sell energy to homeowners.

Depending on the degree of deregulation, the government's action allowed firms in these industries to compete more freely in the markets by eliminating many entry barriers and price controls. The ultimate goal of these acts was to promote competition within the market.

Results of Deregulation

In most cases, after deregulation many new firms immediately entered the marketplace. Competition increased dramatically in the airline, trucking, and banking industries. Usually, with the influx of completion, years of rapid growth were followed by the elimination of some of the weaker firms. This process is considered healthy for the economy and consumers but can be difficult to handle as a worker in the industry.

When airlines were deregulated in the late 1970s, large airline companies competed aggressively for the busiest routes and began to buy out the smaller airline companies. For most travelers, the increased competition created lower prices. However, in many busy airports, one airline company gained dominance, which in some instances caused fares to rise higher than before deregulation.

In the 1980s, when cable television was deregulated by the FCC, cable rates skyrocketed and service became even worse in certain parts of the country. This resulted in a move in the 1990s to regulate the cable industry once again. In 1992, with the passage of the Cable Television Consumer Protection Act, competition was again allowed in hopes of stabilizing rates and bringing improved service.

When several states deregulated their electricity companies in the 1990s, energy prices did fall in many areas, but elsewhere customers paid more. California experienced a massive energy crisis in 2000 that forced the government to pay extremely high rates for electricity.

The financial deregulation of the 1980s was designed to benefit depository institutions, especially the thrift industry. The removal of interest rate ceilings on deposits and more relaxed accounting practices that allowed thrifts to spread out losses over a 10-year time span gave the financial world a lot more freedom. Bank regulators were urged to avoid intervention in the private market, which was the norm during "Reaganomics." Between 1982 and 1985, deposits in the savings and loan industry flourished. Investors saw potential profits in the new investment powers granted to thrifts, and they invested in condominiums and other commercial real estate. This meant that investment portfolios of savings and loans began to shift from more secure traditional home loans into higher-risk loans. Unfortunately, by the mid-1980s, the real estate market went bust and so did thrifts' investments. Hundreds of institutions failed, and the federal government had to contribute $10.8 billion in one year to bail out the savings and loan industry. Unfortunately, the industry continued to fail over time, requiring more drastic measures from the federal government.

The deregulation movement of the late 20th century had substantial economic effects. It relied heavily on the market forces closely related to the growth of economic globalization. With the economy reliant on global competition, regulations within one nation can cause industries to seek other less regulated locations to open their businesses. The 21st century has seen rapid growth in outsourcing of labor, globalization of industries, and global competition.

Tracy L. Ripley

See also: Federal Trade Commission; *Vol. 1: Foundations of Economics:* Capitalism; Great Depression and Wall Street Crash, 1929; Progressive Era; Reagan, Ronald; Roosevelt, Franklin D.; *Vol. 2: Macroeconomics:* Friedman, Milton; *Vol. 4: Global Economics:* Globalization; Outsourcing

Further Reading

Kahn, Alfred Edward. 2004. *Lessons from deregulation: Telecommunications and airlines after the crunch*. Washington, DC: Brookings Institution.

Morrison, Steven, and Clifford Winston. 1986. *The economic effects of airline deregulation.* Washington, DC: Brookings Institution.

Niskanen, William A. 1989. Economic deregulation in the United States: Lessons for America, lessons for China. *Cato Journal* 8 (3): 657–668.

O'Sullivan, Arthur, Steven M. Sheffrin, and Grant Wiggins. 2013. *Economics.* Upper Saddle River, NJ: Pearson/Prentice Hall.

DERIVATIVES

Derivatives are a unique financial instrument. In fact, these investments receive their value from an underlying asset, typically stocks, bonds, or loans. The derivative itself is actually a contract between two individuals. An investor in a derivative does not own the underlying asset but profits (or loses) from the movement up or down in the price of the underlying asset.

This is a complicated financial product with benefits for individual investors, professional investors, corporations, and speculators. The derivative products, with their frequent media mentions, are important additions to the modern personal finance glossary.

Derivative Example

The payoff of a derivative investment depends on the value of other assets. For example, a call option gives the holder the right to purchase an asset such as a stock at a prespecified price, on or before a certain date. The profit comes from the sales price of that option on the expiration date of the derivative contract. If the sales price on the expiration date is higher than the call option exercise price, the call holder can buy the asset at the lower (option exercise) price and sell it for a profit at the higher market price.

Assume Facebook (FB) stock is selling for $68 per share in March and you believe the stock is going to rise in price. You don't want to shell out $6,800 to purchase 100 shares. You decide to buy a call option. The call option will give you the option to buy FB shares at a predetermined price before a specific date. According to the call option chart, you can buy the $67.50 May 14 call for $6.20. What this means is that for $6.20 x 100 or $620, you have the right to purchase

100 shares of FB stock for the strike price of $67.50 any time between March and May 14.

If the price of FB is $75 on May 13, you can decide to exercise the option and purchase the shares for $67.50 per share or $6,750. You can then turn around and sell the shares for the market price of $75 per share or $7,500. This yields a profit of $7,500–$6,750 or $750. But you must also subtract the $620 cost of the call options. Thus your net profit for these transactions is $750–$620 or $130.

This scenario suggests you would have made more money had you purchased the stock outright. Well, in this situation that is true. But what if you purchased the stock outright and it fell in price from $68 per share to $60 per share? In that case, you would have lost $6,800–$6,000, or $800.

There are many different types of derivative transactions from buying and selling (or writing) calls to buying and writing puts. Puts give the option holder the right to sell a stock at a predetermined price during a specific time period. Buying a put is sometimes considered insurance for investors who believe the market is going to decline in value but don't want to sell their shares.

Who Invests in Derivatives?

Derivatives are used by corporations to hedge financial risks arising from variations in foreign exchange, interest rates, and commodity prices. Depending on the type of contract, derivatives can trade on regulated exchanges (like stocks) or over the counter (OTC) in unregulated exchanges.

Individuals and corporations use derivatives as insurance to protect their investment portfolio from a downward shift in prices or to speculate for future profits.

Forward and Futures Contracts

Forward or futures contracts are contracts between two counterparties wherein one party agrees to buy an asset/commodity at a predetermined price at a future date and the other party agrees to sell it. This helps investors to hedge the prices of their assets.

For example, a corn chips manufacturing company enters into a forward contract to buy a bushel of corn for $100 in two months from a corn farmer. At the end of two months, if the market price of a bushel of corn is $105, the farmer loses and the company gains $5. If the market price is $95, the farmer gains and the company loses $5. In either case, the price of $100 determined two months earlier helps the company lessen the impact of fluctuating corn prices on its bottom line. This transaction also helps the farmer put a floor under the price of corn he or she will sell in the future, protecting a specific profit level.

Though the underlying contract structure is the same for forwards and futures, they differ in the following way: Forward contracts are customized contracts between two parties that have a counterparty risk (risk of default on payment) and trade over the counter between private parties. Future contracts are liquid, trade on exchange, and have very low counterparty risk (counterparty is the exchange on which the future contract is traded, not another investor).

Option Contracts

Options are an extension of future contracts with an embedded exercise option. An option contract gives the buyer the option to buy or sell a security at a predetermined price (strike price) at a predetermined date (maturity). The cost of entering this contract is called the option premium.

Option contracts fall into two categories: puts and calls. A call option is the option to buy at a predetermined price, and a put option is the option to sell at a predetermined price. For an investor who wants to take a bet on the directionality in the price of a certain security, options are a cheap way of speculating instead of buying the underlying security.

An investor who believes that IBM (trading at $175) will trade above $180 in two months will buy a call option and is said to be long call. An investor who believes that the IBM stock will trade below $180 will sell the option and is said to short or write the call. The seller of the call gets the option premium, which is also the price of the option. The price of an option is dependent on the strike price, fluctuations in the price of the security, time to maturity, risk-free rate, and dividends paid.

For an investor who wants to limit his or her downside risk on a security, buying a put option acts as insurance. If a current holder of IBM stock (trading at $175) believes that IBM might trade down to $165 in two months, he or she will buy a put option at $165 with expiration in two months and will pay an option premium (the value of put option) to the seller (or writer of the option contract). If IBM goes down to $160 in two months, the put option buyer will sell the stock for $165 and make a gain of $5 (less the option premium paid). If the stock trades up to $180, the put option buyer's loss equals the premium paid and the option expires worthless.

The put option buyer is said to be long put and the put option seller or writer is said to be short put. Thus, a long put is equivalent to buying insurance to limit downside price movements, while a long call is equivalent to buying a stock with unlimited upside potential.

Options are widely used by portfolio managers to hedge portfolio exposure, to bet on the direction of certain securities, to generate income (from premiums), and to create complex option structures that provide a return profile in line with their hedging needs.

Swaps

Swaps are derivative instruments that allow for transfer of an asset or liability between two counterparties. The most common types of swaps are interest rate swaps and currency swaps. Interest rate swaps allow for swapping of interest rate payments between two parties, including fixed to floating swap, floating to fixed swap, and floating to floating swap.

A company that has floating rate loans (loans on which the interest rate may go up or down) on its balance sheet would want to swap them for a fixed payment schedule if interest rates are expected to increase. This helps lessen the company's interest expense. Similarly, a company with fixed rate liabilities would want to swap them for a floating rate payment schedule in case of falling interest rates.

Currency swaps are used by companies that derive their revenue from multiple countries (i.e., multiple currencies) and would like to hedge (or protect) their exposure to various currency fluctuations. For example, a multinational company with business branches in Germany and Mexico will enter into currency swaps in euros (to hedge revenues coming from Germany) and pesos (to hedge revenues coming from Mexico). This provides the company with more certainty on its revenues and helps the company keep track of future earnings.

Derivatives are financial instruments that help the financial community smooth out risk and increase potential profit (or losses) for the speculator. Many parties in the financial community benefit from using derivatives. Unfortunately, these complex financial instruments are occasionally misused.

Surya M. Pisapati

See also: Collateralized Debt Obligations; Commodities; Index Mutual Funds; Interest Rates; Options; Risk; Risk Premium; Stock Market; Stocks; *Vol. 2: Macroeconomics:* Financial Intermediation; Shadow Banking

Further Reading

Black, Fischer, and Myron Scholes. 1973. Options and corporate liabilities. *The Journal of Political Economy* 81 (3, May–June).

Hull, John C. 2011. *Options, futures and other derivatives*. Upper Saddle River, NJ: Prentice Hall.

Markowitz, Harry. 1952. Portfolio selection. *Journal of Finance* (March 1): 77–91.

DERIVED DEMAND

Derived demand is a demand for a resource used in the production of a good or service; the demand is "derived" from the demand for the good or service it was used to produce.

We make economic choices every day. When consumers demand a good or service, an intermediary is also demanded. Customer preferences increase or decrease, which is linked to derived demand. Beginning with consumer demand, derived demand establishes a value chain. Through this value chain, derived demand creates a ripple effect in local communities. In manufacturing, the derived demand for raw materials creates additional derived value chains. In most cases, the manufacturing is the intermediary used in this kind of demand. The demand for a good or service in one industry can create a derived demand in another industry.

The transportation industry is an interesting example of derived demand. As a resource, trucking is a transaction cost in the production of goods and services; its demand is derived from the production of a final good or service. In contrast, taxicab and bus transportation are themselves final services where demand is positioned against the supply in a product marketplace. The airline industry's product demand derives the demand for other airline services such as terminal space, baggage handlers, reservation personnel, and air personnel such as pilots and flight attendants.

Economists use derived demand predictions and metrics to calculate the derived demand of resources as a leading indicator of future economic activity. Understanding how an economy's resources are being utilized allows economists to identify future demands of goods and services by consumers.

Derived demand is a key component to understanding the demand of our economy and being able to predict future economic activity.

David A. Dieterle

See also: Demand; Labor Economics; *Vol. 1: Foundations of Economics:* Capital Resources; Factors of Production; Human Capital; Resources; *Vol. 2: Macroeconomics:* Labor Force; Labor Productivity

Further Reading

BusinessDictionary.com. n.d. Derived demand. www.businessdictionary.com/definition/derived-demand.html (accessed September 30, 2016).

InvestorWords.com. n.d. Derived demand. www.investorwords.com/16344/derived_demand.html (accessed September 30, 2016).

Pettinger, Tejvan. 2012. Derived demand. EconomicsHelp (November). www.economicshelp.org/blog/glossary/derived-demand/ (accessed February 14, 2016).

DIAMOND, PETER

Born: April 29, 1940, in New York City; Nationality: American; Professional Interests: public finance theory economics, public policy analysis, welfare economics, Nobel Prize (2010); Major Works: *Saving Social Security: A Balanced Approach* (with Peter R. Orszag, 2003); *Saving Social Security: A Balanced Approach* (2005); *Reforming Pensions: Principles and Policy Choices* (2008).

Peter Diamond is an American economist known for his analysis of pensions and specifically the U.S. Social Security system. He was awarded the Nobel Prize in Economics in 2010 with Dale Mortensen and Christopher Pissarides. He served as an adviser on the Advisory Council on the Social Security to the U.S. Senate. In 2010 and 2011, he was nominated by President Barack Obama on three different occasions to serve on the Board of Governors for the Federal Reserve System. Even though chairman of the Federal Reserve Ben Bernanke had once been one of Diamond's students, each time opposition by Senate Republicans prevented Diamond's confirmation. Eventually, he withdrew his nomination.

Peter Arthur Diamond was born on April 29, 1940, in New York City. After attending public schools in the Bronx and Long Island, Diamond entered Yale University for his undergraduate studies. Even though he was studying math as a major, young Diamond was greatly influenced by not-yet Nobel laureate Gérard Debreu, from whom Diamond took several classes. Diamond received a BA from Yale summa cum laude in 1960, and despite his interest in economics, he accepted an offer to study math at MIT for his graduate studies. Yet once at MIT, it was suggested his fellowship be transferred to the economics department, and Robert Solow became his adviser. Diamond graduated from MIT with a PhD in 1963 with a strong interest in public finance, general equilibrium, and taxation.

In 1960, Diamond began his career in economics as a research assistant to Nobel laureate-to-be Tjalling Koopmans (1975). Diamond's contributions to Koopmans's research led Koopmans to redesign his own plan. This led Diamond to be a coauthor with Koopmans and to Diamond's first publication in 1964. Diamond considered Koopmans one of his major influences and a role model in his career.

Upon graduation from MIT in 1963, Diamond accepted a position at the University of California, Berkeley. After one year at UC Berkeley, Diamond returned permanently to MIT as a member of the faculty, rising through the ranks from associate professor to institute professor. From 1992 to 1997, Diamond was the first Paul Samuelson Professor at MIT, relinquishing it in 1997 to become an institute professor. As a professor, Diamond found invigorating the combination and supportive nature of teaching and research.

As an overseas fellow at Churchill College in Cambridge in 1964–1965, Diamond's research in public finance took a major leap forward while delivering a seminar on optimal taxation. At this time, he met future Nobel laureate James Mirrlees (1996), who recommended expanding Diamond's model from a one-consumer economy to a many-person economy. This meeting began a project that resulted in a paper on optimal taxation, not published until 1971, and the Diamond-Mirrlees efficiency theorem. Their theorem suggests that taxes should not be imposed on intermediate goods and imports. The Diamond-Mirrlees collaborative partnership led to many additional papers throughout Diamond's career.

At the recommendation of Paul Samuelson, Diamond was invited to join the Panel on Social Security Financing, a consultant to the U.S. Senate Finance Committee. This invitation began Diamond's study of pensions and social security. A proponent of basis research and public policy analysis being supportive of each other, Diamond's professional interest in these areas made him well suited for this appointment.

Diamond wrote many articles and books in his career with many collaborators and coauthors. Topics in his articles ranged from analyses of different social welfare programs to the U.S. Social Security system and Social Security Administration. In 2003, Diamond coauthored with Peter Orszag *Saving Social Security: A Balanced Approach*.

As a public finance economist, Diamond was focused on both the financial viability of social programs as well as their social benefits. This was reflected in his many writings on the Social Security system. Several of his recommendations included adjustments in the taxation of Social Security income as well as adjusting contribution amounts as life expectancy patterns change.

His career in public finance and work on Social Security did not go unnoticed by either his colleagues or the public. In 1978, Diamond was named a fellow of the American Academy of Arts and Sciences and of the National Academy of Sciences in 1984. He was elected a fellow and served as president of the Econometric Society in 1968, and in 2003 held the prestigious office of American Economic

Association president. In 2008, he was honored as the recipient of the Robert M. Ball Award for Outstanding Achievements in Social Insurance. In 2010, Peter Diamond received the ultimate honor, being awarded the Nobel Prize in Economic Sciences along with Dale T. Mortensen (Northwestern University) and Christopher A. Pissarides (London School of Economics). The focus of his prize-winning work was to determine equilibrium in labor markets.

David A. Dieterle

See also: Arrow, Kenneth; Labor Economics; Labor Market Regulation; Mortensen, Dale; Pension Plans; *Vol. 2: Macroeconomics:* Bernanke, Ben; Samuelson, Paul; Solow, Robert

Further Reading

Barr, Nicholas, and Peter Diamond. 2008. *Reforming pensions: Principles and policy choices*. New York: Oxford Univ. Press.

Bloomberg News. 2011. Nobel laureate Diamond withdraws nomination to Fed Board (June 6). http://www.bloomberg.com/news/2011-06-06/nobel-laureate-peter-diamond-to-withdraw-his-nomination-as-a-fed-governor.html (accessed May 11, 2015).

Debreu, Gérard. 1959. *Theory of value: An axiomatic analysis of economic equilibrium*. New Haven, CT: Yale Univ. Press.

Diamond, Peter A. 2011. My research strategy. In *Eminent economists II: Their work and life philosophies*, ed. Michael Szenberg and Lall Ramrattan. New York: Cambridge Univ. Press.

Diamond, Peter A. n.d. Autobiography. Nobelprize.org. http://www.nobelprize.org/nobel_prizes/economics/laureates/2010/diamond.html (accessed April 2012).

Diamond, Peter A., and James A. Mirrlees. 1971. Optimal taxation and public production I: Production efficiency. *American Economic Review* 61 (1): 8–27.

Diamond, Peter A., and James A. Mirrlees. 1971. Optimal taxation and public production II: Tax rules. *American Economic Review* 61 (3, pt. 1): 261–78.

Diamond, Peter, and Peter R. Orszag. 2005. *Saving social security: A balanced approach*. Washington, DC: Brookings Institution Press.

Moscarini, Giuseppe, and Randall Wright. 2007. An interview with Peter Diamond. *Macroeconomic Dynamics* 11: 543–65.

DISABILITY INSURANCE

Disability insurance protects a worker's current and future earnings. There is both government and private insurance to assist disabled workers.

Workers' earnings are their most valuable asset. Any injury, illness, or medical condition, be it a mental disorder or physical incapacity, leading to a permanent or temporary disability can be more disastrous to income earners and their financial dependents than death. Family breadwinners, the self-employed, and those with substantial debts are particularly exposed.

Disability insurance protects people who are disabled to the extent they can no longer perform the main functions of their work and must forego their income. The proceeds from disability insurance replaces disabled workers' income and pays for their daily living expenses and significant medical and rehabilitation expenses.

A disability occurs when the worker is physically or mentally disabled, has been in a debilitating accident, or has suffered an injury and/or serious illness.

United States Social Security Disability Insurance

The government offers Social Security Disability Insurance, which pays benefits to insured workers who become disabled. To become insured under the Social Security program, workers must have worked in jobs covered by Social Security and have a medical condition that meets the Social Security definition of disability. Additionally, workers must have been unable to work for at least one year because of a disability. These benefits usually continue until the worker can return to the workforce.

Private Disability Insurance

Many companies offer disability insurance, which generally offers more lenient coverage rules and the opportunity for the policyholder to receive benefits earlier than with Social Security Disability Insurance.

The most important feature of any disability insurance policy is how the policy defines *disability*. This definition can vary from insurer to insurer. Consumers should avoid policies where the definition and types of benefits offered are not easily understood. As a general rule, the more ambiguous the definition of *disability*, the more open the definition is to interpretation by the insurance company. Unclear and ambiguous policy language may lead to difficulty collecting compensation.

Disability insurance benefits include paid sick leave, short-term disability benefits, and long-term disability benefits. After an individual is deemed disabled and unable to complete his or her job duties, the insurance company pays a percentage of the claimant's income as a monthly benefit. Periodic payments begin after the waiting period (14 days is common) and over a benefit period (varies in duration for each policy).

The waiting or elimination period ranges from 30 to 90 days. During the waiting period, claimants require other sources of income, such as an emergency fund, sick leave, or annual leave benefits to support themselves while they wait for their benefit to be paid. The longer the waiting period a claimant has opted for when purchasing the insurance, the lower the premiums.

The maximum benefit amount payable can vary between 50 and 80 percent of the insured's gross earnings prior to the disability event.

Types of Disability Insurance

The different types of disability insurance available are short-term disability (STD) insurance, long-term disability (LTD) insurance, and critical illness insurance. These insurances consist of regular payments to someone who suffers a disability and cannot work.

Short-Term Disability and Long-Term Disability

Short-term disability coverage pays for disabilities of up to two years. In actuality, most short-term policies pay for six months of coverage.

Short-term disability policies have a waiting period of between zero and 14 days before the benefit becomes available to the claimant, with a maximum benefit period of between two and five years.

Long-term disability policies have a waiting period that may range from 30 to 360 days with a maximum benefit period ranging from a few years to usually age 65, after which Social Security income benefits become available. Long-term disability insurance generally covers injuries and treatments lasting at least 30 days.

Some policies have residual (additional/rider) benefits, such as guaranteed renewable or noncancelable policies. The guaranteed renewable feature gives consumers the right to renew the policy with the same benefits and not have the policy canceled by the insurer. The insurer has the right to increase the premiums as long as it does so for all other policyholders. Noncancelable means the policy cannot be canceled by the insurer, except for nonpayment of premiums. A cost-of-living rider will ensure the benefit payments keep up with inflation. All disability policies waive premiums during the disability.

Not all employers offer disability insurance. Even if an employer offers disability insurance, the coverage may be insufficient. In these cases, individuals may choose to insure themselves with an individual disability insurance policy. Professional associations frequently offer group disability insurance policies to their members.

Critical Illness

Over one's lifetime, a person is more likely to suffer from a serious illness for a short duration and survive than to die prematurely. In this scenario, the individual and his or her family may suffer severe financial consequences while the disabled person is recuperating and unable to work.

Critical illness or trauma insurance policies pay a lump sum rather than regular income payments in the event a person is disabled as a result of a dreaded disease. A dreaded disease is defined as heart attack, stroke, bypass surgery, and cancer. This type of disability insurance pays a benefit upon the occurrence of the dreaded disease event, provided the definition of the disability is satisfied.

This insurance is distinct from short- and long-term disability insurance. Critical illness disability insurance provides protection for those who are temporarily disabled and cannot make a claim for illness or injury under their medical, short-term, or long-term disability insurances.

The critical illness lump sum payout can be used for many expenses, such as paying off the mortgage, covering daily living expenses, funding future income needs, and contributing to retirement savings while the person is ill and not able to work. Critical illness disability payments do not just cover medical costs (Gjertsen 1998).

Disability Insurance Cautions

Buyers beware, because some insurance policies define people as disabled if they are unable to perform the duties of "any occupation," justifying charging low premiums.

For example, if a university engineering professor becomes disabled and holds a policy that only applies if he is unable to work in "any occupation," here's what might occur. Assume the professor has a very mild stroke that doesn't impact him physically but leaves his memory and mind minimally impaired. Due to the mental incapacity, the professor is not competent to teach engineering coursework. But, since he returns to physical competence, he is able to perform physical work, such as a checker in a grocery store.

The grocery store clerk job is not similar to his former job as an engineering professor.

His disability would not pay out because although he is unable to teach engineering courses, he can still work in another field. His policy states that in order to receive benefits he must be unable to work in any role.

The superior insurance policies are usually more expensive in terms of premiums because they pay benefits if someone is unable to do the usual duties of their "own occupation," which is the role they performed prior to the disability.

Consumers must carefully compare the various disability insurance options available on the market, especially if the insurer is offering lower premiums compared to its competitors.

Workers Who May Be Ineligible for Disability Insurance

Those individuals in hazardous occupations, such as pilots and flying and diving instructors, may be uninsurable for disability insurance. High-income earners are subject to payment ceilings for disability benefits.

Angelique N. S. McInnes

See also: Life Insurance; Umbrella Insurance; *Vol. 1: Foundations of Economics:* Financial Literacy; Social Security; *Vol. 2: Macroeconomics:* Entitlements; Social Security Act of 1935; *Primary Document:* Social Security Act of 1935

Further Reading

Gjertsen, L. A. 1998. Brokers surveyed on disability cover. *National Underwriter/Property & Casualty Risk & Benefits Management* 102 (6): 33.

Lavandeira, E. A. 1995. Cover yourself! *Hispanic* 8 (8): 62.

Richardson, B. C. 2011. Planning for business continuation. *Advisor Today* 106 (1): 18–19.

Ruquet, M. E. 2012. Survey: 9 in 10 would pay for disability insurance, if they knew what it was. *National Underwriter/P&C* 116 (15): 8.

Sargent, D. 2008. Give staff a safety net. *Credit Union Magazine* 74 (8): 52.

Social Security. n.d. Benefits for people with disabilities. http://www.ssa.gov/disability/ (accessed March 17, 2014).

Teale, J. 2008. *Insurance and risk management*. Milton, AU: John Wiley & Sons Australia, Limited.

Wiskowski, J. 2008. Study finds gap in employee understanding of disability insurance. *National Underwriter/Life & Health Financial Services* 112 (4): 18–26.

DUAL MOTIVE THEORY AND DUAL INTEREST THEORY

The notion of dual motive theory (DMT) grew out of the collaboration of several individuals, as summarized in a series of papers published in the *Journal of Socio-Economics* (see Cory 2006a and related papers in that issue). The core idea drew on the notion of the triune brain, proposed by MacLean (1990) as a result, DMT is closely associated with the understanding in neuroscience as interpreted by MacLean. He proposed the brain had evolved in an interconnected and modular three-level structure, involving the reptilian complex at the core, overlain by the mammalian complex, with both complexes overlain by the neocortex neomammalian complex.

Cory (1999) elaborated this theme, positing that the reptilian core led to the egoistic tendency to self(ish) interest only, while the mammalian complex led to the empathetic tendency to shared interest with others. So, individuals have evolved with both egoistic and empathetic tendencies, with said tendencies resolved through a rational, "executive" control in the third part of the brain tasked with cognition.

This notion of dual tendencies in turn leads to the proposition that individuals have dual motives, with the egoistic tendency leading to mainly self-interested motives and choices and the empathetic tendency leading to better shared outcomes with others. For example, an individual may purchase a mask and gear to explore a coral reef mainly in self-interest while joining with others to help preserve coral reefs, the latter reflecting a shared interest in longer-term sustainability.

Dual interest theory reflects the proposition that individuals have evolved with not only the egoistic-hedonistic tendency to self-interest, as standard microeconomics presumes, but also with an empathetic-sympathetic tendency to other-interest (shared with others, yet internal to own self). This is still about one's own interest and not about regarding others' preferences and interests. These two interests are viewed as joint, nonseparable, and intertwined. Every economic choice gives payoff in both domains of interest. Dual interest theory (DIT) is closely related to dual motive theory, and, in fact, grew out of the same core ideas (Lynne 2006a, 2006b). DIT, however, reflects a broader attempt at an overall metaeconomics framework that ties closely with standard, neoclassical economic theory, the "meta" referring to going beyond and transcending that theory while keeping its core ideas.

Meta framing reintroduces and makes explicit the moral dimension and the ethical system underlying economic choice. The empirical side of meta framing and DIT is then represented in a dual motive model (DMM), which refers to particular behaviors like purchasing a mask and gear to explore a coral reef (reflecting self-interest), with the other-interest (shared) in sustaining said coral reef posited as tempering and restraining the self-interest. DIT posits that the final choice of the amount of gear purchased and coral reef sustained usually requires a bit of own-sacrifice, altruism, in each domain of interest, with the potential for a greater-than-the-sum-of-the-parts outcomes.

Empathy-sympathy serves a major role in tempering and restraining self-interest. DIT as an integrative theory is evolving based on growing evidence on actual human nature as it pertains to economic choice. This is reflected in economic psychology (Kahneman 2011), evolutionary biology (DeWaal 2009), neuroscience (Damasio 1994), and neuroeconomics (Singer 2009).

Gary Lynne

See also: Kahneman, Daniel; *Vol. 1: Foundations of Economics:* Behavioral Economics

Further Reading

Cory, Gary A. 1999. *The reciprocal modular brain in economics and politics: Shaping the rational and moral basis of organization, exchange, and choice*. New York: Kluwer Academic/Plenum Publishers.

Cory, Gary A. Jr. 2006a. The dual motive theory. *Journal of Socio-Economics* 35: 589–91.

Cory, Gary A. Jr. 2006b. A behavioral model of the dual motive approach to behavioral economics and social exchange. *Journal of Socio-Economics* 35: 592–612.

Czap, Natalia V., Hans J. Czap, Marianna Khatchaturyan, Gary D. Lynne, and Mark E. Burbach. 2012. Walking in the shoes of others: Experimental testing of dual-interest and empathy in environmental choice. *Journal of Socio-Economics* 41: 642–53.

Damasio, Antonio R. 1994. *Descartes' error: Emotion, reason, and the human brain*. New York: Quill, HarperCollins.

DeWaal, Frans. 2009. *The age of empathy: Nature's lessons for a kinder society*. New York: Harmony Books.

Kahneman, Daniel. 2011. *Thinking fast and slow*. New York: Farrar, Straus and Giroux.

Levine, David S. 2006. Neural modeling of the dual motive theory of economics. *Journal of Socio-Economics* 35: 613–25.

Lynne, Gary D. 2006a. Toward a dual motive metaeconomic theory. *Journal of Socioeconomics* 35: 634–51.

Lynne, Gary D. 2006b. On the economics of subselves: Toward a metaeconomics. In *Handbook of Contemporary Behavioral Economics*, ed. Morris Altman, 99–122. New York: M. E. Sharpe.

MacLean, Paul. 1990. *The triune brain in evolution: Role of paleocerebral functions*. New York: Plenum.

Sautter, John, Natalia Ovchinnikova (now Czap), Colby Kruse, and Gary Lynne. 2011. Farmers' decisions regarding carbon sequestration: A metaeconomic view. *Society and Natural Resources: An International Journal 1521-0723* 24: 133–47.

Sheeder, Robert J., and Gary D. Lynne. 2011. Empathy conditioned conservation: "Walking-in-the-shoes-of-others" as a conservation farmer. *Land Economics* 87: 433–52.

Singer, Tania. 2009. Understanding others: Brain mechanisms of theory of mind and empathy. In *Neuroeconomics: Decision making and the brain*, ed. Paul W. Glimcher, Colin F. Camerer, Ernst Fehr, and Russell A. Poldrack, 513–32. New York: Elsevier.

Tomer, John F. 2012. Brain physiology, egoistic and empathic motivation, and brain plasticity: Toward a more human economics. *World Economic Review* 1: 76–90.

Wilson, Daniel R. 2006. The evolutionary neuroscience of human reciprocal sociality: A basic outline for economists. *Journal of Socio-Economics* 35: 626–33.

DUPUIT, JULES

Born: May 18, 1804, in Fossano, France; Died: September 5, 1866, in Paris, France; Nationality: French; Professional Interests: political economy, marginal utility; Major Work: *On the Measurement of the Utility of Public Works (Annales des ponts et chausses*, vol. 8, 2nd series) (1844).

Jules Dupuit was the first economist to describe marginal utility. Using his definition of marginal utility, he was also the first to provide evidence for the demand curve. Dupuit used the term *relative utility* to describe the area above the price, and Alfred Marshall later built on this idea when he introduced the idea of consumer surplus, which describes the area above the demand curve (marginal utility curve). Dupuit has been considered economics' first public works economist. Dupuit died in 1866.

Jules Dupuit was born in 1804 in Fossano, Italy. His family imigrated to France when he was 10 years old. As a young man, he studied in Versailles. He went to study civil engineering at the École Polytechnique. As a civil engineer, Dupuit received the Legion d'honneur for his work on France's system of roads. He continued his career in Paris, supervising Paris's construction of a new sewer system. As Dupuit continued his studies in civil engineering, he developed an interest in economics. He studied economics on his own, apart from his civil engineering career, so he was a self-taught economist.

In 1844, Dupuit published his classic "On the Measurement of the Utility of Public Works," wherein he addressed the relationships between value, utility, price, and consumption. Dupuit examined utility as related to building and maintenance costs for public works such as roads, canals, railways, and bridges. In this article, Dupuit first introduced the idea of a diminishing marginal utility curve. He showed that as the quantity of a good consumed rises, the user's marginal utility of the good declines. For example, as road tolls lower, more people will use the toll road or bridge. And conversely, as the usage increases, the willingness of the person to pay declines. The concept proposed by Dupuit converts into a downward-sloping demand function, leading him to describe the demand curve as a marginal utility curve.

Dupuit was the first economist to define the demand curve by using the definition of marginal utility. He was also the first to provide a convincing explanation of why the demand curve is downward sloping. Many questioned Dupuit's reasoning, however, with some critics complaining about his use of marginal utility to define the demand curve. The concept of marginal utility is a microeconomic concept used to describe the action of an individual. However, Dupuit uses marginal utility to define an aggregate concept, market demand.

Dupuit also contributed to the development of economics by defining the term *relative utility*. Relative utility is the area under the demand curve (the marginal utility curve) and above the price. He used the idea to measure the public welfare on his bridge toll. He concluded that the public welfare would be maximized when the bridge toll was priced at zero. Dupuit's definition of relative utility is the same area that Alfred Marshall later called *consumer surplus*. Dupuit's writings also included articles on monopoly and price discrimination.

Dupuit was a unique economic thinker in part because he was able to combine his economics background with his civil engineering training. His interdisciplinary research in many areas of public works is clearly evident. His research included, for example, an evaluation of the net economic benefit of Paris's public services.

He analyzed functions for economic development and once attempted to develop a paradigm for utility theory to measure the benefits of public works.

Dupuit researched other areas of public works, including the development of tools for measuring groundwater flow. He simplified an equation to derive analytical solutions for groundwater flow, known today as the Dupuit assumption.

Jules Dupuit died in Paris, France, on September 5, 1866.

Kathleen C. Simmons

See also: Marginal Utility; Utility, Experienced; *Vol. 1: Foundations of Economics:* Marshall, Alfred

Further Reading

Dupuit, Jules. 1842 (2010). *Overview: Memory on the circulation of cars and rolling friction* [Overview: Memoire sur le tirage des voitures et sur le frottement de roulement]. Whitefish, MT: Kessinger.

Dupuit, Jules. 1844. On the measurement of the utility of public works. Translated by R. H. Barback from the *Annales des Ponts et Chauss Pes*, Vol. 8, 2nd series for International Economic Papers, 1952, 2, 83–110. Translations prepared for the International Economic Association. New York: Macmillan.

Dupuit, Jules. 1854. *Theoretical and practical treaty of conduct and the distribution of waters* [Traité théorique et pratique de la conduite et de la distribution des eaux]. Paris: Cariliàn-Goeury et V. Dalmont.

Dupuit, Jules. 1863. *Theoretical and practical studies on the movement of water in the channels* [Études théoriques et pratiques sur la mouvement des eaux dans les canaux] (1848). Paris: Dunod.

Dupuit, Jules. 1954. On the measurement of the utility of public works [reprint]. In *International Economic Papers*, no. 2. London: Macmillan.

Ekelund, Robert B., and Robert F. Hebert. 1976. Dupuit and marginal utility: Context of the discovery. *History of Political Economy* 8: 266–73.

Ekelund, Robert B., and Robert F. Hebert. 1999. *Secret origins of modern microeconomics: Dupuit and the engineers.* Chicago, IL: Univ. of Chicago Press.

Ubel, Peter A. 2009. *Free market madness: Why human nature is at odds with economics—and why it matters.* Cambridge, MA: Harvard Business Press. (See the section "Water under the Bridge," 18–22.)

E

ECONOMIC COSTS AND PROFITS

Economic costs and profits are essential concepts to businesses or firms since their goal is to maximize profits while minimizing costs. A firm may also base its level of production on its costs and profits and may seek to maximize short-run or long-run profits. In the short run, all costs are fixed costs, while in the long run, all costs are variable costs.

Fixed costs are costs that cannot be altered in the short run and exist no matter what quantity of goods or services the firm is producing. They include rent (or payment for leasing a building), insurance, and utilities. Businesses should examine their fixed costs to determine how expensive it is to operate their facilities and if they are doing so efficiently.

Variable costs are costs that vary as the production or level of output changes and include labor (or workers) and materials. Businesses should closely examine their variable costs in order to ensure that they are utilizing resources efficiently. Since these costs are very responsive to the amount of goods or services a business produces, they tend to be examined more carefully when compared to fixed costs. Total cost is the sum of variable costs and fixed costs.

Marginal cost is the increase in total cost when output increases by one unit. It can be calculated by dividing the change in total cost by the change in quantity.

Economists must also consider sunk costs, or costs that are incurred but are not important to current decision-making. This may include the costs of the machinery or equipment necessary to start a business. Sunk costs may also be considered a barrier to entry into a particular market as they may be very high.

Costs can also be further broken down into average fixed cost, average variable cost, and average total cost. Average fixed costs are calculated by dividing fixed costs by the quantity being produced. Average variable costs are calculated by dividing variable costs by the quantity being produced. Average total cost is calculated by summing the average fixed costs and the average variable costs or by dividing total cost by the quantity being produced. All of these cost curves can be displayed in a graphical format and are commonly used in microeconomics.

It is also important to note that economists and accountants measure profit differently. Economists examine both explicit and implicit costs and revenues, which takes the opportunity cost into consideration. They look at what was given up by choosing to produce the current good or service.

An accountant examines only explicit costs and revenues. This means an accountant takes the total revenue and subtracts all expenses to determine the level of profit. Therefore, there is a difference in accounting profit and economic profit, and it is possible to earn an accounting profit but no economic profit.

One form of economic profit is a normal profit, where the economic profit is zero. This type of profit is common in both a perfectly competitive market as well as a monopolistically competitive market in the long run.

Economic costs and profits should be taken into consideration when one is looking to start a business. Firms always seek to minimize costs while maximizing profit.

Angela M. LoPiccolo

See also: Costs; Profit Maximization and Behavioral Economics; *Vol. 1: Foundations of Economics:* Cost-Benefit Analysis; Opportunity Costs

Further Reading

Dixon, Robert L. Jr. 1940. Fixed and variable costs. *The Accounting Review* 15: 218–22.
Luther, Robert G. 1992. Fixed and sunk costs in decision-making. *Management Accounting* 70: 37.
McDonald, Peter A. 2005. Forgotten fundamentals: Fixed and variable costs. *Contract Management* 45: 16–20.
Mills, Roger, Sean Rowbotham, and John Roberts. 1998. Using economic profit in assessing business performance. *Management Accounting* 76: 34–38.
Schwartz, Maryln A. 1992. Cost concepts. *The National Public Accountant* 37: 6.

ECONOMIC RENT

Economic rent is the value received for the use of a resource (input) above the next best alternative use. Economist Henry George spoke of economic rent as the value of the land on which buildings sit.

The classical idea of economic rent was fairly straightforward. Economic rent was the income landowners received from the use of their land or other natural resources. The key thought behind this definition was that the supply of natural resources, including land, is fixed at any one time. Alfred Marshall is credited with this early definition of economic rent. In the 18th and 19th centuries, classical economists devised theories to define income distribution. Economic rent gave classical economists a base to measure the income received by the landowners. The other income categories (wages of laborers and profits of businessmen) were much easier to identify.

The concept of economic rent came into play especially in regards to the fertility of land. Infertile land was considered to have no economic rent since it had no value. But as more land was used for cultivation, even the marginal land began to be cultivated. The classical view asserted that if the value of the output exceeded the costs of the planting, even marginally fertile land generated an economic rent. Economists called this a differential rent. As cultivation procedures improved and crop yields per acre increased, even fertile land experienced an increase in economic rent. Since land has a fixed supply and can be effectively "used up," it is considered to generate scarcity rent; in today's terms, this would be considered "perfectly inelastic."

It was theorized that any input resource could similarly generate a scarcity rent. But the classical economists submitted that land was a special case because of its fixed supply. It is claimed that many years later Will Rogers promoted land as a good investment because there was not any more being produced. Being a fixed input, the supply price of land was zero, regardless of its market price. Quantities of the other inputs (labor and capital) could be supplied based on their price in the market. Land had a special characteristic among inputs. The classical view later changed so economic rent became any return to any input over its supply price.

The inability to duplicate an input over the long run became the key characteristic to classical economists in accruing an economic rent. LeBron James has an athletic talent that cannot be duplicated. Meryl Streep has an acting talent that is hers alone. When inventions are first implemented, initially they all earn an economic rent. Economic rent is present as long as the supply of these unique inputs cannot be duplicated. These are called quasi-rents as they will earn economic rent until such time as supply catches up with the demand. Obviously James or Streep cannot be cloned, so their rents may go on for quite a while. Eventually the new invention will be produced to such a quantity that economic rent will disappear.

A second key characteristic to earn economic rents of labor was the value above the person's opportunity cost. The economic rent of land is all of its return, since the starting point for land was a price of zero. Regarding labor such is not the case; a person has options. LeBron James does not have to play basketball, nor Meryl Streep act. But their value in their chosen profession far outweighs the opportunity costs of their next best alternative. *Forbes* listed James's 2015 total income at $65 million. The question is, how much of that $65 million would be considered economic rent? To answer that question, we must know James's next best alternative for earning an income; in other words, we must know James's supply price. Only James can answer this question, but any observer of economic rent can surmise it would not earn him $65 million a year. It is safe to say James's economic rent for labor is quite high.

A more modern idea of economic rent focuses on the return of an input relative to its supply price. Even in modern times, land is still fixed so its supply price is still zero, making all of its return economic rent. Labor and capital inputs are different. Their economic rent is based on the difference between their supply price and the income they generate. These input incomes can change. Referring to LeBron James again, how much could his $65 million income be reduced before he would stop playing basketball? At some income point, his incentive to play basketball would disappear and he would choose to do something else, his next best alternative. Fortunately for fans, the market for basketball players supplies James an economic rent, so he is willing to sell his services to be a basketball player and fans can enjoy his talents.

David A. Dieterle

See also: Labor Economics; Supply; *Vol. 1: Foundations of Economics:* Capital Resources; Classical Economic Thought; Factors of Production; Land Use; Marshall, Alfred; Resources; *Vol. 2: Macroeconomics:* Labor Productivity

Further Reading

Forbes. n.d. The world's highest-paid celebrities: #18 LeBron James. www.forbes.com/profile/lebron-james/ (accessed March 15, 2016).

Henry George Foundation. n.d. Economic rent. www.henrygeorgefoundation.org/the-science-of-economics/economic-rent.html (accessed March 15, 2016).

Miller, Roger LeRoy. 2014. *Economics today*, 17th ed. New York: Pearson

Pen, Jan. n.d. Rent. Encyclopedia Britannica.com. www.britannica.com/topic/rent-economics (accessed March 15, 2016).

EDGEWORTH, FRANCIS YSIDRO

Born: February 8, 1845, in Edgeworthstown County, Longford, Ireland; Died: February 13, 1926, in Oxford, England; Nationality: Irish; Professional Interests: political economy; Major Work: *Mathematical Psychics: An Essay on the Application of Mathematics to the Moral Sciences* (1881).

Francis Ysidro Edgeworth was an Irish-born political economist most noted for his work in economics and statistics. A prolific author, he was considered one of the best economists of his day. The original editor of *The Economic Journal*, his first and most important contribution to economics was the publication of the book *Mathematical Psychics: An Essay on the Application of Mathematics to the Moral Sciences* (1881). In his book, Edgeworth introduces the economic ideas of indifference curves and the Edgeworth Box. The Edgeworth Box is a way to model how general equilibrium (quantity demand equals quantity supplied) might be reached in a simplified economy comprising two goods and two individuals. Edgeworth died in 1926.

Ysidro Francis Edgeworth was born on February 8, 1845, to a Spanish mother and Irish father. He later transposed his two first names and was called Francis or Frank by his family and friends. Home-schooled by tutors, Edgeworth later studied at Trinity College in Dublin and Balliol College in Oxford, graduating in 1869 and qualifying as an English barrister in 1877.

In his life and career, he made many contributions to the field of economics and statistics during the time when these sciences were coming into their own as fields of study. Edgeworth is remembered as a prolific author even if at times his striking originality is difficult to interpret. In his career, he held the Drummond chair at Oxford University and was considered among the best economists of his day.

He maintained extensive correspondence with his contemporary academic colleagues around the world and was the first editor of *The Economic Journal*, published by the Royal Economic Society. In the field of statistics, his work was recognized with a gold medal of the Royal Statistical Society in 1907, and he subsequently became president of the society in 1912–1914.

His most important contribution to economics came in the publication of the book *Mathematical Psychics: An Essay on the Application of Mathematics to the Moral Sciences* (1881). He uses interesting and distinct metaphors in order to explain the problems he sets out to understand, if not solve. Specifically, he used electromagnetism as a metaphor to explain how energy arises with pleasure in humans and proceeds with a conception of man as a pleasure machine. Edgeworth envisioned society as a great aggregate of such machines, with collisions and compacts between them resembling electricity and magnetism fields.

Edgeworth attempted to determine the distribution of productive factors (land, labor, capital) that would be conducive to the highest aggregate of well-being. The conclusion of his philosophy here tends to support a hierarchical society of social rank rather than one of equality. He reasoned that the distribution of labor between those equally capable of work is equality, and generally those most capable of work will do more work and therefore suffer more fatigue. Understood this way, he considers that the highest and most capable of labor, with education and improvement, should advance the most. In practice, this conclusion of Edgeworth's would result in a society where the average issue of goods would be as large as possible for all segments of society above a determinate level of capacity but zero for all sections below that degree.

Mathematical Psychics is also characterized by a style that has been called obscure, terse, and implicit, so that the reader is left to puzzle out every important sentence like an enigma. The book's ideas were only slowly adopted into the standard economic textbooks. *Mathematical Psychics* has nevertheless been influential in the history of economic thought.

One important concept widely used in economic analysis and first described and used in *Mathematical Psychics* is known as the indifference curve. This is a way to model the preferences of an individual or household when some combination of different goods results in the same utility. The indifference curve models how different combinations of goods are preferred by a particular individual while keeping the same level of satisfaction in all the combinations represented along the curve. This concept is applicable in many economic models and has been used widely in economic analysis. The indifference curve is equated with the marginal rate of substitution, which shows how much of one good a consumer is willing to give up for another good. This concept is relevant in microeconomic consumer theory and also plays a role in another key concept that was developed by Edgeworth, the "Edgeworth Box."

The Edgeworth Box models how general equilibrium might be reached in a simplified economy with two goods and two individuals. Edgeworth laid the theoretical groundwork for this analysis in his *Mathematical Psychics*. It has been further developed over the years by his successors, most notably Vilfredo Pareto.

The Edgeworth Box has proportions equal to the productive resources (land, labor, capital) of a country. The box shows all of the ways those resources can be allocated to two industries that are producing two different goods, A and B. The lower-left origin on the box is the origin for measuring allocations of factors for industry A. The upper-right corner origin on the box is for industry B. Thus every point on the four sides of the box denotes an allocation of the resources to the production of the two goods, A and B.

Indifference curves are drawn inside the box for each good, convex to their origin (lower left or upper right). The places where the indifference curves intersect represent where each individual could trade without feeling any worse off. Essentially, the model shows how general equilibrium is reached and predicts trade behavior based on the supposed indifference curves of two individuals.

Edgeworth's contributions to the field of economics cannot be understated. He helped shape the science into what it is today.

Francis Ysidro Edgeworth died on February 13, 1926, in Oxford, England.

John E. Trupiano

See also: Bentham, Jeremy; Jevons, William Stanley; Pareto, Vilfredo; *Vol. 1: Foundations of Economics:* Decision Costs

Further Reading

Barbé, Lluis. 2010. *Francis Ysidro Edgeworth: A portrait with family and friends*. Translated by Mary C. Black. Northampton, MA: Edward Elgar.

Creedy, John. 1986. *Edgeworth and the development of neoclassical economics.* Oxford: Basil Blackwell.

Edgeworth, Francis. 1877. *New and old methods of ethics.* Oxford: James Parker.

Edgeworth, Francis. 1881. *Mathematical psychics: An essay on the application of mathematics to the moral sciences.* London: C. Kegan Paul.

Edgeworth, Francis. 1883. The methods of least squares. *Philosophical Magazine* 16: 360–75.

Edgeworth, Francis. 1925. *Papers Relating to Political Economy.* London: Ayers.

Price, L. L. 1926. Francis Ysidro Edgeworth. *Journal of the Royal Statistical Society* 89: 371–77.

Stigler, Stephen M. 1978. Francis Ysidro Edgeworth, statistician. *Journal of the Royal Statistical Society Series A* 141 (3): 287–322.

EFFICIENCY WAGE HYPOTHESIS

In the 1920s, Alfred Marshall first introduced the concept of efficiency wages in his *Principles of Economics*. The efficiency wage hypothesis contends that wages, in certain markets, are determined by more than the forces of supply and demand. In order to increase the productivity and efficiency of workers, managers have an incentive to pay their employees more than the market-clearing wage. Several theories exist that explain why managers have an incentive to pay efficiency wages: to minimize turnover, to reduce shirking, to combat adverse selection, and to encourage a spirit of fairness and high morale.

In order to minimize turnover, an employer may pay a worker a wage above the market-clearing level to entice the worker to stay at the job and stop looking for a job elsewhere. Employee turnover is costly to firms as they must hire and train new workers. Therefore, paying an efficiency wage is justified to the extent that it minimizes turnover and offsets the cost of hiring and training new workers.

Another theory for efficiency wages is that they reduce shirking by employees. Complete contracts rarely exist that stipulate exactly what the worker needs to produce in a given amount of time. As a result of incomplete contracts, workers have an incentive to shirk rather than work. The effort that a worker displays is a function of the real wage rate. Workers will provide more effort if they are paid more; this higher pay has both a "carrot" effect and a "stick" effect. The "carrot" effect is that the higher pay increases morale and loyalty. The "stick" effect is that the opportunity cost of being fired increases. As a result of a real wage rate that is higher than the market-clearing level, shirking is deterred; this provides a justification of the efficiency wage.

An employee's job performance depends on his or her ability level, and each employee differs in terms of ability. In order to combat adverse selection, employers may pay an efficiency wage such that high-ability job seekers apply for their jobs. This efficiency wage implies that the employer can choose among applicants to get the best possible worker.

Matthew Rabin suggests three stylized facts about how norms affect behavior: people are prepared to sacrifice their own material well-being to help those who are being kind; people will also sacrifice their well-being in order to punish others who are being unkind; and as the material cost of sacrificing becomes smaller, the incentive for fairness becomes larger. This sociological notion of fairness provides another reason for why efficiency wages exist. If workers feel that their actual wage is lower than what they perceive as a "fair wage," they may withdraw effort to compensate for the disparity in perceived fair compensation. Therefore, encouraging a spirit of fairness and high morale is essential to obtain maximum employee effort and provides another justification for paying efficiency wages.

Efficiency wages also provide a market failure explanation of involuntary unemployment. Involuntary unemployment is caused when, at a given real wage, people are willing and able to work at the same real wage as an employed person with the same ability but are unable to find work. As a result of firms paying employees efficiency wages, firms are not willing to accept underbidding by unemployed workers. Thus, involuntary unemployment may arise as a by-product of firms' efforts to keep real wages high to entice workers to be more productive.

Joseph T. Crouse

See also: Income; Income Elasticity; *Vol. 1: Foundations of Economics:* Marshall, Alfred; *Vol. 2: Macroeconomics:* Unemployment

Further Reading

Akerlof, George, and Yellen, Janet. 1986. *Efficiency wage models of the labor market.* Cambridge, UK: Cambridge Univ. Press.

Akerlof, George, and Yellen, Janet. 1990. The fair wage-effort hypothesis and unemployment. *Quarterly Journal of Economics* 105: 255–83.

Altman, Morris. 2005. Behavioral economics, rational inefficiencies, fuzzy sets, and public policy. *Journal of Economic Issues* 34: 683–706.

Leibenstein, Harvey. 1957. *Economic backwardness and economic growth*. New York: J. Wiley and Sons.

Leonard, Jonathan. 1987. Carrots and sticks: Pay, supervision, and turnover. *Journal of Labor Economics* 5: 136–52.

Rabin, Matthew. 1993. Incorporating fairness into game theory and economics. *American Economic Review* 83 (5): 1281–302.

ELASTICITY

British economist Alfred Marshall is considered the creator of the microeconomic concept of elasticity. Elasticity shows how sensitive (or responsive) a change in quantity demanded or quantity supplied is to a change in price.

A good's elasticity can be described as relatively elastic, relatively inelastic, or unitary elastic. A good is relatively elastic if there is a greater change in quantity demanded with a small change in price. Generally, demand for luxury goods is considered to be relatively elastic. A good is relatively inelastic if there is a small change in quantity demanded with a greater change in price. The demand for basic goods, such as pencils, is considered to be relatively inelastic.

Demand can also be perfectly elastic, which means that quantity responds heavily to any change in price. Demand can also be perfectly inelastic, which means quantity demanded is insensitive to a change in price. Although the concepts of perfectly elastic and perfectly inelastic exist in economics, there are no true examples of them in the real world.

Income elasticity of demand measures the responsiveness of demand to changes in income. When consumers' income increases, they demand more normal economic goods. Economists consider economic goods normal when their use (or demand) increases as income increases or decrease as income decreases. Normal goods can be divided into necessities and luxuries. When income increases and demand decreases, economists define the good as an inferior good. One will demand fewer inferior goods and elasticity is less than zero, or a negative number.

Cross-price elasticity measures the responsiveness of demand to changes in prices of other goods. Positive cross-price elasticity indicates that a good is a substitute, and a negative cross-price elasticity indicates a good is a complement. Goods are substitutes if the price of good X would increase and consumers would as a result demand more of good Y. If the price of good A increases and the quantity demanded of good B decreases (the demand curve shifts to the left) the goods are complements and there is a negative cross-price elasticity.

One way to measure elasticity is to determine the elasticity coefficient. To do so, one must use the following equation:

$$\frac{\%\Delta Q_{(d)}}{\%\Delta P} = e_{(p)}$$

If $e>1$, demand is elastic; if $e<1$, demand is inelastic; and if $e=1$, demand is unit elastic.

Goods that are elastic generally have many substitutes and take up a larger portion of a consumer's income. Generally, the demand for necessities is inelastic, and goods with fewer substitutes are also inelastic. Elasticity of demand is a measurement of how responsive consumers are to a change in price. It is the percentage change in demand divided by the percentage change in price. Price elasticity of demand is expressed as a positive number, where $e>1$.

A second measure for calculating price elasticity of demand is the total revenue test. Demand is elastic if an increase in price causes total revenue to decrease or if a decrease in price causes total revenue to increase. Demand is inelastic if an increase in price causes total revenue to increase or if a decrease in price causes total revenue to decrease. Demand is unit elastic if a change in price leaves total revenue unchanged.

Elasticity of supply shows how sensitive producers are to a change in price. Price elasticity of supply is the percentage change in quantity supplied divided by the percentage change in price.

$$\frac{\%\Delta Q_{(s)}}{\%\Delta P} = e_{(p)}$$

If $e>1$, supply is elastic, and if $e<1$, supply is inelastic, and if $e=1$, supply is unit elastic.

Supply is also affected by the substitution effect since the more substitutes a good has the more elastic its supply is. If the price of a good rises, consumers will shift their consumption to substitute goods.

The concept of elasticity can be especially relevant to taxes, regarding who bears the burden of a given tax. Taxes may be paid by the consumer and/or the producer of the good depending on the tax burden. The more inelastic one's relative demand and supply, the larger the tax burden the producer will bear. If demand is more inelastic than supply, consumers will pay the higher share. If supply is more inelastic than demand, suppliers will pay the higher share.

Elasticity may vary from one market structure to the next, and businesses seek to gather data to examine consumer behavior when it comes to a change in the price of a particular good. Businesses pay close attention to which brands of a good are selling and use this to manipulate the price of a particular good.

Angela M. LoPiccolo

See also: Demand; Supply; *Vol. 1: Foundations of Economics:* Marshall, Alfred; *Vol. 2: Macroeconomics:* Taxes; Tax Forms: U.S. Federal Tax System

Further Reading

Bittermann, Henry J. 1934. Elasticity of supply. *The American Economic Review* 24: 417–29.

Graves, Philip, and Robert Sexton. 2009. Cross-price elasticity and income elasticity of demand: Are your students confused? *American Economist* 54: 107–10.

Johnson, A. C., Jr., and Peter Helmberger. 1967. Price elasticity of demand as an element of market structure. *The American Economic Review* 54: 1218–21.

Russell, Gary J., and Ruth N. Bolton. 1988. Implications of market structure for elasticity structure. *Journal of Marketing Research* 25: 229–41.

ELY, RICHARD

Born: April 13, 1854, in Ripley, New York; Died: October 4, 1943, in Old Lyme, Connecticut; Nationality: American; Professional Interests: economics, socialism, Christian socialism; Major Works: *French and German Socialism in Modern Times* (1883), *The Labor Movement in America* (1886), *Social Aspects of Christianity* (1888), *Hard Times: The Way In and the Way Out* (with Thomas William Lamont et al., 1931).

Richard Ely was an economist and social reformer. He is credited as an intellectual guide for the Social Gospel movement, which is an attempt to apply Christian principles to social issues. His activities and writings also attracted furious condemnation from a leading public official, which led to a trial over the question of academic freedom in universities. Ely died in 1943.

Richard Theodore Ely was born in Ripley, New York, in April 13, 1854. He was brought up in a strict Presbyterian household, though he transferred to the Episcopal Church at Columbia University. He earned his PhD in economics at Heidelberg University in Germany, where he came under the influence of German Historical economics. This school of thought emphasized an empirical, data-driven approach to economic questions and criticized the Austrian and American tendencies toward abstract reasoning. The Historical School also led Ely to an evolutionary view of social development, in which communities and nations improve slowly over time through the efforts of individuals and organizations. Ely's writings emphasized progress; things were never good enough, nor were timeless laissez-faire policies sufficient for the governance of a nation.

After receiving his PhD, Ely joined the faculty at Johns Hopkins University in Maryland. He was constantly active in public life, seeking ways to apply economic reasoning to the problems the world faced. He helped organize the American Economic Association in 1885, was a member of the tax commissions of the city of Baltimore and the state of Maryland, became secretary of the Christian Social Union in 1889, and cofounded the American Institute for Christian Sociology in 1893. In 1892, he was hired by the University of Wisconsin.

Ely's writings are filled with calls for professors and other researchers to get involved in public life. Because he thought that the study of economics should use real data instead of abstract theories, he thought that professors should always be busy collecting information and processing it for the public interest. Furthermore, in order for such information to be useful, he thought that professors must work with government officials to put their studies into action. The theory that universities should be in close partnership with local, state, and national governments became known as the Wisconsin Idea.

Ely received a terrible shock in 1894 when the state superintendent of Wisconsin, Oliver E. Wells, wrote a letter to a national newspaper accusing Ely of teaching utopian, impracticable, and pernicious doctrines. His caustic remarks accused Ely of being a socialist who encouraged murderous anarchy. Thereafter followed a furious debate concerning (1) whether Ely was indeed a purveyor of dangerous ideas and (2) what were the limits of academic freedom in a state university. To take command of the situation, the board of regents of the University of Wisconsin called a trial for Richard Ely. They created a commission that was to investigate and pass judgment on the situation and on Ely himself.

The resulting investigation cast light onto important aspects of Ely's life and thought. First, the accusers had some of the facts of the case flatly wrong (they had mistaken one of Ely's students for Ely himself when the student went to meet with a union leader, and they had misinterpreted some gossip about Ely's relationship with a local printer's union that printed his books). Second, Ely's philosophy could be characterized as progressive conservatism, a view that was quite conservative in its conception of most property rights and politics but was not closed to socialist demands concerning major industries that tended to be monopolistic. Indeed, while socialism at the time often referred to thoroughgoing Marxism, the socialism of Ely's mind corresponded more to the modern European policy in health care and national industries—but with a Christian twist. Ely was a lifelong believer that the teachings of Jesus could be used to guide government policy as it related to social welfare programs. He also thought, however, that society evolved in a sort of Darwinistic fashion and that citizens should constantly try to find new ways to improve upon old traditions.

Ely was judged innocent of all charges by the commission. The commission released a ringing statement defending academic freedom in universities. Even if Ely did have radical views, they wrote, professors nevertheless ought to seek truth as best they could, even if what they found was not to society's liking.

Ely wrote many works on economic applications to social problems. He worked hard all throughout the Great Depression to find practical and theoretical solutions to what he called "Hard Times." He guided the social ministry of liberal Protestant churches. Ely was confident that mankind could create a better future, and there was no idea he would not sanction in order to achieve it.

Richard Ely died in Old Lyme, Connecticut, on October 4, 1943.

Stephen H. Day

See also: Labor Economics; Veblen, Thorstein

Further Reading

Ely, Richard. 1883. *French and German socialism in modern times.* New York: Harper & Brothers.

Ely, Richard. 1885. *Recent American socialism.* Baltimore, MD: Johns Hopkins Univ. Press.

Ely, Richard. 1886. *The labor movement in America.* New York: Thomas A. Crowell.

Ely, Richard. 1889. *Social aspects of Christianity, and other essays.* New York: Thomas A. Crowell.

Ely, Richard. 1903. *Evolution of industrial society.* New York: Chatauqua Press.

Ely, Richard Theodore, 1854–1943. n.d. In *Dictionary of Wisconsin History*. Wisconsin Historical Society. http://www.wisconsinhistory.org/dictionary/index.asp?action=view@term_id=1284&term_type_id=1&term_type_text=people&letter=E (accessed December 1, 2011).

Ely, Richard Theodore, with Thomas William Lamont, William Arthur Berridge, and American Federation of Labor, and American Association for Labor Legislation. 1931. *Hard times: The way in and the way out.* New York: Macmillan.

Ely, Richard T., and George Ray Wicker. 1921. *Elementary principles of economics: Together with a short sketch of economic history.* New York: Macmillan.

Fine, Sidney. 1951. Richard T. Ely, forerunner of progressivism, 1880–1901. *The Mississippi Valley Historical Review* 37 (4, March).

Rolnick, Stanley R. 1894. An exceptional decision: The trial of Professor Richard T. Ely by the Board of Regents of the University of Wisconsin, 1894. *Arkansas Academy of Science*: 198–203.

Schlabach, Theron F. 1963–64. An aristocrat on trial: The case of Richard T. Ely. *Wisconsin Magazine of History* 47 (2, Winter): 140–59.

Spiegel, Henry. 1971. *The growth of economic thought.* Englewood Cliffs, NJ: Prentice-Hall.

EMPLOYEE STOCK OWNERSHIP PLANS

There are two types of employee stock ownership plans (ESOPs) and they are commonly confused: employee stock option plans and employee stock ownership plans. An employee stock ownership plan is an employee benefit plan, similar to a profit-sharing plan with defined contributions, designed for employees to invest in the stock of their supporting employer. Companies often use employee stock option plans as a benefit to retain and attract employees with a specialized compensation program.

Employee stock option plans give the employee the option to buy company stock at a given price. Employees can benefit from stock options by employing their option when the stock price is higher compared to when they purchased the stock.

Suppose a company offers a stock option plan to its employees. The employee is granted the option to purchase 250 shares of the company's stock at the current market price of $7 per share. Plans generally require employees to wait a certain amount of time before they're permitted to exercise their stock options. In contrast to the time requirement, companies may require the stock to reach a certain price before employees are permitted to exercise their option. If the price of the stock increases to $10 per share, for example, employees may exercise their option to buy 250 shares at the $7 price and then sell the stock at the current market price of $10.

With an employee stock ownership plan, the parties involved, including the sponsoring company, the shareholder, and other participants, receive tax benefits. These tax benefits allow ESOPs to be recognized by the Internal Revenue Service as "qualified." Tax benefits include tax-deductible contributions, tax-deductible dividends, tax deferrals, and exemption from federal income tax, among others.

Corporations use ESOPs for various reasons, including as a finance strategy and as a way to align the interests of employees with the interests of company shareholders. ESOPs provide a market for the shares of departing employees. They can be used to motivate and reward employees for obtaining company objectives. ESOPs are usually a contribution to the employee, not a benefit that the employee purchases.

The company establishes a trust fund and then contributes cash or new shares of its own stock to buy existing shares of stock. Contributions to the plan are tax deductible. Employees receive special accounts in which their shares of the trust are allocated. The longer employees are with the company, or the more seniority they accrue, the more vested they are into their account. In other words, the longer employees are employed with the company, the more right to the shares in their account they acquire. Depending on the vesting structure, employees must be 100 percent vested within three to six years.

The company buys back the stock from employees when they leave the company. If the company is publicly traded, employees are owed the market price of the stock. If the company is privately owned, employees are owed fair market value. Private companies must hire outside evaluators to determine the value of the shares.

Michael Weck

See also: Retirement Accounts; Stock Market; Stocks; *Vol. 1: Foundations of Economics:* Investing; New York Stock Exchange; Portfolio Management

Further Reading

Investopedia. n.d. Employee stock ownership plan—ESOP. http://www.investopedia.com/terms/e/esop.asp (accessed March 1, 2015).

National Center for Employee Ownership. n.d. How an employee stock ownership plan (ESOP) works. http://www.nceo.org/articles/esop-employee-stock-ownership-plan (accessed March 1, 2015).

United States Securities and Exchange Commission. n.d. Employee stock options plans. http://www.sec.gov/answers/empopt.htm (accessed March 1, 2015).

EMPLOYMENT ACT OF 1946

Enacted by Congress under President Harry Truman as a result of high unemployment in the 1930s, the Employment Act of 1946 held the government responsible for maintaining high employment levels and price stability. Additionally, this act resulted in the creation of the Council of Economic Advisers, which was established to assist the president in preparing the annual economics report, to collect economic data and report economic growth and trends within the U.S. economy, and to advise the president on certain policies.

Initially, the act was sought to strengthen the economic gains to the U.S. economy that had resulted from massive government spending during World War II. Following the theory of British economist John Maynard Keynes, who believed that intense government spending was necessary to end economic depression, President Truman proposed a program in 1945 to boost the U.S. economy. The program required full employment legislation, an increase to the minimum wage, and better unemployment and social security benefits. President Truman believed the bill would protect the country from reverting back into depression because it enabled remedial action, such as tax cuts and spending programs, if economic indicators took a downward shift.

In addition, the Employment Act of 1946 created the Council of Economic Advisers to report to the president but failed to authorize intervention from the government in order to maintain full employment when indicators signaled a recession. Instead of giving the government the strong role that Truman intended, the act allowed only modest governmental involvement in regards to economic planning.

Lauren A. Drum

See also: *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; *Vol. 2: Macroeconomics:* Bureau of Labor Statistics; Council of Economic Advisers; Economic Growth, Measures of; Unemployment; *Primary Document:* Employment Act of 1946

Further Reading

Federal Reserve History. 1946. Employment Act of 1946. www.federalreservehistory.org/Events/DetailView/15 (accessed March 15, 2016).

Investopedia. 2007. Employment Act of 1946 definition. www.investopedia.com/terms/e/employmentactof1946.asp (accessed March 15, 2016).
Santoni, G. J. 1986. The Employment Act of 1946: Some history notes (November). Federal Reserve Bank of St. Louis. research.stlouisfed.org/publications/review/86/11/Employment_Nov1986.pdf (accessed March 15, 2016).
Steelman, Aaron. n.d. Employment Act of 1946—A detailed essay on an important event in the history of the Federal Reserve. www.federalreservehistory.org/Events/DetailView/15 (accessed March 15, 2016).

ENDANGERED SPECIES

Protecting endangered species (and thus their habitats) provides economic value. Value consists of recreational use of endangered species (e.g., wildlife viewing, ecotourism, photography) and nonuse values or passive use values (existence and bequest values) that nonusers have for the knowledge that the species continues to exist in the wild and will be available to future generations. These values are measured by economists as the maximum amount of money a person would pay to protect the species and its habitat to provide that particular benefit. For example, the amount a visitor would pay for the opportunity to view sea otters in their natural habitat is a measure of the value to the visitor. The same is true of passive use value. This value is the maximum amount a person would pay to simply know that the species exists in its natural habitat. Likewise, bequest value is the maximum amount a person would pay to know that preservation today will provide the species to future generations.

Currently, one of the accepted methods used to quantify these benefits is the contingent valuation method (CVM), which employs surveys outlining a hypothetical market or referendum in order to elicit people's willingness to pay (WTP) for the preservation of a particular species. It has been found that people are willing to pay a small portion of their income toward the protection of endangered or rare species for the reasons given earlier (e.g., existence value).

A number of studies have estimated WTP to protect different types of endangered species. Households in the United States are willing to pay, on average, $17 annually to preserve land mammals, whereas the rest of the world is willing to pay $50 annually per household. Similarly, U.S. residents are willing to pay $40 annually to protect marine mammals, whereas households in the rest of the world are willing to pay $72 annually. When it comes to birds, the willingness to pay for preservation numbers are very similar between the United States ($42 annually) and the rest of the world ($44 annually). While U.S. households are willing to pay somewhat less annually to preserve endangered species, they are willing to pay more than the rest of the world if they are asked to pay a one-time lump-sum payment for species preservation. For land and mammals, U.S. households are willing to make a one-time payment of $61, while the rest of the world is only willing to pay $9. For marine mammals, the corresponding one-time WTP payment is $203 for the United States and $23 for the rest of the world.

Rather than looking at broad categories, examining the WTP of individual species derived from studies conducted in different countries allows a comparison of values for the same, or very similar, species. For example, U.S. households are willing to pay $20 to $40 for the preservation of wolves, while residents of Sweden are willing to pay $123. Likewise, residents of Greece are willing to pay $72 for the preservation of seals, but U.S. residents are only willing to pay $35. A similar pattern emerges for other species, like sea otters and sea turtles. Citizens of other developed countries generally have higher values for the majority of these species than U.S. citizens.

The annual economic value per household of endangered species protection is plausible, representing about one-tenth of 1 percent of annual household income in the United States. However, since the economic benefits from preservation of endangered species are freely available to all households in the United States (and for that matter the world), the aggregate national benefits are in the range of $2–$20 billion per species. One must be careful to recognize that multiplying these per-species values by the number of endangered species would greatly overestimate the collective value of all endangered species. This is true for several reasons. First, the contingent valuation surveys asked respondents to value just one species in isolation, not all species at the same time. As such, these values do not take into account substitution effects between species (e.g., for some people, seals, sea otters, and sea turtles might have some substitutability). While the WTP for each species may be less than one-tenth of 1 percent of income, the sum of WTP for the more than 400 endangered animals in the United States and more than 1,200 in the world in the aggregate would be a sizeable fraction of income. This illustrates the real-world trade-offs that even well-off developed countries, let alone poor developing countries, face in determining how much of their scarce resources to devote to protecting endangered species.

John B. Loomis

See also: *Vol. 1: Foundations of Economics:* Ecological Economics; *Vol. 4: Global Economics:* Developing Countries

Further Reading

Richardson, L., and J. Loomis. 2009. The total economic value of threatened, endangered and rare species: An updated meta-analysis. *Ecological Economics* 68: 1535–48.

ENERGY EFFICIENCY

Energy efficiency is achieved by reducing energy use until the costs of further reductions would exceed the benefits. There are several paths toward energy efficiency. Energy consumers can substitute practices that require less energy, such as drying clothes on a clothesline, for practices that require more energy, such as drying clothes in a drying machine. Technological advances such as light-emitting diode (LED) light bulbs can reduce the amount of energy needed for a particular task. The increased use of existing products, such as insulation, can achieve the same goal. And policies such as fuel economy standards and peak-load pricing can reallocate energy use to more beneficial purposes or to less costly times.

Savings on fuel and electricity bills are the primary incentives for private conservation efforts. For sizable energy conservation projects, a common metric for assessing cost effectiveness is the payback period. The payback period is the time it takes to save enough money to cover the full cost of the project. The simple payback formula is:

$$\text{Payback Period}\left(\text{in years}\right)=\text{Cost of Project / Annual Savings}$$

This formula does not account for complicating factors such as inflation, risk associated with the project, alternative investment opportunities, or the discounting of future costs and benefits. Many energy-saving projects continue to provide savings for years after the payback period is reached.

Solar water-heating systems are among many examples of cost-effective products. The payback period for a solar water heater can be as short as two years. Specific payback periods depend on the level of usage, installation costs, local energy prices, and the efficiency of the existing equipment. Other products with a relatively short payback period include high-efficiency windows, geothermal heating systems, fluorescent lighting, and various types of insulation. Successful energy conservation projects come in all sizes. A $13 million energy-saving project at the Empire State Building completed in 2011 paid for itself in three years.

There are also failures in energy conservation. Decisions to conserve energy can be confounded by imperfect information or improper discounting of future values. Information problems arise when decision-makers lack specifics on the costs or benefits of conservation projects or are poorly informed about goods and services that would facilitate energy conservation. For instance, some people are unaware that solar energy is collected even on cloudy days in winter, or that battery storage allows people with solar systems to use energy all night long. As an example of conservation missteps on a larger scale, there have been great efforts in the United States to reduce gasoline consumption by substituting ethanol made with corn. Unfortunately, it takes almost as much energy to produce ethanol from corn as the ethanol itself provides. Initiatives to produce ethanol from sugarcane, plant stalks, wood by-products, switchgrass, and municipal waste have met with relative success.

The second issue that confounds private conservation decisions, discounting, stems from the timing of costs and benefits. Whether insulating a building, installing a geothermal heat pump, purchasing a hybrid car, or insulating a hot water heater, the major costs are upfront and the benefits come slowly over many years. In order to weigh the benefits against the costs, potential adopters must therefore decide what value to place on future benefits. Essentially, this comes down to choosing a discount rate for future periods. This discount rate is used to determine the value today, or present value, of a future benefit.

The selection of a discount rate depends on the decision-maker's preferences, patience, alternative investment opportunities, and feelings for others who might share future benefits. Studies find that individuals apply discount rates that range from extremely altruistic negative values that prioritize future benefits over immediate benefits to infinite values that treat the present as the only time that matters.

The administrations of the past four U.S. presidents applied discount rates between 2 and 10 percent. The U.S. Government Accountability Office, the Environmental Protection Agency, and the Congressional Budget Office currently use discount rates in the 2 to 3 percent range.

Even with full information and proper discounting, private incentives typically lead to inefficient levels of energy conservation from a societal standpoint. Society receives benefits from conservation beyond cost savings, only a fraction of which are enjoyed by those who conserve. Fossil-fuel-based energy production is a major source of carbon dioxide, sulfur dioxide, nitrous oxide, and other pollutants that contribute to disease, the loss of wildlife, and global climate change. The extraction of fossil fuels also involves spills, fracking (the injection of water, sand, and chemicals into the ground to release fossil fuels), mountaintop removal, and other potentially dangerous or environmentally destructive activities.

Consider the decision to purchase a $7,000 solar thermal system that heats water using energy from the sun. Because the household does not receive all the benefits of reduced reliance on fossil fuels, the cost of this system may be more than the private benefit but less than the social benefit. If the private benefit is $6,750 but the total benefit to society is $7,500, the household will decide against purchasing the system. To encourage decisions that provide net gains for society, many countries, including the United States, subsidize solar systems and other products that promote energy efficiency. In the solar thermal system example, a government subsidy of $250 or more would lead the household to purchase the new system. The social benefit not internalized by the household is $7,500 – $6,750 = $750. The government would not want to offer a subsidy in excess of $750, because that could lead to the purchase of systems that cost more than the $7,500 total benefit to society. An alternative way to correctly incentivize private decision-making would be to place a tax on energy consumption or production. There is currently a tax on gasoline in the United States. Broader taxes on energy use have been proposed.

Decisions about energy efficiency can be misguided by inadequate information about costs and benefits. It is appropriate to discount any benefits or costs that come in the future at a rate that reflects the preferences of those involved. Additional factors that may warrant consideration include inflation, the risk of project failure, and the availability of alternative investments.

Because energy efficiency provides benefits to society, the environment, and future generations, private expenditures on energy efficiency may fall short of the socially optimal level. Subsidies for conservation projects and taxes on energy consumption are among the approaches that, when properly executed, can bring private decisions in line with the best interests of society.

David A. Anderson

See also: Alternative Energy; Renewable Energy; *Vol. 1: Foundations of Economics:* Welfare Economics; *Vol. 2: Macroeconomics:* Energy Policy; Externality; Taxes; *Vol. 4: Global Economics:* Subsidies

Further Reading

Anderson, David A. 2014. *Environmental economics and natural resource management*. New York: Routledge.

Empire State Building Company, LLC. n.d. *Empire State Building Sustainability Exhibit*. http://www.esbtour.com/d/ (accessed June 9, 2013).

ENRON, THE FAILURE OF CORPORATE FINANCE AND GOVERNANCE

Enron was formed in 1985 following a merger between Houston Natural Gas and Omaha-based InterNorth. Kenneth Lay became Enron's CEO and chairman, and he decided to rebrand Enron into an energy trader and supplier. Enron was poised to take advantage of the deregulation of the energy markets that allowed companies to place bets on future prices. Several years later, Kenneth Lay was succeeded as CEO by Jeffrey Skilling. Skilling developed a staff of executives who were able to hide billions of dollars in debt from failed deals and projects with the help of accounting loopholes, special purpose entities, and poor financial reporting.

Sell-Off and Bankruptcy

Shortly after the company achieved $100 billion in revenues in August 2001, Jeff Skilling unexpectedly resigned, prompting many to question the health of the company. Kenneth Lay once again became the CEO. Lay, Skilling, and other Enron executives started selling large amounts of Enron stock as prices continued to drop—from a high of about $90 per share earlier in the year to less than a dollar. The U.S. Securities and Exchange Commission (SEC) opened an investigation.

Less than a week after a takeover bid from Dynegy was called off, Enron filed for bankruptcy protection. The company had more than $38 billion in outstanding debts. The U.S. Justice Department initiated a criminal investigation into Enron's bankruptcy. Many executives at Enron were indicted for a variety of charges and were later sentenced to prison. Enron's auditor, Arthur Andersen, was found guilty in a U.S. district court. Employees and shareholders received limited returns in lawsuits, despite losing billions in pensions and stock prices.

Mark-to-Market Accounting

In its natural gas business, Enron followed straightforward accounting standards. The company listed actual costs of supplying the gas and actual revenues received from selling it in each time period. However, when Jeff Skilling joined the company, he decided to change that practice and made sure that the trading business adopted mark-to-market accounting. Mark-to-market accounting requires that once a long-term contract is signed, income is estimated as the present value of net future cash flow. Often, the viability of these contracts and their related costs were difficult to estimate. Thus, investors were typically given false or misleading reports.

Special Purpose Entities

Enron also used special purpose entities to fund or manage risks associated with specific assets. Special purpose entities are limited partnerships or companies created to fulfill a temporary or specific purpose. The company disclosed very few details on its use of special purpose entities. Enron had used hundreds of special purpose entities to hide its debt. As a result, Enron's balance sheet understated its liabilities and overstated its equity and earnings. Prominent examples of special purpose entities that Enron employed were JEDI, Chewco, Whitewing, and LJM.

Corporate Governance and Risk Management

Enron seemed to have a model board of directors comprised predominantly of outsiders with significant ownership stakes and a talented audit committee. In its 2000 review of corporate boards, *Chief Executive* included Enron among its five best.

Before its scandal, Enron was also praised for its sophisticated financial risk management tools. Enron established long-term fixed commitments that needed to be hedged to prepare for the inevitable fluctuation of future energy prices. Many critics attribute Enron's bankruptcy downfall to its reckless use of derivatives and special purpose entities. By hedging its risks with special purpose entities it owned, Enron retained the risks associated with the transactions.

The board of directors was aware of Enron's aggressive accounting practices. Although not all of Enron's widespread improper accounting practices were revealed to the board, the practices were dependent on board decisions. Even though Enron relied extensively on derivatives for its business, the company's finance committee and board did not have enough experience with derivatives to understand what they were being told.

Ethical, Political, and Other Accounting Issues

Many observers believe that executive greed and a lack of corporate social responsibility were the reasons behind Enron's fall. Others blame post-1970s deregulation and inadequate staffing and funding for regulatory oversight. Some others believe that Enron's collapse resulted from its reliance on political lobbying, rent-seeking, and the gaming of regulations.

Enron regularly recorded costs of canceled projects as assets, with the rationale that no official letter had stated that the project was canceled. This method was known as "the snowball." It was initially decided that such practices would be used only for projects worth less than $90 million. However, it was later increased to $200 million.

Whenever analysts would tour the Enron Energy Services office, Skilling would order employees from other departments to move to that office to create the appearance that the division was larger than it was. This trick was used several times to fool analysts about the progress of different areas of Enron and to help improve the stock price.

Increased Regulation and Oversight

At the time of Enron's collapse, it was the biggest corporate bankruptcy ever to hit the financial world. The Enron scandal drew attention to accounting and corporate fraud, as its shareholders lost $74 billion in the four years leading up to its bankruptcy, and its employees lost billions in pension benefits.

Increased regulation and oversight have been enacted to help prevent or eliminate corporate scandals of Enron's magnitude. As a consequence of the scandal, new regulations and legislation were enacted to expand the accuracy of financial reporting for public companies. One piece of legislation, the Sarbanes-Oxley Act, increased penalties for destroying, altering, or fabricating records in federal investigations or for attempting to defraud shareholders. The act also increased the accountability of auditing firms to remain unbiased and independent of their clients.

R. Ghosh

See also: Employee Stock Ownership Plans; Market Risk; Markets; *Vol. 1: Foundations of Economics:* Accountant; Bankruptcy; Investing; Sarbanes-Oxley Act; *Vol. 2: Macroeconomics:* Securities and Exchange Commission; *Primary Document:* Sarbanes-Oxley Act (2002)

Further Reading

Keller, Bill. 2002. Enron for dummies. *New York Times* (January 26). http://www.nytimes.com/2002/01/26/opinion/enron-for-dummies.html (access September 30, 2014).

Lavelle, Louis. 2002. How governance rules failed at Enron. *Bloomberg Businessweek* (January 20). http://www.businessweek.com/stories/2002-01-20/commentary-how-governance-rules-failed-at-enron (access September 30, 2014).

O'Leary, Christopher. n.d. Enron—What happened?: Year in review 2002. *Encyclopaedia Britannica*. http://www.britannica.com/EBchecked/topic/1517868/Enron-What-Happened-Year-In-Review-2002 (accessed June 11, 2014).

EXXON VALDEZ OIL SPILL

The 1989 *Exxon Valdez* oil spill (EVOS) represented a watershed moment in environmental economics. The spill commanded considerable attention from the public and policymakers as oil traveled long distances from the reef hit by the Exxon-owned tanker, causing large-scale harm to a wildlife-rich, pristine environment. From an economic vantage point, the disaster triggered a rethinking of the value of changes to pure public goods where there is no requirement that people directly use the resource in order for there to be a monetary loss. It also focused attention on the survey-based technique, contingent valuation (CV), developed by economists for measuring the monetized value of such changes.

The governmental trustees for injured natural resources, the State of Alaska, and the United States undertook a large-scale CV study of the American public's willingness to pay (WTP) to avoid a future oil spill similar to the EVOS. The government trustees presented the results of the study to Exxon and, subsequently, Exxon settled out of court for the roughly $2 billion spent on response and restoration activities plus an additional $1 billion in natural resource damages. The government's CV study had estimated that the American public's WTP to prevent an EVOS-like spill was approximately $3 billion, and regulations require that money received for injuries to natural resources go either to restoration activities or to acquire similar resources to those injured. After the settlement, a council of trustee agencies was set up to spend the money received for this second purpose.

There were a number of unsettled issues facing the EVOS case if it had gone to trial, including whether traditional admiralty law took precedence over newer pollution statutes (which would have greatly reduced Exxon's liability), which expenditures constituted response that did not count toward liability for natural resource damages and which constituted restoration, and how much weight the court would put on the government's EVOS CV study.

The U.S. Oil Pollution Act of 1990, passed in response to the EVOS, codified the positions adopted by government in the EVOS case. From an economic vantage point, these positions largely followed practices of government agencies in conducting benefit-cost analysis, which placed considerable weight on monetizing all benefits and costs of a policy and utilized CV to do this. Violation of the U.S. Clean Water Act was a key component of the government's EVOS case, and CV had been used to comprehensively measure the benefits of that act. The last impediment to a government trustee including passive use considerations in a natural resource damage assessment was removed in a major 1989 U.S. appellate court case: *Ohio v. Department of Interior* (880 F.2d 432, D.C. Cir. 1989). In that case, the court ruled that lost passive use value associated with injuries to natural resources was compensable under U.S. law.

The ability to include passive use values illustrates a striking difference between the EVOS and the Santa Barbara oil spill of 1969, which was one of the key events that influenced major U.S. federal environmental legislation enacted over the next several years. The Santa Barbara spill was the largest in U.S. coastal waters until the *Exxon Valdez* and resulted in compensation to government agencies of roughly $15 million. In the EVOS case, the compensation might have been even less than this without the inclusion of passive use considerations, as Exxon's estimate of the lost nonmarket value was $4 million for the reduction in outdoor recreation in Alaska.

The EVOS CV study used a large in-person survey of a national sample of U.S. households. Surveyors presented a detailed description of Prince William Sound, where the spill occurred, focusing on the landscape and impacted wildlife and using photographs and show cards. A plan for preventing a future spill similar to the EVOS was put forward that utilized escort ships to prevent a tanker from going off course and which had the ability to quickly lay down a containment boom. The payment mechanism was a one-time federal tax. Respondents were offered a discrete choice between the status quo and paying the specified higher tax to obtain the prevention plan.

Following the settlement with Exxon, the U.S. Coast Guard mandated a prevention plan similar to one put forward in the EVOS CV study. Soon after, a supertanker going down the narrow Straits of Valdez lost power and drifted toward a reef near the one hit by the *Exxon Valdez*; fortunately, its escort tugs pushed it away and towed it out for repairs. Subsequently, escort ships have been called upon on several occasions to prevent another potential large oil spill.

Exxon put on a conference after the EVOS settlement in which a set of papers highly critical of CV were presented. In response, the U.S. government sponsored a Blue Ribbon Panel, co-chaired by Kenneth Arrow and Robert Solow, to assess the use of CV for natural resource damage assessment. The panel concluded that "well conducted CVM studies can produce estimates reliable enough to be the starting point of a judicial process of damage assessment, including lost passive values" and set out guidelines for conducting CV studies for litigation purposes. These guidelines largely followed the procedures used in the EVOS CV study with the exception of requiring a test of whether WTP was sensitive to a change in the scope of the good described. The conflicting views of the Hausman volume and the Arrow et al. report stimulated a substantial amount of research related to CV and nonmarket valuation.

Richard T. Carson

See also: Arrow, Kenneth; *Vol. 2: Macroeconomics:* Externality; Solow, Robert; Water Pollution

Further Reading

Carson, R. T., and W. M. Hanemann. 2005. Contingent valuation. In *Handbook of Environmental Economics*, ed. K. G. Mäler and J. Vincent. Amsterdam: North-Holland.

Carson, R. T., R. C. Mitchell, W. M. Hanemann, R. Kopp, S. Presser, and P. Ruud. 2003. Contingent valuation and lost passive use: Damages from the Exxon Valdez oil spill. *Environmental and Resource Economics* 25 (3): 257–86.

Hausman, J. A., ed. 1993. *Contingent valuation: A critical appraisal*. Amsterdam: North-Holland.

Krutilla, J. V. 1967. Conservation reconsidered. *American Economic Review* 57 (4): 777–86.

U.S. Environmental Protection Agency. 1994. *President Clinton's Clean Water Initiative: Analysis of benefits and costs*. EPA 800-R-94-002 (NTIS Document No. PB94-154101). Washington, DC: Office of Water, U.S. Environmental Protection Agency.

F

FEDERAL HOME LOAN BANK

In 1932, Congress chartered the Federal Home Loan Banks, also known as the FHLBanks or FHLBank Systems. The Federal Home Loan Banks are a system of regional banks from which local lending institutions in the United States borrow funds to finance housing, jobs, economic development, and infrastructure. The banks help institutions, not individuals. There are 11 United States government–sponsored banks, located in Atlanta, Boston, Chicago, Cincinnati, Dallas, Des Moines, Indianapolis, New York, Pittsburgh, San Francisco, and Topeka. Including all of the Federal Home Loan Banks' members, the bank represents the largest collective source of home community credit and mortgage in the United States.

The Federal Home Loan Banks support several efforts of their member lending institutions. These efforts include helping families realize their dream of owning a home, improving the local business environment, and building affordable housing.

Members of the Federal Home Loan Banks

The Federal Home Loan Banks have nearly 7,300 members. In order to become a member, the applying entity must meet the following requirements:

- be duly organized under the laws of any state of the United States
- be subject to inspection under the banking laws or similar federal and state laws
- make a long-term home mortgage loans
- have at least 10 percent of its total assets in residential mortgage loans
- be financially stable enough to safely make Federal Home Loan Bank advances
- have a character of management and a home financing policy that is consistent with economical home financing

The members include banks, credit unions, insurance companies, and thrifts. Shares of the regional federal banks are distributed among their members. Each regional bank is an individual corporate existence that must meet strict management and capitalization criteria to remain a government-sponsored enterprise. In order to ensure that each regional bank remains well managed and capitalized, the regional banks are watched over by the government and are subject to normal bank regulations and shareholder vigilance. Each Federal Home Loan Bank reflects a public purpose; however, they are capitalized privately and do not receive money from taxpayers.

Mission of the Federal Home Loan Banks

A key mission of the Federal Home Loan Banks is to ensure that the housing enterprises sponsored by the government operate in a safe and sound manner so that they can serve as a dependable source of funding and liquidity for housing community investments and finances. In order to prosper, the Federal Home Loan Banks set values that each of the 11 U.S. government–sponsored banks must follow. The values of each bank include respect, excellence, integrity, and diversity. For decades the Federal Home Loan Banks have helped to improve the lives of U.S. families.

Taylor Brown
David A. Dieterle

See also: Liquidity; Subprime Mortgage Bubble and Crisis

Further Reading

Federal Housing Finance Agency. n.d. Who we are & what we do. www.fhfa.gov/AboutUS (accessed October 30, 2015).
FHLBanks. n.d. About us. www.fhlb-of.com/ofweb_userWeb/pageBuilder/about-us-17 (accessed October 30, 2015).
FHLBanks. n.d. A nation of local lenders. www.fhlbanks.com/index.html#got-a-minute (accessed October 30, 2015).

FEDERAL HOME LOAN MORTGAGE CORPORATION (FREDDIE MAC)

The Federal Home Loan Mortgage Corporation (FHLMC), also known as Freddie Mac, has a public mission to stabilize the nation's residential mortgage markets and expand opportunities for home ownership and affordable rental housing. Congress chartered Freddie Mac, located in Tysons Corner, Virginia, as a stockholder-owned, government-sponsored enterprise (GSE) through the Emergency Home Finance Act of 1970. Freddie Mac purchases loans from lenders to allow them to make more mortgage loans to other borrowers. They then guarantee and securitize these mortgages to form mortgage-backed securities. These securities are very liquid and carry a credit rating close to that of U.S. Treasury notes, bills, and bonds. Freddie Mac does not make loans directly to homebuyers, nor does it pay state and local income tax. The FHLMC also works to educate home buyers and homeowners through financial education programs like their "Considering a Home" and "CreditSmart" curricula.

In 1989, the Financial Institutions Reform, Recovery and Enforcement Act revised and standardized the regulation of Freddie Mac and the Federal National Mortgage Association, known as Fannie Mae. The U.S. Department of Housing and Urban Development (HUD) then oversaw Freddie Mac and created an 18-member board of directors.

In the early 1990s, Congress encouraged Freddie Mac and Fannie Mae to increase their purchases of mortgages for low- and moderate-income borrowers. These factors, along with Freddie Mac's implicit guarantee of government support, left it attractive to investors and vulnerable to the impending housing bubble.

During the financial crisis of 2008, Treasury Department officials and leading industry experts concluded that neither Freddie Mac nor Fannie Mae had enough money to sustain the crisis. Then Treasury Secretary Henry M. Paulson Jr. created a plan of "conservatorship" under the Federal Housing Finance Agency (FHFA). Boards and chief executives were fired and new chief executives were appointed. As both agencies had funded about 70 percent of home loans at the time, many saw this as a crucial step necessary for the recovery of the housing market. The government changed them from commercial entities with a goal of making money for stockholders into quasi-public service companies intended to help the housing mortgage market function.

Criticism of Freddie Mac stems from the fact that the U.S. government allows it to borrow money at interest rates lower than those available to other financial institutions. It can issue a large amount of debt and purchase and hold a large portfolio of mortgages, known as its retained portfolio. Due to the size of the retained portfolio relative to the size of the total housing market, many believe it poses a systemic risk to the U.S. economy.

Freddie Mac has strengthened its credit and eligibility standards to produce better-quality loans that foster sustainable home ownership.

Kathryn Lloyd Gustafson

See also: Federal National Mortgage Association (Fannie Mae); *Vol. 2: Macroeconomics:* United States Treasury

Further Reading

Davidoff, Steven M. 2013. Dealbook: In the markets, at least, Fannie and Freddie still astound. *New York Times* (April 10). query.nytimes.com/gst/fullpage.html?res=9F0DE3D8153FF933A25757C0A9659D8B63&ref=freddiemac (accessed September 30, 2016).

Federal Home Loan Mortgage Corporation. n.d. www.fhfa.gov/GetFile.aspx?FileID=30.

Federal Housing Finance Authority. n.d. History of the government sponsored enterprises. fhfaoig.gov/LearnMore/History (accessed September 30, 2016).

Min, David. 2011. For the last time, Fannie and Freddie didn't cause the housing crisis. *The Atlantic* (December 16). www.theatlantic.com/business/archive/2011/12/for-the-last-time-fannie-and-freddie-didnt-cause-the-housing-crisis/250121/ (accessed September 30, 2016).

Nocera, Joe. 2011. The big lie. *New York Times* (December 23). www.nytimes.com/2011/12/24/opinion/nocera-the-big-lie.html?_r=0 (accessed September 30, 2016).

Roberts, Russell. 2008. How government stoked the mania. *Wall Street Journal* (October 3). http://online.wsj.com/news/articles/SB122298982558700341 (accessed September 30, 2016).

FEDERAL NATIONAL MORTGAGE ASSOCIATION (FANNIE MAE)

President Franklin D. Roosevelt and Congress chartered the Federal National Mortgage Association, also known as Fannie Mae, in 1938 as part of the New Deal. Prior to this time, the private sector issued home loans with large down payments (about half the home's purchase price) and short time frames for payment, thus limiting home ownership. These lending institutions—banks, thrifts, credit unions, and savings and loans—held the mortgages themselves. After the Great Depression, private lenders did not want to invest in risky home loans. The National Housing Act of 1934 offered federally backed insurance for home mortgages from Federal Housing Administration–approved lenders. The Federal National Mortgage Association was established as an amendment to the National Housing Act.

Fannie Mae's purpose is to buy mortgages from banks so that they may then loan capital to other borrowers. This works to keep the mortgage market liquid and keep lenders providing mortgages. This strategy has allowed many lower- and middle-class Americans to borrow money from banks and improve the level of home ownership and the availability of affordable housing. Fannie Mae saw much growth with the advent of the Servicemen's Readjustment Act (GI Bill), and specifically the Veterans Administration mortgage insurance program, in 1944.

In 1954, the Federal National Mortgage Association and Charter Act of 1954 changed Fannie Mae from a government agency to a public-private corporation. Facing the financial pressures of Vietnam, Lyndon B. Johnson also reorganized Fannie Mae to eliminate its debt portfolio from the balance sheet through the Housing and Urban Development (HUD) Act of 1968. Congress split Fannie Mae into two companies. One was Fannie Mae. The second, new company was named the Government National Mortgage Association, or Ginnie Mae. Ginnie Mae continued to buy government-issued loans and remained a government entity.

The new Fannie Mae was converted into a publicly traded investor-owned company with federal government support, or a government-sponsored enterprise (GSE). This designation directed Fannie Mae to maximize shareholder profits for its private owners and support home ownership via its congressional or public mandate. Fannie Mae was now allowed to buy conventional mortgages in addition to those issued by the government from the Veterans Administration and the Federal Housing Administration. Fannie Mae also still had access to a line of credit from the U.S. Treasury and was exempt from state and local income taxes and SEC oversight. The president was authorized to appoint 5 out of 18 members of Fannie Mae's board of directors. HUD also had the authority to require Fannie Mae to direct a larger portion of its business to low- and moderate-income housing. In 1970, Congress correspondingly created the Federal Home Loan Mortgage Corporation, Freddie Mac, to compete with Fannie Mae.

The unique identity of Fannie Mae as a private corporation and a government entity created an implicit belief that the U.S. government guarantees loans backed by Fannie Mae and Freddie Mac. Fannie Mae has been criticized for its close government ties that might lead to an unfair advantage within the industry. It has been able to borrow money from foreign investors at low interest rates because of this U.S. government support. This gives Fannie Mae a funding advantage and the ability to earn large profits. Congress passed the Federal Housing Enterprises Financial Safety and Soundness Act in 1992 to conduct routine examinations of Fannie Mae and Freddie Mac.

In 1995, the Department of Housing and Urban Development began to specify mortgage purchase goals for both Fannie Mae and Freddie Mac in response to an inclusion of affordable housing as part of its mission. Both Fannie Mae and Freddie

Mac turned to subprime securities with lax underwriting standards to meet these goals. This also helped to maximize their profits for shareholders.

Fannie Mae weathered several accounting scandals in 2003 and 2004, ultimately paying a $400 million civil penalty for overstating reported income and capital by $10.6 billion. The Securities and Exchange Commission directed Fannie Mae to restate its financial results for 2002 through 2004 and replace both its chief executive officer and chief financial officer.

In addition, the ultimate default and collapse of the subprime mortgage market forced Fannie Mae and Freddie Mac toward a government bailout. The Federal Housing Financing Agency placed Fannie Mae and Freddie Mac into conservatorships in July 2008, dismissing their chief executive officers and boards of directors and issuing new senior preferred stock and common stock warrants.

Kathryn Lloyd Gustafson

See also: Federal Home Loan Mortgage (Freddie Mac); *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; Market Capitalism; New Deal; Roosevelt, Franklin D.; *Vol. 2: Macroeconomics:* Securities and Exchange Commission; Servicemen's Readjustment Act of 1944 (GI Bill); *Primary Document:* Servicemen's Readjustment Act of 1944 (GI Bill)

Further Reading

Alford, Rob. 2003. What are the origins of Freddie Mac and Fannie Mae? History News Network, George Mason University (December 8). http://hnn.us /article/1849 (accessed December 20, 2013).

Fannie Mae. n.d. Company overview. http://www.fanniemae.com/portal/about-us/company-overview/about-fm.html (accessed December 20, 2013).

Federal Housing Finance Agency, Office of the Inspector General. n.d. History of the government sponsored enterprises. http://fhfaoig.gov/LearnMore/History (accessed December 20, 2013).

Hagerty, James R. 2012. Assessing Fannie's past and future. *Wall Street Journal* (September 3). http://online.wsj.com/news/articles/SB10000872396390444772804577622012226706948 (accessed December 20, 2013).

Kelsie, Brandlee. 2011. Promoting homeownership in the United States: The rise and fall of Fannie Mae and Freddie Mac. University of Iowa College of Law, Center for International Finance and Development. http://ebook.law.uiowa.edu/ebook /content/promoting-homeownership-us-rise-and-fall-fannie-mae-and-freddie-mac (accessed December 20, 2013).

Pickert, Kate. 2008. A brief history of Fannie Mae and Freddie Mac. *Time Business and Money* (July 14). http://content.time.com/time/business/article/0,8599,1822766,00.html (accessed December 20, 2013).

FEDERAL TRADE COMMISSION

The Federal Trade Commission (FTC) is an independent agency within the U.S. government that regulates competition between businesses and protects consumers from unethical business transactions by preventing industries from forming anticompetitive trusts. When President Woodrow Wilson signed the Federal Trade

Commission Act on September 26, 1914, business trusts were still very active in the U.S. business environment. One objective of the FTC was to continue to pursue and break up the business trusts as they were structured at that time. The Federal Trade Commission Act was considered by some as a follow-up to the 1890 Sherman Antitrust Act as consumer protection.

The forerunner to the FTC was the Bureau of Corporations, created on February 14, 1903, by then-president Theodore Roosevelt as a promise under his Square Deal. The Bureau of Corporations was created as an investigatory agency under the Department of Commerce and Labor. The bureau examined industries' business practices, specifically those businesses that engaged in interstate commerce. The reports the bureau created were useful when examining antitrust cases. Up until this time, trusts had become a major problem in the United States. Trusts are companies or organizations that work together to limit competition from other similar companies or organizations. In 1890, Congress passed the Sherman Antitrust Act, which made these trusts illegal. With the Sherman Antitrust Act, if the federal government felt a company was limiting competition, it would launch an investigation. The act was not fully enforced until the creation of the Bureau of Corporations. The Federal Trade Commission replaced the Bureau of Corporations with the signing of the Federal Trade Commission Act in 1914.

The FTC's mission is to prevent business practices that are deceptive, unfair, or anticompetitive, and to enhance informed consumer choice and public understanding of the competitive process without burdening legitimate business activity. It has three main goals: (1) to protect consumers by preventing unfair business practices and deception in the marketplace; (2) to maintain competition by preventing trusts from forming, creating a lack of competition; and (3) to advance its performance through maintaining organizational, individual, and management excellence.

In order to fulfill its mission and meet its goals, the FTC has created a variety of agencies and bureaus to oversee specific components of the organization. This list includes the Office of Public Affairs, Office of Congressional Relations, Office of the Executive Director, Office of the General Counsel, Office of Equal Employment Opportunity, Office of International Affairs, Office of the Secretary, Office of Administrative Law Judges, Office of Policy Planning, Office of the Inspector General, Bureau of Competition, Bureau of Economics, and Bureau of Consumer Protection.

The Bureau of Consumer Protection enforces a variety of consumer protection laws enacted by Congress as well as trade regulation rules issued by the FTC. Its actions include individual company and industry-wide investigations, administrative and federal court litigation, rule-making proceedings, and consumer and business education. In addition, the bureau contributes to the commission's ongoing efforts to inform Congress and other government entities of the impact that proposed actions could have on consumers.

The Office of Congressional Relations works with members of Congress. The office informs FTC staff of Capitol Hill issues and policies and provides information on legislation of interest to the commission. It also coordinates the preparation of both congressional testimony and responses to congressional inquiries concerning FTC policies and programs.

The Office of Equal Employment Opportunity investigates complaints of discrimination based on race, color, national origin, religion, disability, sex, reprisal, sexual orientation, genetic information, and parental status.

The Office of International Affairs's main role with the FTC is to work with competition and consumer protection agencies around the world to promote cooperation and convergence toward best practices.

The Bureau of Competition is considered the antitrust arm of the FTC. Its job is to prevent anticompetitive business practices and mergers. By doing this, the FTC promotes consumers' freedom to choose goods and services in an open marketplace at a price and quality that fits their needs. This is also good for other, similar businesses, as it guarantees opportunity for businesses by ensuring a level playing field among competitors.

The Bureau of Economics helps the FTC by providing economic analysis and support to consumer protection and antitrust investigations and rules. It also analyzes the impact of government regulation on competition and consumers and provides the government with economic analysis of market processes related to antitrust, consumer protection, and regulation.

In addition, the FTC has regional offices that cover seven geographic areas. The regional offices work with the Bureaus of Competition and Consumer Protection to conduct investigations and litigation; provide advice to state and local officials on the competitive implications of proposed actions; recommend cases; provide local outreach services to consumers and businesspeople; and coordinate activities with local, state, and regional authorities.

Ekaterini Chrisopoulos-Vergos

See also: Clayton Antitrust Act of 1914; Sherman Antitrust Act of 1890; *Primary Documents:* Clayton Antitrust Act of 1914; Sherman Antitrust Act of 1890

Further Reading

Cornell University Law Information Institute. n.d. 5 USC § 41: Federal Trade Commission established; membership; vacancies; seal. http://www.law.cornell.edu/uscode/text/15/41 (accessed September 30, 2016).

Federal Trade Commission. n.d. About the FTC. http://www.ftc.gov/ftc/about.shtm (accessed September 30, 2016).

Federal Trade Commission. n.d. Federal Trade Commission: A history. http://www.ftc.gov/ftc/history/ftchistory.shtm (accessed September 30, 2016).

FISHERIES ECONOMICS ASSOCIATIONS

The International Institute of Fisheries Economics and Trade (IIFET) and the North American Association of Fisheries Economists (NAAFE) are two organizations for individuals interested in fisheries economics, which can be broadly defined to include marine resource economics, fisheries management, seafood trade and markets, aquaculture economics, and fisheries development. Membership of both organizations includes individuals from industry, government, and academia with disciplinary interests ranging beyond economics into other social and biological sciences.

IIFET was founded in 1982 under the leadership of Richard Johnston of Oregon State University and, as its name suggests, was organized as an international organization. It holds a biennial meeting in even years in locations throughout North and South America, Europe, Asia, New Zealand, and Africa, which hosted the most recent meeting. IIFET recently instituted a fellows award. The main criterion for selection of fellows is substantial, long-term, ongoing contributions to the advancement and development of economic theory and analysis in the areas of fisheries, aquaculture, and/or seafood trade. Achievements may be evidenced by research, teaching, academic service, and/or policy impact. Anthony Scott of the University of British Columbia and James Wilen of the University of California, Riverside, are the first two IIFET fellows.

NAAFE is an independent organization formed in 2000 primarily under the leadership of Gunnar Knapp of the University of Alaska Anchorage and Walter Keithly of Louisiana State University. It was something of an offshoot of IIFET, and much of the impetus for forming the new organization was to focus attention on more local issues and to hold meetings at sites with relatively lower travel costs to allow for more attendance. Meetings are held in odd years, and many of the experts in the field attend both meetings. Both meetings span three or four days with many concurrent sessions with academic and policy relevance. *Marine Resource Economics* is the affiliated journal of both organizations.

While the two groups are now fully independent with separate bylaws and officers, the day-to-day business for both is carried out by secretariats hosted by Oregon State University's Department of Agricultural and Resource Economics under the leadership of Ann Shriver. IIFET membership varies between 600 and 800 individuals from approximately 65 countries, and attendance at meetings averages about 300. NAAFE's membership is about 150, and attendance at meetings averages about 100. Both are membership organizations open to any interested individual.

Lee G. Anderson

See also: Tragedy of the Commons; *Vol. 1: Foundations of Economics:* Association of Environmental and Resource Economists; Sustainability; United States Society for Ecological Economics; *Vol. 2: Macroeconomics:* Property Rights; *Vol. 4: Global Economics:* International Association for Energy Economics

Further Reading

The International Institute of Fisheries Economics and Trade. n.d. Home page. http://iifet.org (accessed September 30, 2016).

North American Association of Fisheries Economists. 2007. Home. http://naafe.org (accessed September 30, 2016).

FISHERIES MANAGEMENT

Economists have long understood that the cause of fisheries problems is the inability to exclude users. A resource is open access if users cannot be excluded (or exclusion is costly) and the resource is rival in consumption (also referred to as subtractable), meaning that a fish caught by one individual cannot be caught by another. Under open access, no one owns the fish in the sea. Fishermen thus lack incentives to restrain themselves in order to sustain the biological health of the resource and ultimately the long-term economic health of the fishing industry. Each fisherman races to catch the fish before the other person. Dynamic resource models, and bioeconomic modeling in particular, demonstrate that open access leads to biological overexploitation (overfishing) and economic losses (rent dissipation).

The degree of excludability is on a continuum. Resources on this continuum are generally referred to as common pool resources, a phrase that sometimes substitutes directly for the phrase *open access*, and difficulties in solving the exclusion problem are generally referred to as the *commons problem*. When access is completely nonexcludable and the resource is completely rival, we refer to this extreme case as *pure open access*. As a practical matter, few fisheries are pure open access because there is often some degree of exclusion. For example, one country may keep other countries from fishing in its territorial waters but fail to exert any control over its domestic fishing fleet. At the other end of the spectrum is complete exclusion, under which the resource effectively becomes private property. By definition, a private good is excludable and rival.

In between open access and private property are various institutional arrangements that partially exclude users. Some of these cases are regulatory attempts to limit access. For example, under limited entry, a form of regulated restricted access, the number of participants in a fishery is limited but the level of exploitation of each participant typically is not controlled. Another institutional arrangement between open access and private property is common property resource management, whereby communities of resource users self-organize to limit access and sometimes control other aspects of the fishery. Although fisheries contribute significantly to protein consumption, employment, and export earnings in developing countries, many developing countries lack the institutional capacity to manage fisheries with strong government regulations, and common property resource management is seen as a possible alternative. A third option is a hybrid of regulation and common property resource management called co-management, where self-organized resource governance and government regulation reinforce each other; the regulator lacks the capacity to manage the fishery entirely on its own, but communities are unable to exclude users (typically users from outside the community) without assistance from the regulator. As globalization of the seafood trade generates more market opportunities for fishery resources, co-management may be necessary to bolster otherwise successful common property resource management.

Rivalry is also a characteristic of open access that is on a continuum. For example, some recreational fishermen like to catch and release fish for sport. Some of the released fish survive and can be caught again. When survival rates are high, the resource is less rivalrous. Combined with nonexcludability, nonrivalry of catch-and-release fish makes the resource more like a public good.

The history of fisheries management is a history of successes and failures in addressing the open access problem. There was a time when even many scientists believed that fishery resources were effectively limitless. Well into the 20th century, fisheries management was aimed primarily at promoting and developing fisheries without recognition of the capacity of humans to affect the availability of fish in the future and with little regard for the problem of open access. By the 1950s, scientific awareness of the finite nature of fishery resources had grown, and the problem of open access was well understood by economists. But the most significant breakthrough in solving the exclusion problem did not come until 1976, when nations agreed to define 200-mile exclusive economic zones (EEZs), which were formally adopted by the UN Convention on the Law of the Sea in 1982. Because the majority of fishery resources exist above continental shelves and in other near-shore environments, the 200-mile EEZ creates the potential for nations to exclude users and manage their fishery resources to sustain the biological resource and generate economic rents. However, to date there is considerable variation in the extent to which nations have addressed excludability within their EEZs. For resources outside of EEZs (ones that are only on the high seas or highly migratory fish that move through the high seas), excludability is limited because it requires an international agreement. For resources that span multiple EEZs (known as straddling stocks), bilateral or multilateral agreements are necessary to address open access.

In the United States, the centerpiece of fisheries law is the Magnuson-Stevens Fishery Conservation and Management Act. At its core it is a mandate to end overfishing by setting catch limits in federally managed fisheries. Historically, this mandate has focused on the symptom of the problem, namely biological overfishing, without addressing the cause. By setting catch limits without addressing the exclusion problem, managers began to control biological overfishing but inadvertently worsened the race to fish. This regulatory approach is known as regulated open access: aggregate catch limits can maintain a biologically healthy stock; fishermen have incentives to build more and bigger vessels to catch fish before their competitors; and managers respond by shortening season lengths, forcing unsafe fishing conditions, gluts of product onto the market, and the need to sell fish frozen rather than fresh. Because the stock of fish is maintained at a healthy level, regulated open access can lead to even more excess fishing capacity and associated economic waste than pure open access. Most notoriously, an economically wasteful derby in the Pacific halibut fishery of Alaska shrunk the season length to less than three days by 1994.

In 1995, a solution to address the cause of this problem was introduced: an individually transferable quota program that set the total catch based on biological assessment and divided the catch between resource users into shares that could be traded. Individually transferable quotas were used in only a handful of other U.S. fisheries but appeared to be successful in managing larger numbers of fisheries in Iceland and New Zealand. With the new policy, the Pacific halibut fishery was transformed overnight from a source of tremendous economic waste to one of the great success stories in fisheries management, with a season lasting 245 days and a steady flow of fresh, high-value product to the market.

The 2006 reauthorization of the Magnuson-Stevens Act provided a means to use new tools like the halibut program in federal fisheries management. These tools are broadly defined as limited access privilege programs (LAPPs) and include individual fishing quotas (both tradable, like in halibut, and nontradable) and territorial use rights in fisheries (TURFs). In policy circles, individual fishing quotas have now been renamed *catch shares*. LAPPs address the cause of overfishing and not just the symptoms by solving the exclusion problem, thus aligning the incentives of individual fishermen with the objectives of fisheries management.

Economists have shown that that problem of open access applies to a broader definition of marine resources than just a single targeted fish stock. A number of innovations have examined spatial heterogeneity of fish stocks and fishing fleets and the potential for closing fishing grounds to increase yields and profits. Here the issue is whether to exclude access to a spatially delineated portion of the stock rather than to the stock as a whole. To some extent, regulators are repeating their mistakes of regulated open access in attempts to control bycatch, the unintentional catch of nontarget species. By setting industry-wide caps rather than individual vessel quotas, regulations create the potential for a race to bycatch. Similar issues arise in the protection of critical habitat and other marine ecosystem services. Proposed solutions to these problems require aligning incentives of individuals with the objectives of management, including spatially delineated management, individual bycatch quotas, and individual habitat quotas.

Martin D. Smith

See also: Common Property and Common-Pool Resources; Tragedy of the Commons; *Vol. 1: Foundations of Economics:* Ecological Economics; Theory of Public Choice; Sustainability; *Vol. 2: Macroeconomics:* Public Goods

Further Reading

Gordon, H. S. 1954. Economic theory of a common property resource: The fishery. *Journal of Political Economy* 75 (2): 124–42.

Homans, F. R., and J. E. Wilen. 1997. A model of regulated open access resource use. *Journal of Environmental Economics and Management* 32 (1): 1–21.

Ostrom, E. 1990. *Governing the commons: The evolution of institutions for collective action*. Cambridge, UK: Cambridge Univ. Press.

Smith, M. D. 2012. The new fisheries economics: Incentives across many margins. *Annual Review of Resource Economics* 4: 379–402.

Wilen, J. E. 2006. Why fisheries management fails: Treating symptoms rather than causes. *Bulletin of Marine Science* 78 (3): 529–46.

FLEXIBLE SAVING ACCOUNT

A flexible saving account, also called a flexible spending account (FSA), is a workplace-provided account into which employees contribute money before federal income taxes and the employee portion of Social Security tax (pre tax) are calculated. Once a worker sets up an FSA, the employer then deducts the predetermined amount in installments from the employee's pay each pay period and deposits the money into the worker's FSA. Account owners can use the pretax dollars to pay specific out-of-pocket costs.

Companies are allowed, but not required, to offer employees both medical expense FSAs and dependent or childcare FSAs. An employee can enroll in one account, both, or neither. When carefully established and managed, the accounts can save individuals tax dollars and cover costs, such as uninsured expenses, that they would normally pay out of pocket.

Medical FSA Rules

By opting to open a medical FSA, workers can set aside up to $5,000 to help pay health care costs that are not covered by insurance. Medical FSA owners either present covered cost receipts to the account administrator and are reimbursed for the expenses or pay for the eligible expenses using a plan-issued debit card. Even if a debit card is used, workers should retain receipts in case the employer or tax officials have questions about a reimbursement's eligibility.

Qualified medical expenses that are eligible for FSA reimbursement or payment via debit card are generally those costs listed in the FSA's plan description. Most employers use the medical costs listed in IRS Publication 502, Medical and Dental Expenses.

Common eligible health care expenses detailed over more than 12 pages in the publication include insurance co-payments made with after-tax income, treatment co-payments, deductibles, eye surgeries (such as Lasik), extra pairs of prescription eyeglasses and contact lenses, chiropractor treatments, travel costs for treatment, birth control pills, and pregnancy test kits.

In addition, prescription drugs and over-the-counter (OTC) drugs may be reimbursed from or paid for directly with FSA funds. However, a tax law change effective with the 2013 tax year requires that an FSA owner get a prescription from a doctor for OTC medicines before the account money will cover those costs.

The IRS periodically updates the qualifying medical expenses list. FSA account owners should check the IRS website and double check with their FSA administrator before making questionable medical purchases or receiving services to ensure they will be covered.

Childcare FSA Rules

By opting to open a dependent-care FSA, workers can set aside up to $5,000 to help pay some of the costs of placing children in day care while the parent or parents are at work. If both married spouses work and each has access to a childcare FSA, the $5,000 limit applies to them as a couple; one spouse can open a $5,000 FSA or they can split the limit between themselves.

A childcare FSA operates like a medical FSA. Once an employee decides what amount to contribute to the account, up to the limit, the employer deducts that amount in installments from the employee's gross pay each pay period before taxes are calculated and sends it to the FSA. The money is then used to pay the childcare provider or reimburse the parents for their out-of-pocket expenses.

Free Money from FSAs

Another advantage of FSAs is that a reimbursement request can be fulfilled before the account has enough money to cover the cost. For example, a medical FSA owner breaks his wrist in February and requires surgery. The injured employee's workplace health insurance covers most of the surgical costs, but because the injury was incurred early in the benefits year, he had to pay a $2,000 deductible. Also, because of the timing, the worker had only contributed to his medical FSA for two months, or $833 toward his eventual $5,000 annual total. Tax law, however, allows for the worker to be reimbursed for the full $2,000 deductible costs because he is enrolled for a $5,000 FSA total contribution. Even if the worker leaves his job before he contributes the amount already paid by the FSA, he won't have to repay the money.

Use or Lose FSA Money

FSAs, however, do have a major downside. If an account holder ends a benefits year with excess money in the account, the money is forfeited to the employer. This is known as the "use it or lose it" rule. It is also why many workers undercontribute to their FSAs.

Employers are allowed to offer FSA owners a grace period of two and a half months, or until March 15 for benefits plans that operate on a calendar year, to ensure eligible medical expenses use the prior year's excess funds. But this is an employer option, not a requirement of its employee benefits offerings.

Workers should make sure they understand when their FSAs must be used so that they don't inadvertently lose some of their contributions.

Life Changes Allow for FSA Changes

Once an employee chooses an amount for an FSA, no changes are allowed unless the employee experiences a major life change.

Valid life changes for both medical and childcare FSAs are:

- a change in marital status (e.g., marriage, divorce, death of spouse, legal separation, or annulment)
- dependents added or lost via birth, adoption, placement for adoption, or death
- employment status change on the part of the employee, a spouse, or dependents (e.g., change in work site, switching from part-time to full-time work or vice versa, or job loss)
- residency change
- a dependent's eligibility changes (e.g., reaches a birthday beyond the eligibility age or is no longer a full-time student)

In these cases, an FSA owner can and should adjust the contribution amount to the saving plan to ensure that it has enough funds to cover expected costs but not so much as to lose unused money.

Kay Bell

See also: Health Insurance; Income; Tax Deferral; *Vol. 1: Foundations of Economics:* Financial Literacy; Internal Revenue Service; *Vol. 2: Macroeconomics:* Taxes

Further Reading

Cuddington, John T. 1998. Optimal annual contributions to flexible spending accounts: A rule-of-thumb. Economics Department, Georgetown University, Washington, DC (February 2). http://www.sciencedirect.com/science/article/pii/S0165176598001992 (accessed September 30, 2016).

Department of the Treasury Internal Revenue Service. 2016. Health savings accounts and other tax-favored health plans, publication 969. http://www.irs.gov/pub/irs-pdf/p969.pdf (accessed September 30, 2016).

Department of the Treasury Internal Revenue Service. 2016. Medical and dental expenses publication 502. http://www.irs.gov/pub/irs-pdf/p502.pdf (accessed December 1, 2016).

Ebeling, Ashela. 2012. New healthcare flexible spending account rules for 2013, use-it-or-lose-it still undecided. *Forbes* (November 16). http://www.forbes.com/sites/ashleaebeling/2012/11/16/new-healthcare-flexible-spending-account-rules-for-2013-use-it-or-lose-it-still-undecided/ (accessed September 30, 2016).

Van de Water, Paul N. 2012. Limitation on use of tax-advantaged health accounts should not be repealed. Center on Budget and Policy Priorities (June 5). http://www.cbpp.org/cms/?fa=view&id=3789 (accessed September 30, 2016).

FOOD SAFETY

There are thousands of types of bacteria found naturally in our environment. Some of these are pathogenic microorganisms (pathogens) that enter the food supply and can cause food-borne illnesses to consumers. In recent years, outbreaks of *E. coli* 0157:H7, Salmonella, Listeria, and *Vibrio vulnificus* have caused well-documented incidences of human illness and death associated with consuming everyday products such as tomatoes, eggs, spinach, peanuts, milk, beef, poultry, and oysters. In the United States alone, Centers for Disease Control and Prevention (CDC) data indicate that around 76 million cases of food-borne diseases, resulting in 325,000 hospitalizations and 5,000 deaths, are estimated to occur each year. Further, it is expected that the risks of food-borne illness are likely to increase over time due to factors such as climate (e.g., rising ocean temperatures increase the presence of naturally occurring bacteria that may contaminate the seafood supply chain), continued urbanization of traditionally rural areas (creating runoff that can exacerbate harmful algal blooms in coastal waters), or demographic conditions (rising population levels will continue to place additional pressure on mass production methods of food production that may pose problems in effectively tracing a contamination incident to its source).

As media attention directed at these events has increased public awareness of the risks associated with eating contaminated food, policymakers have attempted to address individuals' risk perceptions by creating new policies designed to reduce the incidence of food-borne illness. These policies come in various forms and at different levels of governance. At the industry level, firms, either voluntarily or mandated by government regulation, may provide safety assurances to consumers. At the federal level, some government agencies attempt to directly control the supply of food products. For example, the U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS) is the public health agency responsible for ensuring that the nation's commercial supply of meat, poultry, and egg products is safe, wholesome, and correctly labeled and packaged. The U.S. Food and Drug Administration (FDA) and Interstate Shellfish Sanitation Conference (ISSC) control the National Shellfish Sanitation Program (NSSP), which is a federal/state cooperative program to promote and improve the sanitation of shellfish produced and sold for human consumption. However, the most significant piece of legislation relating to food safety in the United States for decades came in the form of the 2011 Food Safety Modernization Act (FSMA). While there are several components to the new law, essentially the FSMA shifts the food safety focus from reaction and response to prevention. Under the new law, there are, among others, provisions to provide more frequent and targeted inspections of domestic food production facilities; to make importers accountable for verifying that the required controls are in place in foreign food facilities that export to the United States; to grant the FDA authority to issue a mandatory product recall if a company fails to voluntarily recall unsafe food; and to enhance federal, state, and local surveillance systems for food-borne illness so that outbreaks can be identified and controlled more quickly while also gaining the scientific knowledge to prevent future outbreaks.

Since the late 1970s, a significant body of research in the food safety arena has examined the impact of food safety information conveyance on consumer risk perceptions and behavior in the marketplace for a variety of products. Using both market-based techniques on actual sales data and nonmarket valuation techniques, such as choice experiments, averting and contingent behavior, and field experiments, researchers have shown that media coverage of a food-related health scare or contamination event can alter risk perceptions and cause consumers to react defensively, reducing demand for the product even when there is no scientifically supported health risk from normal consumption. Consequently, consumers accrue welfare losses or avoidance costs. Researchers interested in examining potential policy implications have also considered the effect of positive counterinformation treatments, designed to reassure consumers about the product's safety following a scare event, on risk perceptions and consumer behavior. Generally, studies find an asymmetry in consumer responses to negative and positive product news as consumers place greater weight on negative news concerning a product contamination or health scare event. As such, counterinformation treatments have a negligible effect on consumer demand, so welfare losses persist.

Since the 1990s, the rising incidence of food-borne illness has also supported a growing area of research examining how consumers value food-borne risk, their preferences for the use of technology in reducing risk, and the role of information in altering risk perceptions. Results from these studies generally indicate that individuals tend to underestimate objective risk of food-borne pathogens, but after receiving information regarding the likelihood of illness or death from consumption, they will pay a premium for safer food. Experimental auction methods have been used to investigate consumers' preferences for food safety technologies, such as freezing, irradiating, or pasteurizing food to reduce food-borne risk. Use of technology in food production presents an interesting trade-off for the consumer. While processing food reduces risk, it can also alter the esthetics (taste, smell, texture) of the product. As such, consumers' valuation for a new processed food product over a traditional variety is a composite measure of their valuations for actual and/or perceived differences in the individual characteristics of the food.

Also, as consumers gain information, either through experience or from external sources, preferences and the resulting valuations are subject to change, so information is likely to be an important determinant of consumers' valuation of processed foods. Research has shown that, in general, consumers will pay a premium for processed foods, but premiums vary across treatment types. However, it has also been shown that processing technologies may degrade the taste of the altered product to the extent that the benefits of risk reduction are overwhelmed by the change in taste, and willingness to pay for the processed good declines significantly.

O. Ashton Morgan

See also: Health and the Environment; Markets; Risk

Further Reading

Henson, Spencer, and Julie Caswell. 1999. Food safety regulation: An overview of contemporary issues. *Food Policy* 24 (6): 589–603.

Hoffmann, Sandra. 2010. *Food safety policy and economics: A review of the literature*. Resources for the Future Discussion Paper, 10–36.

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GAMBLER'S FALLACY

The gambler's fallacy refers to an incorrect belief about a sequence of independent random events. Someone falling prey to the fallacy believes that if a sequence of observed random events deviates from expected behavior, subsequent events will be biased in the opposite direction in order to move the observed sample toward a known population mean. A commonly overheard example is the expectation that something is "due": a roulette ball is "due" to fall on a red number after a long series of black numbers.

Estes (1964) demonstrated these beliefs experimentally by asking subjects to observe a sequence of coin flips and predict outcomes. Subjects behave as if every segment of the sequence must reflect the true proportion of 50 percent, and they expect corrective biases in the opposite direction of the observed sequence. This can also be seen by asking experimental subjects to generate a random sequence of hypothetical coin flips. Tune (1964) showed that subjects maintain the proportion in any short segment at much closer to 50 percent than the laws of chance would predict.

Tversky and Kahneman (1971) suggest that the gambler's fallacy is driven by belief in the law of small numbers (the law of large numbers applied to small samples). This can be described as the belief that a sample randomly drawn from a population is highly representative; thus each sample must be similar to each other sample and to the population. In surveys of professional psychology researchers, they demonstrate fundamental misunderstandings of interpreting replication studies. This includes overestimating the likelihood of replicating study findings and underestimating the significance of successful replication with differing magnitudes. They suggest that across naïve subjects and trained scientists alike there exist strong intuitions about random sampling that are fundamentally wrong. They argue that belief in the law of small numbers (and thus the gambler's fallacy) is a result of the representativeness heuristic, a cognitive bias that operates regardless of motivational factors. This has been replicated in field experiments by Croson and Sundali (2005).

A related fallacy is known as the hot-hand fallacy, where future outcomes are believed to be biased in the *same* direction as a previous sequence (this is sometimes also called the gambler's fallacy, as both fall into a general category of inference from previous independent results). There may be some validity to such beliefs in a human-generated outcome like the shot of a basketball, but it is just as misguided as the gambler's fallacy with respect to independent, randomly generated outcomes.

Correcting or avoiding the gambler's fallacy has proven to be difficult, as education about the nature of random events has been ineffective at reducing the prevalence of picking "with" the fallacy. Beach and Swensson (1967) tested how people predict draws of reshuffled cards with and without prior education about the gambler's fallacy and found both groups made similar predictions that relied on the fallacy.

Roney and Trick (2003) have demonstrated that the effect of the gambler's fallacy can be reduced by "grouping" observations to make the next outcome appear as though it were the beginning of a sequence. Participants were shown the results of a sequence of six coin flips, with the last three all coming up heads. Those who were asked to predict the outcome of the seventh coin flip relied more heavily on the gambler's fallacy (by choosing tails) than those who were asked to predict the first flip for the next sequence of six. They thus argue for encouraging people to view each event as a beginning and not a continuation of events.

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Robert Oxoby

See also: Gambling Behavior; Kahneman, Daniel; *Vol. 1: Foundations of Economics:* Tversky, Amos

Further Reading

Beach, L. R., and R.G. Swensson. 1967. Instructions about randomness and run dependency in two-choice learning. *Journal of Experimental Psychology* 75: 279–282.

Croson, Rachel, and James Sundali. 2005. The gambler's fallacy and the hot hand: Empirical data from casinos. *Journal of Risk and Uncertainty* 30: 195–209.

Estes, William. 1964. Probability learning. In *Categories of Human Learning*, ed. Arthur W. Melton, 89–128. New York: Academic Press.

Roney, Christopher, and Lana Trick. 2003. Grouping and gambling: A Gestalt approach to understanding the gambler's fallacy. *Canadian Journal of Experimental Psychology* 57: 69–75.

Tune, G. S. 1964. Response preferences: A review of some relevant literature. *Psychological Bulletin* 61 (4): 286–302

Tversky, Amos, and Daniel Kahneman. 1971. Belief in the law of small numbers. *Psychological Bulletin* 76: 105–10.

GAMBLING BEHAVIOR

Gambling refers to staking money on an outcome with a random element. Gambling takes many forms: betting on races or sports events, card games, roulette, lotto, slot machines, scratch tickets, or online casinos. The acceptance of gambling has varied in history and across societies, but current surveys in Western nations suggest that a large majority of adults gamble on a regular basis. From a profit-maximizing perspective, gambling represents a puzzle. For the individual, the expected value of gambling is often considerably less than the cost. This comes from the usual small probabilities of winning in combination with payout ratios being reduced by profit made by bookmakers, casinos, or lotto agencies. Different explanations have been suggested to explain why people gamble nevertheless, focusing on the subjective interpretations of probabilities, risk seeking, self-deception, affect, and social factors.

Subjective interpretations of probabilities often differ from objective probabilities. People overweight low probabilities, as described by the weighting function of *prospect theory*. They use *heuristics* to judge probabilities, like the availability heuristic, which is based on the ease of retrieval from memory. People often have a limited understanding of random processes, which in turn influences subjective probabilities. They often expect the outcome of a random process also to look random (representativeness heuristic) and therefore prefer to bet on seemingly unordered sequences. In the gambler's fallacy, random processes are misunderstood as self-correcting over time, and independent probabilities are perceived as depending on previous outcomes. For example, after the roulette wheel has shown red five or more times in a row, people expect black to be more likely and bet accordingly. Observing a "near miss," only one symbol missing to win the jackpot on a slot machine, leads to continued gambling by reinforcing the gambler's fallacy.

Risk seeking explains why the decision to engage in gambling can differ even when the same probabilities are involved. Individuals who are more risk seeking are more likely to gamble, but situational factors are also important. The "house money effect" describes that people are more careless about windfall gains (such as money won in the casino). But also losses can induce riskier behavior in line with the value function of prospect theory, particularly when there is a chance to "break even" and to recover the losses. This can result in "chasing," placing higher bets after losing, in the hope of making up for previous losses.

Self-deception describes how gamblers may have self-serving views related to gambling. Gamblers may show unrealistic optimism in the sense that they see themselves as more likely to win than other people. They may also be prone to illusions of control—they believe they have more influence on outcomes than is the case. Some gamblers hold superstitious beliefs and use rituals or lucky charms, bet on significant numbers such as birthdays, or believe that a ticket they owned but gave up is more likely to win. For games that involve some skill elements, overconfidence in their skills can be a driving factor for gamblers.

Affect, mood, and emotions can influence how people perceive probabilities and their risk aversion. Gambling in itself is often arousing and exciting, and casinos and other gambling sites are often designed to add to the experience. Seeking positive emotions and avoiding negative emotions contributes to gambling beyond considerations of probabilities and outcomes. For example, people anticipate regret when not participating in a lottery designed to provide clear feedback (e.g., Dutch postcode lottery) and therefore are more likely to buy tickets.

Social factors can take various forms. Gambling is often heavily advertised and part of mainstream television, and some forms of gambling are seen more as a leisure activity than as betting money. On the level of social networks, gambling among peers and family members has been found to be related to gambling behavior. Finally, some forms of gambling are specifically done in groups or syndicates and provide a valued group membership.

In some cases, gambling develops a pattern similar to addiction. Pathological gambling is characterized by the need to bet higher amounts for excitement, by chasing losses, and by unsuccessful attempts to quit gambling. Pathological gambling can have severe economic, social, and psychological consequences, like bankruptcy, criminal behavior, relationship conflicts, or depression.

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See also: Gambler's Fallacy; Prospect Theory; *Vol. 1: Foundations of Economics:* Behavioral Economics

Further Reading

Ariyabuddhiphongs, Vanchai. 2011. Lottery gambling: A review. *Journal of Gambling Studies* 27: 15–33.

Croson, Rachel, and James Sundali. 2005. The gambler's fallacy and the hot hand: Empirical data from casinos. *Journal of Risk and Uncertainty* 30: 195–209.

Risen, Jane L., and Thomas Gilovich. 2007. Another look at why people are reluctant to exchange lottery tickets. *Journal of Personality and Social Psychology* 93: 12–22.

GAME THEORY (BEHAVIORAL/COOPERATIVE)

Game theory is an interdisciplinary study of rational strategic behavior. The 2005 Nobel laureates in Economics, Robert Aumann and Thomas Schelling, have both observed that game theory would be better described as interactive decision theory. As such, most of the literature of game theory is about "absolutely rational decision makers whose capabilities of reasoning and memorizing are unlimited" in the words of Reinhard Selten. Within game theory there are two major streams of thought, cooperative and noncooperative game theory, which can be thought of as corresponding to two different concepts of (equally perfect) rationality.

For cooperative game theory, which stems from the foundational book of von Neumann and Morgenstern, whenever rational agents can realize a mutual benefit from coordinating their strategies, they will find a way to do so. For noncooperative game theory, which originates from the work of John Nash, strategy choices are stable only if each individual chooses his or her best (or least bad) option at every stage of the game. Because of this limitation, mutually beneficial strategy choices may not be realized. Of the two, noncooperative game theory has been the more widely influential. In noncooperative game theory, there is a fairly extensive literature that substitutes bounded rationality for the more common assumption of perfect rationality, and there is also an extensive literature of experimental studies. Some experimental studies of cooperative game theory have also been done.

Noncooperative game theory is often illustrated by an example called the prisoner's dilemma, one of a broader category of social dilemmas. Another widely studied social dilemma arises in price strategies for a duopoly. This is illustrated in Table 1. Each of the two firms can choose between two strategies: maintain a monopoly price or cut the price to a more competitive level. These strategies are shown in the table as the bottom two rows, representing the two strategies for Firm 1, and the rightmost two columns, representing the two strategies for Firm 2.

Table 1. A Pricing Dilemma

First payoff to Firm 1, second to Firm 2.		
	maintain price	**cut**
Firm 1	5,5	8,0
Firm 2	0,8	1,1

In each of the lower-right four cells, two payoffs are shown: the profits to Firm 1 and Firm 2, respectively, in millions or tens of millions or on another appropriate scale.

The payoffs in the table reflect the idea that if one firm chooses a lower price than the other, the firm with the lower price will attract most of the customers; but if they both cut their prices, they will continue to split the market at the lower price. Assuming that each chooses his or her best response to the strategy chosen by the other, each will choose to cut the price, which is the dominant strategy for each firm. Thus, they will price competitively, even though both would do better charging the monopoly price. This is an example of Nash equilibrium.

The monopoly price would be the cooperative solution to this game. We should observe that the customers, who would benefit from lower prices, are not considered players in the game.

This is not quite conclusive, though, since the pricing game is likely to be played again and again. If, in each year, there is some probability that the game will be played again in the following year, it is quite possible that the cooperative monopoly price will be realized. For example, if each firm chooses its strategy according to a tit-for-tat rule, cooperation may be realized. The tit-for-tat rule is to play cooperatively unless and until the other player plays noncooperatively, and at that point retaliate by playing noncooperatively in the next round. This rule may be a Nash equilibrium in some games. On the other hand, perfectly rational players will never cooperate if both players know that their play will be terminated after a certain number of plays.

This will serve to illustrate both experimental studies and the implications of bounded rationality. From quite early in the history of game theory, researchers have experimented with repeated games (e.g., Poundstone). Typical results are that some cooperation is realized in early repetitions of the game. That is, it appears that real human beings are rational enough to recognize the possibility of some mutual gain but not rational enough to reason back from the last repetition and understand that cooperation is never the best response. In all, game theory has applications in any field in which outcomes depend simultaneously on the decisions of two or more persons.

Roger McCain

See also: Aumann, Robert; Nash Equilibrium; Nash, John; Trust Game; *Vol. 1: Foundations of Economics:* Behavioral Economics; Golden Rule and Behavioral Economics; Prisoner's Dilemma; *Vol. 2: Macroeconomics:* Public Goods

Further Reading

Aumann, Robert J. 2003. Presidential address. *Games and Economic Behavior* 45: 2–14.

Nash, John. 1951. Non-cooperative games. *Annals of Mathematics* 2: 286–95.

Poundstone, William. 1992. *Prisoner's dilemma*. New York: Doubleday.

Schelling, Thomas. 1960. *The strategy of conflict*. Cambridge, MA: Harvard Univ. Press.

Selten, Reinhard. 1975. Reexamination of the perfectness concept for equilibrium points in extensive games. *International Journal of Game Theory* 4: 25–55.

von Neumann, John, and Oskar Morgenstern. 2004. *Theory of games and economic behavior*, 60th anniversary ed. Princeton, NJ: Princeton Univ. Press.

GATES, BILL

Born: October 28, 1955, in Seattle, Washington; Nationality: American; Professional Interests: attended Harvard College; founder, Microsoft Corporation.

Bill Gates and his business partner Paul Allen founded Microsoft in 1975. Along with Apple, Microsoft's Windows software program created a new frontier in the world of personal computing software. Bill Gates became one of the first successful opponents of pirated software programs when Microsoft's first product, BASIC, was being pirated by early computer enthusiasts. Microsoft became the world's largest software business.

William Henry "Bill" Gates III was born on October 28, 1955, in Seattle, Washington, in an upper-middle-class family, the second of three children. He has two sisters, Kristianne and Libby. A voracious reader, Bill spent many hours as a child going over reference books such as the encyclopedia. When Bill turned 13, his parents enrolled him at Seattle's Lakeside School, an exclusive preparatory school. He excelled in nearly all of his subjects, especially in math and science. He also did very well in drama and English. Gates graduated from Lakeside in 1973 and scored 1590 out of 1600 on the college SAT test. Originally thinking of a career in law, Gates enrolled at Harvard University.

Early on, Gates was fully absorbed with the power of computers, spending as much time as possible learning all he could. One of his first programs was a tic-tac-toe game using BASIC language. Computer users could play tic-tac-toe with the computer as their opponent. At the age of 15, he joined Paul Allen in business and developed Traf-o-Data. Traf-o-Data was a computer program for monitoring Seattle's traffic patterns. Traf-o-Data earned them $20,000, and their business careers had begun.

While Gates attended Harvard, Paul Allen moved to Boston to work for Honeywell. In the summer of 1974, Gates joined Allen at Honeywell, where Allen showed Gates an edition of *Popular Electronics* magazine featuring an article on the Altair 8800 mini-computer kit. A small company in Albuquerque, New Mexico, called Micro Instrumentation and Telemetry Systems (MITS) made the Altair. Gates and Allen wrote to Altair, saying they were developing a BASIC software program to run their computer. The only catch was they did not have an Altair or its code. Ed Roberts, president of MITS, requested a demonstration of their work. They spent the next two months preparing for the big demonstration. Allen went to Albuquerque to conduct a test trial of their software on the Altair computer. The test was flawless and Allen was hired at MITS. Gates soon followed, leaving Harvard. The Gates/Allen partnership was officially formed in 1975 with their new company, Micro-soft. The company name combined the *micro* from micro-computer with the *soft* from software.

Their first business challenge was getting paid for their BASIC software. During the very early days, the computing world was mostly hobbyists and enthusiasts who were not in it for the money. Yet, many had been able to obtain copies of their Microsoft BASIC software, either as a premarket copy or a pirated reproduced copy. In either case, Allen and Gates were not getting paid for their efforts. They figured that approximately only 10 percent of BASIC's use was from paid copies.

In February 1976, Gates wrote an open letter to computer hobbyists saying that continued distribution and use of software without paying for it would prevent the development of better software. Gates implied that pirating software would discourage developers from investing time and money into creating more quality software. He would later use this same argument when Microsoft was accused of unfair business practices. Microsoft continued its growth with its software now in various formats. In 1978, Gates moved the company to Bellevue, Washington.

At 23, Gates placed himself as the head of Microsoft, which grossed $2.5 million in 1978. From 1978 to 1981, Microsoft's staff increased to 128 and revenue topped $16 million. Microsoft was incorporated with Gates as president and chairman of the board with Allen executive vice president. In 1983, Microsoft opened offices in Great Britain and Japan. Thirty percent of the world's computers were now using Microsoft software.

Windows was launched in November 1985 and was immediately compared to the Apple's Macintosh system, which had been introduced two years earlier. The two programs were very similar in appearance. Earlier, while Microsoft was working on making Apple-compatible products, Apple had given Microsoft full entrée to its technology. Apple ignored advice to license its software. Now a similar, but different, product was ready for non-Apple computers.

Apple threatened a lawsuit against Microsoft. Microsoft retaliated by threatening not to sell its Macintosh-compatible products. A software war was averted, but not a court case. Microsoft won in the courts, proving its products, while similar, were also quite different.

In 1986, Gates took Microsoft public with an initial public offering (IPO) of $21 per share. At 31, Gates's worth was valued at $234 million, and he became an instant millionaire. With company profitability and several stock splits, he became a billionaire in 1987. By 1999, his wealth topped $100 billion.

In 1989, Microsoft introduced Microsoft Office. This left Microsoft with a virtual monopoly on operating systems for PCs. Soon the Federal Trade Commission began to investigate the company for unfair marketing practices. Microsoft faced a string of Federal Trade Commission and Justice Department investigations throughout the 1990s. Microsoft defended itself, harking back to Gates's earlier battles with software piracy and proclaiming that such restrictions were a threat to innovation. Eventually Microsoft was able to come to a settlement with the federal government to avoid a breakup. Gates continued to run the company and go through the federal investigations through the 1990s.

On January 1, 1994, Gates married Melinda French in Hawaii. Only a few months later, Gates's mother was diagnosed with breast cancer. She died in June 1994. In 1996, Bill and Melinda's first daughter, Jennifer, was born. In 1994, Gates and his wife established the William H. Gates Foundation dedicated to supporting education, world health, and investment in low-income communities. In 2000, the couple combined several family foundations to form the Bill and Melinda Gates Foundation. They started out by making a $28 billion contribution to set up the foundation.

In 2000, the leadership of Microsoft changed hands. Bill Gates removed himself as CEO and handed the leadership to his college friend, Steve Ballmer, who had joined Microsoft in 1980. Gates stayed on as chief software architect. He remained chairman of the board, and his time steadily drifted to more and more work for the Bill and Melinda Gates Foundation. Gates said he was removing himself from work at Microsoft to spend time on the foundation.

Time magazine named Gates one of the most influential people of the 20th century. The magazine also named Gates and his wife, Melinda, as the 2005 Person of the Year. Gates holds several honorary doctorates from universities throughout the world and an honorary Knight Commander of the Order of the British Empire by Queen Elizabeth II. In 2006, Gates and his wife were awarded the Order of the Aztec Eagle by the Mexican government for their philanthropic work throughout the world in the areas of health and education.

In February 2014, Gates announced he would be stepping down as chairman of Microsoft in order to move into a new position as technology adviser. In addition to his transition, it was reported that 46-year-old Satya Nadella would replace longtime Microsoft CEO Steve Ballmer.

Adrian Williams

See also: Stock Market; Stocks; Technological Innovation; *Vol. 1: Foundations of Economics:* Entrepreneurship

Further Reading

Bio.com. n.d. Search results: Bill Gates. www.biography.com/search?query=Bill%20Gates (accessed September 1, 2016).

Forbes.com. 2016. #7 Bill Gates. The World's Most Powerful People. www.forbes.com/profile/bill-gates/ (accessed December 1, 2016).

Gates, Bill. n.d. Gatesnotes: The blog of Bill Gates. www.gatesnotes.com/ (accessed December 1, 2016).

GENERAL MOTORS BANKRUPTCY, 2009

The unlikely bankruptcy of General Motors (GM) was one of the largest (and the largest of an industrial company) in American history and one of the largest in the world. Officially, it ranks as number four after Lehman Brothers, Washington Mutual, and WorldCom because GM had been shrinking for two decades before its bankruptcy. GM and Chrysler's decline to bankruptcy had deep roots, starting with the flood of imports in the 1970s, which steadily eroded the market share of the automotive giants. The bankruptcy filing by GM confirmed that America's deindustrialization had reached the top of the food chain.

GM had negotiated long-term reductions in wages with the United Auto Workers, but nothing helped in their struggle with imports. The company had not made a profit since 2004. The 2008 Great Recession and financial crisis caught the company in a cash-short position, which forced its bankruptcy filing on June 1, 2009. In the filing, GM reported $172 billion in debt and $82 billion in assets. The bankruptcy would be far from normal as the deal was prepackaged, that is, controlled by the federal government and financed by taxpayers. The American taxpayers ended up with about a 60 percent ownership in GM.

The real root of the problem was typical of the deindustrialization of American industry. GM lost market share while its pension and health care costs for employees soared. In 2005, such costs were estimated at $1,600 per car. GM had struggled through the 1990s with some major setbacks and a few successes. The 1990s actually ended on a high note; both GM and Ford gained market share and profitability with sales of light trucks and sport-utility vehicles. GM's stock price soared to $80 a share on huge profits.

The recession of the early 2000s, however, exposed a basic weakness in GM that had been growing for years. The rise in U.S. interest rates, the stock market drop, and increasing costs for its retirees put GM into a pension fund crisis. The pension fund was underfunded by $15 billion in 2003; GM responded by fully funding the pensions to avoid bond creditors downgrading its rating. Losses started to mount in the mid-2000s. GM had been selling units of the company, such as General Dynamics, Hughes Electronics, and Delphi, for cash to help keep GM solvent.

Still in 2005, GM was a huge company with sales of $193 billion and a payroll near $8 billion. But it was spending almost $5 billion a year on health care for retirees, which was part of a major structural problem below the surface. By 2006, the company was short of cash, and the unthinkable rumors of bankruptcy began. GM was able to raise $14 billion in 2006 by selling 51 percent of its highly profitable financing arm, GMAC, to Cerberus Capital Management. GM, whose stock had fallen to $19 a share, managed to improve in 2006, and the company remained afloat. In 2007, GM sold Allison Transmission for $5.6 billion.

A fluctuating stock market changed the funding ratio of GM's pension funds while market share declines continued to rack up losses for the company. GM continued to sell assets, close plants, and restructure. Its bond ratings declined, making it more difficult to raise cash. The 650,000 retirees continued to be a problem, while competitors like Toyota and Honda had few legacy costs. Regardless, Toyota and Honda opened nonunion plants in the United States with lower wages and minimal employee benefits. The Japanese plants in America purchased political capital in Washington for these Japanese companies as well.

Finally, the rise in gas prices to $4 a gallon in 2008 caused GM truck sales to plummet. Chrysler was experiencing similar problems by 2007 and had been taken over by Cerberus Capital Management. In October 2008, Cerberus proposed a merger of GM and Chrysler, but the deal fell through. GM was now losing $3 billion a month as the economy came to a standstill. The Senate refused to give the company a bailout loan in early December 2008. The Bush administration managed to give GM the money from the Troubled Asset Relief Program, but the relief was too late for GM, as its burn rates were now $5 billion a month.

Under the incoming Obama administration in late January 2009, efforts to save GM accelerated. The financial crisis had eroded GM sales to the point that it was hopeless to generate the cash needed to operate. In late March, the U.S. Treasury committed money to a fund to allow the government to guarantee GM's warranty liabilities. GM entered bankruptcy in June 2009 with the government in full charge of the details.

The government-managed GM bankruptcy would overturn 200 years of bankruptcy law. It devalued the assets of bondholders, who, under settled U.S. bankruptcy law, should have had first claims on GM's assets. At the same time, because of the large stock ownership position of the automaker's union, stockholders were given preferred treatment. Bondholders received pennies on the dollar, and lawsuits are still pending over the arrangement, most of them from government unions whose pension funds had large amounts of GM bonds. Both the United States and Canada infused money into the bankruptcy restructuring. The United Auto Workers held on to most of their wages and benefits in the deal. Under normal bankruptcy, the union contract would have been voided and the parties required to negotiate a new contract. The government was spared a takeover of the pension fund, which would have happened under normal bankruptcy.

To date, the results of the GM bankruptcy have been mixed, but jobs were saved as well as most of the American auto industry. Money the taxpayers loaned to GM has been paid back, although the real amount is in question. GM is now much leaner, and the union remains a major stockholder in GM. In fairness, the United Auto Workers proved much more flexible than did other heavy-industry unions, such as the United States Steel Workers in the decades of deindustrialization. GM was scaled down to its core brands of Chevrolet, Cadillac, Buick, and GMC. Worldwide, it has once again become competitive with Toyota, which suffered from quality problems and recalls shortly after the GM bankruptcy. GM has developed a strong base in the Chinese market. It has also moved aggressively into electric and hybrid cars and plans to move into the subcompact market.

Quentin R. Skrabec Jr.

See also: Auto Import Challenge, 1965; Chrysler Bankruptcy, 1979; *Vol. 2: Macroeconomics:* Detroit Bankruptcy, 2013

Further Reading

Taylor, Alex. 2011. *Sixty to zero: Inside look at the collapse of General Motors and the Detroit auto industry.* New Haven, CT: Yale Univ. Press.

Welch, David, and Dan Beucke. 2005. Why GM's plan won't work. *Businessweek* (May 9): 15–18.

GEORGE, HENRY

Born: September 2, 1839, in Philadelphia, Pennsylvania; Died: October 29, 1897, in New York City; Nationality: American; Professional Interests: political economy, editor, publisher, social reformer; Major Work: *Progress and Poverty: An Inquiry into the Cause of Industrial Depressions, and of Increase of Want with Increase of Wealth: The Remedy* (1886).

Henry George was a political economist who promoted the reforms of taxation and trade to benefit society as a whole. He developed his philosophy from his life experience without formal education or class privilege. His ideas were embraced by vast numbers of followers worldwide and are taught in "Georgist" schools of economics today. George argued that taxes and the government banking system favored the few at the expense of the masses and demanded social justice for citizens without regard to race and sex. He believed he had found a method of spreading wealth and dedicated his life to sharing it with the world. George died in 1897.

Henry George was born on September 2, 1839, to Richard S. H. George and Catherine Pratt Valliance George in Philadelphia, Pennsylvania. The second of 10 children, he quit school at age 15 to work in an office and aboard a ship bound for India and Australia. He later wrote about seeing small numbers of wealthy Indians compared to the majority of poor citizens. Upon his return home, George learned to set type. When the printing business declined, he was hired to work aboard a ship sailing to California. When he arrived on the West Coast, he worked as a typesetter before joining his cousin's mining store in British Columbia on the Fraser River.

In 1858, his enthusiasm for gold prospecting waned and he returned to San Francisco. After a time of struggling financially, he found a job as a newspaper printer and writer. A speaker he heard on the topic of protectionism challenged his thinking about the negative impact of protectionism on individual prosperity. The editor of two small newspapers, George began to promote the benefits of free trade. The tariffs supported by protectionists kept prices for goods high, enriching a few at the expense of the majority. George found growing support for his viewpoint and was encouraged to run for a state office. Although he lost his first election, he was gaining a following for his ideas.

Soon another idea stirred his conscience: land use reform. The common folks, barely eking out a living, outnumbered the few land speculators who were enriched by railroad and other developments. The seed of his best-known work, *Progress and Poverty*, began with a magazine article, published on September 18, 1877.

A year and a half later, George completed his first book and self-published the first 500 copies. The thesis of the book was that it was immoral to charge and collect rents on raw land that individuals had not created. George submitted that what nature provided could not be owned by individuals. People would own only what they themselves produced. George concluded that poverty was caused by the private ownership of land, which resulted in wealth for a small minority. He observed that land values depended on someone's need for the land and believed that this policy threatened democracy.

A single tax on land, not on improvements to land, was the only tax morally justified in George's view. He believed that all other taxes should be abolished and that since landowners did nothing to create the value of the land they owned, they should not extract increasingly higher rent from laborers. He concluded that the land's value was created by the need of someone to use it.

Common working men found a hero in Henry George, and they rallied around him. Additional volumes of his book were printed and eventually sales surpassed all other volumes except for the Bible. At 42 years old, George became world famous and a popular public speaker on the topic of political economy. Europeans and Australians invited him to speak.

Renowned European economist Alfred Marshall debated George, who was considered a leader inspiring great societal changes beyond the United States. Proponents of land reform arose, empowered by the Henry George movement. He was warmly welcomed by the British and the Irish working class and social reformers. The well-known scientist Alfred Russell Wallace touted the significance of *Progress and Poverty*. George's public policy influences were popular as far away as Australia and New Zealand.

Politicians and union leaders desired his affiliation. The United Labor Party, a sector of Democrats who opposed the Tammany Hall political machine, supported his candidacy for mayor of New York City in 1886. They presented a petition signed by over 30,000 New Yorkers that helped convince George to run. He lost to Democrat Abram Stevens Hewitt and beat Republican Theodore Roosevelt.

Although George was maligned as a socialist and a communist, he participated in political campaigns to spread his message and appeal for broadened support of his ideology. As editor of the New York–based paper *The Standard*, George continued to educate the populace about the morality of his brand of economics. He published *The Condition of Labor*, *The Science of Political Economy*, and *Protection or Free Trade*, which became a part of the Congressional Record of 1890. He used every opportunity to spread his message, traveling and debating.

In George's final campaign for mayor of New York, in 1897, he represented his former affiliation, renamed the Party of Thomas Jefferson. He was in poor health but decided to press on. The campaign would allow him to influence more people to consider his views on economic practices that he was convinced would alleviate the suffering of the impoverished.

Henry George's ideas are still discussed and debated today. In many cities, Schools of Henry George exist to continue teaching his philosophy of economics. Because he was one of the common folk, with no formal education and no influential family, and because of his moral basis to fight for equality, justice, and fairness, the appeal of his policies endures.

Henry George died days before the election on October 29, 1897, in New York City.

Cynthia Blitz Law

See also: Labor Economics; *Vol. 1: Foundations of Economics:* Factors of Production; Marshall, Alfred; *Vol. 2: Macroeconomics:* Taxes

Further Reading

Cottler, Joseph. 1936. *Champions of democracy.* Boston: Little, Brown.

Formaini, Robert L. 2005. Henry George antiprotectionist giant of American economics. *Economic Insights* 10 (2): 1–4.

George de Mille, Agnes. Who was Henry George? http://www.progress.org/books/george.htm (accessed March 30, 2011).

George, Henry. 1886. *Progress and poverty: An inquiry into the cause of industrial depressions, and of increase of want with increase of wealth: The remedy.* New York: D. Appleton.

George, Henry. 1886. *Protection or free trade.* New York: Doubleday, Page.

George, Henry. 1891. *The condition of labor: An open letter to Pope Leo XIII.* New York: United States Book.

George, Henry. 1912. *The land question.* New York: Doubleday, Page.

George, Henry, Francis Amasa Walker, William Saunders, and Francis George Shaw. 1911. *Social problems, a perplexed philosopher.* New York: Doubleday, Page.

Labour land campaign. n.d. Australian School of Social Science. http://www.labourland.org/lvt/what_is_lvt.php (accessed March 30, 2011).

Post, Louis. 1904. *The prophet of San Francisco.* Honolulu, HI: Univ. Press of the Pacific (reprinted by the Minerva Group, 2002).

GREAT NATIONAL RAILROAD STRIKE, 1877

In 1877, the nation was still recovering from the panic of 1873, and the national unemployment rate was higher than 20 percent throughout the United States. The two biggest employers in the nation were the railroad industry and the steel industry. The depression of the 1870s had squeezed the profits of the nation's railroad companies. The Pennsylvania and the Baltimore & Ohio railroads decided to lay off thousands and asked the remaining brakemen and firemen to take a 10 percent pay cut while doubling their workload with "double-headers" in which two trains and two engines (two locomotives and 34 cars instead of one locomotive and 17 cars) were combined but manned by a single crew. These actions by the railroad led the workers of the Pennsylvania Railroad to call for a strike on July 14, 1877, that spread from Maryland and West Virginia to Chicago and farther west to California.

The railroads thought they had the upper hand in this dispute because railroad wages were the highest in the nation, and the nation was in a depression. Nonetheless, the workers were able to unite, and the nation experienced its first national strike, which shut down most of the country for weeks. The railroad workers were making \$5 to \$6 a week; in comparison, steelworkers averaged \$3 a week. Most railroad workers, however, were only getting work six months of the year. A major source of the conflict was the poor economy, which was hurting the companies, their investors, and workers. Yet the wage cuts for rail workers arrived along with the news that the railroad companies were increasing dividends for investors. This, more than anything, angered the workers. The idea that investors were being paid increased dividends while thousands were unemployed or getting pay cuts would gain the workers public support. In addition, the public blamed the railroads and associated corruption for the nation's depression.

The rail strike started on July 14 at Martinsburg, West Virginia. On July 16, the strike spread to Camden Yards outside Baltimore, where workers demanded that wages be reinstated. The strike moved quickly along the line to West Virginia and farther west. At Cumberland, Maryland, the strike turned violent. In Baltimore, 10 strikers were killed as they faced off against federal troops. On July 19, workers on the Pennsylvania Railroad joined the strike and took control of the Pittsburgh station and the switches. On the morning of July 20, no trains were moving in Maryland, Pennsylvania, West Virginia, Ohio, and Illinois, completely shutting down East Coast commerce.

During the peak of the riots in Baltimore, gangs, socialists, and the unemployed joined the strikers. In major cities, the unemployed flooded the ranks of the strikers, raiding railroad cars for food and goods. Pittsburgh became the center of violence because of its railroads and depressed industries. The strike soon spread to another center of unemployment, Chicago, but its epicenter was Pittsburgh.

The riot in Pittsburgh started on July 21, 1877, as the first double-headers arrived at the Pittsburgh station. Rioters overturned locomotives, pulled up tracks, and set the Union Depot on fire. Pittsburgh erupted in violence, and the state militia arrived. Tracks were torn up and cars burned. The unemployed and street gangs joined in the riot, the looting of stores started, and shooting broke out on both sides.

By the end of the day, 20 people had been killed, including the sheriff, and hundreds of wounded were lying on the sidewalks. Pittsburgh's Catholic bishop walked the streets, giving last rites to the wounded; another nine would die in the streets. The Pittsburgh Station was torched, and more than 1,000 freight cars of products were looted as other citizens joined the riot. In all, 1,383 freight cars, 104 locomotives, and 66 passenger cars were destroyed in Pittsburgh, and 39 buildings were burned to the ground.

President Rutherford Hayes rushed in federal troops to help the overwhelmed state militia. Fear seized the city. Pittsburgh's damage came to more than $5 million. The strike moved west into Ohio, where the governor encouraged the formation of private police forces to protect property and put militia and heavy machine guns on the trains.

Chicago also had significant riots and property damage, and the death count reached 20. A mob of more than 20,000 terrorized Chicago, and the city was totally closed down. Rich neighborhoods hired police to secure their homes and gardens. It was the perfect storm as the recession, a heat wave, the unemployed, and strikers came together on July 21, 22, and 23. The strike went on for 45 days before total peace was restored. Eventually the federal and state militia prevailed.

With the tracks torn up between Baltimore and Pittsburgh and Chicago, the nation's industry came to a standstill. Other disgruntled workers joined the strike: coal miners in Illinois and steelworkers in Pittsburgh. The riots had spread to the West Coast by July 24, and violence erupted in San Francisco when unemployed Chinese immigrants joined in the strike. The country had never known such violence except in war and would never see such civil unrest again until the civil rights riots in the summer of 1967.

Initially, the railroad workers had widespread public sympathy and support. As violence increased and the riots evolved, however, the workers lost that support as well as the support of the press, which had initially supported the strikers, because of the increasing violence and the inclusion of socialists and communists in the movement.

Still, there was little sympathy for the railroads. They had won the wage battle but at a great cost to equipment and property. The nation realized that the strike had a lot to do with the high unemployment rate. Many cities started funds to employ the unemployed for service work to take people off the streets and keep them from joining such riots.

The Great National Railroad Strike would change the course of American unionization. Unions learned the importance of better organization. They also learned the importance of public opinion. The public wanted no part of the socialist movement that was spreading violence across Europe. The railroad companies changed their strong-arm approach to employee grievances, realizing that the property cost of such strikes far outweighed the wage concessions. Within five years, the major railroads had injury insurance, unemployment insurance, and pensions for their workers. The railroad companies also added air-brake technology to eliminate brakemen (one brakeman was previously needed per two cars) and to allow for double-headers. Mayors and capitalists learned to pool money to help ease the pain of unemployment in cities. The violence of the strike also slowed a rising popular movement toward European-style socialism.

Quentin R. Skrabec Jr.

See also: National Steel Strike, 1919; National Steel Strike, 1959; *Vol. 2: Macroeconomics:* Labor Uprisings, 1936–1939; National Labor Unrest, 1894

Further Reading

Bellesiles, Michael. 2010. *1877: America's year of living violently.* New York: New Press.

Bruce, Robert V. 1989. *1877: Year of violence.* Chicago, IL: Ivan R. Dee.

Stowell, David O. 1999. *Streets, railroads, and the great strike of 1877.* Chicago, IL: Univ. of Chicago Press.

GULF OF MEXICO OIL SPILL, 2010

The 2010 Gulf of Mexico oil spill is often called the BP (British Petroleum) oil spill or *Deepwater Horizon* oil spill. The spill started on April 20, 2010, with the blowout of a drilling rig in the Gulf of Mexico. Of the 126 crew members on the platform, 11 were killed and 17 injured. It would take until July 15 to cap the leak. The total spill was estimated at nearly 5 million barrels, making it the largest oil spill on record. It covered more than 85,000 square miles of ocean, and oil washed up on around 500 miles of coast in Louisiana, Mississippi, Alabama, and Florida. The impact on the overall U.S. economy was massive. The costs to BP to date are around $43 billion, which includes direct costs such as spill response, containment, economic loss claims, and penalties.

In 2010, in response to the spill, President Obama enforced a moratorium on Gulf oil drilling, but it was overruled in federal court in October of that year. The moratorium forced thousands out of work in the oil industry. The fishing industry was also hit hard by the spill because contamination of the ocean forced closures. More than 36 percent of the Gulf was closed to commercial fishing at a cost to the industry exceeding $2.5 billion. Estimates of lost tourism dollars ranged from $20 to $30 billion. The loss of 400,000 tourism jobs also represents a revenue loss of more than $30 billion.

The leaking well was located 41 miles off Louisiana. It was estimated that oil was spilling into the Gulf at a rate of 62,000 barrels a day. The rig itself was lost at a cost of $600 million in the first four days. The leak would continue as several efforts to cap the well with robots failed. Another dome cap would also fail. Capping the leak soon created a difficult technical problem. Many efforts for containment proved unworkable, and efforts to place booms in the water to protect the coast were also ineffective. Burning the oil was restricted because of environmental concerns. The cleanup required some burning (flaring) and skimming of oil, but most of the cleanup required dispersants, which created health and environmental problems of their own. Louisiana even proposed building its own barrier reefs. At its peak in July, 47,000 people and 7,000 vessels were involved in the cleanup. On June 16, 2010, President Obama and BP Oil announced the formation of the Gulf Coast Claim Facility, a $20 billion fund set up by BP to address natural resource costs, response costs, and individual compensation. By July 15, the well was successfully capped. Still, criticism of the federal government continued as the oil drilling and fishing industries were still under moratoriums. By the end of July, BP's stock had dropped 40 percent, and the company reported a quarterly loss of $19 billion. BP's CEO, Tony Hayward, was forced to resign after making remarks deemed insensitive.

The government moratorium on offshore drilling had a heavy impact on 58,000 oil and 250,000 oil-related jobs in Louisiana, which accounted for more than 15 percent of Louisiana jobs. Many foreign-owned oil rigs left the Gulf for good. Oil prices and gasoline prices skyrocketed. Gasoline prices went up $1 a gallon, breaking the $3 a gallon mark throughout the United States. One year after the spill, gasoline prices were averaging $3.83 a gallon. Prices had been $2.73 a gallon when President Obama ordered the moratorium on oil drilling in the Gulf.

The fishing industry of the Gulf was hit hard in the short term. Shrimp, crab, and oyster fishing was restricted for fear of contamination. Estimates of reductions in fishing range from a 15 to a 40 percent decline in the year of and the year after the spill. Although volume was off, prices skyrocketed, making revenues actually higher for the fishing industry, so in hindsight the estimated $2.5 billion loss to the fishing industry seems high. The losses to tourism exceeded $15 billion, but much of the damage was caused by overreaction. Many prime beach areas never saw the predicted heavy oil and tar cover; however, tourists clearly avoided the area for several years. As was the case with most recent disasters, the spill became a major media event, which created its own set of problems and public expectations.

BP and related companies faced further liabilities via civil litigation. The major lawsuits involved the rig owner Transocean, cement maker and builder Halliburton, and blowout manufacturer Cameron International. These individual lawsuits included a wide range of charges that totaled in excess of $40 billion by the end of 2011. BP was able to settle with the plaintiffs for around $8 billion. Later in 2012, the Justice Department sued BP for gross negligence. Under the Clean Water Act alone, the federal government could impose fines of $1,100 to $4,300 per barrel spilled. BP would settle this suit for $4.5 billion, which was the largest settlement of its kind in U.S. history. BP was also found guilty of criminal charges and paid a $4 billion fine. Transocean was also sued by the Justice Department and settled for $1.4 billion in fines. Halliburton would pay a fine of $200,000. Thus far, BP's still-evolving bill consists of $19 billion for cleanup, $20 billion in claims to individuals and businesses, $4.5 billion in fines, and a possible $5 billion in state suits. The overall costs to BP reduced it from the world's second-largest oil company to the fourth position and pushed it to the brink of bankruptcy.

Quentin R. Skrabec Jr.

See also: Clean Air Act; Clean Water Act

Further Reading

National Commission on BP Deepwater Horizon Oil Spill. 2011. *Deep Water: The Gulf oil disaster and the future of offshore drilling.* Washington, DC: Government Printing Office.

H

HARDIN, GARRETT

Born: April 21, 1915, in Dallas, Texas; Died: September 14, 2003, in Santa Barbara, California; Nationality: American; Major Work: "The Tragedy of the Commons" (1968).

Garrett James Hardin was a prominent ecologist who enjoyed a long and distinguished academic career at the University of California, Santa Barbara. He is best known for his 1968 essay, "The Tragedy of the Commons," which called attention to the dangers associated with population growth and environmental degradation.

Hardin was born in Dallas, Texas, on April 21, 1915. He was afflicted by polio at an early age, which left him with a shortened right leg and the need to use crutches and then a wheelchair later in life. Physical limitations no doubt played an important role in his desire to achieve success through academic pursuits. Hardin's father was a sales representative for the Illinois Central Railroad, an occupation that forced the family to relocate periodically. His grandfather's 160-acre farm in Missouri was a source of stability and a place where he spent many summers during his formative years. It has been suggested that Hardin's observations of the farm's cat population influenced his views on the need for human population control.

Hardin received a bachelor's degree in zoology from the University of Chicago, where he was mentored by ecologist W. C. Allee, who warned about the perils of overpopulation. Hardin went on to earn a doctorate in microbiology from Stanford. At Stanford he met and married Jane Swanson in 1941. He joined the faculty of the University of California at Santa Barbara in 1946, where he was known as a passionate and thought-provoking teacher. Hardin retired in 1978 after 32 years of service to the university.

Hardin published over 300 scholarly articles and more than 20 books in his lifetime, the last when he was in his eighties. Many universities used his introductory biology textbook, *Biology: Its Human Implications* (subsequently retitled *Biology: Its Principles and Implications*). Hardin's continued productivity well into retirement earned him the Constantine Panunzio Distinguished Emeriti Award from the University of California system in 1997.

Hardin's ecological training and insight led him to believe that unchecked population growth will lead to environmental devastation. Economists recognize the dilemma Hardin presents as the conflict between what is in an individual's self-interest and what is best for society as a whole. Self-interested individuals will use common pool resources (like the environment) as long as they individually benefit from that use, ignoring the damage that their use imposes on the sustainability of the resource.

His writings and lectures addressed the themes of morality and sustainability and influenced policy debate concerning many controversial topics, including population control, immigration, foreign aid, and abortion.

Peter W. Schuhmann
Kate Krause

See also: Common Property and Common-Pool Resources; Fisheries Management; Tragedy of the Commons; *Vol. 1: Foundations of Economics:* Sustainability; *Vol. 4: Global Economics:* Sustainable Economic Development

Further Reading

Garrett Hardin Society. n.d. http://www.garretthardinsociety.org/ (accessed September 30, 2016).

Hardin, G. 1968. The tragedy of the commons. *Science* 142 (3859): 1243–47.

Hardin, G. 1993. *Living within limits: Ecology, economics, and population taboos*. New York: Oxford Univ. Press.

Hardin, G. 1999. *The ostrich factor: Our population myopia*. New York: Oxford Univ. Press.

HAZARDOUS WASTE

Modern societies are pretty wasteful. According to recent estimates, on average Americans generate about five pounds of waste each day per person for a total of around 300 million tons a year. While all waste can cause environmental problems, some waste, known as hazardous or toxic waste, has been singled out for its potential to cause significant environmental damage. If left unregulated, hazardous waste can pollute groundwater, rivers, and lakes; contaminate soil; and kill people, livestock, and wildlife.

While the legal definition of hazardous waste varies across countries, hazardous waste generally includes any discarded material that is toxic, reactive, or flammable and poses a hazard to the health of humans, other living organisms, or the environment. As you might imagine, this definition covers a wide range of materials that are generated by a lot of different companies and processes. This means that big chemical-intensive companies such as DuPont or Exxon are not the only companies that generate hazardous waste. Much smaller, local companies, such as the neighborhood service station, dry cleaner, or even your dentist, also generate hazardous waste. In fact, you have probably generated hazardous waste yourself, since leftover paint, some discarded cleaning products, and used batteries all qualify as hazardous waste.

Because waste has no intrinsic value (if it did, we would not waste it), people who generate it want to get rid of it as cheaply as possible. Before hazardous waste was regulated in the United States, most industrial generators just dumped it on unused land. Since many hazardous constituents are persistently toxic, unregulated waste dumps have resulted in damages long after the material has been dumped. Have you ever heard of Love Canal? Probably the most famous unregulated hazardous waste dump, Love Canal was used as a chemical waste dump for a decade before being redeveloped as a neighborhood school site. Twenty years after the dump was closed, unusually heavy rains caused parts of the dump to sink, making the contamination of surrounding groundwater, surface water, and soil apparent. While the full effects of the contamination cannot be easily measured, residents of the area had unusually high rates of cancers, miscarriages, and birth defects. Eventually over 1,000 families were relocated from the area; the cleanup of the Love Canal site cost over $60 million.

Hazardous waste presents a classic case of negative externalities. Unless prohibited by regulation, a generator will decide how and where to dispose of hazardous waste based on private cost, ignoring the effect of that decision on human health and the environment. Economic theory provides three primary solutions to such negative externalities: command-and-control regulation, Pigouvian taxes, and the assignment of property rights. All of these solutions are currently used to minimize the social costs of hazardous waste.

Command-and-control regulation is used in many countries to minimize the externalities associated with hazardous waste disposal by imposing standards for the safe management of hazardous waste. Both the United States and the European Union regulate hazardous waste from the cradle to the grave, that is, from the point of generation until final disposition. Their regulations require facilities that have the potential to generate hazardous waste to test any likely waste streams and if the waste is determined to be hazardous, track, store, and manage it according to particular standards. Such requirements are designed to decrease the potential harm that hazardous waste can cause and thus the external costs imposed by hazardous waste. Additionally, complying with regulatory requirements significantly increases the private cost of hazardous waste generation and provides incentives for companies to reduce the amount of waste they generate in the first place. Of course, by increasing the cost of legal waste management, command-and-control regulation may indirectly encourage illegal disposal. Thus the enforcement of hazardous waste regulations plays a critical role in their practical effect.

One shortcoming of command-and-control regulation of hazardous waste (and command-and-control regulation in general) is that the regulations are standardized rather than tailored to particular waste streams or generators even though the potential for harm will vary significantly based both on the characteristics of the waste stream and the location in which it is managed and disposed. In some cases, command-and-control regulations may be too stringent from the perspective of maximizing social welfare, while in other cases the regulations may be too lenient.

An alternative solution to the negative externalities associated with hazardous waste is to impose Pigouvian taxes on hazardous waste. In theory, such taxes can internalize the costs of hazardous waste disposal and thus provide incentives for generators to reduce the quantity of hazardous waste they produce in the first place. When the costs associated with hazardous waste increase, generators may find it cost-effective to change their production processes, use less toxic inputs, or find ways to recycle by-products. Of course, imposing taxes on waste generation or disposal might also lead generators to conceal the amount of waste generated through illegal disposal or dumping.

A final solution to the negative externalities imposed by hazardous waste is the assigning of property rights by imposing legal liability for any damages caused by hazardous waste on the generator of that waste. In theory, assigning legal liability to generators forces them to fully internalize the costs of their waste. This should lead to more careful management of the hazardous waste as well as a reduction in the amount of waste generated in the first place. Additionally, imposing legal liability helps to compensate the victims of pollution, something that neither of the other two solutions accomplishes.

One concern with using legal liability to control for externalities is that generators facing large damage payments might go bankrupt rather than pay a large settlement. If a generator's liability is capped at some level, the generator will not fully internalize the costs associated with its waste and thus legal liability may provide only a partial solution. However, governments can strengthen the liability system by requiring generators to either carry insurance or have the ability to pay reasonable damage awards. For example, in the United States, hazardous waste management facilities are subject to financial responsibility requirements.

While it is difficult to determine the effect of individual hazardous waste regulations as most countries use a number of different policy approaches simultaneously, it is clear that the regulations have made a difference. For example, in 1980, in the United States, there were over 50,000 hazardous waste generators, approximately 300 million tons of waste generated annually, and 30,000 unregulated facilities that managed that hazardous waste in some manner. By 2000, only about 20,000 businesses generated approximately 40 million tons of hazardous waste and the 2,000 hazardous waste management facilities were all regulated by the Environmental Protection Agency.

Sarah L. Stafford

See also: Brownfields; Coase, Ronald; Coase Theorem; Health and the Environment; *Vol. 1: Foundations of Economics:* Cost-Benefit Analysis; Environmental Economics; NIMBY and LULU; Welfare Economics; *Vol. 2: Macroeconomics:* Externality; Property Rights

Further Reading

Jenkins, R. R., E. Kopits, and D. Simpson. 2009. The evolution of solid and hazardous waste regulation in the United States. *Review of Environmental Economics and Policy* 3 (1): 104–20.

Peretz, J. H., R. A. Bohm, and P. D. Jasienczyk. 1997. Environmental policy and the reduction of hazardous waste. *Journal of Policy Analysis and Management* 16 (4): 556–74.

Porter, R. C. 2002. *The economics of waste*. Washington, DC: Resources for the Future.

U.S. Environmental Protection Agency. 2002. *25 years of RCRA: Building on our past to protect our future*. Washington, DC: Government Printing Office (EPA-K-02-027).

HEALTH AND THE ENVIRONMENT

The link between human health and the environment is important for at least two reasons. First, environmental pollution is a significant contributor to the global burden of disease. The exact numbers are uncertain, but environmental contaminants and exposures are known to cause a wide range of adverse health effects, including many respiratory, diarrheal, and cardiovascular illnesses and cancers. Second, health concerns are one of the main reasons people care about environmental quality. The public certainly has other environmental concerns, such as protecting natural areas and avoiding the extinction of plant and animal species, but health threats are often a main source of worry.

For these reasons, understanding how the environment affects human health and how these threats can be best managed has been a priority for many researchers and policymakers. Environmental economics contributes to this understanding by addressing the following types of questions: How large are the costs and burden of illness from environmental exposures? What are the benefits and monetary value of preventing illness through policies that improve environmental quality? How are these costs, benefits, and the effectiveness of environmental policies affected by human behaviors?

Answering these questions requires models that integrate environmental science and economics. For example, estimating the loss in human well-being due to health effects from air pollution involves two main parts. The first part is estimating the relationship between elevated air-borne contaminant levels and the increased number (or severity) of illnesses. This concentration-response relationship is typically based on results from environmental epidemiology or toxicology studies; however, it may also require an understanding of how humans change their behaviors in the face of higher pollution levels. The second part is estimating the monetary equivalent of the loss in human well-being due to illness. As with other areas of nonmarket valuation, economists typically rely on willingness to pay measures as the best representation of this monetary equivalent. To answer the questions posed earlier, environmental economists often rely on a household production framework. This framework recognizes that households use their own resources to produce better health outcomes for themselves. First, they engage in averting or defensive behaviors to protect themselves against external harms, such as environmental pollution. For example, if groundwater monitoring indicates higher than usual contaminant levels, households with private wells may purchase bottled water or filtration systems. Second, they engage in mitigating behaviors to reduce the harm and discomfort from illness, for example by buying medicines or staying at home from work. Despite these two types of self-protective behaviors, households may still experience disutility (i.e., pain and suffering) from illness.

Based on this framework, there are four main components for valuing (in monetary terms) the relationship between health and the environment. For a given change in environmental conditions, they involve changes in averting/defensive expenditures, mitigating (e.g., medical) expenditures, productivity losses (e.g., lost income/wages due to illness), and disutility from pain and suffering.

Health and environmental economists have developed a number of valuation approaches that can be used to estimate one or more of these components. Cost-of-illness methods focus on direct medical and other treatment costs (mitigating expenditures) and, in many cases, on indirect costs (productivity losses). They have been widely applied, largely due to data availability, but their main limitation is an inability to capture values associated with changes in pain and suffering. Averting behavior methods focus on the first component. If they only measure changes in averting expenditures, then, like the cost-of-illness method, they are also limited in scope. However, if they are used with mitigating expenditures to estimate a health production function, they are capable of incorporating all four components of value. Unfortunately, this combined approach has rarely been used due to its relatively difficult data and technical requirements.

Another approach is to use survey-based stated preference approaches, such as contingent valuation or choice experiments. In health value applications, these methods present survey respondents with hypothetical scenarios involving trade-offs between money and health. Responses are then used to estimate respondents' willingness to pay for better health-related conditions. One of the main advantages of these methods is that they can be used, in principle, to capture all four components of value. However, as with other stated preference applications, one of their main drawbacks is the hypothetical nature of the trade-offs and the resulting difficulty in validating responses.

Economic analysis methods can also be designed to address other unique features of environmental health. One such feature is the large variety of health outcomes associated with environmental exposures. These outcomes vary in several dimensions, including the duration, frequency, latency, and severity of illness. Environmental illnesses include a wide range of acute and chronic conditions, both of which can vary in severity from low consequence to high severity and even fatal conditions. Some conditions, such as cancer, can also involve long latency periods between the time of exposure and the development of disease. Using stated preference surveys, in particular, different levels and combinations of these illness attributes can be communicated to respondents and then separately valued.

A second feature is that environmental exposures often result in a risk of illness, rather than a certainty of illness, for exposed individuals. Moreover, policies that reduce environmental contaminants tend to reduce these risks for individuals, rather than to reduce the severity, duration, or other attributes of illness. For this reason, it is important to understand how individuals value reductions in the probability of adverse health outcomes, including death. In addition to using stated preference methods, a variety of revealed preference methods have also been used to explore individuals' trade-offs between money and health risks. Hedonic wage-risk studies, for example, use evidence from labor markets to determine the amount of additional compensation individuals require for taking jobs with higher risks of death. Other studies have examined purchases of safety goods, such as bicycle helmets and fire detectors.

A third, and final, feature is that, when faced with lower levels of contaminants in the environment, individuals may respond by reducing their averting behaviors. For example, after improvements in outdoor air quality, individuals may spend less time indoors where the air may still be cleaner. In these cases, the health improvements or risk reductions are less than they would be without the change in behavior. As previously discussed, accounting for changes in averting behaviors is important for fully valuing improvements in environmental quality. It is also essential for understanding the net effect of policies on environmental health.

George Van Houtven

See also: Air Pollution; Food Safety; Productivity; *Vol. 1: Foundations of Economics:* Ecological Economics; Environmentalism; *Vol. 2: Macroeconomics:* Water Pollution

Further Reading

Harrington, Winston, and Paul R. Portney. 1987. Valuing the benefits of health and safety regulation. *Journal of Urban Economics* 22 (1): 101–12.

Prüss-Üstün, Annette, and Carlos Corvalán. 2006. *Preventing disease through healthy environments*. Geneva: World Health Organization.

HEALTH INSURANCE

Health insurance helps consumers pay for medical costs. As former Minnesota governor Jesse Ventura stated, "Health insurance should be a given for every citizen." Historically, health insurance in the United States has been optional, with no requirement or law to purchase a health insurance policy. With the passage of the Patient Protection and Affordable Care Act (ACA) (2010), the goal was for all citizens to have health insurance access.

Health insurance covers the insured for medicine, visits to the doctor and emergency room, hospital stays, and other medical expenses. The amount and type of coverage, the co-pay charges (portion paid by the insured), the deductible (how much the insured must pay before the insurance contributes), and cost are determined by the health insurance policy.

Understanding Health Insurance

Health insurance makes paying for health care costs more affordable. With a health insurance policy, consumers pay a portion of their total health care costs. Consumers sign up for a policy, either on their own, through the U.S. government or state marketplace, or through their employer. This policy is similar to other types of insurance. It describes in detail the medical coverage provided as well as the co-pays the consumer must pay for treatment. Policies vary from high-deductible plans to more extensive ones that cover vision and prescription drugs. The policy costs and co-pays also depend on the policy details.

After purchasing the health insurance policy, the individual joins other members in the same plan. All health insurance plan members belong to a risk pool. Individuals in the risk pool consist of those higher-risk participants who are in poor health (likely to need a lot of medical care) and lower-risk individuals with good health. The insurer takes into account the risk profiles of its members and calculates how much it will cost to pay for the expected medical expenses of the plan participants. Those calculations are used to determine the per-member monthly rate or premium charge.

Health insurance provides a shared-cost format. The plan member pays a monthly premium—sometimes the employer pays all or part of the premium on behalf of the employee—and the member also pays additional out-of-pocket costs for service received. The plan member's out-of-pocket fees may be a co-pay, deductible, and/or coinsurance.

A co-pay is a predetermined amount the consumer pays for doctor and emergency room visits and for prescription medicines. This is different from coinsurance, where the insured pays a percentage of the cost of the medical care. An annual deductible is a predetermined out-of-pocket amount the insured is required to pay before the insurance company pays for any medical claims.

Types of Health Insurance Plans

There are hundreds of different health insurance plans. This section will discuss the three most common types of health plans.

Health maintenance organizations (HMOs) frequently charge lower monthly premiums and out-of-pocket costs in exchange for allegiance to a predetermined group of medical providers. Normally, HMO participants have a primary care physician. Any referrals and treatment needed from specialists must go through the gatekeeper primary care physician.

Preferred provider organizations (PPOs) offer more flexibility than HMOs, along with higher costs. A PPO offers a network of member doctors, specialists, and hospitals. PPOs do not require the member to go through the primary care physician for a referral to a specialist. The plan member may see in-network providers for a lower cost than out-of-network medical professionals.

Consumer-directed health plan (CDHPs), often called high-deductible plans, usually require greater initial out-of-pocket expenses than the HMO or PPO with lower monthly premiums. For example, the high-deductible plan may require consumers to pay up to $2,500 or $5,000 out of pocket before the health plan payments kick in.

Health savings accounts (HASs) are tax-advantaged accounts (with special tax benefits regulated by the Treasury Department) available to participants with CDHP plans. These accounts allow users to pay for medical care with pretax dollars. This type of plan may be offered in conjunction with an HMO or PPO.

Government Health Insurance Programs

The government offers public insurance for the elderly and lower-income members of the population. Medicare is the federal government health insurance program for citizens age 65 and older as well as the disabled. Medicaid, jointly funded by the federal and state governments, is the health insurance program for the poor. The State Children's Health Insurance Program (SCHIP) is a special type of health insurance for children. Even if parents do not meet income thresholds for Medicaid, SCHIP ensures that children's medical needs are covered. See Medicare and Medicaid entries for more detailed coverage.

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See also: Affordable Care Act Cases; Disability Insurance; *Vol. 1: Foundations of Economics:* Social Capital and Behavioral Economics; Social Capital and Personal Capital; Social Preferences within a Population; Theory of Public Choice; *Vol. 2: Macroeconomics:* Medicaid; Medicare; Public Debt; Public Goods; *Primary Document:* Patient Protection and Affordable Care Act (2010)

Further Reading

BlueCross BlueShield of Illinois. n.d. Health plans and provider networks. http://www.bcbsil.com/getting_started/health_insurance/types_plans (accessed June 25, 2014).

Centers for Disease Control and Prevention. 2012. Summary health statistics for U.S. adults: National health interview survey, 2010 (January). http://www.cdc.gov/nchs/data/series/sr_10/sr10_252.pdf (accessed June 25, 2014).

Healthcare.gov. n.d. Home page. https://www.healthcare.gov/ (accessed June 25, 2014).

HEDGE FUND

Hedge funds are private pooled funds that make investments in equities, bonds, and derivatives. They are similar to mutual funds in that they are pools of capital collected from investors and the capital is invested by a dedicated investment team, consisting of portfolio managers and analysts, on behalf of the investors. Hedge funds are less regulated than mutual funds and do not have to disclose their NAV (net asset value = sum of value of all investments in the fund less expenses) on a daily basis. They are also not traded on a stock exchange like stocks and ETFs. Investors can invest in hedge funds by directly getting in touch with the fund team.

In order to invest in a hedge fund, high net worth investors have to meet certain income and assets criteria. Before investing in a hedge fund, prospective investors complete a worksheet detailing all of their assets, including stocks, real estate, physical commodities (such as gold), commodity contracts, and derivatives.

There are two categories of private investors: accredited investors need a net worth of at least $1 million; qualified purchasers need $5 million in investments excluding a business and primary residence. There may be other requirements to invest, such as a commitment to leave funds in the fund for an allotted time period.

These guidelines have been put in place to discourage small investors from putting all their savings into hedge funds. Ordinary investors could lose all their savings if they invested in a hedge fund strategy that they do not fully understand or are not able to liquidate from when they need to. Hedge funds are riskier than mutual funds given their lack of liquidity (not traded on an exchange) and their lack of transparency (hedge funds do not have to report their asset values or the underlying holdings on a daily or weekly basis). All of these requirements are enacted by the SEC to protect the investor as these funds are loosely regulated.

Hedge Fund Fees

The fee charged by hedge funds to manage the money is made up of two components: management fees and incentive fees.

Management fees are fixed annual fees charged as a percentage of an investor's investment with the fund. For example, if an investor invested $1 million with a hedge fund that charges a 2 percent management fee, the management fee paid by the investor for the year is $20,000. Most hedge fund managers charge management fees between 1 and 2 percent.

Incentive fees are the performance-based fees charged as a percentage of the hedge fund's profit. If the above hedge fund charges a 20 percent incentive fee and generates a 10 percent return in a year, the profit for the investor is $100,000 and the incentive fees paid by the investor to the fund is $20,000. Most hedge funds charge incentive fees between 10 and 20 percent.

Some hedge funds charge an incentive fee beyond a hurdle rate. Say the above hedge fund has a hurdle rate of 6 percent. The incentive fee is calculated on the profit generated above this hurdle rate. The excess profit in this case is 4 percent or $40,000 and the incentive fee paid by the investor to the hedge fund is $8,000.

Another common feature of hedge funds is charging incentive fees with a high-water mark, meaning that in case of negative returns in a particular year, the fund cannot charge incentive fees the next year until it recoups the loss from the previous year. For example, if a fund generated a 5 percent loss in year one and a 12 percent profit in year two, the fund can charge incentive fees only on profit equaling 7 percent of returns generated in year two. This 7 percent incentive fee is the difference between the 5 percent loss in year one and the 12 percent gain in year two. The fund is said to have reached the high-water mark in year two when it recoups the losses generated in year one.

Hedge Fund Strategies

The strategies used by hedge funds vary in complexity and by the types of assets the funds invest in. The aim of hedge funds is to generate absolute returns—that is, returns that are independent of market movements. They aim to make profit even when stock or bond market returns are negative. They achieve this by creating strategies that are less, or not at all, correlated with the markets.

Hedge funds trade in derivatives (futures, options) and by short selling. Derivatives are a type of financial security contract between two individuals who receive a payoff by the movements of an underlying asset. This topic is further discussed in the derivatives section.

Short selling is a strategy whereby a short-selling investor believes that the price of a security will go down. That short seller will borrow the security and sell it at its current price. The investment company finds a stock to borrow either from its own inventory or a client account.

When the price falls, the short seller buys back the security in the market; the difference between the higher selling price and lower buyback price is the short seller's profit.

Short selling has received bad press due to the structure of the investment contract. A short seller benefits when stock prices decline. The press suggests that the short seller may be benefitting from others' misery (i.e., loss in security value).

Some of the common strategies include long/short equity (buying and short selling equities), market neutral equity (buying and short selling securities such that the total market exposure equals zero, i.e., for every dollar of security bought there is a dollar of security sold short), distressed credit (buying bonds that are near or in bankruptcy), and global macro (buying and selling across equities, bonds, futures, and options to take advantage of global trends like a rise in consumerism in emerging markets, rebound in the European economy, etc.).

Hedge funds, with their high fees and risks, are investments for wealthy and sophisticated investors. Although reported about in the news, these investments are only a small component of the overall investment world.

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See also: Bonds; Collateral Debt Obligations; Derivatives; Liquidity; Mutual Funds and Exchange Trade Funds; Risk; Stock Market; Stocks; *Vol. 1: Foundations of Economics:* Investing; *Vol. 2: Macroeconomics:* Securities and Exchange Commission

Further Reading

Collimore, Thomas. 2013. Hedge fund strategies for individual investors. CFA Institute. http://www.cfainstitute.org/learning/investor/Documents/hedge_funds.pdf (accessed September 30, 2016).

Griffin, John M., and Jin Xu. 2010. How smart are the smart guys? A unique view from hedge fund stock holdings. *CFA Digest* 40 (February).

HOMEOWNERS AND RENTERS INSURANCE

Protecting one's assets is a pillar of modern personal finance. Whether one lives in a home or apartment, renters and homeowners need financial protection against unexpected perils, including theft, fire, or potential for litigation occurring over accidents or mishaps in or around the home.

In the United States, there are seven forms of homeowners insurance that range in name from HO-1 through HO-8. Each of these levels offers a different package of protection. For example, HO-1 is the most basic homeowners policy and covers fire but not damage due to frozen pipes.

If there is a mortgage on the property, the mortgage company will require a minimum level of coverage in order to protect its investment in the property. Homeowners and rental insurance offer that necessary protection. Homeowners' insurance policies differ from renters' insurance policies in that they may cover different perils with different amounts of insurance coverage. Additionally, a homeowner must protect the building structure, whereas a renter only needs to protect the apartment's contents, not the building itself.

Homeowners Insurance

The likely perils that may damage a property are hail, wind, lightning, falling trees, tornadoes, water, theft, fire, explosion, vandalism, riot, and perhaps even a falling aircraft. Most homeowners purchase an insurance policy to cover insurable events that may occur in or around their home that would culminate in a financial loss.

Although the homeowner's insurance policy will normally reimburse the homeowner for rebuilding expenses, there are other costs to consider as well.

After a catastrophic event, while the home is being rebuilt or repaired, the occupants of that home incur living expenses that are over and above their usual costs. In this circumstance, homeowners may be temporarily unable to live in their home and be forced to pay for alternative accommodation, such as hotel expenses, clothes, and meals at restaurants (Norton 2009). For these reasons, homeowners insurance helps them recuperate some of these additional unforeseen expenses.

A standard homeowners insurance policy is often a package deal. Not only is the home itself insured but also structures on the property, such as garages, barns, sheds, gazebos, and fencing. Trees, plants, and shrubs may also be covered under standard homeowners insurance.

Items that are covered in the homeowner's policy may include personal possessions that occupants may keep in and around the home. So if an occupant's furniture, electronics, clothing, sports equipment, and other personal items are stolen or destroyed by fire, hurricane, or other insurable disaster, the insurance company will pay out a sum of money as specified in the policy document so that the policyholder may replace or repair the lost or damaged belongings. Ideally the insurer places the claimant in the same position financially as he or she was before the calamitous event.

Homeowners insurance also covers liability in the unforeseen event that visitors to the property suffer bodily injuries or property damage. Homeowners insurance policies may also insure them for any legal liability to third parties. The personal liability portion of the homeowners insurance policy covers homeowners against lawsuits or legal judgments in favor of members of their family or other third-party individuals who are not the occupants of the property.

The homeowner's policy pays to defend the homeowner in court and covers any court awards. In most cases, there is an agreed limit the insurer will pay out (Teale 2008).

If a friend or neighbor is injured in an insured homeowner's home, medical expenses can be paid to the injured party without a liability claim being filed against the homeowners.

If a homeowner's children or dog accidentally ruins the neighbor's expensive rug, the homeowner's policy will cover it, but not if they destroy the rug within the homeowner's own home.

If the policy allows for off-premises coverage, the insurance will cover property such as binoculars stolen during a vacation away.

Casual and occasional workers such as babysitters or neighborhood children mowing the homeowner's lawn are generally covered by the standard homeowners policy. Permanent full- or part-time domestic employees or contractors such as plumbers, electricians, home health carers, or gardeners are not covered by a homeowner's policy.

It is very important that homeowners not underinsure their property. This means insuring it for less than replacement value or for less than the amount sufficient to rebuild the home in the event of a disaster, even though it may only need to be repaired. A home is never insured for its market value.

There are some disasters that may cause damage to a home that are not covered by private insurers. Federal and state governments are left to make provisions for these events, and other natural perils such as earthquakes, tornadoes, hurricanes, and of course flooding, whether caused by bursting levies, overflowing rivers, or a spring thaw.

Poor maintenance or general wear and tear of a home is not covered, because the homeowner is responsible for any maintenance-related damage to the house. If the toilet backs up or the sump pump fails, no homeowners insurance will cover it. Instead coverage against these natural perils and problems of poor maintenance are purchased as two additional distinct policies rather than covered under a homeowners policy.

Expensive antique furniture, furs, jewelry, silverware, artworks, and other valuables, such as coin and stamp collections or baseball memorabilia, will not be covered by homeowners insurance. Owners of these things need to purchase a special personal property endorsement or "floater" to cover their full appraised value up to a dollar limit in the event they're lost, stolen, or destroyed.

Renters Insurance

Renters insurance is frequently overlooked, yet it is just as important as homeowners insurance. Renters, or tenants, insurance provides the same coverage as homeowners insurance, with the exception of the structure of the home itself (Johnson and Sykes 2005).

Renters insurance costs correspondingly less than homeowners policies, since only the personal property items are insured and not the real estate.

Although landlords buy insurance to protect the structure of rental units against loss, homeowners policies do not protect tenants' personal property (Foong 2012).

Standard renters insurance typically protects renters against loss of personal property to theft and other perils, such as liability, fire, vandalism, lightning, and water damage caused by overflowing bathtubs and unreported water leaks that have caused substantial damage. The personal possessions component will reimburse tenants for loss of personal property, and the external living expenses cover will pay residents for living expenses and accommodation costs if they should be evacuated temporarily as a result of a fire or some other disaster. The liability component of renters insurance protects the residents of the rental against damages caused to third parties that may lead to a lawsuit.

Renters insurance does not cover property losses due to floods, earthquakes, sewer backups, and hurricanes. So additional specific policies or endorsements to protect property from damage or loss caused by those threats should be purchased, especially if the renter does not have the means to replace or pay for insured items.

Some landlords, as part of the lease or rental agreement, may force residents to purchase rental insurance and provide proof of a certificate of insurance prior to the resident moving in (Nelson 2007).

The greatest benefit of tenant insurance to landlords is the ability to recover costs of repairs and replacement for damages from the resident's insurance company should the resident cause destruction to the rental property.

Deductible

Both homeowners and renters insurance require the policyholder to pay a deductible before the insurance company pays for a claim. The deductible is set at the time the policy is purchased and ranges from a low of $250 to $1,000. The higher the deductible, the lower the cost of the policy. That is because with a high deductible, the insurer assumes that small claims will be paid by the homeowner, meaning lower overall financial outlays for the insurance company.

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See also: Risk; Umbrella Insurance; *Vol. 1: Foundations of Economics:* Emotions and Decision-Making; Financial Literacy

Further Reading

Foong, K. 2012. Owner beware. *Multi-Housing News* 47 (9): 53–54.
Johnson, E. R., and T. A. Sykes. 2005. Getting renter's insurance. *Black Enterprise* 36 (2): 161.
Nelson, P. 2007. Renters insurance: Planning for trouble. *Counseling Today* 49 (10): 44.
Norton, R. D. 2009. 10: Where do you want to live? *Economic Education Bulletin* 49 (7): 71–76.
Teale, J. 2008. *Insurance and risk management*. Milton, AU: John Wiley & Sons Australia, Limited.
Unknown. 2013. Home insurance: Are you really covered? *Consumer Reports* 78 (10): 22–23.

HOUSEHOLD DECISIONS

Household decisions are made in a community of two or more persons living together in a close relationship. Most empirical studies on decisions under "the common roof" focus on married couples or on partners with children. Researchers often distinguish between financial/economic decisions (monetary management, expenditures, saving, investment, credit use) and nonfinancial decisions (housework, leisure activities), with expenditures having received more attention. Economic typologies of purchase decisions are based on the frequency of the usage of goods (durable goods) or on the types of expenses (products, services). Psychological classifications concentrate on aspects of the decision process, on cognitive scripts (event schemata), the financial commitment, the social visibility of the good, and the effects on family members. Depending on the partners' satisfaction with their relationship and their relative power, their behavior ranges from profit-seeking exchange to spontaneous altruistic behavior.

Interaction dynamics in household decisions differ depending on the involved actors (spouse, children), their relative knowledge and interest in the topic at stake, their communication skills, and the decision history. Spouses' influence patterns were frequently found to depend on partners' relative expertise and relative interest in a decision outcome. In everyday life, economic and noneconomic decisions are interrelated, constituting a decision history that determines future interaction patterns. If a partner decided in favor of the other, or if one partner profited less from a purchase than the other and had lower influence on decision outcomes in the past, she or he is privileged, or more influential, in forthcoming decisions. Traditionally, the relative influence of partners in purchase decisions also depended on the type of good and its characteristics. Women were often responsible for kitchen utensils and health care products and the style of the product, whereas men were responsible and dominant in decisions about technical items (e.g., cars), financial products, and the payment mode. Although this gender-role pattern has been expected to have changed dramatically over the years, studies applying conventional surveys and interview techniques indicate no major shift. The comprehensive Vienna diary study (Kirchler, Rodler, Hölzl, and Meier 2001) revealed, however, that controversial decisions where either the wife or the husband decided solely on her or his own are rare and that the influence of the wife or husband on economic and noneconomic decisions is about equal. Traditional role segmentation is disappearing and the "breadwinner hypothesis" is also rarely confirmed: in the past, the partner who was higher educated, had learned an occupation of more prestige, had a better paid job, and possessed more material goods had, in general, more influence; however, this seems to be less the case at present.

Communication tactics settle conflicting interests and disagreements: tactics to avoid conflicts, to solve problems, to persuade the partner, or to negotiate. The type of tactic used depends on the quality of the relationship, the spouses' relative power, and gender, with women admitting using emotional tactics more often than men.

Children also influence purchase decisions. For specific goods, such as toys, ice cream, trainers, books, sweets, and lemonade, they have a vote. Children's influence depends on their age, whereby older children are more influential than younger ones. Additionally, their position within their siblings seems to be crucial: firstborns have more influence than younger siblings. Also, children of single parents are more influential than children living in families with both parents.

As decisions in the private household are highly interrelated and in general are made behind closed doors, they are difficult to investigate, and the selection of appropriate research instruments is crucial (for an overview, see Bolger, Davis, and Rafaeli 2003). Observations and questionnaire studies often produce biased results of dynamics in close relationships. Researchers sometimes use diary techniques to more adequately investigate interaction processes between intimate partners. If both partners complete a structured diary independently from each other over a long period of time, researchers can derive a detailed picture of everyday life in the home. Participants fill in diaries for an extended period and not only journalize their decision processes but also other topics that characterize the shared life. This enables researchers to investigate economic decision-making as a relevant business embedded in multifaceted activities in which members of the household are engaged.

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See also: Becker, Gary; Game Theory; *Vol. 1: Foundations of Economics:* Feminism and Behavioral Economics; Intuition and Decision-Making

Further Reading

Bolger, Niall, Angelina Davis, and Eshkol Rafaeli. 2003. Diary methods: Capturing life as it is lived. *Annual Review of Psychology* 54: 579–616.

Folbre, Nancy. 1994. *Who pays for kids? Gender and the structures of constraints.* London: Routledge.

Kirchler, Erich, Christa Rodler, Erik Hölzl, and Katja Meier, K. 2001. *Conflict and decision-making in close relationships. Love, money and daily routines*. East Sussex, UK: Psychology Press.

I

INCOME

Income is commonly understood to be money that is received in exchange for producing a product or providing a service that is valued by others. Another source of revenue involves acquiring money from various investments that perform well enough to create a flow of funds not tied to one's employment. This is known as unearned or passive income.

A major portion of income received by most individuals in this world is based on what they can produce or do that's of value to others. This reality has inspired philosophical debates for centuries. There are those who believe personal income should be based on one's needs and others who believe one's income should be based on the market for one's activity and what the market will bear. Compounding this contention is the reality of unearned income, a revenue flow that is not the result of actual daily current labor.

Whether someone designs mobile phone apps for a Fortune 500 multinational corporation, waits on tables in a small family restaurant, or mows lawns locally during the summer months, money received for these tasks is considered earned income. This tends to be the predominant way in which people pay for goods and services produced by others in an economy.

Harvard's N. Gregory Mankiw suggests a "life cycle" in terms of income: "Income rises as the worker gains maturity and experience, peaks around age 50 and then falls sharply when the worker retires around age 65" (Mankiw 2008, 421).

Certain societal realities dictate income prospects for some individuals more than other factors. A frequently cited reality in recent years has been how education, or the lack of it, can impact one's income potential over a lifetime. Human capital is a factor over which some people have considerable control, including educational credentials or professional qualifications. Human capital and its impact on income may also include a special talent or skill that an individual possesses that can be offered in exchange for income. Examples of an individual's human capital are as wide-ranging as an athlete's ability to hit a ball, an engineer's degree, the ability to speak several languages, or a model's physical appearance.

Unearned or passive income is revenue received from an established mechanism, such as a financial investment, royalties, Social Security and retirement income, or rental real estate. It is income received without the recipient actually toiling on a daily basis to create it. Income from investments such as stock takes the form of dividends, or profits when the value of a company's shares increases. An individual or institution may take these dividends in the form of regular income.

Not all income is documented. In the service industries, tips and gratuities as those paid to waiters and taxi drivers and cash payments for services are considered undocumented income. Income from certain informal transactions, such as yard sales, is also commonly not documented. Income received from certain so-called black market transactions, such as sales of unofficial video or audio recordings, often escape being documented, as do revenues from sales of illegal drugs.

Undocumented income can have several consequences. One, endeavoring to avoid taxes on income can have consequences not only for an individual or institution but also for the government seeking to do the business of governing. A good example of this issue is the nation of Greece in the early 21st century; it found itself unable to either meet its debt obligations or pay for the public services its citizens expected. A major source of this problem was a successful effort of Greek citizens to avoid paying taxes on their income. As is the case in many developing countries, when a large proportion of a nation's income is undocumented, it becomes exceedingly difficult to get a true measure of a nation's economic activity and the standard of living of its people.

The income of enterprises and individuals can also be classified differently depending on its nature. A person's expected or normal income is often referred to as permanent income. A salaried worker in a secure position would likely be able to state this amount with some accuracy. Other earners are subject to events that can impact income for better or worse. In the United States, Maine and Idaho are both major producers of potatoes. If an agricultural fungus such as what struck Ireland in the 1840s befell Idaho, potato farmers there would see a temporary drop in their incomes. This disaster in Idaho would cause potato prices to rise, which would benefit the incomes of the farmers in Maine. These fluctuations create what is known as transitory income, which results from random or irregular events.

All of the income received in an economy, without regard to whether it is taxed, is referred to as aggregate income. This term can also refer to the total income within one household.

Increasingly, the matter of income inequality within nations and globally has been raised as an issue requiring societal and political action where it exists. Since the latter half of the 20th century, considerable literature and political rhetoric has focused on income inequality both within an economy and between economies. Theoretically, centrally planned economies would produce a smaller range between the highest and the lowest income earners. The historical record suggests a higher quality of life politically and socially for the majority of people in free-market economies such that even lower-income earners enjoy the freedom of choice to pursue opportunities to increase their income possibilities.

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See also: *Vol. 1: Foundations of Economics:* Human Capital; Wealth versus Income; *Vol. 2: Macroeconomics:* Bureau of Labor Statistics; Taxes; Wage and Price Controls, 1971

Further Reading

Doubleday, Justin. 2013. Earnings gap narrows, but college education still pays, report says. *The Chronicle of Higher Education* (October). chronicle.com/article/Earnings-Gap-Narrows-but/142175/ (accessed March 15, 2014).

The Economist. 2012. In flagrante (September 4). www.economist.com/blogs/freeexchange/2012/09/tax-evasion-greece (accessed March 15, 2014).

Mankiw, N. Gregory. 2008. *Principles of economics*, 6th ed. Mason, OH: South-Western-Cengage Learning.

U.S. Department of Health and Human Services. 2014. Poverty guidelines. aspe.hhs.gov/poverty/14poverty.cfm (accessed March 15, 2014).

INCOME ELASTICITY

Income elasticity is a measure of how consumer demand responds to changes in consumer income. A normal good or service experiences an increase in demand when consumer incomes increase, while an inferior good or service experiences a decrease in demand when consumer income increases. Goods that have high positive income elasticity are often luxury goods such as vacations, gourmet meals, computers, automobiles, and many others; these are referred to as normal goods. Goods that have negative income elasticity are often substitutes for normal goods, such as a "staycation" (staying home on vacation rather than traveling), Ramen noodles or Spam (instead of a gourmet meal), going to the library (using the library computer rather than buying one), and bus tickets (instead of buying a car) are referred to as inferior goods. Goods that have a positive income elasticity less than one are necessities such as toilet paper, tap water, and basic food items, such as milk. This means that when consumer income increases, demand also increases, but at a slower rate than income.

When consumer incomes decrease, demand for normal goods decreases and demand for inferior goods increases. Conversely, when consumer incomes increase, the demand for normal goods increase and the demand for inferior goods decrease. It is important to note that the classification of normal goods, necessities, and inferior goods are not true for everyone in society. It is very possible for one person to view a good as a normal good and another person to view the same good as an inferior good. However, goods can be classified as normal and inferior goods based on the observed behavior of consumers when incomes increase and decrease.

Income elasticity can be calculated by dividing the percentage change in quantity demand by the percentage change in consumer income (percent change QD / percent change in income). If the quotient is positive, the good is a normal good; the larger the quotient, the more luxurious the good. If the quotient is negative, the good is an inferior good; the larger the negative quotient, the stronger the good is as a substitute for a normal good.

The consumer demand for normal and inferior goods can be observed during economic expansions and contractions. It should be no surprise that during contractions the demand for normal goods decreases and the demand for inferior goods increases. Conversely, during expansions the demand for normal goods increases and the demand for inferior goods decreases. Additionally, during income tax return season, many consumers use their income tax refunds to purchase luxury goods. The demand for normal goods and luxury goods almost always increases when there is an increase in consumer income.

Producers and retailers use the identity of a good as a luxury, necessity, or inferior good during the advertising process. There seems to be very little advertising for necessities because consumers purchase these goods regardless of their income. Advertisements for luxury goods are most often targeted to audiences with substantial disposable incomes. It is almost comical to imagine an advertisement for an expensive car or other luxury item in an impoverished area. Impoverished communities would most likely be exposed to advertisements for inferior goods such as Ramen noodles, bus tickets, or canned food. Likewise, it would be rare to see these items advertised in wealthy communities.

There is extensive research on the income elasticity of most broadly defined goods and services. A quick Internet search will reveal multiple interesting topics, such as the income elasticity of health care, environmental protection, antipoverty policies, and essential nutrients. Perhaps the most interesting is the income elasticity of environmental protection, which suggests that only relatively wealthy countries are willing to pay the cost of protecting the environment while relatively poor countries are not. Income elasticity is a fascinating topic that often reveals the behaviors of consumers as a group.

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See also: Demand; Supply

Further Reading

Andreyeva, Tatiana, Michael Long, and Kelly Brownell. 2010. The impact of food prices on consumption: A systematic review of research on the price elasticity of demand for food. *American Public Health Association* 100 (2): 216–22. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2804646// (accessed February 17, 2014).

Frank, Robert. 2009. *The economic naturalist's field guide*. New York: Basic Books.

INCOME VERSUS SUBSTITUTION EFFECTS

When studying demand and the causes that affect demand, we need to take into consideration both the income and substitution effects on the law of demand. The two patterns of behavior overlap when studying why consumers demand the goods and services that they consume. Both the substitution and income effects can modify consumers' spending patterns. Together they explain why an increase in price decreases the quantity purchased.

Income Effect

When the price of an item changes, but a consumer's income remains the same, this will affect the quantity of a given good (for example, candy bars) purchased by that consumer. As the price of a candy bar rises (or falls) and the consumer's income holds steady, the amount of candy bars consumed will fall (or rise). This is known as the income effect reinforcing the law of demand.

This effect has to do with consumers' feeling of wealth and the purchasing power of their income. Another element to the income effect relating to this behavior is whether the good or service is considered to be a normal good or an inferior good. This distinction does not refer to the quality of the good. Normal goods are goods for which an increase in income leads to an increase in the demand for the goods. Inferior goods are goods for which demand decreases when income increases. So as income falls, the demand for inferior goods will rise, while the demand for normal goods will fall. When income rises, the demand for normal goods rises, while the demand for inferior goods falls.

Substitution Effect

Another behavior that reinforces the law of demand is the substitution effect. As the price of a good rises in comparison to alternative goods, the demand for the original good will fall while the demand for alternative goods will rise. As long as there are comparable alternatives, most people will substitute a more expensive good for an alternative less expensive good. The inverse is also true. If the price of a frozen yogurt rises in comparison to its substitutes (ice cream) the demand for the frozen yogurt will fall while the demand for ice cream will rise.

Tracy L. Ripley

See also: Demand

Further Reading

Mankiw, N. Gregory. 2011. *Principles of microeconomics*. Boston: Cengage Learning.
O'Sullivan, Arthur, Steven M. Sheffrin, and Grant Wiggins. 2013. *Economics*. Upper Saddle River, NJ: Pearson/Prentice Hall.
Pettinger, Tejvan. 2013. Income substitution effect. EconomicsHelp. http://www.economicshelp.org/blog/glossary/income-substitution-effect/ (accessed Sepyember 30, 2016).

INDEX MUTUAL FUNDS

According to the U.S. Securities and Exchange Commission (SEC), an index fund is a type of mutual fund or unit investment trust (UIT) whose investment objective typically is to achieve approximately the same return as a particular market index, such as the S&P 500 Composite Stock Price Index, the Russell 2000 Index, or the Wilshire 5000 Total Market Index. Index funds achieve this objective primarily by investing in the securities (stocks or bonds) of companies that are included in a selected index.

History of the Index Fund

The index fund originated in the early 1970s when Wells Fargo implemented the first models of index account for the pension fund of Samsonite Corporation. Wells Fargo's strategy, which was based on an equal-weighted index of New York Stock Exchange equities, was not successful; it was abandoned in 1976 and replaced with a market-weighted strategy using the Standard & Poor's 500 Composite Stock Price Index (Bogle 2006).

In 1973, Burton S. Malkiel, a Princeton University professor, released a book entitled *A Random Walk Down Wall Street*. In his book, Dr. Malkiel suggested the creation of a new type of investment instrument, a mutual fund that was no-load and with a minimum management fee. Dr. Malkiel's book led to calls by many financial observers for index funds to be formed. Dr. Samuelson, a professor of finance at MIT, wrote "Challenge to Judgment," an article that appeared in the *Journal of Portfolio Management* in the fall of 1974. Charles D. Ellis, president of Greenwich Associates, wrote a seminal article entitled "The Loser's Game" in *The Financial Analysts Journal* for July/August 1975. Both articles issued an implicit challenge for someone to start an index fund.

In 1975, boosted by Dr. Malkiel's book and the articles from Dr. Samuelson, Ellis, and others, John Bogle, founder of the Vanguard Group Inc., launched the first broad-market index fund for retail investors.

How an Index Fund Is Structured

When an investor purchases a share of an index fund, he or she is purchasing a share of a portfolio that contains the securities in an underlying index. The index fund holds the securities in the same proportion as they occur in the actual index, and when the index decreases in value, the fund's shares decrease as well, and vice versa. The only time an index buys or sells a stock is when the index itself changes (either in weighting or in composition). Index funds have ticker symbols and are traded on all major exchanges.

Index funds are available for most indexes. Some index funds replicate broad market indexes, and some replicate indexes that only contain securities with special characteristics, including minimum financial ratios, participation in a certain industry, geography, or other distinctions. The Standard & Poor's (S&P) 500 includes 500 of the most important U.S. company stocks. It is frequently referred to as the benchmark of the U.S. stock market. There are thousands of other indexes tracking various regions and industries.

The performance of an index fund usually does not exactly match the actual index's performance. This is because index funds charge management fees, which reduce returns, and because the fund's weighting in particular securities may not perfectly match the weighting of the securities in the actual index. The degree to which the fund and the index returns differ is called tracking error.

Although the first index funds tracked stock investments, today there are index funds composed of bonds, commodities, real estate, and most financial asset classes.

Advantages of Index Funds

Index funds are a popular way to participate in the stock market and diversify a portfolio. Index funds have several major advantages over direct ownership of the underlying securities.

Index funds provide the investor with broad diversification. Each index fund represents an interest in an underlying basket of securities. This allows investors to easily gain broad exposure to a large group of companies. This diversification also makes index funds much less volatile than individual securities. Foreign index funds in particular make diversifying abroad less difficult and expensive; they also offer exposure to entire foreign markets and market segments.

Index funds have lower fees than actively managed funds. Buying and selling shares of an index fund is far less expensive than separately buying and selling a basket of underlying shares. Also, the decision of which securities to invest in is determined by the index rather than by active management. This is why index funds usually have minimal expense ratios and are often more affordable than other diversified investment vehicles. However, many have minimum investment requirements and front- or back-end loads (or commissions), making them impractical for some investors.

Other benefits of index funds include liquidity and the opportunity to compound growth or increase cash flow from the dividend payments. Index fund shares are bought and sold on major exchanges every day, and many funds trade hundreds of thousands (and in some cases millions) of shares per day. Buying and selling shares of an index fund can be faster and more convenient than buying and selling the underlying shares. Many index funds pass through the accumulated dividends paid by their underlying stocks. Over time, these dividends can add up to a significant sum.

Some index funds track broad U.S. equity market indexes. Others track specific sectors or industry groups. Still others represent an interest in baskets of foreign stocks. And finally, others invest exclusively in the bond market. The index fund varieties make it easy to implement a particular investment strategy.

Index funds have tax benefits over actively managed mutual funds. Since shares are bought or sold only when the underlying index adjusts, these funds don't incur as many taxable gains as their actively managed counterparts might.

Studies have proven that over time, the average mutual fund typically fails to beat the broad indexes. With this in mind, index funds are a great way to capture broader-market returns. For adherents to the efficient market hypothesis, which states that it is impossible to outperform the broad stock market over the long haul, index funds can be a way to optimize portfolio returns. In his article "Behavioral Perspectives on Index Funds," Keith Redhead states that the average actively managed fund underperforms index funds. Redhead also states that the use of index funds could help to avoid the perception of loss, unrealistic expectations, inappropriate choice criteria, loss of dividend income, and emotional attachment to investments.

Disadvantages of Index Funds

An investment in an index fund could lose money over short or even long periods. The share price and total return may fluctuate within a wide range, like the fluctuations of the underlying assets. As with all investments, tax liabilities are incurred on dividends. Additional risks may also impact fund performance.

Newer Varieties of Index Funds

The first modern index funds were market capitalization weighted. The percentage of each company in the index fund was determined by the company's size or market capitalization within the index. Today, newer varieties of index funds offer equal weight where each company is owned in the same amount. Specialized index funds use specific factors to create index funds as well.

In addition to index mutual funds, a newer variety of index funds are called exchange traded funds (ETFs). *Index funds* may also refer to ETFs in addition to mutual funds. Like mutual funds, ETF index funds are comprised of a basket of underlying securities representing an index. Unlike a mutual fund, they trade on a stock exchange throughout the day and can even be bought on margin.

The last century's newly designed index funds have become the cornerstone of modern investing strategy today.

Joseph Krupke

See also: Bonds; Commodities; Dividend Income; Liquidity; Mutual Funds and Exchange Trade Funds; Real Estate Investment Trusts; Risk; Stock Market; Stocks; *Vol. 1: Foundations of Economics:* Asset Allocation; Behavioral Finance; Capital Gains and Capital Losses; Compound Interest; Financial Literacy; Investing; Opportunity Cost; *Vol. 2: Macroeconomics:* Securities and Exchange Commission

Further Reading

Bogle, J. C. 2006. The first index mutual fund: A history of Vanguard index trust and the Vanguard index strategy. Bogle Financial Markets Research Center. http://www.vanguard.com/bogle_site/lib/sp19970401.html (accessed September 30, 2016).

Gastineau, G. L. 2002. Equity index funds have lost their way. *Journal of Portfolio Management* 28 (2): 55–64.

Kostovetsky, L. 2003. Index mutual funds and exchange-traded funds. *Journal of Portfolio Management* 29 (4): 8092.

Landis, D. 2008. Own the market with index funds and ETFs. *Kiplinger's Personal Finance*: 50–53.

Redhead, K. 2010. Behavioral perspectives on index funds. *Journal of Financial Service Professionals* 64 (4): 54–61.

U.S. Securities and Exchange Commission. Index funds. 2007. http://www.sec.gov/answers/indexf.htm (accessed September 30, 2016).

INDUSTRIAL POLICY

Industrial policy is a governmental approach aimed at promoting and implementing initiatives that will result in better production and outcomes for various sectors of the economy. The most common example of this has been when nations have undertaken major manufacturing initiatives in the heavy industry sectors of their economies to mobilize for war. During World War II, with the compliance and support of business owners, the automobile and aircraft industries in combatant nations converted their factories to also produce vehicles and planes for military purposes.

In the U.K., until the 1980s, the nation's energy needs were considered important enough that the coal mining industry was nationally owned. Contention over how overt and involved a government's industrial policy should be reflects similar debates over public efforts to promote and regulate private business concerns. Advocates of a strong, proactive industrial policy suggest that as a government should serve the interests of workers, the environment, and the economy in general and promote a healthy balance of trade, it is in the best position to oversee and enforce policies that will promote improvements with regard to all of these interests. Harvard economist John Kenneth Galbraith, whom President Franklin D. Roosevelt put in charge of price controls during World War II, maintained that left to their own devices, industrial interests will not serve society's complete or even most pressing interests.

Galbraith foresaw an eventual fusion of interests between government and industry, citing, for example, how industry depends on government to educate its eventual workforce (Gilbraith 1967).

The postwar economic resurgence of Japan can be traced to a strong industrial policy by its government, which in 1949 created the Ministry for International Trade and Industry (MITI), which was designed to promote economic growth by coordinating domestic production with trade policy (FAS 2001). One criticism of such an approach is that it can involve government-imposed tariffs on imports, closing markets to foreign competitors. Following World War II, the British government nationalized all coal mines in its realm, and while production soared, there was much rancor on the part of labor when the government began to close unprofitable mines in the 1980s and 1990s.

Opponents of strong industrial policy argue that private industry (rather than public officials) is best equipped to make business and economic decisions. Writing for the Federal Reserve Bank of St. Louis in 1993, economist Michelle Clark Neely articulated a number of flaws with a strong industrial policy, concluded that the number of American workers involved in the manufacturing sector shrank after World War II from three out of every five to one in five. However, manufacturing's total output share had not changed from its approximately 20-percent share that reflected manufacturing's productivity growth.

Few would dispute the merit of government safeguarding the environment and well-being of workers, but the extent to which any government's industrial policy should assert control over commercial interests in a free-market economy is a debate that is frequently waged according to political and philosophical lines.

David S. Allen

See also: Alternative Energy; Cap and Trade; Corporate Social Responsibility; Renewable Energy; *Vol. 1: Foundations of Economics:* Crony Capitalism; *Vol. 2: Macroeconomics:* Energy Policy; Friedman, Milton; Galbraith, John Kenneth; *Vol. 4: Global Economics:* Commercial Policy

Further Reading

Federation of Associated Scientists. 2001. Ministry of International Trade and Industry Update. www.fas.org/irp/world/japan/miti.htm (accessed September 30, 2016).

Galbraith, John Kenneth. 1967. *The new industrial state*. Boston: Houghton Mifflin Company.

Neely, Michelle Clark. 1993. The pitfalls of industrial policy. *The Regional Economist* (April). The Federal Reserve Bank of St. Louis. www.stlouisfed.org/publications/re/articles/?id=1906 (accessed September 30, 2016).

INFLATION-PROTECTED INVESTMENTS

Inflation is the rate at which prices of goods and services increase. When prices rise, consumers' purchasing power declines. In other words, as inflation increases and prices increase, the same dollar amount purchases fewer goods. Inflation touches the entire society. This is a problem for savers attempting to amass funds for retirement and future consumption.

Anyone who needs to divert current income into savings for a future expense may be hurt by inflation. For example, if you are saving money for college expenses 10 years in the future and your bank pays interest of 3 percent, you assume that at the end of 10 years that 3 percent interest rate would grow your initial funds at 3 percent per year. If inflation during that period was 4 percent per year, at the end of the savings period, your money would purchase less than when you started. Although you receive a 3 percent return on your funds, subtract 4 percent per year inflation and your actual purchasing power declines approximately 1 percent (3% return less 4% inflation rate = –1%).

Inflation-protected investments were created by the U.S. government to provide savers with investment products that protect savings from a decline in real value and purchasing power.

There are two types of inflation-protected investments: Treasury inflation-protected securities (TIPS) and government I savings bonds (inflation adjusted). By investing in these secure government products, the consumer is promised a return that keeps pace with the government-calculated inflation rates until the predetermined date when the purchaser receives the full amount due (principal). TIPS principal or face value changes with inflation and deflation as calculated by the nonseasonally adjusted Consumer Price Index (CPI-U). For example, if inflation increases, the principal value of the TIPS increases by the same amount. So with increases in inflation, you are assured that the value of your TIPS bond also increases in value.

There is a second part to the return on a TIPS investment. When purchased, the TIPS have an interest rate that remains fixed for the entire period of ownership. This interest rate is paid semiannually on the adjusted principal amount. For example, purchase a five-year TIPS bond for $1,000 with an interest rate of 1 percent. If inflation increases, the 1 percent interest is paid semiannually on the increased principal amount. In the event of deflation, the 1 percent interest is paid on the reduced principal amount. At maturity, which in this case is five years, the TIPS owner receives either the upwardly adjusted principal or the original principal amount in the case of zero inflation or deflation. Additionally, this protects the consumer against deflation as one never receives less than the original principal amount.

Federal tax is due on the semiannual interest payments and inflation adjustments in the year that they occur. Interest is subject to federal and exempt from state tax.

How to Buy TIPS; Denominations and Maturities

TIPS are sold in denominations starting at $100 on up to $5 million. Their maturities are 5, 10, and 30 years and they can be bought at auction through the treasurydirect.gov website or from a bank or investment broker. TIPS (previously issued) are also available in the secondary market. The secondary market means investors buy and sell the TIPS securities in much the same way that they buy and sell stocks and bonds. In other words, TIPS may be held until maturity or sold in the secondary market at any time prior to maturity.

I Savings Bonds

Similar to TIPS, I savings bonds are designed to provide a savings vehicle that protects consumers' funds from erosion due to inflation. Although I bonds' purpose is the same as for TIPS, the investment I bond is uniquely designed. I bonds combine two interest rates: a fixed rate of return assigned at the bond's creation and a second interest rate that is calculated semiannually and is based on changes in the nonseasonally adjusted Consumer Price Index (CPI-U). Interest is compounded semiannually and earned monthly. The published value of the bond does not show the previous three months of interest. Yet, the purchaser receives no semiannual interest payments, as TIPS holders do; instead, the final redemption value includes all of the previous interest payments.

The I bond's value changes each month as the interest is calculated and applied to the principal amount. Unlike TIPS, ownership is neither transferrable nor able to be traded on the secondary market. I bonds may be redeemed any time after 12 months at the treasurydirect.gov website or a bank. If I bonds are redeemed prior to five years, the seller loses the previous three months' interest accrued. The principal and all interest due are paid at redemption.

Taxes are not due on I bonds until they are redeemed, although the consumer may opt to pay taxes annually. Interest is subject to federal and exempt from state tax.

How to Buy I Savings Bonds; Denominations and Maturities

I bonds may be purchased electronically at the treasurydirect.gov website. They are offered in denominations of $50, $100, $200, $500, $1,000, and $5,000. There is a limit to the amount of I bonds an individual may buy each year. Investors may purchase up to $10,000 worth of I bonds annually and up to an additional $5,000 with a tax refund.

Education Considerations for I Savings Bonds

The Education Savings Bond Program stipulates that if the savings bond proceeds are used to pay qualified higher education expenses at an eligible institution in the same year that the bonds are redeemed, the savings bond interest is exempt from federal tax. Additional information regarding this provision is available in IRS Publication 970.

Barbara A. Friedberg

See also: Bonds; Income; Interest Rates; Risk; *Vol. 1: Foundations of Economics:* Banking; Compound Interest and Returns; Investing; *Vol. 2: Macroeconomics:* Inflation; Taxes; Treasury Securities

Further Reading

TreasuryDirect. n.d. I savings bonds. http://www.treasurydirect.gov/indiv/products/prod_ibonds_glance.htm (accessed August 2, 2013).
TreasuryDirect. n.d. Comparison of TIPS and Series I savings bonds. http://www.treasurydirect.gov/indiv/products/prod_tipsvsibonds.htm (accessed August 2, 2013).
TreasuryDirect. n.d. Treasury direct tips in depth. http://www.treasurydirect.gov/indiv/research/indepth/tips/res_tips.htm (accessed August 1, 2013).
TreasuryDirect. n.d. Treasury inflation-protected securities (TIPS). http://www.treasurydirect.gov/indiv/products/prod_tips_glance.htm (accessed August 2, 2013).

INTEREST RATES

Interest rates can be viewed as the cost of money and a tool that central banks use to control the money supply, inflation, unemployment, and economic activity. When individuals, firms, or governments want to borrow money, they must repay the lender the principal plus interest. When lenders loan money to borrowers, the lenders lose the liquidity of their money and are compensated for this through the interest rate that is paid by the borrower. Low-risk borrowers often pay a lower interest rate compared to high-risk borrowers. The risk levels of borrowers are often measured on the ability of the borrower to repay loans and the historical repayment of the borrower. Interest rates are also paid to individuals, firms, and governments who save their money in financial institutions. Financial institutions that provide rapid liquidity and insured accounts often pay lower interest rates on savings compared to financial institutions that provide little liquidity and some risk of losing principal. It is important to understand that interest rates act as an incentive for lenders, borrowers, and savers. For consumers, low interest rates encourage borrowing and discourage saving; high interest rates encourage saving and discourage borrowing.

Interest rates often dictate the economic behavior of individuals and firms. When interest rates increase, individuals and firms have an incentive to save rather than borrow funds for consumption and investment. In other words, as interest rates increase, the opportunity cost of borrowing funds for consumption and investment increases. If individuals and firms borrow funds when interest rates are relatively high, they forgo the increase in interest income. Conversely, when interest rates decrease, individuals and firms have an incentive to borrow funds for consumption and investment rather than to save due to the reduced opportunity cost of borrowing. There is a negative correlation between consumption and investment spending that is based on borrowing funds and interest rates.

Interest rates can be expressed in nominal and real terms. A nominal interest rate is the rate that borrowers pay lenders and financial institutions pay savers. For example, if you borrow money from a bank to purchase a car, the bank will charge you a nominal interest rate; if you save money in that same bank, the bank will pay you a nominal interest rate. However, the nominal interest rate does not take into account inflation, which is a decrease in the value of money. If the bank charged a nominal interest rate of 10 percent and inflation was 3 percent, the bank would only realize a 7 percent interest rate because the original amount loaned decreased in value by 3 percent due to the inflation. In the same fashion, if the bank paid a

3 percent interest rate on savings and the inflation rate was 3 percent, the savings account would realize a 0 percent inflation rate because the value of the money that was saved in the bank decreased by 3 percent. This realized adjustment of the nominal interest rate is the real interest rate, which is the nominal interest rate minus the expected inflation rate. The American economist Irving Fisher (1867–1947) developed the Fisher Equation. The Fisher Equation is the real interest rate equation, and it states that the real interest rate equals the nominal interest rate minus expected inflation. As long as inflation is predictable and expected, lenders, borrowers, and savers can all equally predict the real interest rate and set nominal interest rates to reflect their individual goals.

There are many interest rates that impact society, but perhaps the most important is the federal funds rate. The federal funds rate is the interest rate that depository institutions (banks) charge each other to borrow money from their cash reserves that are held at Federal Reserve banks. Depository institutions are required to keep a minimum amount of cash reserves determined by the Federal Open Market Committee of the Federal Reserve Board. If a depository institution fails to keep enough reserves, it must borrow money from another institution or from the Federal Reserve. The Federal Open Market Committee can effectively control the federal funds rate by buying and selling bonds in the open market. This is significant because many consumer-related interest rates rise and fall with the federal funds rate. This ability to control interest rates provides the Federal Reserve with the power to control inflation and unemployment to some extent.

During the contraction phase of the business cycle, the Federal Reserve can reduce the federal funds rate, which reduces other consumer interest rates and encourages consumer spending with the goal of increasing gross domestic product and recovering from the contraction. Likewise, during times of high inflation, the Federal Reserve can increase the federal funds rate, which increases other consumer interest rates and encourages saving rather than consumption with the goal of slowing inflation to acceptable levels. The spending and saving incentives that cause changes in interest rates provide the Federal Reserve with some control over economic activity.

Changes in interest rates also impact bond prices. A bond is an asset that earns a fixed interest rate for the term of the bond. When people purchase bonds from the government or a private firm, they are essentially loaning money to the government or the firm with the promise that it will repay the principal and a fixed interest rate at the end of the term of the bond. If interest rates increase during the term of the bond, because the bond's interest rate is fixed, it will not adjust and the bond will decrease in value if it is sold before the end of the term. The reason that the bond will decrease in value is that new bonds will be sold with a higher interest rate and in order to sell the current bond before term, the bond holder will be forced to lower the price of the bond to compensate the purchaser for the lower interest rate of the old bond compared to the interest rate of the new bond. Likewise, when interest rates decrease, bond prices increase because current bonds have a higher interest rate compared to newly issued bonds and are a more attractive asset than newly issued bonds.

The incentives that interest rates have on economic activity, unemployment, and inflation are profound. The ability of the Federal Reserve to have some control over them affords the Fed some control over the macro economy.

Xavier Whitacre

See also: *Vol. 2: Macroeconomics:* Contractionary Monetary Policy; Expansionary Monetary Policy; Federal Open Market Committee; Federal Reserve System; Fisher, Irving; Macroeconomics; Monetary Policy

Further Reading

Federal Reserve Bank of San Francisco. n.d. Chair the Fed: A monetary policy game. http://www.sffed-education.org/chairman/ (accessed on April 9, 2014).

Flowers, Barbara. 2011. *Crowding out*. Federal Reserve Bank of St. Louis. http://www.stlouisfed.org/education_resources/assets/lesson_plans/CrowdingOutLesson.pdf (accessed on April 11, 2014).

Frank, Robert. 2009. *The economic naturalist's field guide*. New York: Basic Books.

Garriga, Carlos, Finn Kydland, and Roman Sustek. 2013. Mortgages and monetary policy: Working Paper 2013-037 (December). http://research.stlouisfed.org/wp/2013/2013-037.pdf (accessed February 16, 2014).

Homer, Sidney, and Richard Sylla. 2005. *A history of interest rates*. Hoboken, NJ: Rutgers Univ. Press.

Wheelan, Charles. 2002. *Naked economics*. New York: W. W. Norton and Company Inc.

INTERSTATE COMMERCE ACT OF 1887

The Interstate Commerce Act of 1887 was originally designed to legislate and regulate the monopolistic behavior of the railroad industry. The Interstate Commerce Commission (ICC) was created to oversee and enforce the implementation of the act. The main purpose of the act was to force the railroads to offer "reasonable and just" rates to their customers and to publicize those rates. The act prohibited price discrimination, including differences between short- and long-haul rates, a common practice of the railroads at the time. It was the first federal law to regulate a private industry.

The Interstate Commerce Act of 1887 was a national reaction to concern over the increasing size and power of companies in the United States. No industry was gaining power as quickly as the railroads. At the end of the 19th century, the railroads had become the main form of transportation for both people and freight. As a result, the rates they charged for both had a significant impact on trade, commerce, and the movement of people.

Competition both within the railroad industry and from other modes of transportation was minimal. It was no secret that the railroad companies were forming cartels and colluding to control rates. It was also clear that this collusion was creating rates that were extraordinarily high relative to what market rates would be without the collusion. Another policy adopted by the railroads that moved the government to take action was the practice of charging a higher per-mile rate for short hauls versus long hauls. This put small businesses at a distinct disadvantage.

States attempted to limit these practices by the railroads by passing their own legislation, but the interstate aspect of the railroad industry made enforcement difficult. Then, in 1886, the Supreme Court ruled in *Wabash, St. Louis & Pacific Railway Company v. Illinois* that state laws were unconstitutional, as they violated the commerce clause of the Constitution, which gave the federal government the power to legislate commerce between states. The federal government, which had up to this point avoided getting involved, was now forced to act. So in 1887, the Interstate Commerce Act was passed by Congress and signed into law by President Grover Cleveland on February 4 the same year.

The act forced the railroads to publish their rates, thereby eliminating the practice of price discrimination, which helped to increase competition. The increase in competition changed the revenue stream of railroad companies, which diminished their financial allure to investors and stockholders.

The act established the Interstate Commerce Commission to oversee its enforcement. It was the first independent agency established by the federal government for the express purpose of regulating a private industry. The role of the ICC was to preside over complaints lodged against the railroad companies, issue cease-and-desist orders against practices that the ICC deemed unfair, and contest any unfair practices of the railroads. The ICC scope of enforcement was limited to railroads that operated across state lines.

Several amendments were made to the Interstate Commerce Act early in the 20th century. From 1903 through 1910, amendments increased the scope of the ICC to include bridges, ferries, oil pipelines, and cable, telephone, and telegraph companies. The Motor Carrier Act was passed by Congress in 1935 to include the trucking industry and bus lines.

Congress began to deregulate the railroad industry through the 1970s and 1980s. The Railroad Revitalization and Regulatory Reform Act of 1976 removed pricing barriers for the railroad industry. Through the 1980s, ICC authority was reduced further as the railroad and trucking industries were further deregulated. In 1995, the ICC was abolished by Congress and its functions moved to the new Surface Transportation Board.

David A. Dieterle

See also: *Vol. 1: Foundations of Economics:* Market Capitalism; Supreme Court; *Primary Document:* Interstate Commerce Act of 1887

Further Reading

Bill of Rights Institute. n.d. Americapedia: Interstate Commerce Act (1887). https://billofrightsinstitute.org/resources/educator-resources/americapedia/americapedia-documents /interstate-commerce-act/ (accessed February 28, 2015).

Gartner, Karl Knox. 1921. *Commentaries on the Interstate Commerce Act*. New York: The Traffic Publishing Co.

National Archives. n.d. Search the National Archives website. http://search.archives.gov/query.html?qt=Interstate+Commerce+Act&submit=GO&col=1arch&col=social&qc=1arch&qc=social (accessed February 28, 2015).

NOLO Law for ALL. n.d. Interstate Commerce Act of 1887. http://www.nolo.com/legal-encyclopedia/content/interstate-commerce-act.html (accessed February 28, 2015).
PBS. n.d. Interstate Commerce Act. American Experience. http://www.pbs.org/wgbh/americanexperience/features/general-article/streamliners-commerce/ (accessed February 28, 2015).

INVESTMENT BANKS VERSUS COMMERCIAL BANKS

Commercial banks are financial institutions that provide services to individuals, businesses, and organizations. Commercial banks operate as "traditional" banks with the majority of their business being related to taking deposits and making loans. Commercial banks make their profits by taking small, short-term, liquid deposits, and loaning the money to individuals and companies through long-term loans. The services that commercial banks offer business and individual customers are familiar to most people, such as checking and savings accounts, certificates of deposit, credit and debit cards, and mortgages and loans.

Checking and savings accounts make up a large portion of the depository business and provide the base income for traditional commercial banks. These accounts are offered to both individuals and businesses and provide the bank with the majority of the income needed to make loans. These accounts are sometimes charged a monthly fee, and additional fees are charged for customers that overdraw their accounts.

Certificates of deposit (CDs) are another type of deposit offered to individuals and businesses at most banks. CDs are savings certificates that bear interest at a specified fixed interest rate with a maturity date and are offered as "small CDs," less than $100,000, or as "jumbo CDs," which are more than $100,000. These offer a safe and secure investment for individuals and businesses to earn higher interest than they would if the funds were left in checking and savings accounts.

Credit and debit cards have become another highly lucrative source of revenue for commercial banks and are offered to both individuals and businesses. Often these cards come with interest rates and fees that offer commercial banks an additional source of income.

Commercial banks provide loans for commercial and residential properties, automobiles and other machinery, and business expenses. While these can be a liability for the bank if the borrowers default or fail to pay back the loans, they are typically the best source of income for the bank. If loans are made wisely to borrowers with less risk, they can provide a secure source of income for the commercial banks. These loans are backed by collateral such as property, machinery, automobiles, or business assets. This creates a secure loan for the banks since the collateral backing the loans can be sold to pay back the outstanding balance of the loan if the borrower fails to pay.

Commercial and residential property loans are usually backed with the collateral of the house or property upon which the loan is made. These loans usually provide the least amount of risk for the bank since the properties that are backing the loan can be foreclosed if the borrower does not pay back the money. Loans for automobiles and other machinery are often made to individuals and businesses.

These loans are also collateral backed by the automobile or machinery. In the case of default, the bank can repossess the auto or machinery.

The last type of loan that commercial banks usually make is personal loans to businesses or individuals. These loans can be backed by collateral, or they can be made with nothing backing the loan but a personal guarantee by the borrower. Business loans are often made so the business can expand or improve. Personal loans to individuals are often made for people to purchase something or to pay off other debt at a lower rate. These types of personal loans with little guarantees are often made after the customers have set up other accounts with the bank. Commercial banks make unsecured loans to individuals through credit cards.

Investment banks are banks that perform a variety of services for companies and large investors. Instead of earning their money through depository services, investment banks offer services primarily related to investments, such as underwriting and advising on securities issues, mergers and acquisitions, trading on capital markets, and research.

One thing that distinguishes investment banks from commercial banks is that investment banks make trades with their own account while commercial banks are restricted from doing so. This practice has been altered since the passage of the "Volcker Rule" within the Dodd-Frank Act. If a private company would like to go public, generate working capital through the selling of stock, it will do so through the services of an investment bank. If a public company listed on a stock exchange would like to offer new stock, it will use the services of an investment bank to underwrite the new stock offerings. The investment banks will then resell the stock directly and through broker-dealers. Investment bankers also make trades on the stock market to provide profit for their customers and the company.

Investment bankers arrange mergers and acquisitions for their customers and charge for research and advice. This provides a source of both income and publicity for the company.

Kimberly Cousino

See also: *Vol. 1: Foundations of Economics:* Investing; *Vol. 2: Macroeconomics:* Financial Intermediation

Further Reading

Financial Times. n.d. Definition of investment bank. http://lexicon.ft.com/Term?term=investment-bank (accessed Setember 30, 2016).

Investopedia. n.d. Retail banking vs. corporate banking. http://www.investopedia.com/articles/general/071213/retail-banking-vs-commercial-banking.asp (accessed Setember 30, 2016).

J

JEVONS, WILLIAM STANLEY

Born: September 1, 1835, in Liverpool, England; Died: August 13, 1882, in Hastings, England; Nationality: English; Professional Interests: economic statistician, marginal utility theory; Major Work: *The Theory of the Political Economy* (1871).

William Stanley Jevons was one of the foremost writers of economics and logic in the 19th century. His writings and theories on the political economy were original and prominent. Jevons is most noted for his introduction of the concepts of marginal utility theory of value and marginal analysis. Jevons may be considered one of the first environmental economists as he wrote about the British coal dependence in 1865 and introduced the Jevons paradox. Jevons was also later noted for his distinction between ordinal and cardinal utility. Jevons died in 1882.

William Stanley Jevons was born on September 1, 1835, in Liverpool, England. Jevons's father was a writer of legal and economic subjects, and his mother was the daughter of famous historian William Roscoe. At the age of 15, his father sent him to the University College School. Early in his education, Jevons actually preferred studying the sciences of chemistry and botany, and he excelled in both. After two years at University College School, he received an unexpected offer to take a position as an assayer in Australia. The thought of leaving England had never been in Jevons's mind, but financial problems in his father's firm in 1847 changed his thinking, and in June of 1854, he left for Sydney.

It was in Australia that Jevons's interest in political economy flourished. After five years in his post as an assayer, Jevons resigned and returned to the University College School in 1859. He obtained a BA degree, and not long after taking his MA, Jevons obtained a post to tutor at Owens College in Manchester, not far from Liverpool.

Jevons was one of the first political economists to value the use and application of mathematics to political economy. At Owens College, Jevons began publishing, beginning with the piece "A General Mathematical Theory of Political Economy" (1862), written for the British Association, which outlined the marginal utility theory of value. At the time, it was originally written as a letter and received little recognition, even after its full publication in the *Journal of the Statistical Society* four years later.

Jevons wrote his first complete work in 1871: *The Theory of Political Economy.* The theory of utility was the focal point of Jevons's thought on political economy. Jevons's main idea was that the degree of utility of a commodity is some continuous mathematical function of the quantity of the commodity available. His work was quickly developed by Austrian economist Carl Menger and Swiss economist Leon

Walras. Although it was Gossen who should be credited with the discovery of the connection between value in exchange and final (or marginal) utility, Jevons's contribution cannot be ignored.

Of special note regarding Jevons's writing is the distinction between ordinal and cardinal utility, which he fails to acknowledge but with good reason. At the time of his writing, this distinction did not exist. For a better understanding of his writing, it helps to know that his mathematics required the use of cardinal utility functions. Cardinal utility allowed Jevons to discuss the relative magnitude of utilities, unlike ordinal utility, which states that goods can be ranked and compared only according to which provides the most utility. Jevons strongly believed that his measurements of utility were relative, not a direct measure.

Although Jevons's work was essential in the development of such a key modern thought, his first recognition came through his writings on other practical economic questions. His next two books, *A Serious Fall in the Value of Gold* (1863) and *The Coal Question* (1865), placed Jevons on the face of applied economics and statistics. These works alone were sufficient to earn him a reputation as one of the greatest economists, even in the absence of his more famous work, *The Theory of Political Economy.*

The Coal Question focused on Britain's dependence on coal. His ideas have even been revisited in modern times. Jevons introduced the counterintuitive idea we use today to improve energy efficiency. He submitted that as energy efficiency measures are implemented, less energy is necessary for any one use; however, the rate of consumption will not fall, as might be expected, but rather rise due to increased demand. This counterintuitive idea is now known as the Jevons paradox. Jevons also raised the question of the sustainability of coal, which is a finite, nonrenewable resource. Other topics that were central to this idea of sustainability were resource peaking, limits to growth, overpopulation, post global relocalization, energy return on energy input, taxation of energy resources, and renewable energy alternatives. The book remains at the foundation of energy depletion theory.

Jevons had a great impact on political economy, but his work in logic was on equal footing. *Pure Logic: Or the Logic of Quality Apart from Quantity* (1864) was his first small volume in this field. He simplified the principle of substitution of similars by explaining that "whatever is true of a thing is true of its like." He published *The Substitution of Similars* in 1869. It worked on the basis that the conclusion derivable from any given set of premises could be mechanically obtained. This was symbolized through the presentation of his "Logic Piano," a mechanical computer he built and presented in the same year alongside his new thought.

His works on logic went further in 1874 with his theory of induction, which appeared under the title *The Principles of Science.* It was aimed to revive the theories of Whewell and address the criticisms made by John Stuart Mill. He developed the view that induction is simply an inverse employment of deduction. He also toyed with the general theory of probability and the relation between probability and induction. Jevons's work on this subject was different from the rest because of his knowledge of the various natural sciences. These enabled him to relieve the abstract character of logical doctrine by concrete scientific illustrations, often worked out in great detail.

William Stanley Jevons died from drowning on August 13, 1882, at Hastings, England.

John E. Trupiano

See also: Marginal Utility; Walras, Leon; *Vol. 1: Foundations of Economics:* Menger, Carl; Mill, John Stuart

Further Reading

Foster, John Bellamy. 2010. Capitalism and the curse of energy efficiency. *Monthly Review: An Independent Socialist Magazine* 62 (6): 1–13.

Heilbroner, Robert L. 1996. *Teachings from the worldly philosophy.* New York: Norton.

Jevons, William Stanley. 1863. *A serious fall in the value of gold.* London: E. Stanford.

Jevons, William Stanley. 1865. *The coal question: An inquiry concerning the progress of the nation, and the probable exhaustion of our coal-mines*. New York: Macmillan, 1906.

Jevons, William Stanley. 1869. *The substitution of similars.* London: Macmillan.

Jevons, William Stanley. 1871. *The theory of political economy.* London: Macmillan.

Maas, Harro. 2005. *William Stanley Jevons and the making of modern economics*. Cambridge, UK: Cambridge Univ. Press.

Mosselmans, Bert. n.d. William Stanley Jevons. *Stanford Encyclopedia of Philosophy*. http://plato.stanford.edu/entries/william-jevons/ (accessed March 2011).

Owen, David. 2010. The efficiency dilemma. *The New Yorker* (December 20–27): 78–83.

JUNK FOOD

Junk foods are foods that are easy to make and quick to consume. They are rich in saturated fat and sugars but have limited nutritional value (e.g., pizzas, burgers, French fries, snacks, soft drinks). They are widely believed to be the major contributor to obesity, which more than doubled globally over the past three decades, with more than 1.9 billion adults overweight and at least 600 million clinically obese (WHO 2016). Obesity is a major risk factor for many chronic conditions, including hypertension, cardiovascular disease, type 2 diabetes, and certain types of cancer (Taylor 2011). It also generates significant costs to governments, employers, insurance companies, and the obese individuals themselves.

To combat the growing prevalence of obesity, economic instruments have been proposed to affect individuals' eating and physical activity choices. The most popular proposal is the "fat tax" program, which aims at raising the relative price of calorie-dense foods so as to create an incentive for switching to low-calorie alternatives. In particular, the program seeks to tax junk foods, the revenue from which could be used to finance a "thin subsidy" for healthy foods. While at the moment there is no fat tax operating in the world, the idea has been supported by the World Health Organization and is under active consideration by public health scholars and practitioners in several countries.

Yaniv, Rosin, and Tobol (2009) address the fat tax and thin subsidy within a food-intake rational-choice model. Assuming that healthy meals are cooked at home with purchased ingredients and time input, the paper examines the effects on obesity of a tax on junk-food meals and a subsidy to cooking ingredients, distinguishing between a weight-conscious and a non-weight-conscious individual, and between a weight-conscious individual who is physically active and physically inactive. For a non-weight-conscious individual, a fat tax will unambiguously reduce obesity, whereas a thin subsidy may increase obesity. However, for a weight-conscious individual, particularly one who is physically active, even a fat tax may increase obesity, as it may reduce not just the consumption of junk food but also the time devoted to physical activity. This is because the fat tax encourages the preparation of healthy meals, which necessitates time for cooking and healthy ingredient shopping, quite likely at the expense of physical activity. Since weight is gained when calorie intake exceeds calorie use through physical activity, obesity might rise in spite of the fall in junk-food consumption, exacerbating the problem the fat tax proposal intended to eliminate.

While the traditional justification for government intervention to reduce obesity is to correct the health outcomes resulting from individual choices that impose negative externalities on normal-weight individuals, a very different approach would be to respect consumer sovereignty, in particular the right to risk future health in order to consume foods that provide immediate pleasure. In this spirit, the main critique of the fat tax program has been that people should be free to make their own health/lifestyle choices without government paternalistic intervention.

However, O'Donoghue and Rabin (2003) suggest the notion of "optimal paternalism," arguing that paternalistic policies may be advantageous if they help rationally bounded agents make better choices without overly affecting those who are fully rational. That is, even if obesity did not impose externalities on others, so that by the conventional approach of welfare economics no intervention was the best policy, a light paternalistic policy is preferable to nonintervention if it improves the welfare of those who behave suboptimally (because they do not know what is best for them or know but have trouble doing it) without limiting the freedom of those who behave optimally.

Thaler and Sunstein (2008) introduce the notion of "libertarian paternalism," arguing that it is legitimate for the government to try to influence people's behavior by rearranging the choices they face in a way that would nudge them to opt for a healthier behavior without taking away their freedom of choice. This is particularly relevant to reducing child obesity rates, which have more than tripled since the 1970s. Because child obesity has been linked to junk foods, consumed every day by one-third of all American kids, a simple nudge would be placing healthy foods in school cafeterias at eye level, while putting less healthy junk food in harder-to-reach places. Children would not be prevented from eating whatever they want, but the arranging of the food choices in that way would have the effect of decreasing consumption of junk food and increasing consumption of healthier foods.

Another behavioral economic tactic, suggested by Just and Wansink (2009), is to require high school students to pay cash for desserts and soft drinks rather than mindlessly putting it on their debit card or pin account. Because they have to take out the dollar they might otherwise spend on an iTune, they are likely to ask themselves how bad they really want that cookie.

Gideon Yaniv

See also: Health Insurance; Preference Pollution; *Vol. 1: Foundations of Economics:* Behavioral Economics; Culture and Behavioral Economics; Health Economics; Paternalism

Further Reading

Just, David R., and Brian Wansink. 2009. Better school meals on a budget: Using behavioral economics and food psychology to improve meal selection. *Choices* 24: 1–6.

O'Donoghue, Ted, and Matt Rabin. 2003. Studying optimal paternalism, illustrated by a model of sin taxes. *American Economic Review* 93: 186–91.

Taylor, Shelley E. 2011. *Health psychology*. Singapore: McGraw-Hill.

Thaler, Richard H., and Cass R. Sunstein. 2008. *Nudge: Improving decisions about health, wealth, and happiness*. New Haven, CT: Yale Univ. Press.

World Health Organization (WHO). 2016. *Obesity and overweight*. http://www.who.int/mediacentre/factsheets/fs311/en/ (accessed September 30, 2016).

Yaniv, Gideon, Odelia Rosin, and Yossef Tobol. 2009. Junk food, home cooking, physical activity and obesity: The effect of the fat tax and the thin subsidy. *Journal of Public Economics* 93: 823–30.

K

KAHNEMAN, DANIEL

Born: March 5, 1934, in Tel Aviv, Israel; Nationality: Israeli; Professional Interests: behavioral economics, Nobel Prize (2002); Major Works: "Prospect Theory: An Analysis of Decisions under Risk" (with A. Tversky, 1979), *Thinking, Fast and Slow* (2011).

Daniel Kahneman is a psychologist by profession, yet he won the 2002 Nobel Prize in Economics for his work in behavioral economics. Working with his longtime friend and colleague Amos Tversky, the two were honored for their research in economic decision-making. They focused specifically on how humans may think in terms of costs and benefits yet often make irrational decisions. Kahneman and Tversky blended psychology and economics to derive what became a basis for the field of behavioral economics.

Daniel Kahneman was born on March 5, 1934, in Tel Aviv, Israel. Even though he was born in Israel, his family resided in Paris. He was growing up in Paris when the Germans occupied the city. During World War II, his family moved several times throughout France to avoid the fate of so many other Jewish people. Young Kahneman's father, who had been temporarily interred by the Germans, died just weeks before VE Day. At the conclusion of World War II, young Kahneman, his mother, and his sister were able to leave France for Israel and begin a new life.

Following high school, as a young Jewish man in Israel, Kahneman had choices to make regarding his college education and his Israeli military obligation. He was able to defer his military obligation to attend Hebrew University, graduating in two years with a degree in psychology and mathematics.

After graduation he was drafted to fulfill his military obligation. After one year, he was assigned to the psychology section of the Defense Forces. Several assignments during this time in the military influenced his future career as a psychologist. During one assignment when he and his colleagues were asked to make predictions on the future performance of young soldiers, they found their predictions were not very accurate. This led Kahneman to coin the term "illusion of validity." Twenty years later, he was to introduce this term to the world of psychology. A second such experience was an exercise in which the psychologists made very broad predictions of future performance based on very limited knowledge of subjects' behavior. A third military experience that strongly influenced Kahneman's future was the challenge of designing an interview process for determining the fitness of combat recruits. The system was a combination of statistical analysis and clinical interviews. The results were impressive, achieving predictive success at a rate three times the past rate. These challenges were the seeds of Kahneman's and Tversky's future work on the psychology of intuitive prediction.

In 1958, Kahneman went to the United States to attend the University of California, Berkeley (UC Berkeley). Receiving his PhD in 1961 from UC Berkeley, Kahneman returned to Israel. He joined the faculty of the psychology department at the Hebrew University. Kahneman set himself the goal of becoming a better researcher. During his early years at Hebrew University, he established a research lab, developed several research models, and assisted in developing additional training models for the Israeli military. His published research career began with his 1965 sabbatical.

In 1965 while on sabbatical from the University of Michigan, Kahneman and a graduate student colleague, Jackson Beatty, began a series of experiments on mental effort. After several publishing successes with Beatty, Kahneman moved on, continuing his research on mental effort at Harvard. He returned to Hebrew University in 1967 a trained researcher.

During the 1967–1968 academic year, Kahneman met Amos Tversky. Tversky's field of judgment and decision-making intrigued Kahneman. Following a discussion on their personal experiences and the errors they each had made in prediction, the two decided to study the intuitions of experts, beginning what would become a lifelong professional duo. Kahneman and Tversky had a collaborative relationship that far transcended their professional lives. From 1971 to 1981, Kahneman and Tversky published eight journal articles. In 1971 and 1972 the "dynamic duo," as they became known to their colleagues, did considerable research and writing on judgment and decision-making at the Oregon Research Institute (ORI). In 1972, Kahneman published *Attention and Effort*, his single most significant contribution to psychology.

Following his research and work at ORI, Kahneman's career took another major turn in 1972 when he and Tversky published an article in *Science* journal. The article, read by a small group of economists and philosophers, was interpreted as a critique on the rationality model of human behavior. Surprisingly to Kahneman, the article became the standard critical response to the rational-agent model of decision-making. The *Science* article had many critics, yet the duo collaboratively pressed forward in their study of decision-making.

In 1975, they presented a paper on what they originally labeled *value theory*. In 1978, they published "Prospect Theory" in *Econometrica.* Interestingly, they did not publish in *Econometrica* to necessarily impact or influence the science of economics; their focus was on impacting the field of decision-making and *Econometrica* was the most respected and well-known professional journal for decision-making publishing. However, publishing the prospect theory in *Econometrica* did influence economics. Kahneman's entrance into the field of behavioral economics was about to be complete.

Kahneman and Tversky completed prospect theory while at Stanford University's Center for Advanced Studies in 1977–1978. While at Stanford, Kahneman met a young economist named Richard Thaler. The integration of the prospect theory into economic theory became the basis for Kahneman's collaborations with Thaler. Through collaborative efforts with Thaler, Kahneman's work now focused on the behavioral patterns of the economic human. Behavioral economics was born.

In 1984–1985, Kahneman, now at the University of British Columbia and working with economists Thaler and Jack Knetsch, expanded the field of behavioral economics. The focus of their work was on what they called *reference transactions*, or making a decision based on the perception that someone has an entitlement to a particular outcome and the only fair transactions are those that uphold the entitlement. They created a series of experiments, vignettes, and surveys to support their thesis.

In 2002, Daniel Kahneman was awarded the Nobel Prize in Economics for his valuable contributions in integrating psychology into economics and for his work on human judgment and irrational decision-making. Besides the Nobel Prize in Economics, Daniel Kahneman has been the recipient of many awards and prizes in psychology. In 1982, he received the Distinguished Scientific Contribution Award of the American Psychological Association and in 2002 the Grawemeyer Prize. Both awards were jointly awarded with Amos Tversky. He was also honored with the Lifetime Contribution Award of the American Psychological Association in 2007.

After returning to his alma mater in 1986, in 1993 Kahneman accepted a position to teach at Princeton in psychology and with the Woodrow Wilson School of Public Affairs and International Affairs. In 2011, Daniel Kahneman became known beyond the academic world to the general public with his best-seller exploration of how we think: *Thinking, Fast and Slow.*

David A. Dieterle

See also: Thaler, Richard; *Vol. 1: Foundations of Economics:* Behavioral Economics; Nobel Prize in Economics; Tversky, Amos

Further Reading

Brockman, John. 2012. *This will make you smarter: Daniel Kahneman and more.* Seattle, WA: Edge Foundation.

Kahneman, Daniel. 1973. *Attention and effort.* Englewood Cliffs, NJ: Prentice-Hall.

Kahneman, Daniel. 2011. *Thinking, fast and slow.* New York: Farrar, Straus and Giroux.

Kahneman, Daniel. n.d. Autobiography. Nobelprize.org. nobelprize.org/nobel_prizes/economics/laureates/2002/kahneman-autobio.html (accessed March 22, 2011).

Kahneman, Daniel, Ed Diener, and Norbert Schwarz. 2003. *Well-being: The foundations of hedonic psychology*, 1st ed. New York: Russell Sage Foundation.

Kahneman, Daniel, Thomas Gilovich, and Dale Griffin. 2002. *Heuristics and biases: The psychology of intuitive judgment.* Cambridge, UK: Cambridge Univ. Press.

Kahneman, D., J. Knetsch, and R. Thaler. 1986. Fairness and the assumptions of economics. *Journal of Business* 59: S285–S300.

Kahneman, D., J. Knetsch, and R. Thaler. 1986. Fairness as a constraint on profit seeking: Entitlements in the market. *The American Economic Review* 76: 728–41.

Kahneman, D., J. Knetsch, and R. Thaler. 1990. Experimental tests of the endowment effect and the Coase theorem. *Journal of Political Economy* 98 (6): 1325–48.

Kahneman, D., and A. Tversky. 1973. On the psychology of prediction. *Psychological Review* 80: 237–5l.

Kahneman, D., and A. Tversky. 1979. Prospect theory: An analysis of decisions under risk. *Econometrica* 47: 313–27.

Kahneman, D., and A. Tversky. 1984. Choices, values, and frames. *American Psychologist* 39: 341–50.

Kahneman, Daniel, and Amos Tversky, eds. 2000. *Choices, values, and frames.* New York: Cambridge Univ. Press and the Russell Sage Foundation.
Kahneman, Daniel, Amos Tversky, and Paul Slovic. 1982. *Judgment under uncertainty: Heuristics and biases.* Cambridge, UK: Cambridge Univ. Press.
Vane, Howard R., and Chris Mulhearn. 2011. *James M. Buchanan, Gary S. Becker, Daniel Kahneman and Vernon L. Smith.* London: Edward Elgar.
Weiss, Beth. n.d. Daniel Kahneman. Jewish Virtual Library. http://www.jewishvirtuallibrary.org/jsource/biography/kahneman.html (accessed March 22, 2011).

KANTOROVICH, LEONID

Born: January 19, 1912, in St. Petersburg, Russia; Died: April 7, 1986, in Moscow, Russia; Nationality: Russian; Professional Interests: optimal resource allocation, linear programming, mathematical economics, Nobel Prize (1975); Major Works: *The Mathematical Method of Production Planning and Organization* (1939), *The Best Uses of Economic Resources* (1965).

Leonid Kantorovich was known in the field of mathematical economics for his work on linear programing and his theory and techniques for optimal allocation of resources, for which he won a Nobel Prize in 1975. He worked as a scholar in Soviet Russia and applied his theories in industry under Stalin as part of the movement to modernize the nation. Kantorovich died in 1986.

Leonid Vitaliyevich Kantorovich was born on January 19, 1912, in St. Petersburg, Russia, during the final years of the Russian Empire. During his formative years, he watched as his nation made the transition to communism, fighting a bloody civil war in the process. He obtained his PhD in mathematics from Leningrad State University at the age of 18. While his interest was initially in the pure field of mathematics, he went on to teach at Leningrad University and in the Institute of Industrial Construction Engineering, where he spent much of his time working on the development of functional analysis.

Kantorovich's first achievement involved the invention of a mathematical technique now known as linear programming. In 1938, he consulted as a professor at Leningrad for the Laboratory of the Plywood Trust, which was attempting to maximize its use of resources. As it turned out, this economic problem was not unique, and his mathematical solution involving linear functions was applicable across situations. For this work and for his research in *The Mathematical Method of Production Planning and Organization* and *The Best Uses of Economic Resources*, his first significant publications, Kantorovich was awarded the Stalin Prize in 1949. At a time when hybrid specialties such as mathematics and economics were slow to gain recognition in the scientific community, the government accolades he received legitimized his work and caused others to take notice.

During this time Kantorovich was also enlisted in the World War II effort for his mathematical ability. Kantorovich was awarded a medal for defense of Leningrad for his work ensuring that supplies reached survivors of the siege over a terrain of ice-covered lakes. This application of his work points to the value that the state placed on his work as a method of advancing the Soviet industrial state during an era of struggle for economic, military, and political power in the USSR.

The crowning achievement of Kantorovich's career was receiving the Nobel Prize in Economics for the work he pursued during the 1950s in improving theories on optimum allocation of resources. For this work, he was first awarded the Lenin Prize in 1965 and the Order of Lenin in 1967. International acclaim came years later in 1975 with his Nobel Award, which he shared with his peer in the field, Tjalling Koopmans. During the 1950s, Stalin's five-year plan and collectivization policies represented an increased interest in government control of economic operations. Increased efficiency became a priority. Out of Kantorovich's work came his book *The Best Use of Economic Resources*, wherein he tackled the central economic problems of industry and management and the optimal conceptualization of these problems as they occur within industry, regional, and national economies.

From 1961 until 1971, Kantorovich continued his earlier work at the Siberian branch of the USSR Academy of the Sciences. He directed research at Moscow's Institute of National Economic Planning from 1971 until 1976, wherein he developed further evidence for the necessity of price systems to most efficiently allocate resources. In his later career, Kantorovich turned his attention to computer architecture.

Leonid Kantorovich died in Moscow, Russia, on April 7, 1986, at the age of 74.

Rebecca Kraft

See also: *Vol. 1: Foundations of Economics:* Factors of Production; Nobel Prize in Economics

Further Reading

Brezinski, Claude, and Luc Wuytack. 2001. *Numerical analysis: Historical developments in the 20th century.* Amsterdam: Elsevier Science.

Kantorovich, Leonid. 1939. *The mathematical method of production planning and organization.* Leningrad: Leningrad Univ. Press.

Kantorovich, Leonid. 1965. *The best uses of economic resources*. Cambridge, MA: Harvard Univ. Press.

Kantorovich, Leonid. n.d. Autobiography. Nobelprize.org. http://www.nobelprize.org/nobel_prizes/economics/laureates/1975/kantorovich-autobio.html (accessed September 1, 2012).

Leifman, Lev J., ed. 1990. *Functional analysis, optimization, and mathematical economics: A collection of papers dedicated to the memory of Leonid Vital'evich Kantorovich.* New York: Oxford Univ. Press.

Scheib, Ariel. n.d. Leonid Kantorovich. Jewish Virtual Library. http://www.jewishvirtuallibrary.org/jsource/biography/kantorovich.html (accessed September 1, 2012).

KELLOGG CO. V. NATIONAL BISCUIT CO.

Imitation may be the highest form of flattery, but in a competitive market it can rob innovators of their profit and stifle their motivation to create. Legal protections for property that someone has invented, thought of, discovered, or created are commonly known as intellectual property rights. Trademark and patent rights are included in this category. Although these rights do not ensure the profitable success of the inventor or originator, they do offer an incentive for entrepreneurs to keep innovating. Some might argue that Americans' ability to innovate and think creatively has been one of the key factors in the nation becoming an economic world leader. In *Kellogg Co. v. National Biscuit Co.,* 305 U.S. 111 (1938), the courts clarified judicial precedents for intellectual property rights in the United States. The rule of law as applied to intellectual property helps safeguard against unfair trade practices as well as motivating productivity.

Case Summary

The biscuit war in Battle Creek, Michigan, was more than just a pillow fight. At the turn of the 19th century, America was waking up to a new breakfast. Persuading people to leave bacon and eggs and start their day with what seemed more like chicken feed was not a simple task. Innovations in the process of manufacturing different cereals followed research concerning the healthiness of grain-based diets. Dr. John Harvey Kellogg was a physician and innovator in manufacturing of grains. Working with his brother W. K. Kellogg, they created a flake of wheat and repeated the process with corn. After much experimentation, wheat and corn flakes were boxed and marketed as the secret to a healthy diet.

Meanwhile, several other cereal entrepreneurs were adding their recipes to this new food industry. As early as 1877, Henry Seymour had applied for the first registered trademark for a breakfast cereal, using a traditionally dressed Quaker man as the company symbol and calling it Quaker Oats. W. C. Post was busy inventing Grape Nuts, a cereal named for the smell of grapes it put off during production and the nutlike texture of the finished product, though it contained neither grapes nor nuts. In 1893, Henry Perky and his partner William Henry Ford patented a machine that shredded wheat, resulting in a pillow-shaped biscuit predictably called *Shredded Wheat*. Link these trailblazers with the pasteurization of milk, and what was once in a trough was now in Americans' breakfast bowls. The nation transitioned to a cold, fast breakfast that came out of a cardboard advertising Mecca known as the cereal box. This set the stage for a competition that would see battle in the courts as well as on the grocery store shelves.

By definition, cereal is any edible grain. However, to get from edible to appetizing took innovation. To get from factories to breakfast tables took marketing. The process was fueled by cereal-industry competition and guided by the rule of law concerning fair trade practices, patents, and trademarks. In the *Kellogg Co. v. National Biscuit Co.* case, two major competitors and a pillow-shaped bundle of shredded wheat created case law that started with a skirmish and grew into an international brawl.

Henry Perky was a lawyer turned inventor who intended to sell machines. John Kellogg was a man of medicine. The two men knew each other, and both believed in the benefits of grains in the diet. However, John Kellogg turned toward religion and his brother, C. W. Kellogg, took the reins of the business and purchased the rights to Cornflakes, starting the Kellogg Toasted Corn Flakes Company in 1906. Meanwhile, Perky struggled with his mental health and eventually sold his patents and the Shredded Wheat Company in 1881 to the National Biscuit Company (the name was changed to Nabisco in 1971). However, the biscuit design patent was invalidated one year prior to its expiration date in 1908. The National Biscuit Co. and the Kellogg Company continued to parallel each other during the vertical climb toward the top of the cereal market, the former exclusively connected with Shredded Wheat biscuits and the latter with Corn Flakes. When the 20-year exclusivity to produce shredded wheat had expired due to patent time limits, the gloves came off.

Soon, Kellogg Co. began producing biscuit-shaped shredded wheat cereal under the Kellogg signature. In 1935, the National Biscuit Co. sued Kellogg, claiming that Kellogg had violated competition practices by deceiving the public into thinking that shredded wheat was a Kellogg product and by copying National Biscuit's product. Kellogg countered that the patent was in the public domain, as was the pillow shape.

National Biscuit Co. retorted that when Kellogg depicted the shredded wheat biscuits in a bowl with milk poured over them, it was too closely associated with National Biscuit Co.'s cereal box and consequently misled the consumer into purchasing a Kellogg product thinking it was a National Biscuit Co. product.

The federal district court in Delaware ruled in favor of Kellogg Co., stating that the term "shredded wheat" is free for all to use, and cereal bowls and milk flow naturally from that free domain. In 1937, National Biscuit Co. appealed its case to the federal circuit court of appeals, which reversed the decision of the district court and ordered Kellogg to stop using the term "shredded wheat," to stop selling its product in the shape of a pillow-shaped biscuit, and to pay damages in line with its subsequent fraud. A small percentage of the shredded wheat cereal sold by Kellogg to hotels and restaurants was not labeled sufficiently, and this influenced the court to believe that there was evidence to support deception. Kellogg Co. appealed to the U.S. Supreme Court, but certiorari (request for a lower court to send the records of the case to the Supreme Court) was denied.

At the same time, court battles were taking place between the Canadian-held sister companies of both parties. However, over the northern border, the decision was different. Canadian opinion held that there was no right to a patent that was public domain, as was the case with shredded wheat. Furthermore, the biscuit shape was a description of what happens when anyone bakes wheat that has been shredded. Hence, descriptions are not exclusive property. This international court mirrored the opinions of the U.S. Federal District Court; it handed down a ruling in favor of the Kellogg Company of Canada in May 1938.

Meanwhile, back in the United States, Kellogg continued to sell shredded wheat in a box with the biscuit image, clearly favoring a different interpretation of the U.S. Federal Appellate Court's opinion. National Biscuit Company requested clarification of the Supreme Court's orders to halt sales. Afterward, the decision from Canada became available and Kellogg resubmitted a request to the Supreme Court to hear its appeal again, taking into consideration the ruling of the British Privy Council (one of Canada's vestige appellate courts from British colonialism abolished in 1949) in *Canadian Shredded Wheat Co., Ltd., v. Kellogg Company of Canada, Ltd.*, 55 R.P.C. 125. The Supreme Court granted certiorari and heard *Kellogg Co. v. National Biscuit Co.* in October 1938.

National Biscuit Co. did not claim the exclusive right to produce shredded wheat, but it did claim the right to the trade name *Shredded Wheat* and the right to the biscuit design. Kellogg Company claimed that *shredded wheat* was a generic term used to describe the product that the company had the right to make. The court found no doctrine of secondary meaning (legal protection of an otherwise not protected trademark that arises when advertising and time make that mark signify a particular product). The National Biscuit Company needed to show that people thought of it alone when seeing the words or the shape. It failed to do so. Instead, it made clear that the words or shape brought to the mind of consumers a basic product that could have been made by any cereal company. Therefore, the only obligation Kellogg owed was to clearly identify itself to the consumer, which it made a point of doing by having W. K. Kellogg's own signature on every box as a trademark. On November 14, 1938, the Supreme Court ruled in favor of the Kellogg Company; Justice Brandeis wrote the opinion.

The framers of the Constitution knew how important it was to protect the intellectual property rights of authors and inventors in order to ensure innovation in science and the arts. Article I, Section 8 of the Constitution includes among the enumerated powers of Congress the power to secure, for limited times, the exclusive right of those who create. The significance of this power is evident in the myriad of patents, copyrights, and trademarks filed in the United States annually. In the *Kellogg* case, the courts established a point of reference for the laws for intellectual property rights in industrial America. The case helped define what was in the public domain and to what degree the functionality of a product could influence control over its economic use. Setting rules for intellectual property is one more weapon in the battle against unfair trade practices.

Kathleen C. Simmons

See also: *Vol. 1: Foundations of Economics:* Market Capitalism; Supreme Court; *Vol. 2: Macroeconomics:* Property Rights

Further Reading

The Breakfast Bowl. n.d. Cereal and the economy. http://breakfastbowl.blogspot.com/2008/12/cereal-and-economy.html (accessed December 1, 2013).

Justia, U.S. Supreme Court Center. n.d. *Kellogg Co. v. National Biscuit Co., 305 U.S. 111* (1938). http://supreme.justia.com/cases/federal/us/305/111/ (accessed September 30, 2016).

Legal Information Institute, Cornell University Law School. n.d. *Kellogg Co. v. National Biscuit Co. 305 U.S. 111* (59 S.Ct. 109, 83 L.Ed. 73), Nos. 2, 56, Opinion, Justice Brandeis. http://www.law.cornell.edu/supremecourt/text/305/111#writing-type-1-BRANDEIS (accessed September 30, 2016).

Patent and Trademark Office. 2005. General information concerning patents. http://www.uspto.gov/web/offices/pac/doc/general/index.html (accessed September 30, 2016).

Topher's Castle. n.d. Topher's breakfast cereal character guide analysis of the cereal industry. http://www.lavasurfer.com/cereal-analysis.html (accessed December 1, 2013).

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LABELS AND SIGNALING

In the real world of complex information—where information is asymmetric and misleading, can be incomplete and false, and is costly to obtain in terms of search and information-processing costs—the choices we make can be critically affected by product labels, quality ratings, information packages, and how the information is framed. Without appropriate information, individuals must make educated guesses as to what are the critical characteristics or attributes of a particular product. Given information gaps, errors in decision-making are highly probable. Individuals are likely to make choices that are in direct conflict with their preferences. Given their preferences, income, and relative prices, improved information would yield different choices, choices that would generate higher levels of utility or satisfaction.

There is here the possibility of market failure in the sense that market forces aren't allocating resources, given income and relative prices, in accordance with the preferences of individuals. Also, with inadequate information, our revealed preferences—that is to say our choices—tell us little about what our true preferences are. These choices generate no reliable information on what our choices would be had we been better informed.

Behavioral and institutional economists have long argued that trustworthy product labels, certification, and information packages are crucial to the efficiency of a market economy. They provide us with the information necessary to make informed decisions. And such information is most efficiently and effectively provided by government or through the auspices of government. Otherwise, there is an incentive for firms, organizations, and individuals to shirk on providing truthful information, relying on the uncertainty about reliability of labels to market substandard products as quality products. Although reputational effects of such behavior can partially contain this problem, this need not be the case and, empirically, it is often not the case. This has been most recently evident in financial markets where financial institutions and private rating agencies failed to deliver accurate product information and certification, resulting in individuals purchasing products that they might otherwise not have. For many individuals, in a world of complex and costly information, the economic benefits of being deceitful can often outweigh the costs.

For example, if you don't want to buy clothing made with nonunion labor or chickens that are not free range, you can't realize your preferences without proper product labels. If you are allergic to certain ingredients, you can't avoid these unless you're provided with the appropriate information. If you don't have appropriate information on the breakdown of the financial assets you are thinking of purchasing, you might end up buying assets that only appear to be consistent with your preferences. Without appropriate information, you most probably fail to realize your preferences. This can have disastrous consequences, especially in financial markets or if one suffers from severe allergies. Improved information does not impinge on the free choice of decision-makers. Rather, it makes free choice more effective and efficient, improving the quality of decision-making.

The provision of appropriate and trustworthy information is not a sufficient condition for individuals to realize their preferences. An assumption of conventional economics is that if product information is readily available or disclosed in terms of labels, info packages, and certification, rational individuals will locate, process, and assess this information to make a rational and optimal choice of what and how much to purchase and consume. But given information complexity and the costliness of acquiring, processing, and assessing information, this often does not take place. This is an important point made by behavioral economists. For this reason, it is argued, how the information is framed affects the decision-making process and, ultimately, the choices that individuals make. Framing is of critical consequence for decision-making even if it provides no additional information to the decision-maker. If the information is available but hard to locate and/or difficult to understand, if font size makes the material difficult to read or hints that the material is not important, if critical bits of information are buried in the information document, if certification is difficult to understand, people may be led to make poor and regrettable choices. The availability of adequate information alone will not suffice to produce choices consistent with the preferences of decision-makers.

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See also: Asymmetric Information; *Vol. 1: Foundations of Economics:* Financial Literacy; Intuition and Decision-Making

Further Reading

Altman, Morris. 2012a. Implications of behavioral economics for financial literacy and public policy. *Journal of Socio-Economics* 41: 677–90.

Altman, Morris. 2012b. *Behavioral economics for dummies*. New York: Wiley.

Shiller, Robert J. 2009. How about a stimulus for financial advice? *New York Times* (January 17). http://www.nytimes.com/2009/01/18/business/economy/18view.html?_r=1.

Shiller, Robert J. 2010. How nutritious are your investments? *Project Syndicate: A World of Ideas*. http://www.project-syndicate.org/commentary/shiller71/English (accessed September 30, 2016).

Thaler, Richard H., and Cass Sunstein. 2008. *Nudge: Improving decisions about health, wealth, and happiness*. New Haven, CT, and London: Yale Univ. Press.

LABOR ECONOMICS

All goods and services (outputs) are made from using productive resources of land, capital, and labor (inputs). Labor is the measure of human capital. Labor economics is the comprehensive study of wages, job markets, the demand for labor by employers, and the interconnections between income, wages, and employment.

Labor economics can be studied at the micro level of studying labor within a particular industry or firm in terms of job growth, skills, or wages. It can also be studied and measured at the macro level as measures of the overall economy, such as unemployment, overall wage growth, jobs market, or the relation between employment and the other economy goals of price stability (low inflation) and economic growth. At both the micro and macro levels, the demand for labor is also of interest, whether observing the demand for labor of an industry (micro) or the demand for labor as a measure of an economy's relative position in the business cycle (macro).

Measuring Labor and Unemployment

Measuring economic labor comes in many forms. One is measuring the labor force, or the number of people who are employed and unemployed. If they are unemployed, they must also be of working age, willing and able to work. A second important measure is the number of people in the labor force divided by the population, known as labor's participation rate.

The participation rate is very important because it reflects the accuracy of the most popular measure of labor, the unemployment rate. The unemployment rate is the number of people currently working divided by the labor force.

Another measure important to economists is the natural rate of unemployment. First suggested by Nobel laureate Milton Friedman, the natural rate of unemployment submits there is a level of unemployment inherent to an economy. A measure of the natural rate of unemployment is the sum of frictional and structural types of unemployment. Economists often discuss and debate this measure. Researchers also sometimes use a calculation as to how low unemployment can go before it impacts inflation, or the noninflation acceleration rate. This is often referred to as NAIRU, non-accelerating inflation rate of unemployment.

Types of Unemployment

There are four types of measured labor, or unemployment: frictional, structural, cyclical, and seasonal. Frictional unemployment refers to the unemployed who are between jobs. They never really left the labor force and were always willing and able to work. Structural unemployment refers to those who are usually the most harmed by unemployment. These are individuals who become unemployed because their industry or the economy is going through significant and permanent change. Structurally unemployed individuals' problem is that the newly changed industry will no longer require their skills. Plus, the new skills needed may be beyond the capability of the individual to acquire. Cyclical unemployment is the result of the business cycle and a downturn in the economy. Cyclical unemployment is in most cases temporary. Seasonal unemployment is as the label suggests. The seasonally unemployed are those individuals whose labor and work activity is determined by the seasons. This is obviously more significant in temperate climate zones and in outdoor labor.

One of the modern philosophies in labor economics is the neoclassical microeconomics model. This philosophy views the labor market mostly as any other market for goods or services. Neoclassicals essentially study the supply and demand of labor markets in the same way they study any other market, but with one major difference. The major distinction of the labor market is that the demand for labor is derived from the demand for the good or service that the labor produces. It is a derived demand and therefore dependent on the market forces of the product market.

Labor economists spend much of their time studying what is known as the labor-leisure trade-off. Individuals who work reflect a trade-off between the time they spend in labor and the time they spend in leisure. Economists measure the labor-leisure trade-off as a function of income and how the worker substitutes one for the other. A worker will substitute more labor for leisure as his or her wage rate (income) rises. The worker will accept the additional opportunity cost of less leisure in favor of the higher wage rate. This is also known as the income effect and the substitution effect of income. At times the income effect (impact of higher income) prevails, and other times the substitution effect (substituting more labor for less leisure) prevails.

David A. Dieterle

See also: Labor Market Regulation; Productivity; *Vol. 2: Macroeconomics:* Department of Labor; Labor Force; Labor Productivity; Unemployment; Wage and Price Controls, 1971

Further Reading

Acemoglu, Daron, and David Autor. n.d. Lectures in labor economics. economics.mit.edu/files/4689 (accessed February 11, 2015)

Brown, William Arthur. 2015. Labour economics. Encyclopedia Britannica.com. www.britannica.com/topic/labour-economics/The-structure-of-pay (accessed February 11, 2016).

Champlin, Dell P., and Janet T. Knoedler. 2004. *The institutionalist tradition in labor economics*. New York: M. E. Sharpe.

LABOR MARKET REGULATION

Conventional economic theory predicts that introducing or increasing minimum wages or legalizing unions or enhancing union power or the capacity of workers to unionize will result in unemployment. The same could be said of any factor that increases the bargaining power of workers, such as market-based increases to the demand for labor. Based on the assumption that the economy is x-efficient, that workers and managers are working as smart and as hard as they can, it is argued that any increase in wages that follows from increasing productivity will reduce employment, thereby increasing the extent of unemployment. Because wages are one component of costs, it is assumed that increasing wages increases average or unit costs as well as marginal or additional costs of producing output, forcing firms to employ fewer workers. The classic argument is that the only people benefiting from minimum wages or unions are the relatively more productive workers who manage to hold on to their jobs.

Evidence does not support the conventional model's prediction that minimum wages or unions necessarily cause economic harm, increasing average costs and reducing employment. On average, there appears to be little or no negative impact of these two institutional interventions in the economy, given how minimum-wage legislation and unionization has been instituted. There is also no negative average statistical relationship between economies with higher minimum wages and higher rates of unionization and low levels of per capita income or lower rates of per capita economic growth. With regard to minimum wages, different levels of minimum wages for different age groups (one level for youth and another for the rest) is most consistent with little or no negative impact associated with minimum wages.

X-inefficiency theory (also referred to as x-efficiency theory) helps to explain this empirical regularity that's inconsistent with the conventional model. X-inefficiency theory assumes that effort per unit of input is neither fixed nor maximized irrespective of market forces given the overall work environment within the firm. Given x-inefficiency, increasing wages from minimum-wage legislation or through collective bargaining induces more effort on the part of workers, managers, and other firm members. Firms must increase their productivity to remain competitive, and one important means of doing so is through increasing the quality and quantity of effort inputs. Increasing productivity offsets the increased labor costs, and the predicted negative effects of minimum wages and unions need not transpire. Increasing effort effectively shifts outward the demand curve for labor. It is even possible that minimum wage and union-type shocks to the economy might increase productivity to such an extent that employment actually increases. The extent or size of the productivity offsets is an empirical question.

By way of illustration, if wages increase by 10 percent and labor is the only input, average costs increase by 10 percent (average cost = [wages/output per unit of labor]). This is what the conventional wisdom assumes. But if productivity increases as a consequence of the increase in wages, this diminishes the extent of the increase in average cost. And, if productivity increases by 10 percent or more, exogenously given increasing wages would have no negative effect on employment. In addition, making the economy more x-efficient increases the size of the economic pie, and workers are made better off without making anyone worse off. This is what economics refers to as Pareto optimality. This possibility is assumed away in the conventional model due to the assumption that effort is fixed. Moreover, higher wages or better work environments often result in lower labor turnover, which further reduces average costs, generating additional cost offsets. Finally, higher wages can induce technological change, further increasing productivity and shifting outward the demand curve for labor. As long as the increased output is absorbed on the demand side, increasing the level of x-efficiency and induced technological change can offset any negative effect that higher minimum wages and unions might otherwise have on the economy.

These more realistic behavioral assumptions allow for analytical predictions more consistent with the evidence. But there is no prediction here that minimum wages and unions can't negatively impact the economy. Rather, this model allows us to better explain why minimum wages and unions need not have the negative impacts predicted by conventional theory and why they might actually have a positive effect. This type of modeling is also more consistent with the facts as we know them.

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See also: Derived Demand; Pareto, Alfredo; Pareto Optimality; Unions; *Vol. 1: Foundations of Economics:* Behavioral Economics; Golden Rule and Behavioral Economics; *Vol. 2: Macroeconomics:* Entitlements; Unemployment

Further Reading

Altman, Morris. 2005. Behavioral economics, rational inefficiencies, fuzzy sets, and public policy. *Journal of Economic Issues* 34: 683–706.
Altman, Morris. 2009. A behavioral-institutional model of endogenous growth and induced technical change. *Journal of Economic Issues* 63: 685–713.
Card, David, and Allan B. Krueger. 1995. *Myth and measurement: The new economics of the minimum wage.* Princeton, NJ: Princeton Univ. Press.
Freeman, Robert B., and James L. Medoff. 1984. *What do unions do?* New York: Basic Books.

LABOR THEORY OF VALUE

Late in the 18th century, during the period known as the Industrial Revolution, economist Adam Smith developed the labor theory of value. This theory states that the market price of a good is in proportion to the labor required for its production. Originally considered an idea of the classical economic view, the theory proposed that goods with the same labor value have the same price. The term *value* implies that the *value* of labor used in producing a product is equal to the *amount* of labor used in producing the product. In the mid-19th century, political economist Karl Marx, the most popular proponent of socialism, used the theory to suggest that prices of goods and services that were higher than the cost of the labor to produce them exploited workers.

When Adam Smith wrote the *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776), labor was the prime, and most mobile, resource in the production of virtually all goods and services. Smith's basis for the concepts of both division of labor and specialization was the labor theory of value. As Smith claimed in the *Wealth of Nations*, the value of a good or service was based on the value of the labor necessary to produce it. Smith used the theory to compare the relative worth of goods and to illustrate the value of voluntary exchange. If the owner of a good wanted to exchange it, he or she would use the value of the labor used to create it as the base of value for the exchange. The relative value would also help the owner decide if he or she was better off producing the desired object.

The labor theory of value does have its critics. They claim labor is not the determinate of a good or service's price. Labor is only one variable in the production of a good. The price of a good or service is determined by the relationship between supply and demand, not the value of the labor.

The effectiveness of the labor theory of value in modern economics is suspect on several levels. For one thing, the theory does not take into account the skills and experience level of the laborers. It also minimizes the use of capital and the costs of materials used in production. Finally, the theory does not take into account consumer demand of goods and services.

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See also: Labor Economics; *Vol. 1: Foundations of Economics:* Classical Economic Thought; Marx, Karl; Smith, Adam; *Vol. 2: Macroeconomics:* Labor Force; Labor Productivity

Further Reading

Hiroyoshi, Hayashi. 2005. *Marx's labor theory of value: A defense*. Translated by Roy West. New York: iUniverse, Inc.

Marx, Karl. 2009. *Das kapital: A critique of political economy*. Washington, DC: Regnery Publishing.

Rubin, I. I. 2008. *Essays on Marx's labor theory of value*. Translated by Milos Samardzija and Fredy Perlman. Delhi: Aakar Books.

Smith, Adam. 1778. *An inquiry into the nature and causes of the wealth of nations*, Vol. 2. London: W. Strahan and T. Cadell.

LAW OF DIMINISHING MARGINAL UTILITY (RETURNS)

The law of diminishing marginal utility states that the satisfaction a consumer receives from using an additional unit of a good declines as each additional unit is consumed. People generally make decisions on the margin by evaluating whether the satisfaction achieved by consuming an additional good is worth the costs. This law explains why price is more a function of demand and consumers' perception of value than it is of the costs of bringing a good to market.

Classical economist Alfred Marshall explained a consumer's utility as the extent to which a good or service satisfies a person's wants. The level of utility people receive from a good or service is determined by their most urgent desire for the good. The extra benefit received from an additional unit of a good or service is the unit's marginal utility. In addition, he further described *marginal* as the point where consumers are on the margin of doubt as to whether the additional unit of the good is worth the cost to obtain it. He concluded that eventually the utility of the additional units diminishes.

In making decisions about what to consume, people will estimate the benefit or pleasure they expect to receive in relation to what it costs to obtain it. They are much more willing to pay a higher price for the first unit of something than for subsequent units because the highest pleasure they will receive usually comes from that first unit and declines with each additional unit. Some products may provide increasing marginal utility at first, but every good and service will provide diminishing marginal utility at some point. For example, a person eating Thanksgiving dinner would likely perceive it as highly desirous and would very much enjoy the first several bites. As the meal progresses, however, the person's level of enjoyment will diminish. At some point, he or she will recognize that no further enjoyment can be obtained by eating more, and the meal will end. It can be extended further, however, into negative diminishing marginal returns where each additional unit actually provides pain or discomfort.

There are several conditions under which the law of diminishing marginal utility is constant. A single individual should want homogenous units of a single good. The utility of a good for one person cannot be measured against the utility of the same good by another person because they each have unique perceptions about the degree to which the good is important. Also, each of the goods must be the same weight and quality. A cup of water consumed from the ocean will not have the same value as a cup of water from a spring, regardless of a person's thirst. The preference, or taste, of a consumer must also remain constant. Any changes in tastes, habits, customs, fashion, or income changes the variables of measured utility.

There should be continuity in the consumption of a good. Units of a good should be used in concession in one particular unit of time. A person having 10 bottles of water at one meal will have a different measure of utility per bottle than a person having 10 bottles and only drinking one a day. Each unit of a good must also be of a suitable size. Giving someone who is thirsty a teaspoon of water will only increase marginal utility until a suitable amount has been consumed. Also, the unit value of the good compared with substitutes should remain the same.

A good should not be indivisible; it's not possible to measure the value of a durable good if its use is spread out over a period of time, such as a car or a refrigerator. Also, the law of diminishing marginal utility does not apply to commodities such as diamonds, or jewels, or collector's pieces. Consumers must be rational and act in their own interest. An impaired consumer may act against his or her best interest and derive satisfaction from a good that is actually harmful.

Money is also subject to the law of diminishing marginal utility. As people collect more and more money, each additional unit of wealth has a diminished marginal value. The $100 a 16-year-old earns at his or her first job has a far greater value than $100 earned by billionaire.

The law of diminishing marginal value can be used to explain the paradox of value: why people value diamonds more highly than they do water, which is necessary for survival, for example. The value of any item depends on the subjective value placed on it by an individual consumer. An additional bottle of water may have no value to a person who has a room full of bottled water to be consumed at will, but someone stranded in the desert may give every worldly possession they have, diamonds included, to obtain one. If the availability of water equaled the availability of diamonds, water would have a higher marginal utility and would therefore be more valuable. The perceived value of a good is reduced with an abundance of use.

The same principle can be applied to the stock of money in an economy. As the supply of money into the economy increases, the value of each unit and the price (interest) that consumers are willing to pay for it diminishes. Its value is reduced in relation to other goods and services (inflation). When the supply of money is restricted, consumers perceive scarcity and are willing to pay more for it. Money becomes more valuable in relation to other goods and services.

Organizations use this law to establish pricing; water companies charge higher rates for additional use so consumers' perceived value does not diminish with overuse. All-you-can-eat buffets charge one rate for unlimited utility, but consumers find less and less value with each additional serving, so businesses remain profitable. Progressive taxing policies increase tax rates as income increases because the marginal utility of money is much lower for the wealthy than it is for the poor.

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See also: Marginal Utility; Utility, Experienced; Utility, Remembered; *Vol. 1: Foundations of Economics:* Marshall, Alfred

Further Reading

Boundless.com. n.d. Principle of diminishing marginal utility. www.boundless.com/economics/textbooks/boundless-economics-textbook/consumer-choice-and-utility-5/the-demand-curve-and-utility-52/principle-of-diminishing-marginal-utility-200-12295/ (accessed November 30, 2014).

Goetz, Melanie. 2013. The paradox of value: Water rates and the law of diminishing marginal utility. *Journal AWW* (September).

Marshall, Alfred. 1890. *Principles of economics: An introductory volume*, 9th ed. New York: Macmillan.

LEAHY-SMITH ACT. *See* America Invents Act of 2011

LIABILITIES

The term *liability* has personal, business, and insurance connotations.

In personal and business uses, *liability* and *debt* both mean all obligations or amounts owed. On occasion, these terms may be used interchangeably. At other times, *debt* has a narrower definition and only includes funds borrowed and formalized with a written contract. In either case, the terms *liability* and *debt* are frequently used interchangeably.

Insurance liability refers to fault or legal responsibility. Liability insurance protects the policyholder from a variety of personal and business risks

Personal Liabilities

A personal liability is a financial obligation repaid out of one's personal assets. For example, the home mortgage is a personal liability the consumer has to repay to the lender for the amount borrowed to purchase a home. In this case, liability and debt mean the same thing.

Secured liabilities are loans guaranteed by collateral. If the loan is not repaid, the lender has the legal right to take possession of the asset. For example, a vehicle loan is secured by the car or truck. If the borrower doesn't make the loan payments, the lender has the right to repossess the vehicle.

An unsecured liability may be considered a promise to pay. Should the borrower default or fail to pay back the financial obligation, the lender has the right to sue the borrower for the unpaid balance. The lender may eventually be repaid from the borrower's other assets or future wages.

Business Liabilities

In general, a company's liabilities are the amounts owed to lenders as well as payments to vendors and suppliers. Simply, a company's liabilities are bills or payments due to others. In business, a liability might have the term *payable* in its title.

Liabilities and the Balance Sheet

In business and accounting, a balance sheet is an important financial statement used by business managers and accountants to describe the financial picture of a company at a specific point in time. The balance sheet includes three major categories: assets, liabilities, and equity.

A net worth statement is a document that shows an individual's assets less liabilities. The resultant figure shows the individual's financial worth. The business balance sheet is comparable to the net worth statement of a business. The balance sheet, like the net worth statement, includes a company's assets (any item of value owned by a corporation or individual that can be converted into cash) less its liabilities and net owner's or shareholder's equity or the economic value of the company.

The liabilities section of a balance sheet normally includes current and long-term liabilities or amounts owed. The current liabilities are short-term obligations due within one year, such as a short-term loan or note payable. Accounts payable, wages payable, and interest payable are also considered short-term liabilities. Long-term liabilities include long-term loans and other financial obligations due in more than one year.

On the balance sheet, after liabilities are subtracted from assets, the value of the company remains. Just as with personal liabilities, a corporation needs to keep liabilities within a certain range for the company to remain profitable.

Liabilities Example

This example shows how liabilities fit in with a family's financial picture and can be generalized to a company's financial balance sheet as well.

The assets owned by the Patels include a car, a home, and money and investments in savings and retirement accounts. These assets are worth $500,000.

Their liabilities include a home mortgage, a car loan, and a small amount of credit card debt. The total amount of their liabilities equals $275,000.

The Patels' net worth is $225,000. This figure is obtained by subtracting their liabilities ($275,000) from their assets ($500,000). The net worth is the sum of their financial worth, similar to a company's equity. This illustration shows how liabilities fit in an overall financial representation.

Insurance Liability

In business accounting and personal instances, *liability* means financial obligation. In insurance terms, *liability* refers to risk. Usually, liability insurance protects individuals from financial and legal risks.

A liability insurance policy protects the individual or business from the risk of a legal suit arising from malpractice, injury, or negligence claims. In most cases, this insurance pays for both legal costs and financial payouts for which the policyholder is legally responsible.

For example, most states require vehicle owners to purchase liability insurance. That way, when driver A's car hits driver B's car, injuring car B's driver and passenger, driver A's liability insurance will pay for the medical and vehicle repair bills.

Business liability insurance pays damages to customers injured on the business premises, such as if a customer falls, twists her ankle, and sues the company. Business liability insurance might also protect the business owners if an employee is injured while performing work duties.

Liability, in the broad sense, means responsibility. One might have financial responsibility to repay a debt or legal responsibility to pay for an injured person's medical charges (if the insured was the cause of the medical expense).

In modern money management, the well-informed consumer will understand this concept with relation to his or her personal finances as well as its business and insurance applications.

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See also: Consumer Credit and Debt; Credit Cards; Life Insurance; Net Worth; Risk; Risk Premium; *Vol. 1: Foundations of Economics:* Budget; *Vol. 2: Macroeconomics:* Bureau of Economic Analysis; Debt; *Vol. 4: Global Economics:* Balance of Payments; Balance of Trade

Further Reading

Accounting Coach. n.d. Liability. http://www.accountingcoach.com/terms/L/liabilities (accessed April 12, 2014).

Accounting Coach. n.d. What is the difference between liability and debt? http://www.accountingcoach.com/blog/what-is-the-difference-between-liability-and-debt (accessed April 12, 2014).

Investopedia. n.d. Liability. http://www.investopedia.com/terms/l/liability.asp (accessed April 12, 2014).

Investopedia. n.d. Liability insurance. http://www.investopedia.com/terms/l/liability_insurance.asp (accessed April 12, 2014).

LIFE INSURANCE

Life insurance is a product created to protect family members from the loss of income when the family's primary earner (or earners, in the case of a two-income family) passes away. People protect their family financially in the event of death by purchasing life insurance. When the owner of the life insurance is the individual, the proceeds are paid to the policy's nominated beneficiaries or the insured's estate. In some cases, where the insured has been diagnosed with a terminal illness (confirmed by at least two medical practitioners), the insurer may also pay out the sum insured. Not only does life insurance coverage apply to breadwinners and individuals, there are many business owners who need a life insurance policy for the survival of their business in the event of a key employee's death.

Why It Is Important

Should the main income earner of a family die, the surviving family members may end up facing huge debts they cannot repay. Without an income or means of support, a death could leave the remaining family members destitute. Without life insurance, the surviving spouse and financial dependents could face a lowered standard of living, insurmountable bills and expenses, and even bankruptcy.

Life insurance, as with most other insurances, is purchased as protection for the beneficiaries. Similar to homeowners insurance, breadwinners should also be insured in the unfortunate and unforeseen event they die prematurely.

Life Insurance Terms

A life insurance policy will specify the policyholder (person who purchased the insurance cover), the insured (person whose life is covered), the insurer (insurance company who provides the cover), beneficiary (person who receives the proceeds of the insurance payout), the amount of the premium, and the face value (value of the policy in the case of the insured's death).

Premiums are the regular payments the policyholder agrees to pay to the insurer to transfer the risk of death of the insured to the insurer. Premium payments can remain the same for the duration of the policy, referred to as level premiums. Alternatively, premiums may increase periodically, usually annually, in a stepped fashion and are thus called stepped premiums. With permanent insurance, premiums may also decrease over time as cash value increases, or dividends from the policy may be used to decrease premiums.

In addition to basic life insurance coverage, options included in an insurance policy are called *riders*. Riders are the additional benefits that can be purchased and added to a standard life insurance policy. Riders can take the form of additional life insurance amounts or supplemental benefits, such as accidental death. An accidental death rider provides a supplemental payment if the insured dies as a result of an accident.

Types of Life Insurance Policies

There are three main types of life insurance policies or products that provide risk protection for individuals, families, or businesses (Life Insurance 2008; Sargent 2008; Zinkewicz 2002): permanent insurance (whole-of-life and endowment policies), term life (temporary) insurance, and universal life insurance.

Permanent Insurance

The face value of the policy provides the amount of death benefit. This type of policy also builds up equity in the form of cash value, which accumulates over the life of the policy. The policyholder receives the face value of the policy upon the insured's death. As the policy matures, the cash value increases. If no disaster befalls the insured, the policyholder has the option of borrowing cash value against the face value while keeping the face value benefit or canceling the policy and receiving the cash value accumulation. The policy lapses if the policyholder stops paying the premiums.

The investment component consists of premiums less expenses and less the cost of the insurance coverage. The cash value comprises the face value of the policy (amount of money the person is insured for) plus any bonuses. Bonuses are the return on the investment component of the policy that has accrued over the life of the policy.

There are two main types of traditional permanent insurance policies: whole life policies and endowment policies.

Whole Life Insurance

Whole life insurance offers permanent insurance for policyholders during their entire life. While premiums are higher than term life policies (discussed later in the article), whole life policies accumulate cash value available to policyholders during their lifetime. The contract detailing a whole life insurance policy may allow the policyholder to take out a cash value loan against the face value accumulated. These policies are for insurers who plan to keep the policy long term, so the policy includes a savings component of a guaranteed cash value with additional accumulations based on dividends and additions over the maturity of the policy. As long as the premiums are maintained, a whole life insurance policy offers a guaranteed payout to the beneficiaries of the policyholder, and the death benefit may increase over time as the policy builds cash value.

Endowment Insurance

Endowment insurance policies are similar to whole life policies with one exception: the two have different maturity periods. Endowment policies have short- to medium-term maturity dates and generally do not outlive the insured person.

The endowment policy pays the face value of the policy on a fixed date or upon the death of the insured, whichever comes first. The benefit may also be paid upon cancelation.

The endowment life insurance policy is used to meet certain future expenses, such as college tuition or buying a retirement home. The maturity dates can be set for a specific term (e.g., 10 years) or to mature when a beneficiary reaches a certain age (e.g., 21 or 65).

Term Life Insurance

Term life policies pay the beneficiary only in the event of the death of the insured within a specified term. Unlike permanent insurance, there is no cash accumulation (cash value) component to term life insurance. Term insurance policies often outlive the insured and are not initiated at the death of the insured.

The simple term life policy remains in effect for a specific period as the annual premiums are paid. The annual premium amount can be set at purchase for a specific length, such as 10, 15, or 20 years. This is called level term. This means the insured knows how much the annual fee will be for the specific amount of insurance purchased.

The premiums are fairly low cost, making them more affordable than many other types of life insurance policies. The insurance value is guaranteed to last for the specified term as long as the insured pays the annual premium. Unlike permanent life policies, term life contains no savings component. When the policy is canceled or lapses, there is no surrender value (cash value). A claim from these polices can only be made upon the death of the insured. Term policies only provide financial security to the surviving family of a breadwinner at death.

Universal Life Insurance

Universal life is a combination of low-cost insurance with a high-risk, high-potential-return side investment funded by additional premium payments from the insured. These policies are for insurers who plan to keep the policy long term with increased risk based on an investment instrument such as a mutual or stock fund. Universal life insurance policies need to be in force for at least 15 years to be eligible for any return on the investment.

By maintaining the policy for at least 15 years, the savings portion has enough time to accumulate into an investment. With a universal life insurance policy, the policyholder has some control over the investment decisions. The policyholder also has some latitude regarding the premium amount, how much cash value accumulates, and how much death benefit will be given to the beneficiary. Furthermore, the death benefit may increase over time as the policy builds value.

A variable universal life policy gives the insured the responsibility of choosing the types of investment products to accumulate a cash value. The underlying investments supporting a variable life policy increase the risk of loss of some or all of the value in the case the investment performance is less than expected.

Group Life Insurance

Group life insurance (group wholesale life insurance or institutional life insurance) is a type of term life insurance that covers a group of people, usually employees of a company or members of a union or association. Group life insurance is typically part of an overall employee benefits package. On occasion, a certain coverage level is paid for by the employer, with increased coverage available to individual employees.

Individual proof of insurability is not normally a consideration in the underwriting. Instead, the underwriter considers the size, turnover, and financial strength of the group. Contract provisions attempt to exclude the possibility of adverse selection.

Group life insurance often includes a provision for a member exiting the group to buy individual coverage.

Angelique N. S. McInnes

See also: Annuity; Disability Insurance; Health Insurance; *Vol. 1: Foundations of Economics:* Compound Interest; Estate Planning; Financial Literacy; Investing; Portfolio Management; Wills and Trusts; *Vol. 2: Macroeconomics:* Dividend Income

Further Reading

Best's Review. 2008. Life insurance 32–33.

Cordell, David M., and Thomas P. Langdon. 2009. Life insurance in times of uncertainty. *Journal of Financial Planning* 22 (9): 32–37.

Johnson, I. Richard, and Paul A. Randle. 1995. Evaluating new life insurance products. *CPA Journal* 65 (9): 30.

Richardson, Brian C. 2011. Planning for business continuation. *Advisor Today* 106 (1): 18–19.

Sargent, D. 2008. Give staff a safety net. *Credit Union Magazine* 74 (8): 52.

Zinkewicz, P. 2002. New compact would cover life products (cover story). *Insurance Advocate* 113 (26): 2.

LIQUIDITY

The liquidity concept traverses the personal and business finance categories. *Liquidity* refers to an individual or corporation's access to cash or assets that can be quickly converted into cash. For example, bank certificates of deposit and cash in a checking or savings account are liquid assets. Assets that can be easily bought or sold are considered liquid. Another term for liquidity is *marketability*.

Liquidity is important in daily life as consumers need ready access to cash to meet regularly scheduled bills and financial obligations as well as for unexpected expenses such as car repairs or medical bills.

Corporations need available liquid cash in order to meet ongoing expenses such as payroll and accounts payable. The company also needs a certain amount of liquidity available for other business uses.

Which Assets Are Considered Liquid?

Obviously, cash held in checking and savings accounts is liquid. Money market mutual funds and money market bank accounts are also used as cash substitutes. But there are other types of financial assets that are also easily converted into cash. These short-term financial obligations include a class of investments called short-term marketable securities. Short-term treasury bills and notes (types of government bonds) are liquid. Corporations also issue very short-term debt, maturing in less than six months. These types of financial assets, called commercial paper, are readily converted into cash.

Consumers and Liquidity

When consumers plan their spending, saving, and budgeting, liquidity is an important concern. While some expenses occur frequently, such as rent, utility, and grocery bills, others are less frequent. Individuals need to maintain sufficient liquidity to pay for emergency car repairs, medical bills, occasional insurance, and other periodic expenses.

When applying for a home mortgage, lenders examine the prospective borrowers' liquidity and access to capital. In general, lenders expect consumers' debt expenses, including mortgage, student loan, and consumer debt, to fall below approximately 40 percent of the borrower's gross income. This relationship between debt levels and liquidity is of concern to both lenders and borrowers. Lenders wish to ensure borrowers have enough liquidity to pay the loan payments. Borrowers are also concerned with their own cash availability and cash flow.

For example, the Martinez family is planning their monthly spending and saving and wish to calculate their liquid cash after all expenses. This illustration demonstrates how liquidity relates to personal finance and money management.

Mr. and Mrs. Martinez earn $7,500 per month, gross. They pay $2,000 per month in city, state, and federal taxes. This leaves them $5,500 to spend (or net spendable income). After paying rent, food, transportation, insurance, entertainment, miscellaneous expenses, and retirement account contributions, the Martinezes have no liquidity remaining. They spend all of their take-home pay.

This lack of liquidity is a problem as it leaves no cushion for unexpected expenses or extra savings into an emergency fund. When the Martinez family has unexpected expenses, they use their credit card as an emergency fund. The lack of liquidity causes the Martinezes to incur debt because of the excess interest charges on the unpaid balance of their credit card. The family has a very small savings account without sufficient liquidity to cover all of the unexpected or infrequent expenses. The Martinezes are not unlike many American working families. Consumers such as the Martinezes must understand their liquidity position and how to maintain sufficient accessible cash for living expenses.

Liquidity Related to Investing

Assets that can be easily bought and sold are considered liquid. This liquidity assumes there is a ready market of buyers and sellers. In general, stocks, mutual funds, and exchange traded funds (ETFs), which trade in the public markets such as the New York Stock Exchange, are liquid. If an investor owns shares of Apple stock and would like to sell them, there is a pool of investors ready to purchase the shares on the popular NASDAQ stock exchange. Most stocks are easily converted into cash.

In contrast, certain financial or investment assets are illiquid. These "thinly traded" stocks and bonds from smaller companies lack the interest that the larger companies enjoy. When an investor holds an "illiquid" security, it may take extra time to sell the asset and there may be a large "spread" (or difference) between the buy and sell prices.

Corporate Liquidity Ratios

When investors buy stock in public companies and the companies analyze their own financial condition, liquidity ratios help calculate whether a firm has enough ready cash. Companies use standard metrics or ratios to measure their ability to handle particular financial scenarios. The following liquidity ratios may have various acceptable levels based on the industry. Due to the differences in both cash coming in and the need for cash, a large retail store such as Target would have different liquidity needs than a utility company.

The current ratio or working capital position takes the company's current or short-term assets (cash, marketable securities, receivables, and inventory) and compares it to the current liabilities (notes payable, debt due within the year, accrued expenses, and taxes). This ratio shows whether the company's short-term cash is sufficient to cover short-term obligations. A higher ratio shows better financial strength.

The current ratio is one of the most widely used financial ratios, yet it can be misleading as it may not be easy to convert inventory into ready cash. Thus, the quick ratio can be a tighter ratio to better measure a company's financial solvency.

The quick ratio, sometimes called the acid test ratio, is an indicator that measures the relationship between a company's most liquid assets (such as cash, short-term investments, and accounts receivables) and its current liabilities. A higher ratio indicates that the firm is better able to handle financial obligations.

Why Liquidity Is Important

As the financial crisis of 2007 demonstrated, there are severe financial ramifications when both consumers and the banking industry lack liquidity. In the case of homeowners and banks, the financial crisis could also be considered a liquidity crisis. After the housing boom of 2005–2006, many homeowners' adjustable-rate mortgage payments increased, making it difficult for them to pay. This lack of liquidity led to mortgage delinquencies, foreclosures, and personal bankruptcies.

As previously mentioned, companies also need to maintain appropriate liquidity levels. If a company lacks sufficient liquidity to pay its short-term obligations, such as repaying loans, paying its employees, and paying bills, the company may experience a liquidity crisis. If this situation is not quickly resolved with cash, the company may need to file bankruptcy.

At the beginning of the 2007 financial crisis, banks improperly managed their liquidity and experienced great financial problems and stress. Banks need to lend money at higher interest rates than they pay depositors in order to make a profit. Yet banks also need to hold enough reserves to pay depositors under a variety of withdrawal scenarios.

In the middle of the first decade of this century, when many homeowners defaulted on their loans, subprime lenders (those who lent to less financially stable individuals) filed for bankruptcy due to a lack of liquidity.

Many larger banks, which had purchased mortgage loans from smaller banks that had originally granted the loans, later offered a form of the loans to investors as securities (called mortgage-backed securities). These larger banks also experienced financial problems because when the homeowners defaulted on their loans and stopped making payments, the large banks stopped receiving the expected mortgage payments. Thus, the banks didn't have enough money coming in to pay out to the owners of the mortgage-backed securities.

These liquidity issues were some of the major contributors to the 2007–2008 subprime housing crisis and subsequent mortgage meltdown.

Tools for Individuals to Manage Liquidity

The world of online personal finance has come up with many tools to help individuals monitor and manage their liquidity needs. Online companies now offer budgeting, saving, and financial monitoring. One of the most popular personal finance and liquidity management tools is Mint.com, an online version of the grandfather of personal finance tracking software, Quicken (published by Intuit). There are other online companies that help consumers track and manage their debt and credit score.

With easily accessible and free money management tools, consumers have access to assistance with all of their liquidity concerns.

Barbara A. Friedberg

See also: Bonds; Certificate of Deposit; Consumer Credit and Debt; Credit or Bond Rating Agency; Demand Deposits; Liabilities; Mutual Funds and Exchange Trade Funds; Risk; Savings Account; Saving versus Investing; Subprime Mortgage Bubble and Crisis; *Vol. 1: Foundations of Economics:* Banking; Bankruptcy; Budget; Investing; *Vol. 2: Macroeconomics:* Money

Further Reading

Bank for International Settlements. 2013. Basel III: The liquidity coverage ratio and liquidity risk monitoring tools (January). http://www.bis.org/publ/bcbs238.pdf (accessed September 30, 2016).

Brunnermeier, Markus K., and Lasse Heje Pedersen. 2009. Market liquidity and funding liquidity. *The Review of Financial Studies* 22: 6.

Investopedia. n.d. Liquidity. http://www.investopedia.com/terms/l/liquidity.asp (accessed May 16, 2014).

Investopedia. n.d. Liquidity ratios. http://www.investopedia.com/terms/l/liquidityratios.asp (accessed May 16, 2014).

Mint. n.d. https://www.mint.com/ (accessed May 18, 2014).

LIQUIDITY TRAP AND LIQUIDITY PREFERENCE

In macroeconomics, *liquidity* refers to the ability of financial assets to be readily available in order to make market transactions without difficulty and with negligible loss of value. The degree of liquidity varies across financial assets. While a currency issued by a central bank has the highest liquidity, financial assets such as bank deposits in checking and savings accounts have a high degree of liquidity. These financial assets are therefore usually considered liquid. Although other financial assets, such as bonds and equities, yield interest and/or capital gains, liquid assets bear little or no interest. Despite this property, people refer to interest-bearing financial assets as being liquid to some degree. In reality, people have at least some portion of their total assets in the form of liquid assets. Keynes (1936) defines the demand for money as liquidity preference.

According to Keynes, liquidity preference is determined by three motives: the transactions motive, the precautionary motive, and the speculative motive. The transactions motive is based on the fact that we need money to buy and sell goods and services. In other words, people need liquidity for economic activities. Because the transactions increase with income, the demand for liquidity also increases with income. In addition, people usually have more than enough money for everyday use and for emergency needs. This constitutes the precautionary motive. Since emergency needs usually increase with income, the demand for money based on these two motives is an increasing function of income.

The third motive is speculative. This is based on the fact that people often use money as an important means for speculation. When the bond prices are high or the interest rate is low, people hold money to buy the bonds when they become cheaper or their interest rate becomes higher in the future. In other words, people hold money for portfolio purposes. When the nominal interest rate is low, people hold a lot of money although it earns little or no interest. The demand for money based on this motive is a decreasing function of the nominal interest rate because people prefer interest-bearing financial assets to liquidity when the interest rate is high.

According to the liquidity preference theory, the interest rate is determined by the supply and demand of money. Other things being equal, the demand for money is a decreasing function of the nominal interest rate. Hence, the nominal interest rate decreases with the money supply. Quite naturally, however, the nominal interest rate has a lower limit of zero because people surely prefer money when the bonds and other financial assets do not earn any interest. Even when the nominal interest rate is positive, if it is close enough to zero, people prefer riskless money to other risky financial assets. This is especially the case when their expectations of the future are dismal, when their animal spirits are depressed. This situation is called a *liquidity trap* because increased injections of money into an economy by a central bank cannot lower the nominal interest rate and therefore fail to stimulate the economy, and individuals with dreary expectations don't respond to low interest rates. Because, in a liquidity trap, the conventional monetary policies targeting the interest rate become impotent, fiscal stimulus such as government spending is believed to be the only remaining policy instrument able to boost the economy in traditional Keynesian economics.

The practical importance of the liquidity trap became evident in the early 1990s, when the Japanese economy fell into a prolonged and severe slump with near-zero interest rates and deflation following the bubble economy of the late 1980s. Krugman argued that the Japanese economy was in a liquidity trap and that many advanced and emerging economies have been similarly trapped since the subprime crisis of 2007 (1998).

Business and housing investment is a function not of the nominal interest rate but of the real (net of inflation rate) interest rate. Even when the nominal interest rate is trapped at a near-zero level, inflation can push down the real interest rate.

Because the conventional monetary policies try to control the nominal interest rate, they are unable to get an economy out of the trap. In contrast, according to Krugman (and others), since unconventional monetary policies such as a quantity-easing or inflation-targeting policies are consistent with some inflation, they can reduce the real interest rate and possibly stimulate the economy.

Tamotsu Nakamura

See also: Interest Rates; *Vol. 1: Foundations of Economics:* Animal Spirits; Central Bank; Keynes, John Maynard; *Vol. 2: Macroeconomics:* Federal Reserve System; Fiscal Policy; Inflation; Macroeconomics; Monetary Policy; Money Illusion

Further Reading

Akerlof, George A., and Robert J. Shiller. 2009. *Animal spirits: How human psychology drives the economy, and why it matters for global capitalism*. Princeton, NJ: Princeton Univ. Press.

Keynes, John Maynard. 1936. *The general theory of employment, interest and money.* London: Palgrave Macmillan.

Krugman, Paul. 1998. It's baaaack! Japan's slump and the return of the liquidity trap. *Brookings Papers on Economic Activity* 2: 137–205.

Krugman, Paul. 2010. How much of the world is in a liquidity trap? *New York Times* (March 17). http://krugman.blogs.nytimes.com/2010/03/17/how-much-of-the-world-is-in-a-liquidity-trap/?_r=0 (accessed September 30, 2016).

LOCHNER V. NEW YORK

The 14th Amendment to the U.S. Constitution, as interpreted in 1905 by the Fuller Court (1903–1905), prohibits states from interfering with most employment contracts. The right to buy and sell labor is a fundamental freedom that, in a federal system of governing, is protected from arbitrary statutes and acts of state legislatures. Unless there is a reasonable threat to public welfare or realistic concern for public health and safety, regulation of wages between employer and employee cannot be interfered with using the police power of the state. So whether you shoe horses or bake biscuits, your right to buy and sell your labor is exactly that: your right to be protected from arbitrary, unfair, and discriminatory treatment by state legislatures.

Case Summary

The case of *Lochner v. New York,* 198 U.S. 45 (1905), is about making "dough," figuratively and literally. How much "dough" could a baker make if a baker could make dough, without being limited? It sounds simple; however, the case is not just about bread and wages; it is also an important lesson in federalism and the labor movement, and it established a new era in constitutional law regarding the due process clause of the 5th and 14th Amendments, known as the Lochner era.

The United States was the first country to adopt a federal system of government. The framers of the Constitution designed the U.S. model of federalism wherein the national and state governments share power and derive all their authority from the people. The national government is sovereign over the states with defined powers as stated in Article I, Section 8 of the Constitution. Powers not specifically given to the federal government or denied to the states are reserved to the states (as per the 10th Amendment). However, many powers are shared, such as the power to regulate the health and safety of the people. Setting wage limits and working guidelines for industries are not powers mentioned in the Constitution, nor are they denied. Therefore, they are left for legislatures to act upon and courts to interpret. The *Lochner* case is an example of this interpretation.

The period between 1870 and the turn of the century in American history is known as the Gilded Age (a term coined by Mark Twain that captured the attitude of less-than-accurate expectations of immigrants toward America at that time). This era was marked by industrial growth, enormous poverty, and the rise of the labor movement. New York was flooded with immigrants from Europe, many believing in the promise of a better life. Conditions did not match these expectations; a few found prosperity, but the reality for the masses was long hours of labor for little pay and crowded, unsanitary living conditions. Thousands of workers searched for employment, saturating the labor market. During this era there were few regulations on hours, wages, age or gender of workers, working conditions, and so forth. Industries often employed fewer workers—frequently women and children because they did not agitate as much as men—at low wages for long hours in unsafe conditions. These circumstances gave rise to labor unions, which organized and pursued an agenda that they felt would improve the lives of the working poor.

In 1894, the New York Press published a series of "muckraking" (a term coined by Theodore Roosevelt to describe writers who exposed the weaknesses of the capitalist system during the Gilded Age) articles on the baking industry. The articles exposed an unhealthy state of affairs, unsafe working conditions, and filthy kitchens. Within months, the public outcry resulted in state officials crafting legislation that significantly changed the baking industry and gave the labor movement a victory. The Bakeshop Act of 1895 pertained specifically to biscuit, bread, and cake bakeries as well as confectionery establishments. The law restricted the maximum number of hours a person could work in a bakery to 10 hours per day and not to exceed 60 hours in a week. In addition, it made requirements of building conditions, employee lodging (many journeyman bakers lived in the kitchens where they worked), ventilation, and overall cleanliness. Within a decade of the state of New York enacting this law, the national government, under the leadership of President Theodore Roosevelt, passed the Pure Food and Drug Act of 1906 to deal with similar public health and safety issues.

Joseph Lochner owned a bakery in Utica, New York. In 1904, he was issued a citation for violating Section 110 of Article 8, Chapter 415, of the law, known as the labor law of the State of New York or the Bakeshop Act of 1895 because one of his workers had exceeded the 60-hour rule. He paid a $25 fine. Lochner was later given a second citation for the same violation. This time the fee was $50, or 50 days in jail. He asserted that he had been denied his due process, as was his right in the 14th Amendment to the Constitution. His misdemeanor was heard in the county court of Oneida County, where he demurred (made an objection or delay) on several grounds, mainly that what he had done was not a crime. The court disagreed and found him guilty. Lochner argued that people have liberty of contract with regard to carrying out their business. It was his general right to negotiate with persons to buy and sell their labor and to be free to exercise their right of contract. This right is protected by the due process clause of the Constitution and subject only to legitimate police power of the state. Lochner contended that in this case, there were no reasonable grounds for the state to deny him of this right.

Joseph Lochner appealed his case to the New York Appellate Court and ultimately to the New York Supreme Court, which upheld the ruling of the lower court, finding in favor of the state of New York. A writ of error (a writ issued by an appellate court directing the court of record to send a trial record to the appellate court to be looked at for potential errors) brought Lochner to the U.S. Supreme Court, which serves as the final word on policy matters that challenge the delicate balance between federal versus state power and individual rights.

The Supreme Court's responsibility in this case was to determine if the U.S. Constitution prohibited states from restricting the rights of individuals and businesses to negotiate labor and employment contracts. The court used judicial review to scrutinize the balance between the interests being served by the government statute and the infringement of individual rights. Justice Peckman, in writing the opinion of the court, held that there was no reasonable governmental interest that justified this encroachment on individual liberty. The court claimed the singling out of bakery workers was arbitrary and discriminatory. These workers were in no less peril for their health and well-being than were lawyers and others who toiled many hours in their occupations. In his dissent, Justice Harlan stated that it was the burden of the appellant (Lochner) to prove that the New York law was indeed beyond a question plainly not reasonable and was in excess of legislative authority, which he claimed Lochner did not do. In his separate dissent, Justice Holmes cited Sunday laws (laws designed to restrict or ban some or all Sunday shopping for religious standards) and usury laws (the practice of making unethical monetary loans with excessive interest rates) as early examples of state laws that may regulate life in such a way as to interfere with the liberty to contract but that nevertheless remained laws.

In March 1905, the Supreme Court voted to reverse the lower court's verdict. The Fuller Court determined the outcome in favor of individual freedom and against the power of the state to enact legislation restricting free enterprise. The Lochner era is characterized by this new interpretation of the due process clause to have a substantive content. Using this lens, the Constitution protected minorities and individuals from arbitrary control by government with regard to fundamental rights that are inherent within their personal freedom. However, this interpretation would end with *West Coast Hotel Co. v. Parrish* (1937).

The Lochner era was an outcome of the industrial revolution. Today, however, interpretation of substantive due process with an emphasis on minority rights and protection from government encroachment of private conduct remains well established, though still controversial.

Kathleen C. Simmons

See also: Derived Demand; Labor Economics; Labor Market Regulation; *Vol. 1: Foundations of Economics:* Resources; Supreme Court; *Vol. 2: Macroeconomics:* Labor Uprisings, 1936–1939; *Primary Document:* Pure Food and Drug Act of 1906

Further Reading

Legal Information Institute, Cornell University Law School. n.d. *Lochner v. New York (No. 292)*, *Syllabus, Supreme Court of the United States, 198 U.S. 45*. http://www.law.cornell.edu/supct/html/historics/USSC_CR_0198_0045_ZS.html (accessed September 30, 2016).

Legal Information Institute, Cornell University Law School. n.d. *Lochner v. New York (No. 292)*, *Syllabus, Supreme Court of the United States, 198 U.S. 45*, Opinion Justice Peckham. http://www.law.cornell.edu/supct/html/historics/USSC_CR_0198_0045_ZO.html (accessed September 30, 2016).

Legal Information Institute, Cornell University Law School. n.d. *Lochner v. New York (No. 292)*, *Syllabus, Supreme Court of the United States, 198 U.S. 45*, Dissenting opinion Justice Harlan. http://www.law.cornell.edu/supct/html/historics/USSC_CR_0198_0045_ZD.html (accessed September 30, 2016).

Legal Information Institute, Cornell University Law School. n.d. *Lochner v. New York (No. 292)*, *Syllabus, Supreme Court of the United States, 198 U.S. 45*, Dissenting opinion Justice Holmes. http://www.law.cornell.edu/supct/html/historics/USSC_CR_0198_0045_ZD1.html (accessed September 30, 2016).

M

MARGIN

Margin has several different meanings and applications related to personal finance. Business, accounting, economics, finance, investment, and banking all use the term *margin*. The meaning of the term varies along with the discipline in which it is used.

Business and Accounting

In business and accounting, *margin* refers to profit as a percentage of sales generated by a corporation. This is referred to as *profit margin* and shows how much money is left over after costs are subtracted. In this situation, a larger margin is better and means greater profit.

There are three basic classifications for margin depending on the profit calculation technique used. *Gross profit margin* refers to profitability after deducting only the costs of goods sold (COGS). COGS is an accounting term and usually refers to the cost of raw materials and labor expenses.

Operating profit margin measures profitability after excluding all overhead costs (these include rent, utilities, etc.) and administrative (such as salaries) and selling (vehicle, advertising, and other costs) expenses. Operating profit margin also excludes COGS.

Finally, *net profit margin* measures profitability after subtracting taxes and interest expenses resulting from debt incurred by a corporation as well as the exclusions from gross and operating profit margins. Net profit margin shows the true percentage of profit after deducting all expenses.

Higher profit margins are superior to lower and demonstrate how effective a company is at controlling costs. All other factors being equal, when comparing two companies in the same industry, if Company A has a profit margin of 15 percent and Company B has a profit margin of 19 percent, Company B would be considered to be more profitable than Company A. After all, a company prefers to keep a larger percentage of the sales revenue from the product or service.

Economics

In the context of economics, *margin* means extra. This can be illustrated by a simple example. The first sandwich you eat when you are extremely hungry will provide a certain level of satisfaction (this satisfaction is referred to as utility), but the second sandwich will likely achieve a lower level of satisfaction (this different level is what we mean by *marginal*). That concept can also be applied to money and the utility achieved from consumption. Additional consumption achieves a different utility or level of satisfaction and is referred to as *marginal utility*.

To generalize, margin is the excess benefit or cost that results from inducing a certain level of change. This concept has an important implication for one's personal finances. If you get a raise in allowance or salary, how much of that will you spend (consume) and how much will you save? Generally, if you get a small increase, you will spend most of it, but with a greater increase, you will tend to save more than you spend; that is referred to as the *marginal propensity to consume*.

Finance and Investment

In the context of finance and investment, margin is the deposit an investor needs to place with a broker when the investor borrows money in order to buy a security (such as a stock or bond). In this sense, margin is similar to collateral. If the value of the security drops significantly, the investor has to deposit more cash (i.e., increase the margin) or sell part of the securities purchased. In the United States, the Federal Reserve Board's Regulation T states that investors can borrow up to a maximum of 50 percent of the purchase price of the securities bought on margin.

The percentage provided by investors from their own money (equity) is called the *initial premium*. Self-regulatory organizations like the New York Stock Exchange require a minimum amount of equity to be maintained in the account. This is referred to as the *maintenance margin*. The maintenance margin required is equal to 25 percent of the security purchase price. If the security price drops, the broker will issue a margin call that requires additional funds to be deposited by the investor.

Investors choose margin trading because it provides a way to purchase more securities with less money. This is helpful when the market is moving up and a security purchased on margin increases in value. This allows investors to realize a higher return (given a smaller initial investment) than they would had they purchased the security totally with cash. But if the market drops, investors will suffer greater losses than with an all-cash purchase. The losses can force the broker to sell part or all of the security to meet the margin call requirements for the security that declined in price.

Banking

In the banking world, *margin* refers to the difference between the value of collateral pledged against a loan and the amount of the loan provided by the bank. This amount is sometimes called *haircut*. Collateral is an asset—a real asset like a building or a financial asset like a stock or bond. This asset secures one's borrowing in case of default. If a borrower defaults on the loan, the lender can sell this collateral to collect the value of the loan.

Usually a bank extends a loan for less than 100 percent of the collateral value. This requires market assessment of the volatility of the collateral value. The ratio is referred to as loan-to-value ratio. Different types of collateral require different margin levels. The larger the margin or "haircut," the more secure the loan. This concept is applied to protect against two types of risk: the risk of a decline in the value of the collateral and the risk of the inability to liquidate the collateral without great loss (Chapman et al. 2011).

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See also: Bonds; Marginal Propensity to Consume, Save, and the Multiplier Effect; Marginal Utility; Stocks; *Vol. 1: Foundations of Economics:* Banking; Investing; Marginal Analysis; *Vol. 2: Macroeconomics:* Federal Reserve System

Further Reading

Chapman, James, Jonathan Chiu, and Miguel Molico. 2011. Liquidity provision and collateral haircuts in payments systems. *Bank of Canada Review* 9: 13–20.

Interactive Brokers. n.d. Introduction to margin: Margin accounts. https://www.interactivebrokers.com/en/?f=margin (accessed July 7, 2013).

John Wiley & Sons [database online]. n.d. Buying stocks on margin. http://www.dummies.com/how-to/content/buying-stock-on-margin.html (accessed July 23, 2013).

Key Bank. n.d. Collateral. https://www.key.com/html/collateral-bank-lending-process.html (accessed July 26, 2013).

Library of Economics and Liberty. n.d. Margins and thinking at the margin. http://www.econlib.org/library/Topics/College/margins.html (accessed July 23, 2013).

Titman, Sheridan, Arthur J. Keown, and John D. Martin. 2011. *Financial management: Principles and applications*, 11th ed. Upper Saddle River, NJ: Pearson, 88–90.

MARGINAL PROPENSITY TO CONSUME, SAVE, AND THE MULTIPLIER EFFECT

Developed by John Maynard Keynes, marginal propensity to consume, marginal propensity to save, and the multiplier effect are key concepts to understanding the economic impact of fiscal policy decisions on an economy. When Congress deliberates on a tax cut or tax increase, a major concern is the total impact the action will have on the macroeconomy. To determine the economic impact prior to any tax action, policymakers need to know what percentage of each new dollar of disposable income (after taxes) will be consumed and what percentage will be saved. To measure this impact, they need to know the marginal propensity to consume (MPC) or the marginal propensity to save (MPS). For each marginal dollar, the consumer consumes a portion and saves a portion. Knowing the MPC and MPS, policymakers can make a reasonable prediction on how their actions will multiply in their impact on the economy. This prediction is known as the multiplier effect.

Marginal Propensity to Consume

The marginal propensity to consume is the percentage of each new dollar of disposable income (marginal dollar) consumed and not saved. MPC can be calculated by dividing the change in consumption by the change in income ($MPC = \Delta C / \Delta Y$). If the MPC = 0.9, policymakers can predict that for every $1 they give taxpayers in the form of a tax cut, the taxpayers will spend (consume) $0.90, or if they increase taxes, for every $1 of a tax increase, they will take $0.90 out of the economy.

Marginal Propensity to Save

The marginal propensity to save is the percentage of each new dollar of disposable income (marginal dollar) saved and not consumed. MPS can be calculated by dividing the change in saving by the change in income ($MPS = \Delta S / \Delta Y$). If the MPS = 0.1, policymakers can predict that for every $1 they give taxpayers in the form of a tax cut, taxpayers will save $0.10, or if they increase taxes, for every $1 of a tax increase, they will take $0.10 from consumers' savings.

As one can see from the example, MPC ($0.90) and MPS ($0.10) equal one marginal dollar received by the taxpayer or provided by the government. Knowing the marginal propensity to consume and marginal propensity to save, policymakers also know, in theory, that the impact of their actions will not be a straight dollar-for-dollar exchange. Rather, each marginal dollar added to or taken away from the economy will be multiplied as it makes its way through the economy from business to labor and back to business (i.e., through the circular flow of economic activity). To determine the multiplier impact of the marginal dollar, one also needs to know the multiplier effect.

Multiplier Effect

The multiplier effect is influenced by the MPC, MPS, and the injection of new dollars into the economy or removed as the result of increased taxes. Each time the level of money changes in an economy a multiplier effect occurs. To predict the multiplier effect of a potential policy action, divide 1 by 1 – MPC (1 / 1 – MPC). Or, since it is known that MPC and MPS must equal 1, another way of expressing the multiplier effect is 1 / MPS.

Returning to the above example, if MPC = $0.90, the multiplier effect is 10 (1 / 1 –0.90 = 1 / 0.1 = 10). So policymakers can now predict that for every $1 they give back to the taxpayer, $10 will be generated in the economy.

Tax cut recipients have been known to not follow the theory and consequently frustrate policymakers. Because of the recessionary economy of the early 2000s, the Bush and Obama tax cuts begun in 2001 did not fully meet expectations of increasing economic activity. Instead of following Keynesian theory and increasing consumer spending in the economy, many taxpayers used their new marginal dollars to pay off credit card debt (past spending) or increased saving because of the slow economy and an uncertain future, frustrating both fiscal and monetary policy leaders.

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See also: *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; *Vol. 2: Macroeconomics:* Fiscal Policy; Macroeconomics; Multiplier Effect; Taxes

Further Reading

AmosWeb. 2015. Marginal propensity to consume. www.amosweb.com/cgibin/awb_nav.pl?s=wpd&c=dsp&k=marginal+propensity+to+consume (accessed December 10, 2015).

AmosWeb. 2015. Marginal propensity to save. www.amosweb.com/cgibin/awb_nav.pl?s=wpd&c=dsp&k=marginal%20propensity%20to%20save (accessed December 10, 2015).

Businessdictionary. 2015. Marginal propensity to save. www.businessdictionary.com/definition/marginal-propensity-to-save.html (accessed December 10, 2015).

Economics Online. 2015. The multiplier effect. www.economicsonline.co.uk/Managing_the_economy/The_multiplier_effect.html (accessed December 10, 2015).

Investopedia. 2015. Marginal propensity to consume. www.investopedia.com/terms/m/marginalpropensitytoconsume.asp (accessed December 10, 2015).

Investopedia. 2015. Marginal propensity to save. www.investopedia.com/terms/m/marginal-propensity-save.asp (accessed December 10, 2015).

MARGINAL UTILITY

Marginal utility is the happiness or satisfaction achieved from purchasing or consuming additional goods and services. There are many types of utility used in economics, including diminishing marginal utility, maximizing utility, and even cardinal utility. Marginal utility is often used in game theory and various decision-making techniques.

Marginal utility decisions are made every day. Marginal utility can be equated to one's satisfaction or happiness with an action, such as the way we make decisions when dining out. Restaurant food ordering is not an in-total process but a series of marginal decisions based on the expected marginal utility, satisfaction, of each decision—hamburger or fish, French fries or potato chips, malt or soda, dessert or no dessert. Each is a marginal decision based on the expected marginal satisfaction of the good to the total dining experience. Starbucks changed the way people order coffee from a few marginal decisions (black, cream, sugar, etc.) to a series of marginal decisions (nonfat, cappuccino, latte, tall, grande, etc.).

Marginal utility can be applied to a person's financial life, overall health, work ethic, and rational decision-making process, in what economists call *marginal analysis*. Although utility is not directly measurable, economists use utility functions and observations to construct a method of predicting an individual's utility. This function is responsible for creating various utility or indifference curves that represent individuals' preferences. These functions could include variables such as hours worked and dollars or other items such as coffee and tea.

Economists are particularly interested in this theory because microeconomic theory assumes individuals make rational decisions on the margin. Economists often study how people spend their next dollar, decide their next meal or whether they will work an additional hour, and determine how they will buy their next home.

The utility of money is probably the most popular area of interest because it encompasses so many decisions individuals make. In fact, all of the examples already discussed ultimately come back to how people decide to spend their dollars. Businesses can benefit from insight into how consumers will spend their next dollar. Economists use this information to predict spending patterns and work habits. Economists study behavior and how scarce resources are allocated in order to know whether people will buy an additional item or if they are just as happy with one.

There are multiple types of marginal utility, including zero, positive, negative, increasing, and diminishing marginal utility. An example of zero marginal utility would be receiving two magazines that are exactly the same. While enjoyment from reading the first magazine is realized, simply having a second one exactly the same provides virtually no additional satisfaction. Positive marginal utility could be expressed from the happiness one receives when the vending machine accidentally dispenses two granola bars instead of just one. Negative marginal utility is quite the opposite and could be demonstrated by using more than necessary. For instance, this is true with medicine. Taking too much medicine doesn't necessarily warrant a quicker recovery but could have negative effects. Increasing marginal utility could be illustrated by the satisfaction attained when finding a piece of a missing puzzle since it completes the picture. Diminishing marginal utility, however, goes back to eating more than necessary to satisfy one's appetite.

Applications of marginal utility can be found in many disciplines. It can be beneficial to understand how marginal utility relates to topics such as personal finances and overall efficiency. Businesses will benefit from recognizing this concept to help predict purchasing patterns and employees' work ethic. Marginal utility should be viewed as the overall satisfaction or happiness a good or service provides and the information used to analyze behavior.

Amber Thomas

See also: Law of Diminishing Marginal Utility

Further Reading

About Education. n.d. Marginal utility in economics. economics.about.com/od/utility/p/marginal_utility.htm (accessed May 11, 2015).

Mr. Money Mustache. 2012. Brand new life: Understand the marginal utility of money. www.mrmoneymustache.com/2012/02/09/brave-new-life/ (accessed May 11, 2015).

Polleit, Thorsten. 2011. What can the law of diminishing marginal utility teach us? mises.org/library/what-can-law-diminishing-marginal-utility-teach-us (accessed May 11, 2015).

Your Dictionary—The Dictionary You Can Understand. n.d. Marginal utility examples. examples.yourdictionary.com/marginal-utility-examples.html (accessed May 11, 2015).

MARKET DISTORTIONS

When a free market is manipulated through government interventions such as price ceilings and/or price floors, the result will be disequilibrium. Even though interventions such as these are implemented in order to improve the common good, they cause a market distortion resulting in an economy's misallocation of resources and either a shortage or surplus of the good or service.

Price Ceilings

A price ceiling is a maximum price established by law that sellers can charge for their good or service. The government establishes price ceilings on items it considers to be essential but for which the perceived high market price may prevent a segment of the population from participating. The price ceiling will be set at a lower price than equilibrium. This lower than market price will generate a rise in quantity demanded and a reduction in supply, creating a shortage.

A common example of the government establishing a price ceiling is rent control. In order to provide housing, which is considered an essential good for consumers, the local government in New York City established price ceilings on apartment rent. The price ceiling was established to make housing affordable to citizens living in a specific area they could otherwise not afford to live in. However, when prices were lowered to below natural equilibrium a shortage occurred. With the rent price now below equilibrium price, the willingness of apartment owners to produce and maintain their apartments also fell, as predicted by the law of supply.

Price Floors

The opposite of a price ceiling is a price floor. A price floor provides a minimum price for a good or service. As with price ceilings, the government may impose a price floor in order to establish a minimum reward to sellers for their efforts. The two most commonly recognized price floors in the United States would be the federal minimum wage law and agricultural subsidies to farmers.

The minimum wage law establishes the lowest possible amount per hour paid to full-time workers for their efforts. The intent of the law is to provide a wage necessary to support a couple with one child. Some argue the minimum wage is set above the market equilibrium, resulting in a rise in unemployment. Two reasons suggested for the increase in unemployment are an increase in the supply of labor (labor force participation) caused by the incentive of a wage increase and/or a reduction of jobs due to layoffs since the employer may not be able to pay the increased minimum wage. Both of these issues will cause a surplus of labor as price floors, to be effective, are set above market equilibrium wage.

Federal farm subsidies as price floors create surpluses of agricultural products. With a guaranteed minimum price, farmers have the incentive to grow as much as possible. Producing beyond the domestic market quantity demand creates a surplus for exports to a global market. It also creates surplus food products the federal government may ultimately redistribute if possible. In many cases, this leads to a misallocation of resources as the products eventually spoil.

Price Discrimination

Another way to distort the market is through price discrimination. Price discrimination only works if the following three conditions exist: (1) Firms that use price discrimination must have some market power; (2) customers must be able to be divided into distinct groups based on the price of the good or service; and (3) buyers must not be in a position in which they can easily resell the good or service.

Business owners may use price discrimination if they have the ability to identify a specific segment of their consumer base. One common form of price discrimination is through targeted discounts. Many businesses offer these discounts for the sale of goods that may not be as desirable or are more difficult to sell otherwise. Other types of targeted discounts are offered to marginal consumers, such as the elderly and students. Senior citizen discounts are offered on many items in order to target and maintain a certain group of customers but at a reduced price.

The advantage of price discrimination is that the business owner is able to maximize profits by charging a different price in different regions or to different groups of customers in order to maintain as many customers as possible. This in turn maximizes the business owner's resources and anticipates increasing profits.

Predatory Pricing

A firm may attempt to dominate a market or eliminate the competition through predatory pricing tactics. In the short run, a firm may set the market price below its costs to drive competitors out of business. This practice can only be sustained in the short run since the predator loses money each time it attempts to eliminate a competitor. Once the competition has been eliminated, the predator will raise prices and gain more market power.

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See also: Market Risk; Markets; Microeconomics; *Vol. 1: Foundations of Economics:* Market Capitalism; *Vol. 2: Macroeconomics:* Business Structures; Wage and Price Controls, 1971

Further Reading

Levitt, Steven D., and Chad Syverson. 2005. National Bureau of Economic Research. Market distortions when agents are better informed: The value of information in real estate transactions. NBER Working Paper No. 11053. http://www.nber.org/papers/w11053 (accessed September 30, 2016).

Mankiw, N. Gregory. 2011. *Principles of microeconomics.* Mason, OH: South-Western/Cengage Learning.

O'Sullivan, Arthur, and Steven M. Sheffrin. 2007. *Economics principles in action.* Upper Saddle River, NJ: Pearson/Prentice Hall.

MARKET FAILURE

A market failure results from the inefficient allocation of goods and services that makes a specific economic interaction unfeasible, unproductive, or unresponsive to society. The term *market failure* encompasses a need for an outside agent, usually government, to become involved with a specific economic transaction. A market failure can be the result of the market price being too high for the transaction to be commercially feasible, a market not producing enough of a specific economic good, or the market interaction causing externalities (costs external to the transaction). Market failure can also be the result of too little information on the part of the buyer.

The three key sources of market failure are externalities, public goods, and imperfect information. Markets are most efficient when all the costs and benefits of a decision are internalized and borne solely by the buyer and seller. Externalities exist when the benefits or costs are not totally internalized and impact a third party not involved in the original decision. A market transaction fails to include external costs or external benefits. An outside agent such as a government is necessary to address the external costs or benefits of the transaction, or too much of some goods will be produced and not enough of others.

A negative externality results when the costs of a transaction spill over to someone other than those who were party to the original transaction. Pollution is a negative externality, as it is a transaction cost borne outside the original transaction that created the pollution. To correct for a negative externality such as pollution, the government institutes policies to alter the behavior of those involved and internalize as much as possible the transaction costs or reduce the size of the externality. Government may do this by imposing a tax or fine on the transaction, or it may provide an incentive to change behavior with a tax credit or subsidy.

If there is a positive externality, someone outside the original transaction benefits from the action. To expand a positive externality, the government can subsidize the good. A public good is also an example of a market failure. Public goods are nonexclusive, which means that everyone can use a good and no one can be excluded from its benefit. They are also nonrival, which means that consumption by one person does not reduce the usefulness of a good to others. The classic example of a public good is national defense.

Another example of market failure is imperfect information, which results in buyers and sellers having different amounts of information about a good. In this case, buyers depend on the firm's reputation and personal experience, and it is possible that they will pay more for a good or service than necessary.

A natural monopoly is the result of market failure. A natural monopoly can set prices higher than costs and does not allow for any competition. In some cases, though, it is more practical to have a government-operated or government-regulated natural monopoly in some industries, such as utilities. In these industries, there are relatively large fixed costs accompanied with low marginal costs. To have different companies competing for an undifferentiated commodity would be a gross misallocation of resources. The companies in these industries need to be very large to achieve the economies of scale necessary for the product to be priced so the consumer can afford it and the producer is willing to produce it and achieve a profit to stay in business. Market failure can also lead to government failure, which occurs when government intervention makes a situation worse. In some cases, this is because governments do not have information to correct the problem or the government intervention is more complicated than anticipated.

When examining market failure, one should apply the double market failure test. The problem should be identified and the possibilities for correcting the market failure should be considered. Potential solutions depend on the nature of the problem as well as the potential effect or anticipated results of the proposed resolution.

When looking at correcting a market failure, one must also consider the transaction cost. The transaction cost affects how an externality is dealt with, and if the costs become too high the desire to resolve the problem will disappear. The government may determine how to implement a resolution to a market failure based on this approach.

Market failure will continue to focus on goods and services that affect a large number of users and will only disappear when the costs of operating the price system are zero, which is impossible to achieve. Issues such as clean air and clean water will continue to be addressed by the government.

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See also: Air Pollution; Monopoly; *Vol. 2: Macroeconomics:* Externality; Free Rider; Public Goods; Water Pollution

Further Reading

Colander, David C. 2010. *Economics*. New York: McGraw-Hill/Irwin.

Federal Reserve Bank of St. Louis. n.d. Externalities: The economic lowdown series. https://www.stlouisfed.org/education/economic-lowdown-video-series/ (accessed September 30, 2016).

Foldvary, Fred, and Daniel B. Klein. 2001. Technology and market failure. *Regulation* 24: 9–11.

Yao, Dennis A. 1988. Beyond the reach of the invisible hand: Impediments to economic activity, market failures, and profitability. *Strategic Management Journal* 9: 59–70.

Zerbe, Richard O. Jr., and Howard McCurdy. 2000. The end of market failure. *Regulation* 23: 10–14.

Zerbe, Richard O. Jr., and Howard E. McCurdy. 1999. The failure of market failure. *Journal of Policy Analysis and Management* 18: 558–78.

MARKET RISK

Market risk, also known as systematic risk, is the financial or fiscal danger that arises within changes in market prices and rates. These are possible risks investors experience because of events or factors that affect the overall matter of the financial markets. This can occur from natural disasters, a recession, political turmoil, changes in interest rates, or terrorist attacks. These changes in the market have several variables, such as exchange rates, interest rates, taxes, equity prices, foreign exchange rates, and commodity prices.

The connection between each of the variables corresponds to a financial risk that may result in loss of positioning or value. When entrepreneurs make new investments and financial choices there is always a potential for market risk. We experience risk every day; for example, when you decide to go snowboarding you risk the possibility of falling and breaking your leg. This is similar to market risk.

Most people try to avoid market risk because they are risk averse. That is, people dislike bad things happening to them more than they like good things happening to them. In a market, risk is inevitable, but one way to be ready in case of an emergency is to buy insurance. Buying insurance will not eliminate the risk of an accident or event happening; it will only help compensate for the incident.

Another way to deal with market risk is diversification; this refers to a way of reducing risk through replacing one large risk with many smaller unrelated risks. Sound advice is not to "put all your eggs in one basket." Diversification can eliminate the possibility of idiosyncratic risk, uncertainty associated with a specific business. Although it can help eliminate some factors, it cannot stop aggregate risk, the uncertainty associated with the economy as a whole. For example, market risk cannot be prevented when events like a recession occur and all companies face falling sales and reduced profit. Market risk is something one cannot prevent. When making financial decisions, there is always going to be some kind of risk.

Adam Vallus

See also: Market Distortions; Markets; Risk Premium; *Vol. 1: Foundations of Economics:* Market Capitalism

Further Reading

Board of Governors of the Federal Reserve System. n.d. Supervisory policy and guidance topics: Market risk management. http://www.federalreserve.gov/bankinforeg/topics/market_risk_mgmt.htm (accessed March 15, 2015).

Dowd, Kevin. 2005. *Measuring market risk*, 2nd ed. West Sussex, UK: John Wiley & Sons Ltd.

Investopedia. n.d. Market risk. http://www.investopedia.com/terms/m/marketrisk.asp (accessed March 15, 2015).

MARKET STRUCTURES

Market structures can be defined by a series of market characteristics. These characteristics determine and define the competition within a market, how the competition differs between markets, and different pricing schemes between the different market structures. The market structure has a strong influence on how businesses answer basic questions regarding level of production, pricing, and how to successfully compete. Each feature of a market structure is determined by a series of questions:

- How many sellers participate in each market?
- What is the resource allocation to enter or exit the market? Can an individual easily gather the resources for a market, or is the market a complex structure?
- Do buyers and sellers have access to the same market information?
- Is the market homogeneous or heterogeneous? Can you tell the difference between the products?
- How much influence does a firm have in pricing within a market structure?

Table 1. Market Structures

	Perfect Competition	Monopolistic Competition	Oligopoly	Monopoly
Number of sellers	Many	Many	Few	One
Barriers to entry	None	Easy	Significant	Absolute
Product Differentiation	None; homogenous	Differentiated through advertising and marketing	Differentiated through frequent advertising and marketing	Unique; no close substitutes
Pricing Power	None; price taker	Some; firms are price-searchers	Some; price-searcher; game theory approach; closely watches and acts/reacts to competition	Considerable; but many monopolies are regulated and any pricing power is tempered through oversight commission, committee, etc.
Access to information	Full; symmetric information flow	Some with the seller; advertising and marketing	Mostly with the seller; advertising and marketing	Seller; asymmetric information flow
Long-term Profits	No	Short-run, Yes; long-run No	Yes	Yes; monopoly profits
Examples	Agriculture	Retail products	Manufacturing; automobiles, airplanes	Utilities

There are four key market structures: perfect competition, monopolistic competition, oligopoly, and monopoly. Each of the four structures has distinctive features.

Perfect competition and monopoly are the extremes. Most industries with these two market structures are distinct and do not change much. There are exceptions, as when government deregulates a previously regulated monopoly. The middle two structures, monopolistic competition and oligopoly, are more transitory and often industries may slide back and forth over time and conditions between the two.

Perfect competition is the most unique of the four structures. A perfectly competitive market structure has no barriers to entry and there are so many sellers they have no influence over price. Perfect competition sellers are price takers, and as such perfectly competitive firms have a perfectly elastic demand curve. These two characteristics are not common in the other three structures. Agriculture is the classic example of a perfectly competitive market.

At the other end of the market structure spectrum is monopoly. What perfect competition is, monopoly is not. Monopoly, as the prefix *mono* suggests, is when one firm controls the supply of or trade in a particular resource, and the barriers to entry are absolute. Yet, even with a monopoly, the firm does not have the ability to charge any price. The uniqueness of monopolistic firms is that they will always produce less and charge a higher price than the other market structures. Business monopolies are illegal in the United States. Yet industries with high economies of scale can often be most efficient in a monopoly structure. Utilities are a prime example of this type of monopoly. A local governmental unit gives monopoly rights to a company but at the same time maintains regulated authority over the company. Utilities such as home gas and electric companies, some local telephone companies, or cable companies are given exclusive monopoly power, under regulation, within a designated area.

Where perfect competition and monopoly have unique differences, monopolistic competition and oligopoly have some commonalities. Perfectly competitive markets rarely change and become another structure. Unless another firm enters a monopoly market and it is no longer a monopoly, monopoly markets do not change. Markets in these middle two structures, however, can change between the two. Monopolistic competitive markets can become oligopoly markets if the barrier to entry becomes more difficult, the number of sellers is reduced, or the pricing power changes. Oligopoly markets can become monopolistic competitive markets if barriers to entry become easier, pricing power becomes more dependent on advertising, or technology improvements add many more sellers. A general rule is that monopolistic competitive markets are retail markets and oligopoly markets are manufacturers of the goods to be sold retail. Automotive manufacturing firms can be described with the characteristics of an oligopoly. Yet, local Ford, Buick, or Chrysler dealerships follow the characteristics more common to the monopolistically competitive market.

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See also: Asymmetric Information; Costs; Markets; Profit Maximization and Behavioral Economics; Monopolistic Competition; Monopoly; Oligopoly Markets; Perfect Competition

Further Reading

EconomicsOnline. n.d. Market structures. www.economicsonline.co.uk/Business_economics/Competition_and_market_structures.html (accessed February 2, 2016).

Miller, Roger. 2013. *Economics today: The micro view*, 17th ed. Upper Saddle River, NJ: Pearson Education.

Policonomics: Economics Made Simple. n.d. Market structures: Definition. www.policonomics.com/lp-market-structures (accessed February 2, 2016).

MARKETS

Markets are where buyers and sellers meet to voluntarily exchange goods and services for money, other goods and services (barter), labor for wages, land for rent, or capital for profit.

Markets are everywhere. Whether the neighborhood garage sale, the local mom-and-pop corner store, the big box store, or the global production and sale of oil, each of us participates in functioning markets every day.

The term *market* is used in many different ways. There are financial markets, like the stock market, currency markets, and money markets. *Market* is a term used to describe segments of a larger market. The rental market is one market within the larger housing or real estate market. In today's world of the Internet, there are virtual markets where buyers and sellers "meet" and a voluntary exchange takes place online. The virtual market in some ways eclipsed the mail-order market, which exemplifies the notion that markets can change or even disappear over time. For example, there is not much of a market for buggy whips for the general population.

Markets are both microeconomic topics and macroeconomic topics, depending on the market. In the world of microeconomics, the inner workings of markets are viewed through the prisms of supply and demand, prices, or relative value. Institutions and firms are organized and measured to function efficiently and effectively. Markets are measured as to the allocation of resources in an economy. At the macroeconomic level, markets are viewed by how they relate to and are in balance with each other. Broader, more comprehensive markets, such as the product market or the resource market, are the topics of macroeconomists as opposed to singular markets like the market for automobiles or the labor market.

Markets are also defined by the involvement of outside influences. Free markets exist when outside influences are nonexistent. Closed markets are when governments intervene in a market to influence the market forces of a particular market or an entire economy. New markets (micro) or nations attempting to improve their markets (macro) are often called developing markets. On the other side, markets that have a certain level of sophistication (micro) or nations whose economies and markets are fully developed (macro) are developed markets.

When governments intervene in an attempt to influence a market, their actions are called *market distortions* and result in a distorted market. Price ceilings are distortions caused when a government believes the market price is too high. In these situations, governments restrict the price from exceeding the market price. A market shortage is always the result of a price ceiling. If the government believes the market price is too low, it will influence the market with a price floor. A market surplus is always the result of a price floor. Governments may also influence a market using subsidies or tariffs as forms of market protectionism.

Illegal and extralegal markets also exist. If a good or service is illegal to own or purchase, a black market, or illegal market, may arise. During the time of Prohibition, black markets existed for alcohol. Black markets today exist for drugs and other illegal goods and services. If a government restriction on a market is severe, even if the good or service is legal, an underground economy may exist. While underground economies deal with legal goods or services, they often exist to avoid something, such as taxes. An underground economy for tobacco products may develop if taxes rise beyond what tobacco users are willing to pay.

Markets free to function without undue influence or restrictions provide both buyers and sellers valuable information for their market decision-making. The most important information provided by unfettered markets is price information. Market prices provide sellers valuable information in allocating resources to their most optimum use. Efficient and free markets and market prices give buyers the relative information they need to make optimum consumer decisions.

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See also: Black Market Economy; Market Distortions; Market Risk; Market Structures; Underground Economy; *Vol. 1: Foundations of Economics:* Market Capitalism; Prohibition

Further Reading

Bamford, Colin Grahame, and Stephen C. R. Munday. 2002. *Markets.* Oxford, UK: Heinemann Educational Publishers.

Economic Times. n.d. Definition of markets. economictimes.indiatimes.com/definition/markets (accessed February 14, 2016).

Investopedia. n.d. Market. www.investopedia.com/terms/m/market.asp (accessed February 14, 2016).

NetMBA-Business Knowledge Center. n.d. Market definition. www.netmba.com/marketing/market/definition/ (accessed February 14, 2016).

MCI TELECOMMUNICATIONS CORP. V. AMERICAN TELEPHONE AND TELEGRAPH CO.

The case of *MCI Telecommunications Corp. v. American Telephone and Telegraph Co.,* 512 U.S. 218 (1994), showed that regulated monopolies in certain industries can be made obsolete through improved technology. In this case, the industry impacted was the long-distance communications industry and the regulated monopoly power that had been granted to American Telephone and Telegraph (AT&T).

In 1913, AT&T's company structure was that of a conglomerate of multiple Bell Companies. It had made an agreement with Congress, giving it a phone service monopoly. In 1934, Congress passed the Federal Communications Act with the goal of securing an economical and well-functioning system of national and global communications infrastructure. In the almost 80-year history of the act, the progression of technology and business acumen paralleled the growth of government regulation. The Federal Communications Commission (FCC) had extensive oversight in technologies such as wireless, satellite, and microwave communications and employed various techniques to maintain fair trade practices (i.e., competition, reasonable rates, and prevention of price discrimination).

The *MCI Telecommunications Corp. v. American Telephone and Telegraph Co.* case, however, limited the discretionary ability and power of the commission, referring the authority of intent back to Congress. The result of this decision was the Telecommunications Act of 1996, allowing economies of scale to work within the industry and decreasing regulation of the communications industry.

Case Summary

Historically, the communications industry in the United States has faced many legal challenges. After Alexander Graham Bell patented his new telephone device in 1876, the communications industry began a worldwide expansion. Early in the 20th century, the Bell companies evolved through reorganization and acquisition into the American Telephone and Telegraph Company, or AT&T.

In 1913, Congress gave AT&T a phone service monopoly. In 1935, the Federal Communications Act established the FCC. The courts gave the FCC significant leeway to regulate the communications industry. Congress has continually tried to update and amend commission policy and power to keep pace with technological changes and public interest.

In 1967, a fledgling business, Microwave Communications of America, Inc. (MCI), applied to the FCC for appropriate licenses as a common carrier (a company that transports goods for the general public, in this case communications). It was granted a license by the FCC to tap into the private line (a permanent communication channel between two or more places) to advance communications. Microwaves, fiber optics, satellites, and a myriad of other associated innovations culminated in the opening of the long-distance market in the 1990s. At the time of *MCI v. AT&T*, there were 481 nondominant carriers adding to the global communications infrastructure, all in direct competition with AT&T. The commission recognized the benefits of greater competition, and in staying with the intent and goals of the 1934 act, enacted regulations that would enhance competition.

In 1980, the commission studied the market and distinguished between dominant carriers (those with market power) and nondominant carriers, the former being AT&T and the latter being all others. In the original act, Section 203(a) stated that carriers were required to file with the FCC the amount of the tariffs they charged customers and to provide reasonable pricing for the public in a monopolistic market. The prices could not be changed without prior indication. Section 203(b) gave the commission the power to modify any of the requirements of the previous section.

Consequently, after a market review in the 1980s, the commission submitted new rules. Initially, filing tariffs seemed necessary to ensure that all customers had sufficient information about the price of services offered. Filing tariffs set prices at the rates posted. However, as technology allowed more competition to enter the market, this admirable intention did more harm than good. Posting prices facilitated parallel pricing and price stifling, leaning to the advantage of dominant carriers. If rates were not filed, prices could be negotiable, which was more to the advantage of newly emerging nondominant carriers. The FCC viewed "detariffing" (the release of carriers from this filing stipulation) as a significant step in encouraging price competition. Therefore, the FCC changed the rules, requiring only dominant carriers to file tariffs whereas it was optional for nondominant carriers. Later, the commission made nonfiling tariffs or "detariffing" mandatory for all nondominant carriers. Hence, only AT&T had to file its tariffs. In 1985, MCI transitioned into a greater share of the communications market and challenged this new interpretation of Section 203 in the United States Court of Appeals for the District of Columbia. The D.C. court struck down this new rule, disagreeing with the commission's interpretation of Section 203 of the Communications Act.

The commission considered the court's interpretation and reissued the policy, convinced they were right. MCI did not file tariffs and AT&T sued. The appeals court ruled that the FCC had violated Sections 203(a) and (b) of the Communications Act. MCI and the federal government, together with the FCC, petitioned for certiorari (a writ to the lower court to send the case to the Supreme Court for review). The Supreme Court granted their petitions and heard the case in March 1994. The question before the court was whether the FCC had overstepped the authority Congress had granted to it by eliminating rate-filing requirements for nondominant carriers of long-distance services.

The petitioners claimed that since 1980, the commission had held that it had authority to lift the rate-filing requirement. Furthermore, it stated that Section 203(a) and (b) had given the FCC the authority over formalities of rate filing, such as information regarding rate filing, printing, and posting place for public inspection, all of which were to be determined by regulations required by the commission. Hence, the modification to reduce the requirement to file rates by nondominant carriers of long-distance services was a formality legitimately within the authority of the commission. In addition, the rate filing had not been lifted for international calls or for a number of the local exchange carriers that did most of the interstate access services. Rather, it only eliminated the mandatory requirement for 40 percent of the long-distance market not served by AT&T. It was clear to the commission that Congress's intent was to enable it to change the rules when the circumstances required, in effect allowing the government regulation to adapt to a rapidly changing technological and economic marketplace. The plaintiff cited the fact that AT&T no longer held a monopoly over long-distance services as evidence of this special situation. This discretionary power is owed through substantial deference.

The respondent disagreed. AT&T claimed that the FCC had overstepped the authority granted by Congress in the Communications Act. In the respondent's view, Congress had intended rate filing as a means to secure equal rates for customers of like situations. This would eliminate price differences because all carriers' rates would be public so customers would know what they were and could request that rate. AT&T claimed that MCI and other nondominant carriers were charging lower rates than those set forth in the tariff and negotiating discounts of 5 and 10 percent below their valid rates. Thus, it argued that the FCC had the authority to modify but not obliterate that rule. The fact that there is competition in the long-distance market is significant but does not eliminate the need for the rate-filing requirements because price differences occur even in competitive markets. Furthermore, it cited the *Maislin Industries, U.S., Inc. v. Primary Steel, Inc.,* 497 U.S., 1990, case, which established that filing rates prevent price discrimination and that unequal rates were the opposite of what the Communications Act was designed to prohibit. The Rehnquist Court concurred. Justice Scalia penned the majority opinion and in summary said that rate filings were essential to the rate regulation of the communications industry as expressed in the Communications Act. It was not the intent of Congress to leave this core characteristic to the discretion of the commission. The term *modify* did not mean "to do away with." If the rate filings were to be eliminated, it must be by an act of Congress to change the authority of the commission to have that discretionary power. Justice Stevens, joined by Justice Blackmun and Justice Souter, dissented. They argued that the commission's authority was expansive for the specific job of dealing with special circumstances that would legitimately call for different regulatory treatment. Justice Stevens stated rather than guess what Congress meant when it attempted to regulate an almost completely monopolized industry, the court should acquiesce to the very solid, experience-tested, and well-explained judgment of the FCC. On June 17, 1994, the majority opinion of the court affirmed the decision of the federal appeals court.

Kathleen C. Simmons

See also: Clayton Antitrust Act of 1914; Market Distortions; Monopoly; Sherman Antitrust Act of 1890; Technological Innovation; *Primary Documents:* Clayton Antitrust Act of 1914; Sherman Antitrust Act of 1890

Further Reading

Cornell University Law School, Legal Information Institute. n.d. *MCI Telecommunications Corporation, Petitioner, v. American Telephone and Telegraph Company; United States, et al., Petitioners v. American Telephone and Telegraph et al*. http://www.law.cornell.edu/supremecourt/text/512/218 (accessed September 30, 2016).

Cornell University Law School, Legal Information Institute. n.d. Supreme Court of the United States, Syllabus, *MCI Telecommunications Corp. v. American Telephone & Telegraph Co.* http://www.law.cornell.edu/supct/html/93-356.ZS.html (accessed September 30, 2016).

OYEZ, U.S. Supreme Court Media, ITT Chicago, Kent College of Law. n.d. *MCI Telecommunications Corp. v. American Telephone & Telegraph Co.* http://www.oyez.org/cases/1990-1999/1993/1993_93_356 (accessed September 30, 2016).

Wagner, Frank D., Reporter of Decisions. 1998. *United States Reports, Volume 512*: *Cases Adjudged in the Supreme Court at October Term, 1993*. June 13–September 30, 1994. Washington, DC: Government Printing Office. http://www.supremecourt.gov/opinions/boundvolumes/512bv.pdf (accessed September 30, 2016).

MERGERS AND ACQUISITIONS

Mergers and acquisitions refer to the consolidation of companies. A merger is the joining of two companies to form one company. An acquisition is when one company purchases another company. Sometimes the two companies become the buying company and other acquisitions become a new company. Mergers can happen in two ways, and they often come in waves. When both companies pursue an acquisition it is known as a friendly acquisition. The other form of acquisition is when the company being bought did not want to be part of the acquisition. These are known as hostile takeovers.

There are two sorts of mergers between companies: horizontal integration and vertical integration. Horizontal integration involves acquisitions of companies to become larger, enter new markets, or increase product offerings. Horizontal integration often leads to industry consolidation, oligopoly, or even a monopoly. An example of a horizontal integration is when AT&T acquired T-Mobile. In vertical integrations, firms usually expand into another production stage. For example, in a vertical integration a company would expand from research and development to marketing, whereas a horizontal integration would mean buying other firms in the research and development industry. Vertical integration often increases the firm's control in the value chain, giving it more power in the marketplace.

Mergers are often cyclical in nature. There have been five major merger periods. The first era followed the 1883 recession. During the first wave of mergers there were mainly horizontal mergers, which formed a lot of monopolies. The second era of mergers occurred during World War I, continuing until the 1929 stock market crash. This era of mergers included more horizontal mergers versus vertical mergers. This was a period of increased government inspection. This created oligopolies instead of monopolies. The third merger era occurred between 1965 and 1969 because of a period of economic prosperity in the United States, making firms more able to acquire other companies. During this time, the government saw many mergers as highly suspect. Antitrust enforcement in these mergers was very keen. The fourth merger era occurred during Ronald Reagan's presidency (1981–1989). Mergers during this wave were larger and more hostile than before, and debt was more widely used to finance mergers. The fifth major era followed the economic recession of the late 1980s during Bill Clinton's presidency (1993–2001). During the fifth wave hostile takeovers diminished, debt-financed mergers were less common, and mergers of this period emphasized longer-term business strategies.

Acquisitions are slightly different from mergers. Acquisitions are when one company buys another company; mergers are when two companies come together to form another. Acquisitions are often a deliberate strategic move on the part of the acquiring business. An acquisition is often more efficient than the firm expanding on its own. Similar to mergers, acquisitions can be either friendly, with both participating companies cooperating, or hostile.

Amanda Brauer
David A. Dieterle

See also: Market Structures; Monopoly; Oligopoly Markets; Sherman Antitrust Act of 1890; *Vol. 2: Macroeconomics:* Business Cycle; Business Structures; *Primary Document:* Sherman Antitrust Act of 1890

Further Reading

Jowens. 2003. Mergers and acquisitions, the five waves. www.wtamu.edu/~jowens/FIN6320/MERGER%20WAVES.htm (accessed February 6, 2015).

Jurevicius, Ovidijus. 2013. Horizontal integration. www.strategicmanagementinsight.com/topics/horizontal-integration.html (accessed February 6, 2015).

Laux, Judy. 2012. Topics in finance part VIII—Mergers and acquisitions. files.eric.ed.gov/fulltext/EJ1056222.pdf (accessed February 6, 2015).

MERTON, ROBERT

Born: July 31, 1944, in New York City; Nationality: American; Professional Interests: finance economics, quantitative economics, Nobel Prize (1997); Major Works:

"The Pricing of Options and Corporate Liabilities" (with Myron Scholes, 1970), "The Theory of Rational Option Pricing" (1973), *Robert K. Merton: Sociology of Science and Sociology as Science* (2013).

Robert Merton is best known for his work in finance. After receiving his PhD in economics from the Massachusetts Institute of Technology (MIT) in 1970, his collaboration with Fischer Black and Myron Scholes produced the now-famous Black-Scholes option-pricing model. Myron Scholes and Robert Merton share the 1997 Nobel Prize in Economics for creating new methods in quantitative economics and their innovative work to determine the value of derivatives.

Robert C. Merton was born on July 31, 1944, in New York City. He began his studies in engineering at Columbia College, where he received a BS in 1966. He started a PhD in applied mathematics at the California Institute of Technology. His interests, however, had turned to economics. He left the California Institute of Technology with an MS in applied mathematics in 1967. He began additional graduate work at MIT in 1967 in economics, receiving his PhD in 1970.

During his first year at MIT, at his adviser's (Harold Freeman) suggestion, Merton took Paul Samuelson's mathematical economics course. Merton became Samuelson's research assistant for the next two and a half years. Merton also was greatly influenced by Franco Modigliani, who was part of MIT's Sloan School of Management faculty. When Merton completed his PhD, Modigliani helped him receive his first academic position, teaching finance at MIT. Merton taught at MIT from 1970 to 1988.

Moving to Harvard University in 1988, Merton was the George Fisher Baker Professor of Business Administration from 1988 to 1998. From 1998 through his retirement in 2010, Merton was the John and Natty McArthur University Professor at Harvard University. He is professor emeritus at Harvard Business School.

Merton's primary research interests are in financial engineering, financial innovation, and risk management. He is also interested in the following industries: banking, brokerage, financial services, insurance, investment banking, and retail financial services.

In the mid-1990s, Merton joined a hedge fund founded by John Meriwether, formerly of Salomon Brothers. As a board member of Long-Term Capital Management (LTCM), Merton (and Myron Scholes) worked with Meriwether. Their goal was to use academic quantitative models and traders' knowledge and expertise to secure extraordinary returns for investors. LTCM went active in February 1994, raising over $1 billion from investors. In 1998, substantial losses to the fund led the Federal Reserve Bank of New York to organize a bailout of $3.625 billion by commercial and investment banks. LTCM was liquidated and closed in 2000.

Merton has received numerous honorary degrees. These include an MA from Harvard University in 1989 and a doctor of laws degree from the University of Chicago in 1991. He is a past president of the American Finance Association, a member of the National Academy of Science, and a fellow of the American Academy of Art and Science. He currently holds positions in many businesses and other organizations, including Daedalus Software (chairman of the board); resident scientist at Dimensional Fund Advisors and Dimensional SmartNest LLC; member of the Quantitative Finance Advisory Board, Department of Applied Mathematics and Statistics, Stony Brook University; and member of the Board of Advisors, Santa Clara University Center for Innovation in Finance and Investment.

Awards received by Robert Merton in addition to the Nobel Prize include the Distinguished Finance Educator Award (2008) from the Financial Education Association; the First Annual Award for Foundational Contributions to Finance (2008) from the Owen School of Management at Vanderbilt University; the 2009 Robert A. Muh Award in the Humanities, Arts, and Social Sciences from MIT; the Tjalling C. Koopmans Asset Award from Tilburg University; the Award of Excellence for the Hall of Excellence from Hastings-on-Hudson High School; the Sigma Xi, Scientific Research Society, Life Member Award from Sigma Xi; the LECG Award for Outstanding Contributions to Financial Economics; and the 2010 Kolmogorov Medal from the University of London.

Robert Merton is the distinguished professor of finance in MIT's Sloan School of Management and is also a professor emeritus at Harvard Business School.

Martha R. Rowland

See also: Scholes, Myron; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics; *Vol. 2: Macroeconomics:* Samuelson, Paul

Further Reading

Allen, Steve L. 2003. *Financial risk management: A practitioner's guide to managing market and credit risk.* Hoboken, NJ: Wiley.

Black, Fischer, and Myron Sholes. 1970. The pricing of options and corporate liabilities. *Journal of Political Economy* 81 (3): 637–54.

Calhoun, Craig J. 2013. *Robert K. Merton: Sociology of science and sociology as science*. New York: Columbia Univ. Press.

Dunbar, Nicholas. 1999. *Inventing money: The story of long-term capital management and the legends behind it.* New York: Wiley.

Merton, Robert C. Autobiography. NobelPrize.org. http://nobelprize.org/nobel_prizes/economics/laureates/1997/merton.html (accessed July 15, 2011).

Merton, Robert C. 1973. The theory of rational option pricing. *The Bell Journal of Economics and Management* 4 (1): 141–83.

Robert C. Merton. n.d. Harvard Business School—Faculty and Research. http://drfd.hbs.edu/fit/public/facultyInfo.do?facInfo=pub&facId=6511 (accessed July 15, 2011).

MICROECONOMICS

Microeconomics is the branch of economics that analyzes the interactions of individuals as consumers and their market interactions with businesses and producers. Microeconomics is also the study of how consumer behavior influences how producers use the factors of production (land, labor, capital). The market interactions of buyers and sellers influence the choices available to consumers. Microeconomics focuses on patterns of supply and demand and the determination of market prices and outputs in individual markets.

From Adam Smith and the *Wealth of Nations* in 1776 to John Maynard Keynes and his *General Theory of Employment, Interest, Money* in the late 1930s, the two main components of economic thought were monetary theory and price theory. After Keynes and his introduction of macroeconomic theory through the *General Theory*, the key divisions of economics became macroeconomics and microeconomics. Macroeconomics studies the economy as a whole entity. It provides basic knowledge of how economic factors work together in a dynamic economic world. Microeconomic studies focus on the dynamics of specific market interactions. As the *micro* prefix implies, microeconomics focuses on the smaller picture, including basic economic theories of supply and demand, price theory, price elasticity of demand and supply, externalities, producer and consumer surplus, and producer efficiency and the way they interact in various economics. Thus, for an overall perspective of how the economy works, an understanding of the economy at both the macro and micro levels is necessary.

Two of arguably the most popular economic laws intrinsically related to microeconomics are the law of supply and the law of demand. The law of demand focuses on consumer behavior and reveals the quantity desired of a given product or service at a given price. The law of demand states there is an inverse relationship between price and quantity demanded. As the price of a good goes in one direction, the quantity demanded goes in the opposite direction. If the price of a good or service goes down, the quantity demanded will increase, and vice versa.

A corollary to the law of demand for the resource market is derived demand. Derived demand states the producers' demand for land, labor, and capital is a function of the demand for the good or service the resources are being used to produce. If a product's demand reduces, the demand for the resources is also reduced, and vice versa. The resources demand is derived.

The law of supply concerns itself with the behavior of businesses and entrepreneurs, the producers of goods and services. It states that the quantity supplied of a good or service product is a direct function of price. All things being equal, producers will supply more of a good or service the higher the price. As the price of a good or service moves in one direction, the quantity supplied will move in the same direction.

When the actions of consumers are combined with the actions of the producer, a market is created. Microeconomics is the study of how consumers and producers interact within each market. Through the world of microeconomics, components of consumer and producer behavior are explored to better understand our economic world.

Lauren A. Drum
David A. Dieterle

See also: Demand; Derived Demand; Elasticity; Market Distortions; Markets; Supply; *Vol. 1: Foundations of Economics:* Resources; *Vol. 2: Macroeconomics:* Macroeconomics

Further Reading

Harberger, Arnold C. n.d. Microeconomics. *The concise encyclopedia of economics*. www.econlib.org/library/Enc/Microeconomics.html (accessed March 15, 2016).

Investopedia. 2003. Microeconomics definition. www.investopedia.com/terms/m/microeconomics.asp (accessed March 15, 2016).
Miller, Roger LeRoy. 2016. *Economics today*, 17th ed. New York: Pearson.

MODIGLIANI, FRANCO

Born: June 18, 1918, in Rome, Italy; Died: September 25, 2003, in Cambridge, Massachusetts; Nationality: Italian; Professional Interests: financial markets, Nobel Prize (1985); Major Work: *The Collected Papers of Franco Modigliani*, Volume 6 (2005).

Franco Modigliani is recognized as the most famous economist of Italian heritage. The son of a Jewish physician, his family fled fascist Italy in 1939. He became a naturalized American citizen in 1946. A professor at the Massachusetts Institute of Technology (MIT) at the time of his Nobel Prize in 1985, Modigliani was honored for his pioneering work on savings and financial markets. He developed several theories that have withstood the test of time, including the Duesenberry-Modigliani hypothesis, the life cycle hypothesis, and the Modigliani-Miller theorem. Modigliani died in 2003.

Franco Modigliani was born in Rome, Italy, on June 18, 1918. In 1932, his father unexpectedly died, altering young Modigliani's life. As the son of a physician (pediatrician), Modigliani was expected to follow his father's path into medicine. Young Modigliani had other ideas, instead enrolling in the University of Rome at the age of 17 to pursue a career in law. However, during his law studies, he also developed an interest in economics. Modigliani's interest in economics was firmly established when he won first prize in a national competition in economics. The fascist political environment in Italy at the time necessitated that Modigliani leave Rome. Following a stay in Paris to complete his studies at the University of Rome, he immigrated to the United States in 1939.

In the United States, he continued his studies in economics at the New School for Social Research in New York. At the New School, Modigliani developed his solid foundations in mathematics and econometrics as well as economics. Modigliani credited much of his success to his early days at the New School learning empirical analysis and theory from Jacob Marschak. He received his doctorate from the New School in 1944.

In 1944, Modigliani published his first article in English, "Liquidity Preference and the Theory of Interest and Money" (*Econometrica* 12, no. 1). Following two years at Columbia University, Modigliani returned to the New School to lecture and research at the Institute of World Affairs. It was here that he made his first contribution to the study of savings. This research spawned the Duesenberry-Modigliani hypothesis.

In 1948, Modigliani moved to Chicago when he was awarded the political economy fellowship at the University of Chicago, including the opportunity to join the Cowles Commission for Research in Economics as a research consultant. He then joined the University of Illinois to lead a research endeavor on expectations and business fluctuations. He remained on the University of Illinois faculty until 1952.

While his time at the University of Illinois was relatively brief, it was during this time in his career that he developed many of his economic theories. Modigliani and graduate student Richard Brumberg collaborated on two papers that were the early versions of what was to evolve into the life cycle hypothesis of saving. The life cycle hypothesis attempts to explain personal saving levels in an economy. The hypothesis explains that consumers' aim is to achieve a constant level of income during their lifetime. The life cycle can be briefly defined as describing one's saving behavior throughout life. People save during their working years so they can spend during their retirement years. While this notion by itself was not new, Modigliani created the quantitative model for use in economic research and ultimately as an economic theory.

This life cycle hypothesis has been the theoretical foundation for many economic empirical studies since its development, including many by Modigliani himself. He expanded its implications beyond the explanation of individual saving behavior to the savings behavior of an entire economy. Of major significance was his contribution that an economy's growth rate is a key variable in its total level of savings. An economy that is growing will have more savings, and vice versa. Modigliani also used the life cycle hypothesis studies to suggest that savings was also determined by the age distribution of a population and life expectancy, where higher rates of economic growth favored younger ages. Modigliani's model led to new studies in both savings and consumption, including studying the effect of pension systems on private savings.

In 1952, Modigliani joined the faculty at the Carnegie Institute of Technology (later named Carnegie-Mellon University). At Carnegie, Modigliani teamed with Merton Miller and they formulated the Modigliani-Miller theorem. The Modigliani-Miller theorem focused on determining the value of a firm. The core of the Modigliani-Miller theorem was that in determining the value of a firm, the type of financing to be instituted was not a significant factor. When certain conditions were met, whether the financing was with equity by buying shares or debt through borrowing, the type of financing was inconsequential in determining the final value. Later, Modigliani and Miller added a second theorem, asserting that a firm's dividend policy does not impact the value of the firm.

After a two-year stop at Northwestern University beginning in 1960, in 1962 Modigliani returned to MIT and the MIT Sloan School of Management and Department of Economics. Returning as a visiting professor, he later became an institute professor and received the James R. Killian Faculty Award in 1985. He was bestowed professor emeritus honors in 1988.

In 1985, Franco Modigliani was the recipient of the Nobel Prize in Economics, the only winner of Italian descent since 1969. He was honored for his life's work regarding savings and later financial markets.

Franco Modigliani died on September 25, 2003, in Cambridge, Massachusetts.

David A. Dieterle

See also: *Vol. 1: Foundations of Economics:* Nobel Prize in Economics

Further Reading

Abel, Andrew, and Simon Johnson, eds. 1989. *The collected papers of Franco Modigliani. Vol. 4. Monetary Theory and Stabilization Policies.* Cambridge, MA: MIT Press.

Friedman, Milton, and Franco Modigliani. 1979. The monetarist controversy: Discussion. Monograph, Federal Reserve Bank of New York.

Miller, Merton H., and Franco Modigliani. 1958. The cost of capital, corporation finance, and the theory of investment. *American Economic Review* 48 (June): 261–97.

Miller, Merton H., and Franco Modigliani. 1963. Corporate income taxes and the cost of capital. *American Economic Review* 53 (June): 433–43.

Modigliani, Franco. 1977. The monetarist controversy: A presentation. *Economic Review Suppl.* (Spring): 5–11.

Modigliani, Franco. 1992. Franco Modigliani. In *Nobel Lectures, Economics 1981–90*, ed. Karl-Goran Mailer. Singapore: World Scientific.

Modigliani, Franco. 2001. *Adventures of an economist.* Stamford, CT: Cengage Learning.

Modigliani, Franco. 2005. *The collected papers of Franco Modigliani.* Vol. 6. Cambridge, MA: MIT Press.

Modigliani, Franco. n.d. Autobiography. Nobelprize.org. http://nobelprize.org/nobel_prizes/economics/laureates/1985/modigliani-autobio.html (accessed March 16, 2011).

Modigliani, Franco, and Arun Muralidhar. 2003. Rethinking pension reform. *Journal of Financial Transformation* 8: 8–9.

Modigliani, Franco, and Arun Muralidhar. 2004. *Rethinking pension reform.* Cambridge, UK: Cambridge Univ. Press.

MOMENTUM INVESTING

Momentum is an investing strategy consisting of buying assets with rising prices and selling those with falling prices. It is based on an empirically proven tendency for rising asset prices to continue to rise and for falling prices to continue to fall. The profitability of the momentum strategy is proven for a holding period of 3 to 12 months based on the past 3 to 12 months' observation (Jegadeesh and Titman 1993; 2001).

Opposite to momentum is contrarian strategy. It consists of buying assets with falling prices and selling those with rising prices. It is based on an empirically proven tendency for rising asset prices to fall and for falling prices to rise. A proven profitability of the contrarian strategy is for a holding period of 3 to 5 years based on the past 3 to 5 years' observation (De Bondt and Thaler 1985; Lakonishok at al. 1994). The length of holding periods and periods of past observations play an important role in the performance of momentum and contrarian strategy. This way, neither momentum nor contrarian investors treat the market as a random walk. They make predictions. Momentum investors interpret price increases as signals to buy and price declines as signals to sell. Contrarians behave in the opposite way.

It is not clear what makes investors momentum or contrarian traders. De Bondt (1993) found that individual investors tend to predict trend continuation, whereas professional analysts are inclined to predict trend reversal. Thus, compared to contrarian investors, momentum investors seem to be less experienced.

Perhaps momentum investors follow an intuitive cognitive system, while contrarian ones use an analytical rather than intuitive approach. This speculation is in line with a finding by Morrin et al. (2002) that momentum investors spend much less time on decision-making regarding possible transactions than contrarian investors do.

Analogically to momentum and contrarian strategy, financial market psychologists list two kinds of basic tendencies in forecasting: positive and negative recency effects. The positive recency effect (momentum) is a belief that the event that occurred most recently is more likely to occur again, whereas the negative recency effect (contrarian) is a belief that an event that occurred most recently is less likely to occur again. For example, the positive recency effect (sometimes called hot hand) would predict that a basketball player will score yet again after a series of consecutive baskets. The negative recency effect (sometimes called the gambler's fallacy) would predict in roulette that the ball will stop on red after a series of consecutive stops on black.

Psychological research shows that people tend to believe that they can detect streaks in random sequences (Gilovich et al. 1985). There seem to be two sources for this tendency: (1) an innate neurophysiological inclination to look for patterns, and (2) misperception of randomness. Indeed, Huettel et al. (2002) presented a random sequence of binary events to a group of individuals using fMRI to visualize their brains' activity. They found totally different brain activity in the case of observing a streak and when the streak was broken. In turn, Bar-Hillel and Wagenaar (1991) show that people's notion of randomness is biased. In particular, individuals expect more alternations and fewer streaks than there are in actual random series. In line with this, further research examined when people tend to follow positive or negative recency effects (use momentum or contrarian strategy). A 2004 study showed that a crucial factor influencing forecasting strategy is the perceived nature of events: human skilled performance versus inanimate chance mechanisms. On the other hand, Burns and Corpus (2004) and Tyszka et al. (2008) claim that the perceived randomness of the sequence is crucial. When an individual perceives a sequence as random, the negative recency effect is expected; on the other hand, when an individual perceives a sequence as nonrandom, a positive recency effect is expected.

Tadeusz Tyszka
Piotr Zielonka

See also: Markets; Priming and Financial Decisions; Profit Maximization and Behavioral Economics; Random Walk; *Vol. 1: Foundations of Economics:* Behavioral Finance

Further Reading

Bar-Hillel, Maya, and Willem A. Wagenaar. 1991. Perception of randomness. *Advances in Applied Mathematics* 12: 428–54.

Burns, Bruce D., and Bryan Corpus. 2004. Randomness and inductions from streaks: Gambler's fallacy versus hot hand. *Psychonomic Bulletin & Review* 11: 179–84.

De Bondt, Werner F. M., and Richard H. Thaler. 1985. Does the stock market overreact? *Journal of Finance* 40: 793–805.

De Bondt, Werner F. M. 1993. Betting on trends: Intuitive forecasts of financial risk and return. *International Journal of Forecasting* 9: 355–71.

Gilovich, Thomas, Robert Vallone, and Amos Tversky. 1985. The hot hand in basketball: On the misperception of random sequences. *Cognitive Psychology* 17: 295–314.

Huettel, Scott, Peter Mack, and Gregory McCarthy. 2002. Perceiving patterns in random series: Dynamic processing of sequence in prefrontal cortex. *Nature Neuroscience* 5: 485–90.

Jegadeesh, Narasimhan, and Sheridan Titman. 1993. Returns to buying winners and selling losers: Implications for stock market efficiency. *Journal of Finance* 48: 65–91.

Jegadeesh, Narasimhan, and Sheridan Titman. 2001. Profitability of momentum strategies: An evaluation of alternative explanations. *Journal of Finance* 56: 699–720.

Lakonishok, Josef, Andrei Shleifer, and Robert R. Vishny. 1994. Contrarian investment, extrapolation and risk. *Journal of Finance* 49: 1541–78.

Morrin, Maureen, Jacob Jacoby, Gita Venkataramani Johar, Xin He, Alfred Kuss, and David Mazursky. 2002. Taking stock of stockbrokers: Exploring momentum versus contrarian investor strategies and profiles. *Journal of Consumer Research* 29: 188–98.

Tyszka, Tadeusz, Piotr Zielonka, Raymond Dacey, and Przemysław Sawicki. 2008. Perception of randomness and predicting uncertain events. *Thinking & Reasoning* 14: 83–110.

MONEY LAUNDERING

Money laundering refers to the process of “cleaning” money obtained through illegal activities by routing it through the financial system so it appears legal. Criminals, including terrorist organizations, attempt to disguise their proceeds, sources, and the nature of their illicit activities in this way.

Money laundering first became popular with organized crime as a way to legitimize the funds obtained through illegal activities. Today, illegal activities such as arms sales, smuggling, trafficking, embezzlement, insider trading, bribery, gambling, and computer fraud contribute to money laundering. These activities can generate substantial profits, but in order for the funds to be useful they need to be introduced to the financial system. While there is no concrete data on the true amounts of money laundered, it is estimated the funds generated from illegal activities and moved into the financial system account for billions, if not trillions, of dollars. This means the criminals working to launder money need to be sophisticated in order to avoid getting caught at various points in the financial system. They use a variety of highly sophisticated techniques to hide the true nature of these funds.

Money laundering involves three types of activity: placement, layering, and integration. Placement involves physically placing money that is illegally obtained into the financial system or the retail economy. This is usually done relatively close to where the illegal activity is taking place. Since this involves physically placing money into the system, it is easiest to detect money laundering at this phase. Criminals will try to avoid reporting and record-keeping requirements by structuring transactions to fall below particular thresholds, coercing or bribing employees not to file the proper paperwork, or by establishing businesses that appear to be legitimate to create preferred customer relationships. In placement, criminals make small deposits to avoid bank regulations and may purchase money orders, cashier's checks, traveler's checks, or other money instruments. Criminals will make small transactions under $2,000 to avoid the funds being reported on a suspicious activity report (SAR).

Layering is the process of creating a series of transactions to confuse the audit trail, creating distance from the illegal proceeds. Criminals use the complications involved in the banking system to their advantage. During layering, criminals wire transfer funds to multiple locations as a way to make the funds more difficult to track. Usually these wires end up in locations with lax record-keeping and reporting requirements or in "bank secrecy havens" that have little to no taxes and fewer reporting requirements. Criminals usually target countries that are highly secretive. They know that the countries' financial systems will protect their privacy by default and make it more difficult for authorities to trace the funds. The other method that criminals use in layering is to purchase funds in the form of money orders and traveler's checks for amounts under $3,000 in order to avoid reporting requirements. These are preferable to criminals because they are highly liquid and can easily be used in multiple locations.

Integration is the final stage of the money-laundering process. It involves the unnoticed addition of successfully laundered funds back into an economy. This is typically done using multiple transactions that appear to be legitimate. Typically, these transactions occur in wealthy economies with sophisticated financial systems. The criminals use the wealthier countries since that is where the majority of their customers are located. During this stage, many criminals will purchase luxury assets or real estate or invest in other business ventures. If criminals are allowed to purchase these assets unchecked, it can create an economy that thrives on illegal enterprises. Some criminals will even choose to invest funds in developing countries as a way to further their enterprise. Money laundering threatens the integrity of the financial system.

Kimberly Cousino

See also: *Vol. 1: Foundations of Economics:* Banking; *Vol. 2: Macroeconomics:* Money

Further Reading

Financial Action Task Force (FATF). n.d. What is money laundering? http://www.fatf-gafi.org/faq/moneylaundering/#d.en.11223 (accessed September 30, 2016).

Financial Crimes Enforcement Network. n.d. Money laundering prevention. http://www.fincen.gov/statutes_regs/guidance/pdf/msb_prevention_guide.pdf (accessed September 30, 2016).

International Federation of Accountants. 2004. Anti-money laundering, 2nd ed. (March). http://www.ifac.org/sites/default/files/publications/files/anti-money-laundering-2n.pdf (accessed September 30, 2016).

U.S. Department of the Treasury. n.d. Money laundering. http://www.treasury.gov/resource-center/terrorist-illicit-finance/Pages/Money-Laundering.aspx (accessed September 30, 2016)

MONEY MARKET ACCOUNT

A money market account is a type of savings account that promises higher interest payments in exchange for a larger deposit. A bank money market account is also known as a money market demand or deposit account (MMDA). This type of bank account, in addition to requiring a larger minimum deposit base than a traditional savings account, may have additional restrictions, such as a limited number of monthly transactions. Banks vary in the amount of required minimum deposits from $500 on up. The interest rate usually increases for larger deposits.

In 2013, a time of historically low interest rates, the higher rates offered by money market accounts didn't seem too enticing. Today, an online bank money market account might pay 0.85 percent interest. During the past several decades, when market interest rates were higher, money market accounts paid rates from 5 to 10 percent.

As with all bank accounts, bank money market accounts are insured by the Federal Deposit Insurance Corporation (FDIC) up to the legal limit. In 2013, the FDIC insurance amount was $250,000 per depositor, per insured bank, for each account. In other words, as long as the consumer doesn't have more than $250,000 in the bank account, he or she is fully insured. For credit union members, the National Credit Union Association (NCUA) also insures money market accounts up to $250,000.

Money Market Extra-MMAX

Money market extra-MMAX accounts insure accounts with assets above $250,000. These accounts are usually created for corporations and commercial enterprises. The commercial customer deposits the large amount, such as $500,000 with the bank. The money is then divided into two $250,000 accounts and placed in distinct banks within the Institutional Deposit Corporation (IDC) network. Consequently, the $500,000 is eligible for FDIC insurance. There are other restrictions on this type of account, including a limited number of withdrawals.

Money Market Mutual Funds

Frequently confused with money market bank accounts, money market mutual funds are another type of higher-yielding cash investment. Money market mutual funds are not the same as bank money market accounts.

A mutual fund is an investment that combines money from multiple investors and places these funds in securities as determined by the fund charter. Quite simply, the money market mutual fund invests in money market instruments. Money market instruments are generally very short-term commercial paper or debt instruments of corporations and governments. Money market mutual funds are the safest of all debt securities (possibly with the exception of treasury bills). These short-term loans pay higher interest rates than a bank due to slightly higher additional risk.

Although not insured by the FDIC like money market bank accounts, money market mutual funds are very safe. They are regulated by the Securities and Exchange Commission (SEC) and normally invest in only very secure and short-term (maturities of less than 120 days) debt securities.

Historically, money market mutual funds' value remains consistent at one dollar per share. Due to the nature of the underlying commercial paper, the true value of each share occasionally drifts below or above one dollar. Most investment companies have agreed to keep the value at one dollar per share in spite of minor underlying deviations in value.

Advantages and Disadvantages of Money Market Bank and Mutual Funds

Both of these types of accounts offer higher returns than traditional savings accounts. They are quite liquid, and the money can be accessed quickly. These are great investments for the cash portion of an investor's portfolio. Many people use these types of accounts instead of a savings or even checking account.

Minimum account balance requirements may be a deterrent for some. The limited number of allowed transactions can hinder those with a need for extensive check writing and monthly transactions. Fees accrue if the minimum balance is not met or if the maximum number of transactions is surpassed.

Interest rates on these accounts are influenced by current market interest rates. In times when market interest rates are low, so are the rates on both types of money market accounts. Fortunately for savers, when market interest rates increase, so will the returns on money market accounts and funds.

Money market accounts are a viable option for savers looking to best interest rate returns from traditional bank savings accounts.

Historical Money Market Interest Rates—The Highs and Lows

Money market interest rates fluctuate along with market interest rates. For a bit of historical perspective, the following chart illustrates the returns of taxable money market funds in five-year intervals starting in 1975.

Notice how money market account rates peaked in 1980 at 12.68 percent and fell to less than 1 percent in 2010.

It's important to note that those returns are not inflation adjusted. That means the real return, or the return after inflation is subtracted, will be much lower than the nominal return (without an inflation adjustment) listed in the chart above.

For example, in 1975 inflation was 9.20 percent, in comparison with the inflation rate of 3.38 percent in 2000. One of the lowest inflation rates during the entire period was the 1.64 percent inflation rate recorded in 2010.

Table 1. Returns of Taxable Money Market Funds

1975	1980	1985	1990	1995	2000	2005	2010	2014
6.36%	12.68%	7.71%	7.82%	5.48%	5.89%	2.66%	0.04%	0.70%

In sum, interest rates bounce around quite a bit, and in order to understand the real purchasing power of the interest rate returns, they need to be considered in light of the inflation rate.

Barbara A. Friedberg

See also: Bonds; Credit Union; Interest Rates; Liquidity; Mutual Funds and Exchange Trade Funds; *Vol. 1: Foundations of Economics:* Asset Allocation; Banking; *Vol. 2: Macroeconomics:* Federal Deposit Insurance Corporation

Further Reading

Federal Deposit Insurance Corporation. n.d. FDIC insurance coverage basics. http://www.fdic.gov/deposit/deposits/insured/basics.html (accessed November 15, 2013).

McMahon, Tim. 2014. Historical inflation rate. http://inflationdata.com/Inflation/Inflation_Rate/HistoricalInflation.aspx (accessed March 4, 2014).

National Credit Union Association. n.d. NCUA share insurance, fund information, and reports. http://www.ncua.gov/DataApps/Pages/SI-NCUA.aspx (accessed November 15, 2013).

United States Census Bureau. n.d. Money market interest rates and mortgage rates. http://www.census.gov/compendia/statab/2012/tables/12s1197.xls (accessed on March 4, 2014).

MONOPOLISTIC COMPETITION

One of the most common types of market structures is monopolistic competition. Much like the perfectly competitive market, there are many firms competing in the monopolistic competition marketplace. Because start-up costs are fairly low, new firms can join in the competition with relative ease. The barriers to entry in this type of structure are very low, and existing firms cannot work together to keep out new competitors.

Similar to monopolies, firms in the monopolistic competition market have some control over their prices because each firm produces slightly different products from its competitors and some people are willing to pay the extra price for the unique product. Yet unlike a monopoly with total price control, this type of market structure has only limited control over price. Customers are able to substitute the good for a similar good, so if a firm raises its price too high customers will choose a competitor's good.

Firms in this market do have some control over price because they focus on the differentiation of their good. Customers are willing to pay for the unique product, up to a certain price point. The main difference between perfect competition and monopolistic competition is that product differentiation enables the monopolistically competitive seller to profit from the differences between its product and the competition's.

Sellers use physical characteristics to distinguish their product, such as color, shape, taste, or texture. Location is another feature used in this type of market structure. Some sellers strategically place their store in the most convenient location or have the only location selling a particular product. Monopolistically competitive firms also use customer service in order to differentiate themselves and charge higher prices. Some customers are willing to pay more for a good or service simply because of the service they receive at a certain firm.

A unique element of this type of market is the use of nonprice competition to obtain customers through advertising and marketing. Even though the product may be exactly the same as other firms', the use of advertising creates a difference between products. An example of this is when firms use movie stars or athletes to promote their product to imply that the product is superior and used by a famous person even though the product is exactly the same as others in the market.

Price and Output

Even though firms have some power over price in this type of market structure, the number of firms and the ease of entry prevents firms from raising prices as high as they would in a monopoly.

Because monopolistically competitive firms sell their product at higher prices than do perfectly competitive firms but lower than monopolies, total output under this type of market structure falls somewhere between the two. If a firm in this type of market begins to earn profits largely above costs, one of two effects would happen. The large increase in profits would encourage competitors to differentiate their product in order to entice customers. For example, if one denim company hires a professional athlete to advertise its product, causing a rise in profits, the other denim companies may also hire famous people to advertise for them in hopes of gaining customers.

When profits rise for a firm in this market structure, it is a signal for new firms to enter the market since the barriers to entry are very low. As the existing firms raise prices for their product, some customers will switch to the new firm's product, which is typically available at a lower price. A common example of this is when a brand-name clothing line becomes popular and many other firms flood the market with similar clothing lines. Even though the brand-name firm can earn a large profit in the short run, it must work very hard to keep its product distinct and to remain ahead of the competition.

Customers reap the rewards in this type of market structure because there are many firms offering many products that are similar but unique. Even though prices of products may be slightly higher than in the perfectly competitive market, competition keeps prices from rising too high.

Tracy L. Ripley

See also: Business Structures; Monopoly; Oligopoly Markets; Perfect Competition

Further Reading

Brakman, Steven, with Ben J. Heijdra. 2001. *The monopolistic competition revolution in retrospect*. New York: Cambridge Univ. Press.

Mankiw, N. Gregory. 2011. *Principles of microeconomics*. Mason, OH: South-Western/Cengage Learning.

O'Sullivan, Arthur, and Steven M. Sheffrin. 2007. *Economics principles in action*. Upper Saddle River, NJ: Pearson/Prentice Hall.

MONOPOLY

A monopoly occurs when one firm or sector has control over a product or market. Monopoly power exists when an enterprise controls 25 percent or more of the market. When an organization has this much control, it has the ability to set prices at whatever level it desires. In the absence of competition, the control lies with the organization. From the consumer's perspective, a monopoly happens when a consumer has no choice but to purchase a product from a particular seller. Monopolies can be dangerous to the economy because the abuse of controlling power over a product can lead to high prices, poor service, and the ability to oust competitors for internal gains.

As a result, governments regulate monopolies in various ways. They may highly regulate them as a regulated monopoly, such as a utility, or force the company to break up into smaller, more competitive companies. In early American history, the Interstate Commerce Act of 1887 aimed to regulate the railroad industry. At the time, the industry was controlled monopolistically. The Sherman Antitrust Act (1890) and the Clayton Antitrust Act (1914) followed the Interstate Commerce Act. Ensuring safe competition was one of the goals of the Federal Trade Commission Act of 1914 that created the Federal Trade Commission (FTC).

The FTC carefully regulates and monitors monopolies to maintain competition and consumer safety. In modern times, regulations may include price capping, prevention of mergers and acquisitions, unbundling of products, or forcing nationalization. Nationalization forces a privatized company to become publicly controlled; this is an extreme and unlikely action. The unbundling of products is the forced change of an item.

The power of monopoly also has a trickle-down effect to suppliers. If a firm has control over the market, it also has relative control over the suppliers to that market. This means it has the power to set prices and gain priority over potential competitors. The danger of this practice is that production suppliers that are not competitive in providing service to the firm can be rendered powerless and potentially bankrupted. By gaining advantage over competitors, the monopolistic firm can also squeeze out other organizations in the industry. These practices would be considered unethical and have greater ramifications for the consumer.

Governments regulate monopolies to prevent the abuse of power. For the consumer, unfair pricing and lack of competition can make products inaccessible and take away buying power. In some markets there exists a natural monopoly due to the limited access of a resource, such as natural resources. The need of very large economies of scale for a product or service to be commercially viable can lead to a government-regulated monopoly. Competition in these unique circumstances could lead to a significant misallocation of an economy's resources. Utilities are prime examples of regulated monopolies. These industries are highly regulated to maintain ethical standards and practices to protect consumers.

The criticism of government regulation is that in a free market, if an organization can gain monopolistic power, it should be allowed to function. It is possible that an organization has earned this power through efficient productivity, innovative products, and well-organized business practices. The consumer's ability to choose between organizations in competition allows consumer demand to set the market price fairly based on the financial capabilities and desires of the public. If an organization has earned market power through effective and fair businesses practices, consumers should naturally choose its product.

Daniel S. Talwar

See also: Business Structures; Federal Trade Commission; Oligopoly Markets; Sherman Antitrust Act of 1890; *Primary Documents:* Clayton Antitrust Act of 1914; Interstate Commerce Act of 1887; Sherman Antitrust Act of 1890

Further Reading

Economic Help. n.d. Regulation of monopoly. www.economicshelp.org/microessays/markets/regulation-monopoly/ (accessed June 16, 2015).

Economics Online. n.d. Monopolies. www.economicsonline.co.uk/Business_economics/Monopoly.html (accessed June 16, 2015).

Federal Trade Commission. n.d. Consumer information. www.consumer.ftc.gov/ (accessed June 16, 2015).

Roberts, E. n.d. Government regulation of monopolies. Stanford University. cs.stanford.edu/people/eroberts/cs181/projects/corporate-monopolies/government.html (accessed June 16, 2015).

Stigler, George J. n.d. Monopoly. In *The concise encyclopedia of economics.* Library of Economics and Liberty. www.econlib.org/library/Enc/Monopoly.html (accessed June 16, 2015).

MOODS AND FINANCIAL MARKETS

The influence of moods on people's perceptions and judgments has been psychologically established, indicating the informative function of affective states (Schwarz and Clore 1983). Recently the role of mood in financial markets has gained attention, suggesting that financial activity, usually presumed rational, may be subject to such factors as weather-induced affective states (Saunders 1993).

Hirshleifer reviews psychological influences on security prices, with implications for economic modeling. Loewenstein et al. (2001) proposed the "risk-as-feelings" hypothesis that emotional states guide decision-making under risk differently than implied by normative models. Other phenomena include the impact of moods on financial aspects of information evaluation, prospective opinions, and risk attitudes.

The effect of psychological factors on individuals is insufficient to infer that moods are relevant to market activity. Simultaneous mood fluctuations of many investors (due to weather and seasons, for example), however, might not average out.

Seasonal affective disorder (SAD) is a type of circannual depression affecting a substantial segment of the population, especially in the northern regions. Its biological mechanism involves biochemical imbalances in the hypothalamus resulting from seasonal shortening of the photoperiod. Kamstra and others (2003, 2012) show the impact of SAD-induced moods on investors' risk aversion and stock returns. Kliger and Levy employ SAD and cloudiness to explain variations in subjective probability perceptions; Kliger, Gurevich, and Haim demonstrate SAD's influence on demand for initial public offerings; Kramer and Weber show that SAD is responsible for seasonally changing risk aversion; and Kliger and Kudryavtsev show SAD's impact on investors' reactions to news. Investors' moods due to additional factors are shown to influence financial markets. Kamstra, Kramer, and Levi demonstrate the impact of investors' sleep patterns (due to daylight savings time changes); Kliger and Levy show the relevance of weather-induced mood for investors' probability judgments and risk tolerance; Kuhnen and Knutson analyze the impact of affect on risk attitudes and belief formation; and Bassi, Colacito, and Fulghieri provide experimental evidence of the impact of weather-induced mood on individual risk attitudes.

Doron Kliger
Gregory Gurevich

See also: *Vol. 1: Foundations of Economics:* Behavioral Finance

Further Reading

Bassi, Anna, Riccardo Colacito, and Paolo Fulghieri. 2013. O sole mio: An experimental analysis of weather and risk attitudes in financial decisions. *Review of Financial Studies* 26: 1824–52.

Hirshleifer, David. 2001. Investor psychology and asset pricing. *The Journal of Finance* 56: 1533–97.

Kamstra, Mark J., Lisa A. Kramer, and Maurice D. Levi. 2000. Losing sleep at the market: The daylight-saving anomaly. *American Economic Review* 90: 1005–11.

Kamstra, Mark J., Lisa A. Kramer, and Maurice D. Levi. 2003. Winter blues: A SAD stock market cycle. *American Economic Review* 93: 324–43.

Kamstra, Mark J., Lisa A. Kramer, and Maurice D. Levi. 2010. Effects of daylight-saving time changes on stock market volatility: A comment. *Psychological Reports* 107: 877–87.

Kamstra, Mark J., Lisa A. Kramer, and Maurice D. Levi. 2012. A careful re-examination of seasonality in international stock markets: Comment on sentiment and stock return. *Journal of Banking and Finance* 36: 934–56.

Kliger, Doron, Gregory Gurevich, and Abraham Haim. 2012. When chronobiology met economics: Seasonal affective disorder and the demand for initial public offerings. *Journal of Neuroscience, Psychology, and Economics* 5: 131–51.

Kliger, Doron, and Andrey Kudryavtsev. 2013. Out of the blue: Mood maintenance hypothesis and seasonal effects on investors' reaction to news. *Quantitative Finance*. doi:10.1080/14697688.2012.745646.

Kliger, Doron, and Ori Levy. 2003a. Mood and judgment of subjective probabilities: Evidence from the U.S. index option market. *European Finance Review* 7: 235–48.

Kliger, Doron, and Ori Levy. 2003b. Mood-induced variation in risk preferences. *Journal of Economic Behavior and Organization* 52: 573–84.

Kliger, Doron, and Ori Levy. 2008. Mood impacts on probability weighting functions: "Large-gamble" evidence. *Journal of Socio-Economics* 37: 1397–411.

Kramer, Lisa A., and J. Mark Weber. 2012. This is your portfolio on winter: Seasonal affective disorder and risk aversion in financial decision making. *Social Psychological and Personality Science* 3: 193–99.

Kuhnen, Camelia M., and Brian Knutson. 2011. The influence of affect on beliefs, preferences, and financial decisions. *Journal of Financial and Quantitative Analysis* 46: 605–26.

Loewenstein, George F., Elke U. Weber, Christopher K. Hsee, and Ned Welch. 2001. Risk as feelings. *Psychological Bulletin* 127: 267–86.

Rosenthal, Norman E., David A. Sack, J. Christian Gillin, Alfred J. Lewy, Frederick K. Goodwin, Yolande Davenport, Peter S. Mueller, David A. Newsome, and Thomas A.

Wehr. 1984. Seasonal affective disorder: A description of the syndrome and preliminary findings with light therapy. *Archives of General Psychiatry* 41: 72–80.
Saunders, Edward M. J. 1993. Stock prices and Wall Street weather. *American Economic Review* 83: 1337–45.
Schwarz, Norbert, and Gerald L. Clore. 1983. Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology* 45: 513–23.

MORTENSEN, DALE

Born: February 2, 1939, in Enterprise, Oregon; Died: January 9, 2014, in Wilmette, Illinois; Nationality: American; Professional Interests: labor economics, Nobel Prize (2010); Major Work: *Wage Dispersion: Why Are Similar Workers Paid Differently?* (2003).

Dale Mortensen was a contemporary theorist who specialized in labor economics with a focus on unemployment. His theories can be used to formulate and predict the impact of a variety of government influences on overall unemployment and wage distribution. Mortensen's professional pursuits led him to Northwestern University in 1965, where he remained until his death from cancer in 2014. His expertise regarding labor markets took him to many parts of the world, and his theories earned him a Nobel Prize in 2010.

Dale Thomas Mortensen was born on February 2, 1939, in Enterprise, Oregon, a small community in Willowa County. He graduated from Wy'east High School in 1957 before attending Willamette University in Salem, Oregon, where he was a trailblazer in the economics department, which focused on economics via a mathematical approach. While at Willamette, his pursuits included not only academic achievement but also leadership. Mortensen served as student body president during his senior year as he completed his bachelor of arts in economics in 1961. Following his time in Salem, Mortensen began working on his PhD at Carnegie Mellon University in Pittsburgh, Pennsylvania, which led him to his role in education and research. He earned his PhD in economics from Carnegie Mellon in 1967.

Mortensen began teaching at Northwestern University in Evanston, Illinois, in 1965, and he remained there until his death. Mortensen's upbringing and education led him into a career focused on labor markets and employment. He worked in a variety of educational settings and promoted his theories throughout his career at numerous institutions and for several organizations.

The years of research on labor markets led Mortensen to write his most famous work, *Wage Dispersion: Why Are Similar Workers Paid Differently?*, which was published by MIT Press in 2003. The book gained widespread praise from many of his contemporaries as it sought to use both theory and empirical data to explain labor markets theory. His research on wage dispersion and distribution of earnings opened the eyes of many as experts try to assess the relationship between potential employees and employers. Several reviews, both domestic and foreign, note that Mortensen's work was well written and inspired many to learn more about labor economics.

Mortensen's research culminated in perhaps his most significant achievement: a Nobel Prize in Economics. The Royal Swedish Academy of Sciences awarded Mortensen and two other colleagues the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel in 2010. The committee selected Mortensen, Christopher

Pissarides of the London School of Economics and Political Science in the United Kingdom, and Peter A. Diamond of the Massachusetts Institute of Technology for their analysis of markets, such as employment, where people looking for work are not appropriately matched with those who are looking to hire these same workers. This is what is known as a search friction. Their extensive research on labor markets over the course of the past several decades helped explain how so many people can be unemployed while at the same time there are a tremendous number of job vacancies in the market. Much of their research focused on the impact of government regulation, monetary policy, and the overall involvement of government in the labor market, particularly the effect on employment data such as wages or job vacancies and the relationship between potential employees with their skill sets and employers' need for labor. The Nobel Prize was awarded not only for the principal research conducted by Mortensen, Pissarides, and Diamond but for the predictive power of their theories.

Many experts in economics refer to their theory as the Diamond-Mortensen-Pissarides model, which is used to predict how unemployment benefits, interest rates, the efficiency or lack thereof of employment agencies, and other inputs can affect the labor market and employment. During our current global economic situation, this research and model is of particular interest. Their model would seem to suggest a positive correlation between increased unemployment benefits and longer periods of unemployment and longer search times for those who are currently seeking employment.

Mortensen is well known for his work on labor economics, and though the crowning achievement in his remarkable career may be the Nobel Prize in Economics, he has been recognized by many other organizations and institutions as well. He served as a visiting professor or lecturer at several institutions, most notably at Aarhus University in Denmark. He worked as a research associate of the National Bureau of Economic Research (NBER), a research fellow of the Institute for the Study of Labor (IZA), and a fellow of the Econometric Society, the American Academy of Arts and Sciences, the Society of Labor Economics, and the European Economic Association. He also served in a plethora of other capacities for various committees, associations, and organizations. His remarkable efforts in labor economics received much acclaim. He received the IZA Prize in Labor Economics in 2005 and the Mincer Prize from the Society of Labor Economics in 2007 and was named the American Economic Association distinguished fellow in 2008. Mortensen's expertise and efforts in his field provided the economic and academic community with a wealth of knowledge that will further assist in understanding the complexities of employment and labor.

Dale Mortensen died on January 9, 2014, in Wilmette, Illinois.

William S. Chappell

See also: Diamond, Peter; Labor Economics; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics

Further Reading

Burdett, Kenneth, and Dale T. Mortensen. 1989. *Equilibrium wage differentials and employer size*. Evanston, IL: Northwestern Univ., Center for Mathematical Studies in Economics and Management Science.

Mortensen, Dale. 2003. *Wage dispersion: Why are similar workers paid differently?* Cambridge, MA: MIT Press.
Mortensen, Dale T. n.d. Autobiography. Nobelprize.org. http://www.nobelprize.org/nobel_prizes/economics/laureates/2010/mortensen.html (accessed June 15, 2011).
Tremmel, Pat Vaughan. 2010. Dale Mortensen wins Nobel Prize (October 11). Northwestern University. http://www.northwestern.edu/newscenter/stories/2010/10/mortensen-nobel-economics.html (accessed June 15, 2011).

MUTUAL FUNDS AND EXCHANGE TRADED FUNDS

Investors use mutual funds and exchange traded funds (ETFs), pooled investment vehicles, to invest in a variety of asset classes. Instead of an individual investing in a specific stock or a bond, mutual funds and ETFs collect a pool of capital from many investors and invest on behalf of these investors. Investors are charged a management fee for this service, referred to as the expense ratio.

Mutual Funds

With mutual funds, investors can participate in the stock, bond, or real estate investment market with a small amount of money. Investors pool their money and the fund company manages and invests those funds according to the specified investment policy of the mutual fund.

Over the last 20 years, mutual funds have become very popular, with more than 80 million people (half of all U.S. households) invested in them.

There are many varieties of mutual funds with a wide range of objectives. Index fund mutual funds have become quite popular recently, with the manager investing in approximately the same companies as those in the popular stock and bond indexes. For example, the Standard & Poor's 500 stock index measures the price movements of the 500 most important companies in the United States and is widely duplicated by stock index mutual fund companies. The S&P 500 is not an investable index (i.e., an investor cannot directly invest in S&P 500 index), so the mutual fund companies offer the opportunity to invest in that and many other popular stock market indexes.

Actively managed mutual funds attempt to beat the returns of index funds with additional security analysis and strategies. There are many actively managed funds with a variety of managers, strategies, fees, and approaches.

Exchange Traded Funds

Exchange traded funds (ETFs) are a relatively new form of investment vehicle. An ETF is very similar to a mutual fund, yet it trades during the day like a stock on organized exchanges. Unlike a mutual fund, the net asset value (NAV) of which is calculated at the end of every day, an ETF's price changes throughout the day based on supply and demand.

Originally ETFs were created to pool investors' dollars and earmark the monies into funds designed to track a stock or bond or proprietary index. For example, SPY (SPDR S&P 500 ETF Trust) is designed to track the performance of the Standard & Poor's 500 (S&P 500) index. Investors are able to gain exposure to S&P 500 index by investing in SPY ETF, which replicates the index such that the returns generated from the index and the ETF are similar.

As ETFs gained in popularity, they expanded in variety. Thus, by using ETFs, investors are able to access a wide range of strategies for their portfolios, including sector-specific exposure (XLF—SPDR Financial Select Sector ETF), country-specific exposure (MCHI—iShares MSCI China ETF), region-specific exposure (VGK—Vanguard FTSE Europe ETF), market capitalization–specific exposure with leverage (TZA—Direxion Daily Small Cap Bull 3X, i.e., leveraged three times), and commodity-specific exposure (GDX—Market Vectors Gold Miners ETF).

Tremendous benefits of these funds are their low expense ratios and the ability to buy or sell them on traditional stock exchanges throughout the day.

Fund Accessibility and Costs

Investors can access mutual funds and ETFs through a brokerage account, just like stocks. Many investment companies offer mutual and exchange traded funds.

In comparison to actively managed mutual funds, the cost of investing in index mutual funds and ETFs is lower for investors given their structure, which provides tax efficiency. Holdings in ETFs generally are not bought and sold as frequently as those in actively traded mutual funds, thereby keeping capital gains taxes lower.

The expense ratio varies across mutual funds. In general, index mutual and exchange traded funds have the lowest expense ratios. Some mutual funds also charge sales and distribution fees (load), charged either upfront at the time of purchase (front load) or when shares are sold (back load). A mutual fund could have different share classes for investment, each with a different minimum investment and expense ratio. Investors have to invest the minimum amount required by a particular mutual fund.

Types of Mutual and Exchange Traded Funds

Investors are able to access a wide variety of investments through mutual funds and ETFs. As a result, these vehicles have seen a large amount of investor fund inflows since they were launched. The most common classification in these vehicles is based on the asset class in which the vehicle invests. Simply put, *asset class* refers to the type of financial asset contained in the mutual fund; for example, stocks, bonds, real estate, commodities, or other.

Equity funds invest in stocks. Some stock funds are categorized according to the size of the company or market capitalization (current share price times the number of shares outstanding); large-cap (over $10 billion), mid-cap ($2 billion to $10 billion), small-cap ($250 million to $2 billion), and micro-cap (less than $250 million). Within each of these market capitalizations, the strategies vary by style: value, growth, and momentum. Each of these styles represents a distinct investment philosophy. Some of these strategies have an income (dividend) focus while some focus on capital appreciation. These funds can also be classified based on the geographic area that they invest in: domestic funds invest in the securities issued in the United States, international funds invest in securities issued throughout the world, emerging market funds invest in securities issued in emerging and frontier markets, and regional global funds invest in companies from across different regions.

Bond funds invest in bonds and may be categorized in many ways. Government bond funds include U.S. Treasury debt. Other types of bond funds carry municipal debt, corporate debt, convertibles, asset-backed securities, mortgages, and bond derivatives. Within each of these classifications the funds vary by the average maturity of the underlying instruments, by credit quality, and by the amount of income generated. Similar to equity funds, some bond funds have a mandate to invest outside of the United States. Bond funds are an important part of asset allocation strategy to reduce risk or volatility in the investor's portfolio.

Most bond funds pay a quarterly or monthly dividend, which endears them to retirement accounts due to their ability to generate income along with some capital appreciation.

Alternative funds have a mandate to invest in alternative asset classes of real estate, commodities, or other types of financial assets. A growing part of alternative funds are the complex strategies that differ from the traditional long-only strategies seen in equity and bond funds. These strategies include long/short equity, long/short credit, managed futures, event driven, and global macro strategies. These alternative strategies have traditionally existed in a hedge fund structure and have recently seen an explosion within the mutual fund space.

Regulations and Investor Protection

All funds are guided by a prospectus that defines the investment strategy and mandate for the fund. The prospectus also provides other useful shareholder information, such as fees charged, biography of management, and investment risks.

All mutual funds and ETFs in the United States are registered with SEC (Securities Exchange Commission) and are governed by the Investment Company Act of 1940. Being regulated entities, their funds have to comply with SEC regulations regarding liquidity, investor transparency, and fees, all of which have been implemented by SEC for investor protection.

Surya M. Pisapati

See also: Bonds; Derivatives; Hedge Fund; Index Mutual Funds; Real Estate Investment Trusts; Retirement Accounts; Risk; Risk Premium; Stock Market; Stocks; *Vol. 1: Foundations of Economics:* Asset Allocation; Capital Gains and Capital Losses; Investing; *Vol. 2: Macroeconomics:* Dividend Income

Further Reading

Bodie, Zvi, Alex Kane, and Alan J. Marcus. 2011. *Investments*. New York: McGraw-Hill/Irwin.

Bogle, John C. 2009. *Common sense on mutual funds.* Hoboken, NJ: John Wiley & Sons Inc.

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NASH, JOHN

Born: June 13, 1928, in Bluefield, West Virginia; Died: May 23, 2015, in Monroe Township, New Jersey; Nationality: American; Professional Interests: game theory, Nash equilibrium, mathematics; Major Works: "Equilibrium Points in N-Person Games" (1950), "The Bargaining Problem" (1950), "Non-cooperative Games" (1951), "Two-Person Cooperative Games" (1953).

John Nash is a mathematician who developed advanced studies of game theory that expanded their application to broad categories of political science, economics, business strategy, biology, and personal interactions. In 1994, he was awarded the Nobel Prize in Economics for his work in game theory with John Harsanyi and Reinhard Selten. Nash equilibrium is the most widely used and applied solution concept of game theory. Nash was the subject of the 2002 film *A Beautiful Mind*, which portrayed his struggle with paranoid schizophrenia.

John Forbes Nash was born on June 13, 1928, in Bluefield, West Virginia. He was raised in a highly intellectual environment and developed advanced mathematical skills as a child. Awarded the coveted George Westinghouse Scholarship, he began his undergraduate studies at Carnegie Institute of Technology (now Carnegie Mellon University) in chemical engineering. He did not care for the regimentation of the engineering classes or the quantitative analysis of the chemistry classes and changed to mathematics.

From an international economics course at Carnegie, he derived the idea for his paper "The Bargaining Problem" and ultimately his interest in game theory. By graduation he had progressed in his studies of mathematics and was awarded an MA degree in addition to the BS degree.

He was offered fellowships to both Harvard University and Princeton University for further studies in mathematics. He chose Princeton because it was closer to home. During his graduate studies one of his discoveries led to "Noncooperative Games." He concurrently developed two theses, one in game theory and one based on his discovery relating to manifolds and real algebraic varieties.

His academic career began in 1950 at Princeton, where he taught for one year. In 1951, he accepted a higher-paying position as a C. L. E. Moore instructor at the Massachusetts Institute of Technology (MIT) where he remained until 1959. During this time, he solved a problem relating to differential geometry and developed the theorem known as the Nash embedding theorem.

He accepted the Alfred P. Sloan grant and returned to Princeton as a member of the Institute for Advanced Studies (IAS). While at IAS, he solved a problem involving partial differential equations. Unbeknownst to him, Ennio de Giorgi of Pisa, Italy, was also working on the problem and solved it prior to Nash. Had only one of the men solved this equation, it is speculated that he would have received the famous mathematics Field Medal.

John Nash made important contributions to game theory research. Game theory allows social scientists to evaluate interactive decision-making when the outcome for one participant is dependent on the actions or strategies of all other participants. Nash introduced the distinction of identifying cooperative and noncooperative games. Cooperative games allow players to form binding enforceable agreements and make irrevocable threats to other players. Noncooperative games do not allow for such possibilities. The science of game theory can be applied broadly in the areas of experimental economics, behavioral economics, industrial organization, and political economy. Noncooperative games are accurate at understanding and predicting social interactions, voting behaviors, fair division, auction, mergers and acquisitions, corporate compensation plans, bargaining systems, oligopolies, and duopolies. Nash identified the equilibrium point in such games. It is a set of strategies and the corresponding pay-offs when no player may benefit by changing his strategy while other players leave their strategies unchanged.

A player would not choose to change his or her strategy for optimal outcome even after learning the strategies of other players. This is known as Nash equilibrium. Nash equilibrium is the most widely used and applied solution concept of game theory because it yields the most accurate insights into the workings of the social situation to which it is applied. In 1994, John Nash, with John Harsanyi and Reinhard Selten, received the Nobel Memorial Prize in Economic Sciences as a result of his game theory work as a graduate student at Princeton.

John Nash struggled with paranoid schizophrenia beginning in early 1959, which resulted in an involuntary hospital stay, his resignation from MIT, and an attempt to renounce his U.S. citizenship, seeking political asylum in France and East Germany. His experience was portrayed in Ron Howard's 1998 movie, *A Beautiful Mind*, based on the book by Sylvia Nasar. Nash later spoke out against Nasar's false depiction that he recovered as a result of atypical antipsychotics when in fact he refused any medication after 1970. He credits his recovery to his decision to renounce his delusional hypotheses and to return to rational thought.

In addition to the Nobel Prize in 1994, Nash has been awarded the John von Neumann Theory Prize for his discovery of Nash equilibria (1978) and several honorary degrees and doctorates.

John Nash and his wife, Alicia, died in an automobile crash in New Jersey on May 23, 2015. Dr. Nash was 86.

Heather Isom

See also: Game Theory; Nash Equilibrium

Further Reading

Kuhn, Harold W., and Sylvia Nasar, eds. 2007. *The essential John Nash*. Princeton, NJ: Princeton Univ. Press.

Nash, John. 1950. The bargaining problem. *Econometrica* 18: 155–62.

Nash, John. 1950. Equilibrium points in n-person games. *Proceedings of the National Academy of Sciences* 36: 48–49.
Nash, John. 1950. Non-cooperative games. PhD thesis, Princeton University.
Nash, John. 1951. Non-cooperative games. *Annals of Mathematics* 54: 286–95.
Nash, John. 1953. Two-person cooperative games. *Econometrica* 21: 128–40.
Nash, John F. Jr. n.d. Autobiography. Nobelprize.org. http://www.nobelprize.org/nobel_prizes/economics/laureates/1994/nash.html (accessed September 20, 2012).
National Security Agency. 2012. National Cryptologic Museum opens new exhibit on Dr. John Nash. http://www.nsa.gov/public_info/press_room/2012/nash_exhibit.shtml (accessed September 20, 2012).
Nisan, Noam. 2012. John Nash's letter to the NSA. Turing's invisible hand: Computation, economics, and game theory (February 17). http://agtb.wordpress.com/2012/02/17/john-nashs-letter-to-the-nsa/ (accessed September 20, 2012).

NASH EQUILIBRIUM

John Nash's 1950 paper on game theory had a huge impact on economics. The central concept of his paper, coined the "Nash equilibrium," changed the way many people think about strategic environments, not only in economics but throughout the social sciences.

The Nash equilibrium is a conceptualization of stability as a necessary condition on the behavior of agents in strategic situations. When agents interact strategically, the payment each one receives depends not only on each individual's behavior but also on all the other agents' choices. In such situations, the Nash equilibrium defines a certain pattern of behavior and facilitates the evaluation of equilibrium payments.

The description of a Nash equilibrium is quite straightforward. Consider that there are n agents. Each agent can choose an option from a finite set. The vector of actions selected by all agents is called a profile. A profile of actions is a Nash equilibrium if no agent has an incentive to change her or his selected action, assuming that all other agents choose the actions specified by this profile. Formally, the Nash equilibrium can be formulated as follows: consider n agents with a finite set of actions denoted by A_i. A Nash equilibrium is a profile of actions $(a_1, \ldots, a_n)$ where

a_i belongs to A_i for i from 1 to n, and

$$u_i(a_1, \ldots, a_i, \ldots a_n) >= u_i(a_1, \ldots, b_i, \ldots, a_n) \text{ for all } b_i \text{ in } A_i$$

This formulation is called a Nash equilibrium in pure strategies. Nash's outstanding result is the existence of Nash equilibrium in any finite game where mixed strategies (strategies where agents can choose probability distributions over actions) are considered.

The question that arises from a behavioral viewpoint is whether agents really act as prescribed by a Nash equilibrium. In general, behavioral economics suggests that the answer to this question is negative. To illustrate this point, let us consider a well-known social dilemma: the prisoner's dilemma. Assume that there are two agents, each with two potential actions, namely "telling the truth" and "lying." If both agents choose "telling the truth," their payments are three units each. If both choose "lying," each agent gets only one unit. However, if one of them chooses "lying" and the other "telling the truth," the liar gets a payment of four units and the other receives nothing. Surprisingly, the only Nash equilibrium of the prisoner's dilemma is for both agents to choose "lying," thereby receiving one unit, instead of the efficient payment (three units each) if they both chose "telling the truth."

To check this result, note that in any other profile, there is at least one agent "telling the truth." Such a profile cannot be an equilibrium, because the agent "telling the truth" has an incentive to change his or her action to "lying" to increase the payment. Indeed, if both agents choose "telling the truth" and one of them changes to "lying," his or her payment will increase from three to four units. Similarly, in the profile where only one lies, the agent "telling the truth" increases his payment from zero to one if he or she chooses "lying." In other words, the profile in which both players choose "false" is the only stable situation (Nash equilibrium) of the prisoner's dilemma.

Despite this analysis, behavioral studies on the prisoner's dilemma do not generally support this result because agents may consider other issues beyond their payments. For example, they may consider making three units to be sufficient. Similarly, one agent may feel sympathy toward the other player and decide that it is not fair to make four units if he or she lies and the other tells the truth. Additionally, an agent may not be completely sure about the action the other player will choose, so he or she may view telling the truth as a reasonable alternative. All these ways of thinking are not considered in the definition of the Nash equilibrium, yet they are very reasonable patterns of behavior. Hence, new definitions of an equilibrium arise to give us a better insight into the actual behavior of agents. But the Nash equilibrium remains a powerful reference point for analyses on strategic interactions, which stimulated and paved the way for related research.

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José E. Vila

See also: Game Theory; Nash, John; *Vol. 1: Foundations of Economics:* Behavioral Economics; Prisoner's Dilemma

Further Reading

Davis, Douglas D., and Charles A. Holt. 1993. *Experimental economics*. Princeton, NJ: Princeton Univ. Press.

Flood, Merrill M. 1958. Some experimental games. *Management Science* 5: 5–26.

Kagel, John H., and Alvin E. Roth. 1995. *Introduction to experimental economics: The handbook of experimental economics*. Princeton, NJ: Princeton Univ. Press.

Kahneman, Daniel, and Amos Tversky. 1979. Prospect theory: An analysis of decision under risk. *Econometrica* 47: 263–91.

Nash, John F. 1950a. Equilibrium points in n-person games. *National Academy of Sciences* 36: 48–49.

Nash, John F. 1950b. The bargaining problem. *Econometrica* 18: 155–62.

Nash, John F. 1951. Non-cooperative games. *Annals of Mathematics* 54: 286–95.
Nash, John F. 1953. Two-person cooperative games. *Econometrica* 21: 128–40.
Von Neumann, John, and Oskar Morgenstern. 1944. *Theory of games and economic behavior.* Princeton, NJ: Princeton Univ. Press.
Selten, Reinhard. 1975. Reexamination of the perfectness concept for equilibrium points in extensive games. *International Journal of Game Theory* 4: 25–55.

NATIONAL STEEL STRIKE, 1919

America's steel industry had been plagued for decades by labor problems over such issues as the 12-hour workday, the seven-day workweek, and low pay. Bloody strikes, such as the Homestead Strike of 1892, were common. Labor had failed to make any progress on union representation and collective bargaining, but labor unions were growing, and public support for unions was increasing. During World War I, however, President Wilson moved to prevent any major strikes that would disrupt war production.

In 1918, a special agency was created to handle labor disputes in the war industries. The agency, known as the National War Labor Board (NWLB), had limited authority, which required the president to force compliance with the government's labor policies. Priority one was to prevent production disruption caused by strikes and lockouts, but Wilson favored unionization and a progressive government effort to achieve this goal. However, the NWLB's principles were the right of labor to organize with no company action against organizing efforts and the right of union shops to exist. The Wilson administration often used these broad principles to award contracts to companies. The end of World War I provided an opportunity for the unionization of America's largest industry.

In contrast to the generally high wages paid during the war and shortly after because of a labor shortage, unskilled immigrant steel workers were underpaid and overworked. They worked 12-hour days, seven days a week. In 1919, wages for unskilled immigrant steelworkers were $1,466 a year, but subsistence level for a family of five was $1,575. These workers were ready to fight for better conditions. They had also developed solidarity with the skilled steelworkers, which had been lacking in earlier strikes. This unity had been forged by the growing American Federation of Labor.

The American Federation of Labor saw the opportunity to expand its organizing efforts in the steel industry as the end of the war was in sight. The issue would accelerate at Midvale Steel in April 1918 with a challenge from the International Association of Machinists, which had started an organizing drive at Midvale Steel. Midvale produced naval guns and shells and was critical to war production, so the government thought the NWLB would certainly force collective bargaining. Bethlehem Steel was also having problems with the International Association of Machinists, and the two companies were coordinating their approaches. *Iron Age*, the steel industry magazine, warned of NWLB's stated intent to "encourage union leaders to seize upon the national war emergency to organize every plant heretofore maintained as a non-union or open-shop."

In August 1918, the Midvale case came before the NWLB for review. The demands were collective bargaining, an eight-hour day, elimination of the present piece-rate system, and restoration of a beneficial insurance program. These, of course, were industry-wide issues. The NWLB recommended an employee representation plan, but Midvale Steel delayed any immediate action. These employee representation plans were company unions meant to slow the organizing efforts of the labor unions. United States Steel saw the threat of government intervention and in August 1918 called an industry meeting of steel executives at New York's Waldorf-Astoria Hotel. An industry plan was designed to make the eight-hour day the base but to allow workers to work 12 hours at a time-and-a-half rate after eight hours. The arrangement was popular with most workers, who realized a pay increase under the new plan. Companies like Midvale did not like the solution from a productivity standpoint. Union leaders like Samuel Gompers, social reformers, religious leaders, and community leaders did not like the solution either because they thought it reinforced the 12-hour day. The compromise had the effect of slowing real reform from union or management reformers. Still, collective bargaining remained the real issue from the government's standpoint.

In June 1919, between 200 and 300 of Midvale's 2,000-plus workforce walked out. The Labor Department, the navy, and the NWLB descended on the plant. The navy got things going again, but collective bargaining now had to be settled by the NWLB. Midvale Steel was asked to speed up work on an alternative plan. However, the company was more interested in an industry-wide solution. The old tricks of using company spies, local political pressure, and harnessing union leaders resumed. Judge Elbert Gary, chairman of United States Steel, would have nothing to do with collective bargaining, wage increases, or the elimination of the 12-hour day. In May 1919, the American Federation of Labor conference in Pittsburgh had discussed and approved a fall strike. The conference resolution called for collective bargaining, an eight-hour day, double-time pay for overtime, one day's rest in seven, abolition of the 20-hour shift used to rotate the men, seniority-based wages, and the abolition of company unions. By July 1919, war powers were approaching an end. Gompers and the union, realizing the NWLB power and support would be gone, thought the time was right to push for companies to accept collective bargaining.

After Labor Day in 1919, labor trouble started in Pittsburgh. Union organizers could not rent meeting rooms, and local police and private guards seized literature from some organizers and ran others out of town. The economic downturn gave companies the upper hand, but the disturbances soon spread to the Chicago district. The union appealed to President Wilson to accept the union and collective bargaining, and they were counting on his support. Judge Gary of United States Steel refused to deal with the union. Charles Schwab at Bethlehem Steel and William Corey at Midvale Steel were counting on their employee representation plans to protect them. On September 22, when Gary refused to negotiate further, a national walkout started. Wilson had a stroke on September 26, 1919, and many believe his medical condition prevented government intervention. With Wilson incapacitated, his advisers held back. Wilson had been rejected in the midterm elections, however, and public support was not with him. Furthermore, Wilson had been looking for money and support from steel companies for his League of Nations.

The strike first hit United States Steel hard, and most of its workers in Pittsburgh, Chicago, Cleveland, Lackawanna, and Youngstown went on strike. Bethlehem Steel continued to work with its employee representation plans in place. The steelworkers' resolve was strong, but public opinion remained mixed. On September 30, as many as 360,000 steelworkers were on strike. The owners and local politicians formed large armies of deputy sheriffs to prevent violence. The owners used the postwar Red Scare of the Russian Revolution of 1917 in arguments against the unions. Newspapers openly worried about the influence of communists in the union. Still, the steelworkers held together. The union gained public sympathy with the push for an eight-hour day. The strike was fought in the trenches. Local violence, beatings, and raids were commonplace. Hundreds of strikers were jailed. Pennsylvania State Police proved particularly brutal on picketers.

The companies moved to strikebreaking, using between 30,000 and 40,000 black and Mexican American laborers. Strikebreaking at United States Steel's Gary, Indiana, plant turned violent on October 6. The governor declared martial law and brought in the National Guard. The violence then spread to nearby Indiana Harbor. The guard completely suppressed the strikers, ending the strike in Indiana, but violence dragged on around the nation. In Pennsylvania and Ohio, the violence had a racial element against black strikebreakers and their families. By 1920, the strike was over. Most considered it a complete victory of the owners. Not a single concession was given; 20 died, and more than $112 million was lost in wages. However, within two years, with pressure from President Warren Harding, Gary and United States Steel were finally forced to accept the eight-hour day and six-day workweek.

Quentin R. Skrabec Jr.

See also: Great National Railroad Strike, 1877; National Steel Strike, 1959

Further Reading

Eggert, Gerald. 1981. *Steelmasters and labor reform, 1886–1923*. Pittsburgh, PA: Univ. of Pittsburgh Press.

Foster, William Z. 2009. *The great steel strike and its lessons*. Charleston, SC: Biblio-Bazaar.

Warren, Kenneth. 2001. *Big steel: The first century of United States Steel Corporation 1901–2001*. Pittsburgh, PA: Univ. of Pittsburgh Press.

NATIONAL STEEL STRIKE, 1959

At 116 days, the steel strike of 1959 was the nation's longest. It was also the nation's most widespread strike, bringing American manufacturing to a grinding halt. At the time, the steel industry was the nation's largest industry; there were 540,000 members in the United Steelworkers of America (USWA). The root of the strike was a dispute over management control and contract clauses in the workplace. In particular, management had the right to assign the number of workers to a task, reduce the workforce by replacing workers with machinery, and introduce new work rules.

The strike became a bitter battle in a nation totally dependent on domestic sources for steel. The strike ended when President Dwight D. Eisenhower invoked the 1947 Taft-Hartley Act. The union challenged the Taft-Hartley action, but the Supreme Court upheld it. The union eventually retained contract clauses on work rules and won a small wage increase. In retrospect, the strike was a disaster for the union, the management, and the nation, and it led to significant amounts of steel being imported into the nation, which devastated domestic production in the long run.

The steel industry had been unionized in the 1930s and continued to make major gains through the 1940s. The passage of the Taft-Hartley Act in 1947, which amended the Wagner Act, slowed the progressive government support of unions. The Taft-Hartley Act allowed the president to intervene in strikes that posed a national emergency, and the 1959 strike was the first application of this clause. The 1959 crisis was the result of overexpansion of the industry to meet war needs. The steel industry never got a rest as the Korean War created even more demand in the 1950s.

American steel manufacturing was at the peak of its power, but its very strength became a weakness. American steel companies made more than 60 percent of the world's steel. The industry overexpanded in the 1950s. Imports into the United States were less than 3 percent of the domestic market. After the 1959 strike, U.S. steel production dropped to 26 percent of the total world market (the lowest since the 1870s). Steel prosperity in the early 1950s resulted in labor contracts favorable to the steel workers' unions. In 1956, the United Steelworkers had won large wage increases of 4 to 6 percent per year. In 1957, American steelworkers were earning \$2.92 an hour compared with \$0.75 an hour for workers in Germany and \$0.45 an hour for workers in Japan. The industry approached 1959 with overcapacity and high costs—and imports were starting to come into the market.

Still, the first-quarter profits for the industry in 1959 were at a near record \$375 million, with an 11.7 percent return on stockholders' investment. This was due in part to a huge inventory buildup in steel-dependent industries. The underlying problems in the industry were masked by profits that reflected the end of a boom. The government was anxious about the 1959 steel negotiations because inflation was rising, and an expensive steel settlement would lead other big industries to grant large wage increases. The 6 percent wage increase for steelworkers in 1956 had significantly increased the costs of manufacturing overall. In 1956, 40,000 white-collar workers in the steel industry also unionized. Finally, in 1959, steel management thought the time was right to take a stand over years of wage increases. As the deadline approached, the Eisenhower administration became active in the negotiations; cabinet members were able to broker an extension with union chief David McDonald. However, the strike started on July 15, 1959, as negotiations broke down. The strike was national against all American steel producers.

As a result of the strike, more than 150,000 autoworkers and another 150,000 in the railroad industry were laid off. The United States lost its export market in the first few weeks of the strike. Even worse for the American steel industry was that foreign steel was pouring in at greatly reduced prices during the strike, so if the union got a wage increase and prices for American steel went up as a result, a large segment of the market for American steel would be lost. American auto manufacturers had to decrease production because of a lack of steel, as did thousands of other steel users. Steelworkers suffered as the union strike funds ran out. Workers and/or their wives found part-time work. To heat their homes, steelworkers took to the nearby hills to dig their own coal and glean fallen coal from around railroad tracks.

The strike soon threatened the whole of American industry. As the strike reached the critical stage, President Eisenhower invoked the Taft-Hartley Act to bring the workers back for 80 days of negotiations so the government could broker a deal. Eisenhower sent Vice President Richard Nixon to get directly involved. The government was successful at ending the strike, but it came at a high cost. The total package was worth about $0.40 an hour and boosted steel prices by $16 a ton. Two years later, imports were double the 1959 rate. The three-month strike forced the auto manufacturers and others to buy imported steel. These companies soon realized the benefits of cheaper, high-quality steel from the rebuilt mills of Europe and Japan, and American steel started a long slide, losing market share to lower-priced imported steel. Behind the strike headlines, America's first Japanese car imports were delivered at the port of San Francisco in 1959. The timing was perfect for Japanese importers as U.S. car prices rose because of the costs of settling the steel strike.

In 1962, inflation and the effects of the 1959 strikes caused more price increases, which the government used public pressure to prevent. Now inflation and wages combined with lost market share to reduce steel industry profitability. By the 1980s, the seeds of the 1959 strike had brought the end of the American steel industry. This was a far cry from the situation in 1944, when American steel mills outproduced the steel mills of Germany, Japan, Russia, Great Britain, and Italy combined.

Quentin R. Skrabec Jr.

See also: Great National Railroad Strike, 1877; *Vol. 2: Macroeconomics:* Labor Uprisings, 1936–1939; National Labor Unrest, 1894; Taft-Hartley Act, 1947

Further Reading

Apelt, Brian. 2000. *The corporation: A centennial biography of United States Steel Corporation.* Pittsburgh, PA: Univ. of Pittsburgh Press.

Millis, Harry A., and Emily Brown Clark. 1950. *From the Wagner Act to Taft-Hartley: A study of national labor policy and labor relations.* Chicago, IL: Univ. of Chicago Press.

NATURAL MONOPOLY

Use of the term *natural monopoly* likely began in 1848 when John Stuart Mill used it to describe a characteristic of a resource that resulted in economic rent. That is, a superior quality inherent in the resource would lead to a monopoly that was naturally determined as opposed to being legally granted. More generally, *natural monopoly* is used to describe industries in which competition does not lead to lower-cost production. Instead, the cost of serving the market is lowest with a single firm, and productive efficiency requires single-firm production. If that firm sets prices above its marginal cost of production (because it naturally faces no competition), allocative efficiency is sacrificed and social welfare declines. This intrinsic trade-off means market forces will fail to produce efficient outcomes, and natural monopoly is an example of market failure.

To illustrate the economic problem of natural monopoly, consider an electric utility supplying service to a small town. The company shares with telecom, cable, and railroad industries the need to invest in a fixed network. The high fixed cost of the network discourages multiple companies from providing electricity to the town once an incumbent is in place. Over some (possibly large) range of output, it would be economically inefficient to have competing firms. How large this range of output is depends on the magnitude and type of fixed costs and the scope for technological advancements.

Total costs of production combine the firm's fixed and variable costs. Variable costs are those that increase with output (e.g., wages paid to labor increase as hours worked increase). Fixed costs do not vary with output. As a result, average fixed costs will decline as more output is produced. As long as the firm's long-run average total cost is declining, a second producer would only increase the cost of producing the good. Declining average total cost over some range of output is referred to as *economies of scale*.

More formally, a firm is a natural monopoly if its cost function is subadditive. A firm with a subadditive cost function can serve a single product market at less cost than two or more firms could. Declining long-run average total cost is one reason for a firm to have a subadditive cost function for a single product, but it is also possible for a single-product firm to have a subadditive cost function over a range of output where its long-run average cost is increasing as long as it is still less costly to have one firm in operation than two.

If a firm produces more than one product (e.g., cable TV and Internet service) subadditivity implies the firm can produce any combination of the multiple products together at less cost than the individual products could be produced separately (by different firms). Therefore, economies of scope are necessary for subadditivity when firms produce multiple products. Baumol discusses the complexities of defining a natural monopoly in this context and provides the necessary and sufficient conditions for subadditivity.

If a natural monopoly is operating in a range of output where there are economies of scale, average total costs will exceed marginal cost and pricing at marginal cost will result in the firm suffering losses. Yet, when price is above marginal cost, there are social welfare losses resulting from units that are socially valuable not being produced.

Natural monopolies are often subject to price and or entry regulation in an attempt to minimize welfare losses. Entry regulation occurs when there are few barriers to entry but production costs are minimized when there is a single producer. Price regulation is used to ensure firms cover their fixed cost of production and earn a rate of return to encourage investment. If firms charge a single price and have to break even to avoid subsidies, some social welfare will necessarily be sacrificed. Welfare losses result when firms set price equal to average total (to cover their fixed costs) instead of marginal costs. When a natural monopolist produces multiple products, social welfare losses can be minimized by raising prices differentially depending on the elasticity of demand for each product. Because consumers reduce their quantity demanded less the more inelastic their demand for a product, the firm adds more to its revenue with larger price increases for more inelastic demand. This markup method is attributed to Frank Ramsey and is known as the Ramsey pricing rule.

Some formerly regulated network industries have been fully deregulated (e.g., railroads and airlines) while many others have undergone partial deregulation for portions of the business (e.g., electric utilities, cable television, and telecommunications). Regulation comes with its own bureaucratic and political costs that can outweigh the social gains. Time and resources are consumed while regulators decide the merits of rate increases, and regulators must rely on imperfect assessments of firms' cost of service. In addition, a judgment must be made about when to reduce or stop regulating an industry. If demand growth or technological change makes competition feasible, movement away from regulation should be considered.

Demsetz proposed an alternative to regulation of natural monopoly. He recommended having competition *for* the market as opposed to *in* the market. If firms can bid for the right to service the market, the price of service should be bid down to marginal cost if there are a sufficient number of bidders with marginal cost close to the lowest cost. The winner of the bidding process would then have an exclusive franchise for some period of time. On the surface, this appears to take care of both productive and allocative inefficiencies, but the franchisor is left with a role not unlike a regulator. Decisions must be made about rate increases, quality of service, franchise extension, and so on. If the franchise is of short duration and bidding is periodic, efforts must be made to ensure bidding parity between the incumbent firm and potential entrants, and arrangements must be made to transfer the franchise if an entrant is the winner in subsequent bidding rounds. Williamson discusses why these are nontrivial complications. Likewise, if the service being provided is very specialized, it is possible there will be few low-cost bidders, resulting in a winning bid well above the winner's marginal cost.

In the long run, technological advancements often remove the natural monopoly characteristics of an industry and competition becomes feasible. For example, a local telecommunications carrier may cease to be the lowest-cost provider of residential and business telephone services if cable companies can provide those services in addition to television. Other technological advances obviate the need for fixed-line networks and reduce barriers to entry. Wireless service is one example.

Also, an innovation that lowers the fixed cost of service will shift down the average cost curve and, as long as there are diseconomies of scale over some range of output, the firm's minimum efficient scale will fall. As the minimum efficient scale is lowered, the range of output that can support multiple firms expands.

Identifying natural monopolies, calculating optimal prices, deciding whether to regulate and deciding when to deregulate is challenging, especially when firms produce multiple goods. Network industries with natural monopoly characteristics are becoming increasingly competitive following technological advances that have lowered entry barriers and firms' minimum efficient scale of production. In some cases, only parts of the industry have become competitive.

Tanga McDaniel Mohr

See also: Monopoly; Productivity; *Vol. 1: Foundations of Economics:* Mill, John Stuart; Welfare Economics; *Vol. 2: Macroeconomics:* Energy Policy

Further Reading

Baumol, W. J. 1977. On the proper cost tests for natural monopoly in a multiproduct industry. *American Economic Review* 67 (5): 809–22.

Demsetz, H. 1968. Why regulate utilities? *Journal of Law and Economics* 11 (1): 55–65.

Viscusi, K., J. Vernon, and J. Harrington Jr. 2005. *Economics of regulation and antitrust*. Cambridge, MA: The MIT Press.

Williamson, O. 1976. Franchise bidding for natural monopolies in general and with respect to CATV. *The Bell Journal of Economics* 7 (1): 73–104.

NET WORTH

The net worth concept applies to both business and personal finance. Net worth describes how much the entity is worth. Determine the net worth of a business by adding the total of the things the business owns (assets) and subtract from this amount the total of what the business owes (liabilities). When it comes to determining an individual's net worth, we do the same thing. We add up all of the things the individual owns and subtract the amount of debt owed to determine his or her net worth. The amount that remains after subtracting the liabilities from the assets is called the net worth.

The Net Worth of a Business

As described above, the net worth of a business—net worth can also be referred to as net assets—is determined by subtracting the total liabilities of the company from its total assets. A company needs to determine its net worth in the event that it is sold off or forced to close.

For example, assume a company has total assets of $10 million. These assets might include land owned by the company and inventory. Assume the company owes its creditors $5 million—these are its liabilities. These liabilities include an expansion loan and a mortgage on a factory. To determine this company's net worth, subtract its liabilities, in this case $5 million, from its assets of $10 million. The company's net worth is $5 million.

A company's balance sheet shows its net worth. A balance sheet is an accounting document that lists a company's total assets and liabilities along with the net worth. Of course, the balance sheet may not reflect the company's current net worth depending on when it was completed; it shows the value of the company at a particular point in time.

There are advantages and disadvantages when calculating a company's net worth. The biggest advantage is that it is a relatively easy way to determine a company's value if it were to stop operating. In addition, looking at a company's balance sheet provides this information in an easy-to-read and understand format.

A disadvantage is that since a balance sheet is similar to a snapshot, it reflects the company's net worth at a specific point in time. It does not always reflect the current value. In addition, net worth does not always take into account items such as patents and intellectual property. For example, if you had examined Apple's net worth before the iPod came out, you would not count that invention as part of Apple's assets since it was not released yet but was only a part of Apple's intellectual property at that time. We now know how valuable this idea was—along with the advent of the iPhone and iPad, which sprang from the popularity of the iPod. If you had determined the net worth of Apple in the summer of 2001 (before the iPod was released) you would not have been able to determine the true value of Apple since there was no way to foresee the impact of its intellectual properties.

The Net Worth of an Individual

The purpose of calculating a net worth statement for an individual is similar to that of a business. It is a way to figure out how much money one has if all of one's assets were sold. In general, personal property, with the exception of vehicles, is not included in the individual's net worth statement because one will not normally sell everything in order to raise money. When completing an individual's net worth, one usually estimates the value of one's home and vehicle using comparable sales of similar assets.

Many of us think that someone is wealthy if he or she has a lot of stuff. However, the accumulation of stuff can actually lower one's net worth.

Table 1. Calculating Net Worth

Assets (What Richard Owns)	
House (current value	$100,000
Car (current value)	$10,000
Retirement Account	$30,000
Savings Account	$5,000
Checking Account	$2,000
Savings Bonds	$1,000
Total Assets	$148,000
Liabilities or Debts (What Richard Owes)	
House/Mortgage	$100,000
Car Loan	$20,000
Student Loan	$15,000
Credit Card Balances	$10,000
Total Debt	$145,000

To illustrate, take a look at a hypothetical example for Richard Stevens.

All of Richard's assets total $148,000. That includes the current value of his home, car, retirement savings, and checking accounts along with savings bonds he received as a graduation present.

Richard's debts include his home mortgage, which is the exact worth of the home. His car loan is actually greater than the current value of his car. This is because after a car is purchased its value tends to decline or depreciate significantly in its first several years. So the car actually has a negative worth ($10,000 – $20,000) of –$10,000. His additional debt includes student loans and credit card charges, which he does not pay off in full during the month the items are charged. Thus, Richard's total debts are $145,000.

Richard's net worth is $3,000, which is calculated by subtracting his liabilities of $145,000 from his assets of $148,000.

If a person purchases many things with a credit card and doesn't pay the credit card bill in full at the end of the month, he or she can amass a lot of debt. If the debts are greater than assets, this is called a negative net worth. That is how someone who might appear wealthy because they have a lot of stuff might actually have a lot of debt and thus a negative net worth.

Net worth is an important concept for businesses and individuals. It is a way to measure whether the entity is making financial progress.

Danny Kofke

See also: Liabilities; Savings Account; *Vol. 1: Foundations of Economics:* Accountant; Budget; Financial Literacy; Investing

Further Reading

QFinance. Calculating a company's net worth. http://www.qfinance.com/contentFiles/QF02/hnrfm9bx/13/4/calculating-a-companys-net-worth.pdf (accessed December 1, 2013).

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OLIGOPOLY MARKETS

In microeconomics there are four different market structures of firms: perfect competition, monopolistic competition, oligopoly, and monopoly. At one end of the spectrum is perfect competition, where firms have no market control over price, and at the other end is monopoly, where firms have a high degree or even total control over market price. The four-firm concentration ratio of firms (output of the four top firms divided by the industry output of all firms) determines in which category businesses are classified by exhibiting the amount of market power firms possess. There is no specific number of firms that result in an oligopoly, but as a rule of thumb, oligopoly markets have 10 or fewer firms with a large amount of market power—80 percent or more control of market share by a few firms. The concentration of market power may not be equally shared between firms.

Characteristics of Oligopolies

Oligopoly markets have high barriers restricting the ease of market entry. Examples of barriers are high fixed costs (capital expenditures), access to resources, and legal barriers (patents and trademarks), to name a few.

Products may be similar or dissimilar in nature. Companies may produce goods that are similar, but they will work to differentiate the product in consumers' minds. Examples are automobiles, soap, toothpaste, and cereals. Examples of non-differentiated products are timber, oil, steel, and aluminum.

Because there are relatively few firms in the market, there is interdependence between businesses. Firms watch the actions of other firms carefully and consider their response in making their own decisions. In more competitive markets, the actions of one firm have little or no effect on the decisions of other firms, but in oligopoly markets this is not the case. Firms possess enough power to affect the market based on their decisions.

Because firms are interdependent, there are strategic consequences in the decision-making process. Firms must make a decision to either compete or collude based on their perceptions on how the other firm(s) will respond. Game theory is used to help explain this process and to illustrate how firms may behave based on their competitors' decisions.

Game theory uses applied mathematics to help explain how individuals will interact in strategic decision-making when outcomes are determined by competitors' choices. A commonly used method to illustrate strategic thinking is the prisoner's dilemma. Two robbery suspects have been arrested and have agreed beforehand to keep quiet. The suspects are interrogated separately, and investigators use two different incentives to encourage the suspects to confess. If they both refuse to confess, they face a shorter prison sentence of two years. However, if one confesses and the other one does not, the confessor gets one year and the loyal partner who does not confess gets seven years, but if they both confess they will receive five years each. There is a strong incentive to confess by both criminals because the penalty is greater if one criminal cheats on the agreement while the other does not. In the end, both confess and receive five years because the incentive structure of one year in prison is far more favorable than seven years. In the end, it is highly likely both will confess and receive five-year sentences. This dilemma can be applied to a market in which there are two firms deciding whether or not to advertise or decrease prices. The actions of one company will affect the actions and the profitability of the other company.

In the marketplace, firms actively attempt to cooperate or collude on price and restrict output in an effort to gain greater profits. These are collusive oligopolies. There are several ways in which firms attempt to fix price and quantity. The first is formal collusion, where firms take specific action and form a cartel, a formal business arrangement. Firms actively work together to set a specific price or a specific output. Additionally, firms may agree to restrict innovation and the use of new technology or agree not to advertise their product in a way that competes with the other firm. In this way, the firms work together to essentially create a monopoly and enjoy economic profits. The most well-known cartel is the Organization of Petroleum Exporting Countries (OPEC), which regularly meets and sets production quotas in hopes of creating higher oil prices.

The second way in which firms attempt to fix price and quantity is tacit or informal collusion, where a single dominant firm establishes price leadership and other firms follow the lead and align their prices to the dominant firm. There is no formal agreement, and firms are reluctant to cut prices, which would result in a price war and make it much more difficult to maintain profitability or even survive in an extended price war with the dominant firm. This does not mean firms do not compete, as they may compete on nonprice items such as quality, service, or brand power.

A third type of oligopoly is a noncollusive arrangement, where firms compete against one another, resulting in price competition. In this environment, firms consider the action of competing firms when making pricing and output decisions and how the other firms will respond. The price-leading firm must make a decision regarding whether or not to increase prices. If it raises its price, and other firms do not follow with a price increase, the leading firm will face reduced market share and total revenue. If the price-leading firm tries to gain market share by lowering its price, other firms follow suit, resulting in a price war that lowers total revenue for all firms.

Disadvantages

Because oligopolists are price makers, or have significant control over market price, they are able to raise prices above the point where marginal cost (MC) is equal to marginal revenue (MR). Because there are significant barriers to entry, they can set prices above the efficient level of pricing where MC = MR, thus they create productive and allocative inefficiencies. There are significant incentives to collude on price and/or output restrictions to achieve large economic profits, thus reducing competition, which allows for increased innovation and efficiency.

Advantages

Oligopolist firms are able to maintain economic profits, and as a result could make sizable investments into research and development that leads to improved technology and productivity. Increased research may have spillover effects and in the long run lead to lower consumer prices in this industry or others.

Alan Barbee

See also: Markets; Microeconomics; Monopoly; Perfect Competition; *Vol. 4: Global Economics:* International Cartels and Monopolies; Organization of Petroleum Exporting Countries

Further Reading

Amos WEB Encyclonomic. n.d. Oligopoly. http://www.amosweb.com/cgi-bin/awb_nav.pl?s=wpd&c=dsp&k=oligopoly (accessed November 30, 2014).
Friedman, James. 1983. *Oligopoly theory*. New York: Cambridge Univ. Press.
Vives, Xavier. 2001. *Oligopoly pricing: Old ideas and new tools*. Cambridge, MA: MIT Press.

OLSON, MANCUR

Born: January 22, 1932, in Grand Forks, North Dakota; Died: February 19, 1998, in College Park, Maryland; Nationality: American; Professional Interests: group dynamics, public goods, labor; Major Works: *The Logic of Collective Action: Public Goods and the Theory of Groups* (1965), *The Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities* (1984), *Power and Prosperity: Outgrowing Communist and Capitalist Dictatorships* (2000).

Mancur Olson is best known for his work introducing the concept of the free-rider problem with public goods. Olson is remembered as an outstanding economic thinker with a keen ability to integrate ideas from sociology and political science into economic theory. He made lasting contributions to how we study and understand our world. Olson died in 1998.

Mancur Lloyd Olson Jr. was born on January 22, 1932, in Grand Forks, North Dakota. He studied as an undergraduate at North Dakota Agricultural College. From there he was awarded a Rhodes Scholarship and attended University College, Oxford. Upon returning to the United States, he performed his doctoral work at Harvard University, where he completed his widely recognized thesis, "The Logic of Collective Action" (1965). After finishing his doctoral work, Olson was hired at Princeton University in their economics department and later worked in the government under the Johnson administration in the Department of Health, Education, and Welfare for two years. After his stint in the government, Olson returned to academia at the University of Maryland, where he spent the rest of his career.

Olson was a leader and pioneer in the study of group dynamics within a nation. He developed the concept known as the free-rider problem. Free riders are people who join a group and expect to gain the benefits that the collective action of the group yields but are not willing to incur the costs associated with the work of the group. In his book *The Logic of Collective Action*, Olson shows that individuals can and will act in a self-interested manner that works contrary to the goals of collective action. For example, in a perfectly competitive market where there are many producers of a single identical good, it is in the collective interest of the producers to organize and raise the price of the product as high as possible in order to ensure higher profits for all. This is unlikely to happen because a single firm may well consider that it is in its self-interest not to join the price-setting collective action. If one producer refuses to join the group and sells at below market price, it will gain the majority of market share. This explains how sometimes the individual self-interest of a firm can be opposed to the interest of collective action.

Another example of problems that can result from the dissymmetry between individuals and groups is that of people who seek benefits from collective actions, such as in the case of unions. All workers benefit from the higher wages and better working conditions that result from the collective bargaining actions of the union, including workers who are not members. Since there is a cost associated with joining the union, the nonjoiners gain the benefits of membership without paying their dues. Nevertheless, people still do join unions, likely because they recognize that if too many people attempted to free ride, there would not be enough members to achieve their goals. One solution addressing the free-rider problem in the case of unions has been to pass legislation requiring membership, or to use selective incentives individuals will want, such as insurance, but can obtain only through membership.

Olson addresses the issue of mandatory union membership not from the perspective of rights as some of its critics do. He likens it to paying taxes or a military draft, not something we have constitutional protections from. Olson thinks the more relevant consideration is how a society values the benefits of strong unions in a country.

In Olson's second book, *The Rise and Decline of Nations* (1984), he makes the counterintuitive claim that long-term political stability can have a negative impact on economic growth. He supports his claim by showing how small interest groups become entrenched within a political system, achieving successful lobbying efforts that result in inefficiencies for the rest of the economy. As opposed to larger interest groups where the free-rider principle is at work, smaller groups have the incentive to work and successfully lobby for their interest. Their success secures certain political benefits for their groups, which stifles innovation, limiting long-term growth. Olson called this idea *institutional sclerosis*. Japan and Great Britain after World War II are examples of surprisingly fast economic growth that could be attributed, in part, to the clearing away of the old institutions that resulted from the war.

Olson was also concerned with the role of the government in fostering or blocking economic growth. While many had argued that the government merely extracts benefits from citizens, Olson showed that even governments have an interest in ensuring at least minimal prosperity for their citizens. Olson's view was that government is not perfect, but it can do some things right if given proper incentives.

Mancur Olson died on February 19, 1998, in College Park, Maryland.

John E. Trupiano

See also: Labor Economics; Mortensen, Dale; *Vol. 2: Macroeconomics:* Heckman, James; Kydland, Finn; Public Goods

Further Reading

Dixit, Avinash. 1999. Mancur Olson—social scientist. *The Economic Journal* 109 (456): F443–52.

Heckelman, Jac C. 2010. *Collective choice: Essays in honor of Mancur Olson.* Heidelberg, DE: Springer-Verlag.

McLean, Iain. 1998. Obituary: Professor Mancur Olson. *The Independent* (March 2). www.independent.co.uk/news/obituaries/obituary-professor-mancur-olson-1147952.html (accessed August 6, 2012).

McLean, Iain. 2000. The divided legacy of Mancur Olson. *British Journal of Political Science* 30 (4): 651–68.

Olson, Mancur. 1965. *The logic of collective action: Public goods and the theory of groups.* Cambridge, MA: President and Fellows of Harvard College.

Olson, Mancur. 1984. *The rise and decline of nations: Economic growth, stagflation, and social rigidities.* New Haven, CT: Yale Univ. Press.

Olson, Mancur. 2000. *Power and prosperity: Outgrowing communist and capitalist dictatorships.* New York: Basic Books.

Rowley, Charles K. 2004. *The encyclopedia of public choice.* New York: Kluwer Academic.

OPTIONS

Exchange traded options were first traded in the 1970s. An option contract is a type of derivative security in that the value of the contract is derived from the value of the underlying asset. An options contract is an agreement that gives the owner the right, but not the obligation, to (1) buy or sell a specific asset (2) at a specific price (3) during a specific period of time.

When you buy an option, it is called a *call option*. A call option gives the owner the right but not the obligation to buy an asset at a fixed price during a specific period. The fixed price of an options contract is called the *strike price* or *exercise price*. The rights of a call option do not come without a price; the owner of a call option pays a fee for these rights, called an *option premium*.

The other side of this trade is called *selling a call option*. The owner who is selling a call has an obligation to sell an asset at a fixed price (strike price) during a specified period. As compensation for accepting this obligation, the owner who is selling a call option receives the options premium.

The other type of option contract is called a *put option*, where the owner buying a put option has the right but not the obligation to sell an asset at a fixed price during a specific period. The cost of this right is the option premium. The other side of buying a put option is selling a put option, where the owner has the obligation to buy an underlying asset (if other side of the trade exercises his or her right to sell an asset) at a strike price during the life of the contract.

Options occur in everyday life. If you are interested in buying a car, you might go to a dealer, find a car you like, and negotiate a price. You give the dealer a down payment to hold the car at the negotiated price for a period of time so you can come up with the entirety of the negotiated money. The down payment (option) gives you as the buyer the right but not the obligation to purchase the car at the negotiated price (strike price). The cost of the call option (option premium) is the down payment you gave the car dealer. You may then go back to the dealer with the remainder of the negotiated price to buy the car (exercise the option), completing the transaction (call option).

In the 1970s, options pricing theory made a great leap forward with the development of the Black-Scholes options pricing model. In 1997, Myron Scholes and Robert Merton were awarded the Nobel Prize in Economics for their work in options pricing theory. Their model explained the current value of an option contract using five input factors: (1) current price of asset; (2) strike price of the option contract; (3) risk-free interest rate over life of the option contract; (4) time remaining until option expires; and (5) price volatility of the underlying asset.

Option trading provides many advantages over other investment vehicles, including leverage, limited risk, and insurance. Options may provide investors with the benefit of increased cost efficiency, they may be less risky than investing in equities, they have the potential to deliver higher returns, and they offer a number of strategic alternatives not available with other derivatives. However, the improper use of options, like that of any derivative, can lead to major losses. One of the most severe losses with options was when Scholes and Merton's hedge fund Long-Term Capital Management (LTCM) went bankrupt in 1998.

Dale Johnson

See also: Markets; Scholes, Myron; Securities and Exchange Commission; Stock Market; *Vol. 2: Macroeconomics:* Derivatives; Merton, Robert

Further Reading

Bradford Jordan, T. M. 2012. *Fundamentals of investment.* New York: McGraw-Hill/Irwin.

McDonald, P. H. 2010. The economics of option trading (October 19). https://server1.tepper.cmu.edu/Seminars/docs/opttrading03.pdf (accessed December 7, 2014).

NASDAQ. n.d. Trading a stock versus trading stock options. http://www.nasdaq.com/investing/trading-stock-vs-trading-options-2.stm (accessed December 7, 2014).

U.S. Commodities and Futures Trading Commision n.d. Dodd-Frank Act. http://www.cftc.gov/lawregulation/doddfrankact/index.htm (accessed December 7, 2014).

ORGAN DONATION AND FRAMING

The need for organ transplants continues to outstrip the supply through donation. Economically, this shortage would normally be alleviated through the price mechanism. However, relying on the price mechanism for this type of allocation is associated with an important sociocultural constraint: repugnance. In the economic sense, this is a situation where there are willing participants (some out of economic desperation) to an exchange, but this exchange is prevented by a third party that disapproves.

In light of this constraint, there are two broad approaches to alleviating the shortage. The first is an attempt to increase the number of *living* donations (for example, kidney, bone marrow, and blood). Herein, message framing may have effects on donor attitudes, cognitions, and behaviors. One example of this line of research examines the impact different messages have on organ donor registration (Siegel et al. 2008). As it turns out, not all messages are created equal. In fact, a *counterargument appeal*, one that was designed to debunk some of the common myths associated with organ donation and registration, was found to be nearly twice as effective as the least effective appeals toward eliciting donations. Other forms of appeal included *emotional* (designed to elicit an emotional response), *motivating action* (designed to overcome the procrastination barrier), and *dissonance* (intended to create a sense of cognitive dissonance). Some work in the field of implicit cognition suggests that counterargument appeals may require more critical thinking, and this may result in more favorable donor-relevant attitudes.

A second approach to alleviating the shortage of donations is to create increases in *deceased* donations, where individuals agree to donate organs that are usable in the event of death. It is in this approach that a second behavioral aspect of framing is also important: framing through the default option. More specifically, under what is referred to as *presumed consent legislation*, a deceased individual is classified as a potential organ donor unless explicit steps are taken to indicate the individual's opposition prior to death. Under traditional assumptions of economics, so long as the costs of indicating one's preference are low, the resulting number of donations under either system should be similar. Behavioral economics often emphasizes the significant influence default options have on choices. There are a number of reasons why framing through default options may play an important role in an individual's decision to donate. First, defaults suggest a socially recommended action (English and Sommerville 2003). In addition, making this decision involves a cost, which includes effort, whereas there is no cost to selecting the default option (Johnson and Goldstein 2003). Finally, many individuals would prefer to avoid making an active decision about the unpleasant and stressful issue of donation.

Research by Johnson and Goldstein has provided evidence that the specification of the default is a significant factor with respect to organ donation. They conducted an online experiment in which respondents were asked whether they would agree to be organ donors. Each was faced with one of three possible situations. In the first, they were asked to assume that they had just moved to a new state where the default was not to be an organ donor; the second was identical, but where the default was to be a donor; in the third, they were asked to choose with no prior default. Donation rates were about twice as high for the opting-out option (82 percent) than for opting-in option (42 percent). There was no significant difference between the opt-out condition and the neutral one. Importantly, higher donation agreement rates may not translate into higher rates of donation if potential factors preventing donations from actually occurring are significant.

However, in one study, even when comparing *actual* deceased donations after controlling for factors known to influence propensities to donate across countries over 10 years, where donation is the default, there remains a significantly higher number of actual donations per million (a 16 percent increase). In another similar study, also controlled for other factors affecting donations, donation rates were 30 to 35 percent higher in the default countries. But evidence suggests (Bilgel 2012) that the magnitude of this impact is highly dependent on the involvement of family and the establishment of donor administration systems.

Michael Maschek

See also: Markets; Prospect Theory; Status Quo Bias; *Vol. 1: Foundations of Economics:* Behavioral Economics; Charitable Donations; Economic Psychology; Health Economics; Health Insurance; Religion and Decision-Making

Further Reading

Abadie, Alberto, and Sebastien Gay. 2006. The impact of presumed consent legislation on cadaveric organ donation: A cross-country study. *Journal of Health Economics* 25: 599–620.

Bilgel, Firat. 2012. The impact of presumed consent laws and institutions on deceased organ donation. *European Journal of Health Economics* 13: 29–38.

English, Veronica, and Ann Sommerville. 2003. Presumed consent for transplantation. A dead issue after Alder Hay? *Journal of Medical Ethics* 29: 147–52.

Johnson, Eric J., and Daniel Goldstein. 2003. Do defaults save lives? *Science* 302: 1338–39.

Seigel, Jason T., Eusebio M. Alvaro, William D. Crano, Andrew Lac, Stephen Ting, and S. Jones. 2008. A quasi-experimental investigation of message appeal variations on organ donor registration rates. *Health Psychology* 27 (2): 170–78.

P

PARETO, VILFREDO

Born: July 15, 1848, in Paris, France; Died: August 19, 1923, in Lausanne, Switzerland; Nationality: Italian; Professional Interests: income distribution, equilibrium analysis, quantitative economics; Major Works: *Cours d'économie politique* (1896, 1897), *Trattato di sociologia genérale* (1916), and the English edition *The Mind and Society* (1935).

Vilfredo Pareto was an Italian economist who developed many mathematical formulas used in economics today. Educated as a civil engineer, Pareto was an advocate of free trade. His economic ideas reflected those of Leon Walras and the Lausanne School of economics, which held the view that economics was a mathematical science. His theories addressed a wide range of topics in both economics and sociology. Two of his most lasting ideas were the Pareto principle and Pareto optimality. The Pareto principle held that 80 percent of a country's wealth was held by 20 percent of the country's population. Pareto optimality asserted that the resources of a society are not optimally allocated if at least one person can still be made better off without diminishing the wealth of others. Pareto died in 1923.

Vilfredo Pareto was born on July 15, 1848, in Paris, France, of an Italian father and a French mother. He graduated from the Polytechnic University of Turin with an engineering degree in 1870. His early fascination with equilibrium analysis seemed to have begun while he was a student, evidenced by his thesis on the equilibrium analysis of solid bodies. Following graduation, he worked as a civil engineer for the Italian Railway Company. He began his teaching career in 1886 at the University of Florence in economics and management. In 1893, he joined the economics faculty at the University of Lausanne, where he taught until his retirement.

Pareto, along with Leon Walras, is considered one of the key figures of the Lausanne School of economic analysis. The Lausanne School of economic thought is based on general economic equilibrium theory and the advanced application of mathematical formulas to economics.

Vilfredo Pareto was noted for many theories in economics. Using complex mathematical formulas to identify historical patterns of wealth distribution, he created the law of income distribution. He is also credited with beginning welfare economics through his Pareto optimality theory, which he developed in 1906. Pareto optimality postulated that the resources of a society are not optimally allocated if at least one person can still be made better off without diminishing the wealth of others. The optimality Pareto was striving for in his theory was efficiency. According to Pareto, optimality was reached when all outcomes have been achieved except the one that makes someone else worse off. This definition of optimality, and associated mathematical formula, is the basis for much of the social policy and welfare economics of today.

Pareto has been considered by some to have initiated microeconomics. In 1906, Pareto wrote *Manual of Political Economy.* This work uses the study of equilibrium to solve individual economic problems and relies on the previous work of Francis Edgeworth on indifference curves. In it Pareto created the theory of the consumer and the theory of the producer and replaced utility theory with his Pareto optimality. Pareto optimality has been used to identify perfectly competitive markets as the optimum market structure to distribute wealth.

Pareto's second major contribution is now known as the Pareto principle. Pareto researched the distribution of income in different countries and concluded that a small percentage of a population own a large percentage of the wealth. In his *Cours d'économie politique* (1896, 1897), Pareto expanded on his law of income distribution. He argued that the distribution of income, regardless of country or era, followed a similar pattern that could be interpreted in a mathematical formula. Pareto suggested that 80 percent of a country's wealth is owned by only 20 percent of the country's people. This 80/20 ratio of income distribution became known as Pareto's law. The ratio was later expanded to include other input/output ratios (such as in management) and was expanded to the 80/20 Pareto principle or 80/20 Pareto rule.

Pareto is credited for several other ideas basic to economics. He was critical of the economic concepts of marginal analysis and utility. The sociological element of his studies was evident in his explanations of human behavior and consumer preferences. He contended that humans make economic decisions based more on what they want than what will make them better off. Pareto's ideas about human behavior were the foundation for the later work of Daniel Kahneman and others, known as behavioral economics.

Crossing over both disciplines, Pareto was also a vigorous critic of Karl Marx, particularly Marx's theory of class struggle between laborers and capitalists. Pareto asserted that the struggle between these two classes was only one of many different struggles between different groups.

Pareto later directed his studies more to sociology as his interest in human behavior expanded. He also argued that the field of economics devoted too little time to the subject and was too narrow in its scope when it did consider human behavior as an economic action.

In 1916, he published *Trattato di sociologia generale*. In it Pareto expanded on his study of human behavior, explaining that people act on sentiment and justify their sentimental decisions later. He labeled the decisions of sentiment *residues* and the explanations *derivations*. His idea that human decisions are based on emotion conflicted with the notion of the rational decision-making process asserted by economics. *Trattato di sociologia generade* was first published in English using the title *Mind and Society*. Italian fascist Benito Mussolini claimed that the lectures and theories of Pareto while he was a student at the Lausanne University were a significant influence on his ideas (Mussolini 1928, 14).

Another theory of Pareto's was that a society had two elites: a governing elite and a nongoverning elite. What made this theory so fascinating in later years was his contention that one of the elite factions is progressive, the other one is conservative, and in strong societies they alternate in holding power. Pareto contended that as the power-holding elite used up its goodwill with the people, the other elite would rise. Pareto asserted that the power holding between the two elites was both cyclical and predictable. This theory led Pareto to the conclusion that all political classifications were labels for different elite positions to obtain power.

After his death, Pareto's legacy was solidified in the 1930s and 1940s. John Hicks, Maurice Allais, and Paul Samuelson all popularized Pareto's work on consumer preferences and welfare economics. His welfare economics theories became the foundation for the welfare economics movement of the mid-20th century with such economists as Harold Hotelling and Oskar Lange.

Vilfredo Pareto died in Lausanne, Switzerland, on August 19, 1923.

David A. Dieterle

See also: Kahneman, Daniel; Pareto Optimality

Further Reading

Alexander, James. 1994. Pareto: The Karl Marx of fascism. *Journal of Historical Review* 14 (5): 10–18.

Bridel, Pascal, ed. 1992. *Editing economists and economists as editors: Papers given at a conference held at Walras Pareto University of Lausanne.* Geneva: Librarie Droz.

Cirillo, Renato. 1978. *The economics of Vilfredo Pareto.* London: Cass.

Lyttelton, Adrian. 1973. *Italian fascisms: From Pareto to gentile.* New York: Harper & Row.

Mussolini, Benito. 1928. *My autobiography.* New York: Charles Scribner's Sons.

Pareto, Vilfredo. 1896. *Cours d'économie politique professee a l'université de Lausanne*. 3 vols. Lausanne: Librairie de l'Université.

Pareto, Vilfredo. 1927 (1971). *Manual of political economy*. Translated by Ann S. Schwier. Fairfield, NJ: Augustus M. Kelley.

Pareto, Vilfredo. 1935. *Trattato di sociologia generale* [Treatise on general sociology] (1916, rev. French trans. 1917); published in English by Harcourt, Brace in a four-volume edition. Edited by Arthur Livingston under the title *The Mind and Society.* New York: Harcourt Brace.

PARETO OPTIMALITY

Pareto optimality describes a state of affairs in which resources are distributed such that it is not possible to improve a single individual without also causing at least one other individual to become worse off than before the change. If economic allocation in any system is not Pareto efficient, there is potential for a Pareto improvement, or an increase in Pareto efficiency: through reallocation, improvements can be made to at least one participant's well-being without reducing any other participant's well-being. A perfectly competitive market can be shown to deliver a Pareto optimal allocation of resources. Whether this is the most desirable allocation of resources is a value judgment.

Pareto optimality originated from Vilfredo Federico Damaso Pareto (1848–1923), an Italian economist who contributed seminal work to microeconomics, income distribution, and land distribution in Italy. Best known for his contributions

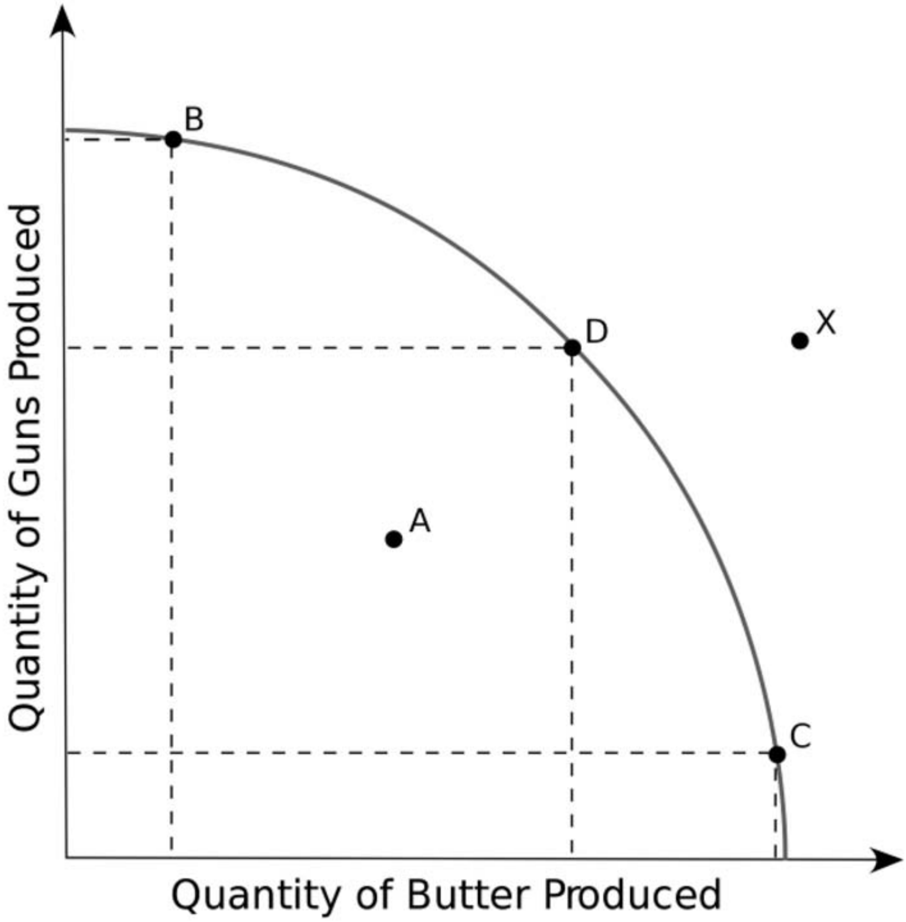

Figure 1. Pareto optimality

in economics, Pareto was a true Renaissance man, delving into diverse disciplines that included sociology, political science, philosophy, engineering, and mathematics. Pareto's engineering background shaped the way he expressed economic theory, relying on graphs, maps, and statistical analysis to prove scientific points. He was able to transform the field of economics from philosophical conjecture to a quantifiable science discipline. Pareto optimality provides economists with a certain perspective and criteria for judging the efficiency of a distribution system. Additionally, this way of looking at economic efficiency and income distribution helped Pareto himself and other economists develop microeconomics as a field of study.

A production-possibility frontier is an example of a Pareto-efficient frontier, as seen in the graph comparing the production of guns produced to the production of butter. Assuming that the economy's available quantity of factors of production does not change over time and that technological progress does not occur (this would alter the location of the curve itself), the economy is operating on this production possibilities frontier. If production is efficient, the economy can choose between points on the production possibilities frontier curve: *B* if guns are of interest, *C* if more butter is needed, *D* if an equal mix of butter and guns is required. In the production possibilities frontier, all points on the curve are points of maximum productive efficiency; all points inside the frontier (point A) can be produced but are productively inefficient.

Lauren Major

See also: Pareto, Alfredo; *Vol. 1: Foundations of Economics:* Production Possibilities Curve

Further Reading

Pardalos, Panos M., A. Migdalas, and Leonidas Pitsoulis, eds. 2008. *Pareto optimality, game theory and equilibria*. Netherlands: Springer Science & Business Media.
Schotter, Andrew. 2008. *Microeconomics: A modern approach*. Boston: Cengage Learning, 564.
Shelton, Robert B. 1970. *Vote trading, pure and impure public goods, and Pareto optimality*. Carbondale, IL: Southern Illinois Univ.

PEAK OIL

The term *peak oil* refers to the point in time when oil production reaches its maximum (the peak), after which consumption will steadily decline and lead, ultimately, to depletion. The study of peak oil attempts to estimate the peak date, the total amount of available oil, and the date of ultimate depletion. Peak-oil research is based on the surprisingly accurate prediction by M. K. Hubbert in 1956 of the peak of U.S. crude oil production in 1970. Hubbert's parsimonious analysis estimated this peak by fitting a simple logistic distribution (a bell-shaped curve similar to a normal distribution) to observed oil production. Importantly, Hubbert did not include economic variables such as prices in his analysis, and peak-oil proponents have generally followed his lead. Despite the limited economic analysis, peak-oil proponents have drawn economic conclusions (many of them dire) from their work. These predictions of catastrophe have fueled the efforts to estimate the peak in world oil production. However, peak-oil analysis has not gained widespread acceptance, and many of its conclusions remain controversial.

The standard model underlying most peak-oil analysis assumes that oil production follows an essentially random process. To illustrate, think of the world as a giant checkerboard with oil randomly deposited under some squares but not others. Suppose that each year, we explore a number of squares, some of which yield oil and some of which do not. Oil production then begins from the oil-producing sites: first ramping up over time, then holding steady at a maximum level determined by internal wellhead pressure, and finally declining to zero. Under this model, oil production should follow a bell-shaped curve: growing over time as more and more sites are developed, but then declining over time as fewer and fewer sites remain to be developed. Importantly, under this model, the peak date can be estimated from observed production. Moreover, under Hubbert's symmetric logistic version of the model, the total amount of available oil and the date of ultimate depletion can also be estimated.

Despite Hubbert's early predictive success, applying the peak-oil model to other regions has been less successful. In particular, while oil production in many regions does exhibit evidence of peaking, in many regions it does not. For example, Ohio production seems to have multiple peaks, and Iraqi production seems to be at best chaotic.

Moreover, Hubbert's logistic model does not clearly dominate other models (e.g., exponential or linear), and allowing for asymmetric increases and decreases in production fit the data better. Unfortunately, the more flexible, asymmetric models cannot be used to reliably estimate the peak date, the total amount of available oil, or the date of ultimate depletion.

Despite these technical difficulties, predicting the peak might be important as an indicator of scarcity. Unfortunately, the peak in oil production has little systematic relationship with the underlying scarcity of oil. In fact, it is easy to construct simple examples where an improvement in technology could either hasten or delay the peak. Thus peaking is not necessarily a good indicator of scarcity.

Economics offers an alternative model of depletable resources. This model, originally developed by Hotelling, describes both how oil should be used to maximize the benefits to society and how oil would be used under competitive markets. As with the peak-oil model, Hotelling's model gets some things right and some things wrong. Importantly, simple versions of the model unrealistically predict steadily increasing prices and decreasing consumption. These unrealistic features of the basic model have reduced its applicability; however, relatively straightforward extensions of the model make it more realistic. In fact, recent work shows that by adding realistic features, the Hotelling model can be extended to predict peaking in oil production.

The dire economic predictions of the peak-oil analysts follow from assumptions of irreversibility and nonsubstitutability. Once decline starts, there is essentially nothing that can be done to reverse it, and because oil is essential to society, declining oil production will lead to a declining standard of living, wars, and famine. However, these predictions following the peak in world oil production may or may not turn out to be true. If the prediction is simply based on a correlation, there is no scope for policies to affect the outcome. However, if the prediction is based on a causal relationship, there is scope for policy. For example, if the relationship between peaking and catastrophe is causal, by delaying oil peaking we may be able to delay or prevent the catastrophe. The case for causality would be strengthened by carefully explaining a mechanism by which peaking leads to catastrophe. The crucial assumption of any such mechanism is substitutability: How quickly can society substitute away from oil to other energy sources or to reduced energy consumption? If we can readily substitute away from oil, there will be no catastrophe. But if we cannot, catastrophe may be imminent.

Whether society can substitute away from conventional crude oil is clear: we can. First, much peak-oil analysis focuses solely on conventional crude and ignores heavy crude such as the Canadian oil sands. Second, with the introduction of electric cars, we can substitute even further away from oil to run our cars on natural gas, coal, or even nuclear power. Thus, it is hard to argue that a peak in conventional crude oil production leads to catastrophe and that governments should actively work to delay the peak.

Although oil peaking may not lead directly to catastrophe, there are other issues to consider. First, although substitution is certainly possible, it is costly. Substituting from cheaper oil to more expensive electric cars will decrease our standard of living as oil production declines. Second, each of the substitutions given earlier has environmental costs. Coal and heavy crudes have much higher greenhouse gas emissions; natural gas supply is even more limited than oil; and nuclear power has catastrophic risks that rival anything that could be imagined from peak oil. Thus substitution to other resources is fraught with other difficulties.

The catastrophes predicted by peak-oil analysis are unlikely to follow as a direct consequence of a peak in global conventional crude oil production. Nonetheless, there is substantial scope for policies to improve oil markets. Hotelling's analysis points to a number of market failures, for example, unpriced externalities from pollution, common pool extraction, excessive private discount rates, market power, and insecure property rights. Each of these market failures leads to oil markets that are not best for society. Similarly, concerns about sustainability remain: How can we meet the needs of current generations without compromising the ability of future generations to meet their needs? Peak-oil analysis can be helpful by heightening attention to these areas with legitimate scope for policy.

Stephen P. Holland

See also: Common Property and Common-Pool Resources; Markets; *Vol. 1: Foundations of Economics:* Environmentalism; *Vol. 2: Macroeconomics:* Externality; Property Rights; *Vol. 4: Global Economics:* Sustainable Economic Development

Further Reading

Brandt, Adam. 2006. Testing Hubbert. *Energy Policy* 35 (6): 3074–88.

Holland, Stephen P. 2008. Modeling peak oil. *Energy Journal* 29 (2): 61–80.

Porter, Richard C. 2006. Beyond oil: The view from Hubbert's Peak/the end of oil: On the edge of a perilous new world/the long emergency: Surviving the converging catastrophes of the twenty-first century. *Journal of Economic Literature* 44 (1): 186–90.

Smith, James L. 2009. World oil: Market or mayhem? *Journal of Economic Perspectives* 23 (3): 145–64.

PENSION PLANS

A pension plan is a type of retirement plan under which an employer makes contributions toward a pool of funds set aside for an employee's future benefit. The pool of funds is then invested on behalf of the employee. That allows the employee to receive benefits upon retirement. A pension plan is usually tax exempt. The two main types of pension plans are (1) defined benefit plans and (2) defined contribution plans.

Defined Benefit Plan

A defined benefit plan promises a specified monthly benefit at retirement. This promised benefit may be an exact dollar amount, such as $100 per month at retirement, but usually the benefit is calculated through a plan formula that considers such factors as salary and length of service. For example, it may be equal to 1 percent of average salary for the last five years of employment for every year of service with an employer. The benefits in most traditional defined benefit plans are usually protected by federal insurance provided through the Pension Benefit Guaranty Corporation (PBGC).

Defined pension plans contrast with other types of retirement plans whose payouts are dependent on returns of the underlying investments within the plan. Employees were required to work for a certain period of time (called a vesting period) before they were eligible to receive benefits in a defined benefit plan. In addition to a monthly payment, these pensioners frequently received a health care insurance plan. In many cases, these benefits were on top of the Social Security benefits the retiree received.

These plans were established in the late 1800s, according to Patrick V. Seburn in "Evolution of Employer-Provided Defined Benefit Pensions" (1991). The early pension plans covered workers in the railroad, banking, and public utilities industries. In 1974, the Employee Retirement Income Security Act (ERISA) was enacted to protect employees' benefit rights in private pensions.

By the 1980s, the private pension system assets had expanded exponentially. In spite of the growth of the assets within the defined benefit pensions, during the mid-1980s, the medium- and large-sized companies who offered these plans began to shift toward private plans financed completely by the employees. These defined benefit pensions became very expensive to administer, and new retirement savings options became available.

Furthermore, with the increase in smaller, service-oriented firms, employer-funded retirement pensions increased. Today, the individual who works for the same company throughout his or her career and receives an employer-sponsored pension is rare.

Defined Contribution Plans—401(k) and 403(b)

A defined contribution plan does not promise a specific amount of benefits at retirement. Under this type of plan, the employee or the employer or both contribute to the employee's individual account, sometimes at a set rate (e.g., 5 percent of earnings annually). These contributions are generally invested on behalf of the employee. The employee will ultimately receive the balance in his or her account, which is based on contributions plus or minus investment gains or losses. The value of the account will fluctuate due to the fluctuations in the value of the investments. Examples of defined contribution plans are 401(k) plans, 403(b) plans, employee stock ownership plans, and profit-sharing plans.

A 401(k) plan is a defined contribution plan that is a cash or deferred arrangement. This type of plan is available to all employers except governmental employers. With a 401(k), employees can elect to defer a portion of their salary, which is instead contributed on their behalf, before taxes, to the 401(k) plan. Sometimes the employer matches these contributions. There are special rules governing the operation of a 401(k) plan. For example, there is a dollar limit on the amount an employee may elect to defer each year. Employees who participate in 401(k) plans assume responsibility for their retirement income by contributing part of their salary and, in many instances, by directing their own investments.

The tax benefits to employees who contribute to a defined contribution plan such as a 401(k) are important. For example, if an employee earns $4,000 per month, that employee ordinarily pays tax on the entire amount earned. Yet, if the employee elects to contribute $500 per month to the 401(k) plan, he or she will only be taxed on $3,500 ($4,000 – $500) per month. When the employee retires and withdraws the retirement savings, income taxes will be due on the amount withdrawn at that time.

Although the employee owns his or her plan contributions, some employers require the employee to work for the organization for a predetermined length of time before becoming vested or "owning" the employer's contributions. Thus, if the employer requires five years to become vested and receive the employer's contributions, and if the worker leaves the firm after three years, he or she would be ineligible to receive the employer's portion of the contribution to the pension plan.

A 403(b) plan is similar to a 401(k). The basic difference between the two is eligibility. The 403(b) plan is limited to 501(c)(3)s or tax-exempt nonprofit organizations. This type of plan is frequently administered by government or nonprofit employers, such as k–12 schools and nonprofit colleges and universities. Another substantive difference between the 401(k) and 403(b) is that the latter is normally required to fund the investments with annuity contracts and mutual funds.

A profit-sharing plan or stock bonus plan is a defined contribution plan under which the plan or the employer may determine, annually, how much will be contributed to the plan (out of profits or otherwise). The plan contains a formula for allocating to each participant a portion of each annual contribution. This plan is quite flexible in that the contributions can be adjusted annually. This plan offers a secondary benefit; it allows employees to feel as though they have a stake in the future of the company, and when the company profits, so do the employees.

An employee stock ownership plan (ESOP) is a form of defined contribution plan in which the investments are primarily in employer stock. Similar to a profit-sharing plan, employees also benefit in the company's growth. When the firm's stock increases, so does the value of employees' stock options. There are additional tax benefits to both the employer and employee.

There are many other types of pension plans, including individual retirement accounts, Roth individual retirement accounts, and other varieties of the aforementioned accounts. The government and financial industry frequently devise new retirement savings alternatives so that workers are not completely dependent on the Social Security system for their future financial well-being.

R. Ghosh

See also: Annuity; Retirement Accounts; *Vol. 1: Foundations of Economics:* Capital Gains and Capital Losses; Compound Interest; Estate Planning; Financial Literacy; Investing; Social Security

Further Reading

Brandon, Emily. 2012. 10 important ages for retirement planning. *U.S. News & World Report* (February 21). http://money.usnews.com/money/retirement/articles/2012/02/21/10-important-ages-for-retirement-planning (accessed May 27, 2014).

Seburn, Patrick W. 1991. Evolution of employer-provided defined benefit pensions. *Monthly Labor Review* (December). http://www.bls.gov/opub/mlr/1991/12/art3full.pdf (accessed May 27, 2014).

TIAA-CREF Financial Services. n.d. Differences between 403(b) and 401(k) plans. http://www1.tiaa-cref.org/plansponsors/resources/compliance/403b/resources/faqs/faqs_differences_403b_401k.html?ssSourceSiteId=tcpub (accessed May 27, 2014).

PERFECT COMPETITION

The simplest yet rarest market structure is perfect competition. This type of market structure is an example of a true free market with the market finding a natural equilibrium without any interference. There are very few industries that meet all of the characteristics of this type of market structure, but farm products may be the closest.

Characteristics

In a perfectly competitive market there are many buyers and sellers. With so many people in the market, the prices of goods are set without any influence from suppliers or consumers. With so many individuals on both sides of the market, neither buyers nor sellers have enough influence in the market to shift prices.

Another reason that equilibrium is found without any influence in a perfectly competitive market is that the products being sold are identical. Therefore, a buyer will not pay extra for one particular company's good, since there are many identical products being offered. Buyers will always choose the *commodity* that is offered at the lowest price.

In addition to buyers having many choices of identical products, they are also well informed about the goods or services that they are purchasing. Consumers have a lot of information about the features of the product and its price. Sellers also have an advantage in this market structure in that it is very easy to enter and exit. Individuals who wish to become sellers of goods in this market can do so with ease.

With so many competitors entering and exiting the market, the price of goods in a perfectly competitive market fluctuate often. When prices are higher, there is an incentive for more sellers to enter the market and compete. However, as more sellers enter the market, competition increases, which causes prices to fall to their lowest possible point. When prices fall, some sellers will easily exit the market, causing prices to rise once again. The equilibrium point in the perfectly competitive market is constantly fluctuating with the entry and exit of firms.

Price and Output

Since sellers in this market are price takers, they are extremely efficient. Production costs must remain low, and firms must use all of their factors of production as efficiently as possible. The price consumers pay and the revenue firms make is a reflection of how much the market values the resources that have gone into making the product.

In a perfectly competitive market, firms charge the lowest price sustainable for the firm to remain in business. The firms that use their resources most efficiently will remain in business while those that do not or cannot will lose revenue. Because no supplier influences prices, producers will make their output decisions based on the most efficient use of their land, labor, and capital. In the long run, firms will be able to just cover their costs, which includes paying the firm's owners enough to make the business worth keeping.

Because producers have no control over prices, their only real decision is how much to produce, which is based on their resources available, the cost of production, and the current market price.

Tracy L. Ripley

See also: Business Structures; Markets; Monopolistic Competition

Further Reading

Klein, Andreas. 2007. *Comparison of the models of perfect competition and monopoly under special consideration of innovation*. Munich: GRIN Verlag.

Machovec, Frank. 2002. *Perfect competition and the transformation of economics*. New York: Routledge.

Mas-Colell, Andreu. 2014. *Noncooperative approaches to the theory of perfect competition*. New York: Academic Press.

O'Sullivan, Arthur, and Steven M. Sheffrin. 2007. *Economics principles in action*. Upper Saddle River, NJ: Pearson/Prentice Hall.

PREFERENCE POLLUTION

Markets are often praised for giving people what they most want. This is a very limited view of people, since everyone can recall situations in which they were unhappy with their choices. Smokers often don't like their choices, nor do individuals who are overweight. While this phenomenon—displeasure at one's personal choice—has a long history, a consideration of second-order preferences can lead to the conclusion that markets fail when it comes to creating the desires that we wish to have.

Recognition that markets fail when there are spillover benefits or spillover costs can be traced back to the work of the economist Arthur Pigou. If people besides the buyer and seller benefit from the production or consumption of a good, it can be shown that market forces result in too little of the good being produced. If they are harmed, it is the opposite; too much of the good is produced.

Preference pollution occurs when the tastes that sellers cause us to have are, by our own judgment, worse than the tastes that they replace. The preferences that receive attention from economists (*regular preferences*) are rankings of "things." The things being ranked lie outside of the person, and when a choice is made, the enforcement of property rights assures that the item selected belongs to the purchaser and cannot be taken away. Thus, if someone goes to a restaurant where both salads and cheeseburgers are sold, her choice of the salad is said to "reveal" her preference as "salad preferred to cheeseburger." If following the purchase of the salad the restaurant's owner were to suddenly take away the salad and replace it with a cheeseburger, it is obvious that harm has been done. A thing that this person prefers and selects cannot be taken from her.

Applying the same reasoning to *second-order preferences* (also known as *metapreferences*), one can show how market failure can occur in the shaping of tastes. Second-order preferences are rankings of regular preferences. Imagine that this person is happy with the regular preference that she has. She not only prefers the salad but also prefers having this preference (salad preferred over cheeseburger) to having the other possible preference (cheeseburger preferred over salad). Now imagine a different scenario. She has just entered the restaurant, with a second-order preference for the salad and a regular preference for the salad as well. If she were to decide at that moment, she would choose the salad. But what if the owner of the restaurant has the pleasant aroma of cheeseburgers wafting through the restaurant or has a tempting picture of the cheeseburger on the menu? Notice that there is nothing preventing the owner from "taking away" the customer's regular preference and replacing it with the other one. For although the customer "has" regular preferences just as she "has" all her material possessions, she does not have ownership rights. Because of this, it is legal to "take away" a preference and replace it with another one. As standard economic theory would predict, the creation of worse preferences would occur too often. The owner is not forced to compensate the customer to make up for the harm she has suffered and would thus be expected to engage in these activities too often.

If this line of argument is accepted, certain types of policy and behaviors can be identified as part and parcel of market failure. Evidence suggests that the problem has been getting worse. Talk of addiction is at an all-time high. A search of the *New York Times* reveals that before 1930 the expression *good habit* appeared twice as often as *bad habit*. It is now the reverse. Prohibitions intended to shape tastes as people want them to be shaped were more common then than they are today. Reports of food addictions, credit addictions, and porn addictions have become more frequent. Sellers who used to face social sanctions for creating "bad tastes" are more likely today to see it as their responsibility to give consumers what they prefer. Many people today do not understand that the creation of the preference that results in the most profits might not be aligned with consumers' preferences.

Moral philosopher Harry Frankfurt argued that the ability to have such second-order preferences was what distinguished humans from other living creatures. Markets might be good at meeting our regular preferences, the sort of preference that we share with animals, but fail in the formation of second-order preferences, the very preferences that, according to Frankfurt, make us human.

David George

See also: Dual Motive Theory and Dual Interest Theory; *Vol. 1: Foundations of Economics:* Moral Motivation; *Vol. 2: Macroeconomics:* Externality

Further Reading

Frankfurt, Harry G. 1971. Freedom of the will and the concept of a person. *Journal of Philosophy* 68: 5–20.

George, David. 2001. *Preference pollution: How markets create the desires we dislike.* Ann Arbor: Univ. of Michigan Press.

Jeffrey, Richard C. 1974. Preferences among preferences. *Journal of Philosophy* 71: 377–91.

Sen, Amartya K. 1977. Rational fools: A critique of the behavioral foundations of economic theory. *Philosophy and Public Affairs* 6: 317–44.

PRIMING AND FINANCIAL DECISIONS

Priming is an implicit memory process, where exposure to stimuli or events affects the availability of specific information categories and response to subsequent events. As a result, it also influences decision-making (Baron and Byrne 1997, Chapter 3). Priming may also be viewed as changes in preliminary conditions that make it more likely that subjects will have a particular response following the stimulus (Cramer 1968). Tulving refers to priming as facilitation of performance of one task on that of following identical or similar tasks. Noteworthy is that the availability of a specific knowledge category stored in memory is positively related to the probability of using it to interpret perceived information (Bruner 1957).

Priming processes are routinely activated in a variety of situations. For example, watching a horror movie may intensify attention and modify interpretations and reactions to subsequent stimuli, such as a squeaking gate, thereby causing the exposed person to act as in alarming situations. The same stimulus when not followed up may be left consciously unnoticed, or interpreted in a different, unexciting manner.

Priming procedures in the lab are usually comprised of two consecutive stages, *exposure* and *testing*. In the first stage, subjects are exposed to a stimulus, and in the second, they are requested to execute a particular action, make a decision, or interpret a situation or the meaning of some substance. The exposure stage may be subconscious, also known as automatic priming (flashing words or pictures for brief time spans such that the participants are not aware of seeing them), or conscious, gaining subjects' full awareness.

Several papers have dealt with priming and financial decisions. Erb, Bioy, and Hilton, employing a procedure for subconscious priming of risk attitudes, induced risk-seeking or risk-averse preferences across a range of decision scenarios. Subsequently, they showed that drawing participants' attention to the priming event may reverse the induced priming effects. Their results support the view that the formation of risk preferences may be based on preconscious processing, as for example postulated by the affective primacy hypothesis, rather than hinging on deliberative mental operations, as posited by several models of judgment and decision-making.

Meier-Pesti and Penz, building on the observations that, in investment decisions, women are more risk-averse than men and, in Western cultures, risk taking is perceived as a masculine characteristic, hypothesized that the more people associate themselves with masculine attributes, the more financial risks they would tend to take. Their first study showed that differences between men and women in financial risk taking decreased when identification with masculine attributes remained constant, while femininity was not related to financial risk taking. In their second study, gender priming on masculinity and femininity affected risk taking of the male sample.

Gilad and Kliger explore the influence of priming on financial decisions by reinforcing subjects' risk-seeking behavior under uncertainty and comparing it to behavior in control groups. They focused on professionals: commercial banks' investment advisers and accountants in CPA firms. The results indicate that priming affects subjects' risk attitudes and investment decisions. Professionals' decisions were affected more than undergraduates', suggesting they employ a more intuitive and less analytic approach in making their decisions.

Kliger and Gilad explore the role of colors as priming substance. Colors are widely present in the financial decision-making arena, with red and green prominently employed. Their between-subject experimental analysis exposed subjects to financial information on colored backgrounds and explored the effect on their investment decisions. The results indicate that red color priming emphasize value losses of the underlying asset. To wit, subjects who were exposed to red assigned higher valuations and probabilities to events involving the loss domain than to events involving the gain domain relative to the valuations assigned by subjects who were exposed to green.

Doron Kliger

See also: *Vol. 1: Foundations of Economics:* Behavioral Finance; Decision Costs; Emotions and Decision-Making

Further Reading

Baron, Robert A., and Donn Byrne. 1997. *Social psychology: Understanding human interaction*, 7th ed. Boston, MA: Allyn and Bacon.

Bruner, Jerome S. 1957. On perceptual readiness. *Psychological Review* 64: 123–52.

Cramer, P. 1968. *Word association*, 1st ed. New York: Academic Press.

Erb, Hans-Peter, Antoine Bioy, and Denis J. Hilton. 2002. Choice preference without inferences: Subconscious priming of risk attitudes. *Journal of Behavioral Decision Making* 15: 251–62.

Gilad, Dalia, and Doron Kliger. 2008. Priming the risk attitudes of professionals in financial decision making. *Review of Finance* 12: 567–86.

Kliger, Doron, and Dalia Gilad. 2012. Red light, green light: Color priming in financial decisions. *Journal of Socio-Economics* 41: 738–45.

Meier-Pesti, Katja, and Elfriede Penz. 2008. Sex or gender? Expanding the sex-based view by introducing masculinity and femininity as predictors of financial risk taking. *Journal of Economic Psychology* 29: 180–96.

Tulving, Endel. 1983. *Elements of episodic memory*. New York: Oxford Univ. Press.

PRODUCTIVITY

The goal of every business is to be productive. The goal of every economy is to be more productive and as a result increase society's standard of living. For most economies, productivity can be translated into economic growth. Productivity relates to both microeconomics and macroeconomics.

Productivity in the academic sense is the measure of the relationship between the use of inputs and resulting outputs. To be productive is to be efficient with the use of available inputs in the production of goods and services (outputs): the ratio of output per unit of input.

Productivity can be defined in two simplified relationships. One measure is to use fewer inputs to generate the current level of outputs. In this measure output has not increased but fewer inputs are being allocated to the production of the output. Inventions that increase production and changes in input relationships (for example, moving from labor to capital) would be an example of this productivity. The other relationship allocates the same level of inputs, but used differently or uniquely, to generate more output. This measure is reflected in new and innovative processes. Henry Ford increased productivity in this fashion when he brought the assembly line to the automobile industry.

Measuring productivity can look different depending on the production being measured. In microeconomics productivity measures focus on the efficient and effective use of inputs. Labor productivity is an important productivity measure for companies. Measured as output per hour, companies even search for additional productive measures, such as number of hours of a worker per unit of output. Measuring other inputs is also important. Efficient use of materials, land, and energy per unit are also important productivity measures.

In macroeconomics the idea of productivity takes on a different perspective. Since macroeconomics is the big-picture economic view, macroeconomic productivity is also a big-picture view. Identifying the productivity of an entire economy has its own set of issues. With many interrelated parts, one of the most important issues to address is to avoid double-counting capital inputs (intermediate goods) used in producing goods. To avoid this dilemma, a nation's productivity is measured by the value added of each production. This is accomplished by measuring the final value of an economy's goods and services, an economy's gross national product (GNP) or gross domestic product (GDP). Both GNP and GDP are also used to measure the income (wages, rents, profits) generated by an economy's inputs. Comparing these two measures (final value of goods and services and income) provides insights regarding an economy's productivity, growth, and standard of living.

Measuring productivity can also involve both microeconomics and macroeconomics simultaneously. To achieve economic growth, it's also important to understand the productivity of the different markets within an economy. The Bureau of Economic Analysis (BEA) collects data on households, businesses, governments and public services produced, and overall activity in both the product and resource markets.

Being able to calculate productivity is central to a business, industry, or entire economy. It supports the ability to improve production through new machines and processes and increases profitability and the standard of living for a nation.

David A. Dieterle

See also: Market Structures; Microeconomics; Income; *Vol. 1: Foundations of Economics:* Economic Systems; Resources; *Vol. 2: Macroeconomics:* Bureau of Economic Analysis; Economic Growth, Measures of; Gross Domestic Product; Gross National Product; Macroeconomics

Further Reading

Bureau of Labor Statistics. 2013. Subject areas—Overview of BLS productivity statistics (December). http://www.bls.gov/bls/productivity.htm (accessed February 15, 2016).

Field, Alexander J. n.d. Productivity. Library of Economics and Liberty. www.econlib.org/library/Enc/Productivity.html (accessed February 15, 2016).

Investopedia. n.d. Productivity. www.investopedia.com/terms/p/productivity.asp (accessed February 15, 2016).

Prokopenko, Joseph. 1992. Productivity management: A practical handbook. Geneva: International Labour Office.

PROFIT MAXIMIZATION AND BEHAVIORAL ECONOMICS

Traditional economics makes the behavioral assumption of maximization—that consumers, investors, and businesses maximize, and that in real life, individuals and businesses endeavor to maximize, with the most successful of them succeeding in doing so. Behavioral economics is in part descriptive economics and does not begin with any particular assumption about the behavior of individuals, such as that they seek to maximize profits. Indeed, to the extent that many individuals are not owners, and, moreover that some very successful enterprises consider the welfare of others, even an objective of maximization does not entail profit maximization, certainly not in anything but the very longest run. And that is true even before taking into consideration elements such as trust and emotional factors that would interfere with maximization (although, admittedly, some would encourage careful calculation and thus contribute to maximization).

Factors identified by behavioral economics, such as loss aversion, mental accounting and myopia, and unstable and changing preferences—considerations that affect much human activity—interfere with the maximization of profits in any absolute sense, though not necessarily maximization given those constraints. The lack of complete information or the cost of obtaining such information, along with difficulties in perceiving certain information accurately, prevent any type of maximization or constrained maximization, however, and descriptive economics reveals the impact of at least some of that incomplete, costly, and imperfectly perceived information on decision-making.

While much of behavioral economics does not assume profit maximization, there are exceptions, however, with contributors such as Truman Bewley assuming that businesspersons attempt to maximize in fact, but in doing so, take factors such as the morale of their employees and its effect on productivity into account. What we seem to be left with, then, is that behavioral economics is inconsistent with traditional economic formulations of profit maximization, but, emotional considerations aside, may allow for an effort to maximize that takes account of introspective considerations that would be completely outside the realm of traditional microeconomic analysis, and/or that may lead to efforts to satisfice—to do what seems to be the best that is possible under the circumstances.

Hugh Schwartz

See also: Simon, Herbert; Thaler, Richard; *Vol. 1: Foundations of Economics:* Decision Costs; Emotions and Decision-Making

Further Reading

Leibenstein, Harvey. 1979. A branch of economics is missing: Micro-micro theory. *Journal of Economic Literature* 17: 477–502.

Nelson, Richard, and Sidney Winter. 1982. *An evolutionary theory of economic change*. Cambridge, MA/London: Belknap Press of Harvard Univ. Press.

Simon, Herbert. 1987. Behavioral economics. In *The new Palgrave: A dictionary of economics*, ed. John Eatwell, Murray Millgate, and Peter Newman, 221–25. London: Macmillan.

Thaler, Richard H. 1992. *The winner's curse: Paradoxes and anomalies of economic life*. New York: Free Press.

PROSPECT THEORY

Prospect theory is the most prominent of a family of nonconventional models of economic decision-making that have emerged at the interface between economics and psychology during the final quarter of the 20th century and have led to the recent behavioralist turn in modern economics. In prospect theory, decision-making is construed as a two-stage process. During an initial "editing" stage, the decision problem is reduced in complexity by applying certain heuristics. This is followed by the evaluation stage, where potential outcomes or "prospects" are assigned a value in relation to a reference point and then differentially weighted on the basis of a subjective and context-dependent assessment of relative likelihood. The resulting theory is able to account for a number of anomalies that arise in traditional approaches to rational choice under risk and uncertainty.

A prospect p = (x, v; y, w) describes an uncertain outcome that results in value x with probability v, and value y with probability w. Consider a coin toss with a winning value of 200 for heads and zero for tails. The prospect of tossing a fair coin that yields heads with a 50 percent probability can be written as p = (200, 0.5; 0, 0.5). Choice under uncertainty raises the question of how to decide between the prospects of different courses of action. Consider alternative prospect q = (100, 1; 0, 0). Here heads is the certain outcome in all cases. The expected value of the two prospects is the same, but behavioral evidence suggests that we evaluate these prospects differently depending on our appetite for risk.

Conventional approaches in economics recognize this by proceeding from expected utilities rather than expected values, but this still leaves much of observed behavior unaccounted for. Prospect theory aims to offer a theory of choice under uncertainty that is descriptively more accurate. During the editing stage, prospects are given a simplified representation through various operations, including rounding of numerical values and aggregation or discarding of common elements. In a two-stage game, for example, that has a 25 percent chance of proceeding to the second stage or winning nothing, and where at the second stage there is a choice between prospects p' = (199, 0.8; 0, 0.2) and q as above, with initial editing p' is equivalent to p after rounding and acknowledging the zero value alternative common to both prospects. With behavioral cancelation of the first stage as a common element to these resulting prospects, a loss-adverse individual will find q more attractive while p dominates q on the basis of expected values that result from consideration of both stages of the game.

At the second stage after editing, prospects are evaluated according to two dimensions by assigning outcomes a subjective value u (.) and by giving probabilities a weight t (.) according to their impact on the overall assessment of the prospect. The result is a procedural model in which outcomes are evaluated asymmetrically in respect to a contextual or psychological reference point, allowing for loss aversion, endowment effects, and various kinds of framing effects, on the basis of an overall value V (x, v; y, w) = u (x) t (v) + u (y) t (w). Prospect theory therefore allows for the expected utility approach as a special case.

Also of critical importance is that in prospect theory, unlike in traditional economics, gains are weighted differently than losses. And there is some evidence that individuals assign twice the weight to losses than they do to gains. Even if there were a prospect where gains slightly outweigh losses, individuals would reject this wealth-maximizing option given their high aversion to losses.

Critics of prospect theory have identified a number of inconsistencies that arise depending on which heuristics are employed during the editing stage, and this has led to second-generation "cumulative" prospect theory. It should also be pointed out that descriptive accuracy requires the theory to allow for rationally inconsistent behavior given that this is an observed characteristic of choice under uncertainty. A more general methodological concern relates to the lack of normative status of prospect theory. In principle, a rational decision-maker could exploit an agent described by the behavioral model. Behavioralists respond to this by pointing out that conventional approaches conflate normative recommendation with empirical accuracy and thus fail to properly address the implications of actual behavior.

Matthias Klaes

See also: Asymmetric Information; Kahneman, Daniel; *Vol. 1: Foundations of Economics:* Behavioral Economics; Economic Psychology; Rationality: Process and Neoclassical; Tversky, Amos

Further Reading

Kahneman, Daniel, and Amos Tversky. 1974. Judgment under uncertainty: Heuristics and biases. *Science* 185: 1124–31.

Kahneman, Daniel, and Amos Tversky. 1979. Prospect theory: An analysis of decision under risk. *Econometrica* 47: 263–91.

Tversky, Amos, and Daniel Kahneman. 1992. Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty* 5: 297–323.
Wilkinson, Nick, and Matthias Klaes. 2012. *An introduction to behavioral economics*, 2nd ed. Basingstoke, UK: Palgrave Macmillan.

PURE FOOD AND DRUG ACT OF 1906

After many years of debate, including proposals and a defeated bill, the Pure Food and Drug Act passed through Congress and became law the same year when signed by President Theodore Roosevelt on June 30, 1906. Prior to this, the United States did not have a statute for the provision requiring compositional food standards. Food standards had been in existence since ancient times for limited commodities such as bread. In addition, there were standards for butter and milk. However, these standards were in place to protect honest farmers from dishonest competition rather than to protect honest consumers from dishonest manufacturers.

The father of the Food and Drug Act is considered to be Dr. Harvey Wiley. Born in 1844, Wiley grew up in Indiana. His 50-year campaign for pure food began in the 1880s. At that time, marketplaces in America were filled with poorly made and harmful products. There was no government regulation, and manufacturers were free to alter food in the name of cutting costs. Manufacturers would print one ingredient on the label while using a substituted cheaper ingredient in the contents of the food. For example, the FDA notes that honey was sometimes diluted with glucose syrup. Olive oil was made with cottonseed, and "soothing syrups" were often laced with morphine. The country was ready for reform, and Dr. Wiley was ready to head the cause.

Upton Sinclair joined the Socialist Party in 1903 and later that year began to write for a socialist magazine. In 1904, the Chicago meat-packers union went on strike, demanding better wages and improved working conditions. The editor of the magazine who employed Sinclair suggested he write about the strike. Sinclair took the advice and traveled to Chicago to learn about the working conditions of immigrants and the meat-packing problem. In 1906, Sinclair published *The Jungle* on the atrocious and horrendous working conditions of immigrants specifically in the meat-packing industry.

The Pure Food and Drug Act of 1906 outlawed any food that was an imitation of another food or advertised under the name of another food. The food was considered legal if packaging mentioned the imitations or blends of the contents inside.

The Library of Congress notes a few very important dates with relation to the law passed in 1906. In 1889, soldiers fighting in the Spanish-American War were dying from causes not associated with the war. They were dying because they consumed very badly preserved meat. In 1902, Dr. Wiley assembled a group of individuals to experiment on to determine the side effects of the food additives most commonly used at the time. During the experiments the members of the group were given additives in additional doses until they became sick. Dr. Wiley recorded the impacts on the body of the additives as the amounts and the individuals' responses increased. The experimental group became known as the Poison Squad.

Michael Weck

See also: Food Safety; Health and the Environment; *Vol. 1: Foundations of Economics:* Health Economics; *Vol. 2: Macroeconomics:* Public Goods; *Primary Document:* Pure Food and Drug Act of 1906

Further Reading

Constitutional Rights Foundation. 2008. Upton Sinclair's *The Jungle*: Muckraking the meat-packing industry (Fall). www.crf-usa.org/bill-of-rights-in-action/bria-24-1-b-upton-sinclairs-the-jungle-muckraking-the-meat-packing-industry.html (accessed May 11, 2016).

The Library of Congress: Newspaper and Current Periodical Reading Room. n.d. Topics in chronicling America: Pure Food and Drug Act of 1906. www.loc.gov/rr/news/topics/purefood.html (accessed May 11, 2016).

U.S. Food and Drug Administration. n.d. Food standards and the 1906 act. www.fda.gov/AboutFDA/WhatWeDo/History/ProductRegulation/ucm132666.htm.

U.S. Food and Drug Administration. n.d. History. www.fda.gov/aboutfda/whatwedo/history/default.htm (accessed May 11, 2016).

U.S. Food and Drug Administration. n.d. Regulatory information. www.fda.gov/regulatoryinformation/legislation/ucm148690.htm (accessed May 11, 2016).

Watson, Bruce. 2013. The poison squad: An incredible history. *Esquire* (June). www.esquire.com/food-drink/food/a23169/poison-squad/ (accessed May 11, 2016).

R

RANDOM WALK

The concept of random walk can be applied to professional fields and academia alike. At its base, it is a mathematic theory that centers on the randomness and unpredictability of events. A random walk is frequently associated with phenomena such as stock prices and other probabilistic models typified by Markov chains or stochastic processes. Stochastic processes are fundamentally a probabilistic set of events used to describe the randomness and unpredictability of a certain outcome based on the core principle of choice. Random walk implies that there is not a set outcome of an event but rather an infinite number of outcomes.

This theory is specifically applied where multiple complex predictors exist. The random walk as a core principle suggests that picking a specific outcome is not possible and therefore that predictors are not necessarily effective. Similarly, the scientific application, typified by a Markov chain, explains that the changing state of a particle (from solid to liquid, etc.) is not dependent on prior states but rather solely on the current state and the randomness of events to influence change into a future state. With regards to the random walk, this suggests that historical events do not necessarily have an effect on the future of that item.

Most famously, random walk principles have historically been the center of debate within the field of economics and investing in the stock market. Investment experts are challenged by the random walk principle as it undermines their profession. Investment professionals rely on predictors and gathered historical results and analysis to predict short- and long-term changes in specific stocks. Their expertise and experience should allow for greater returns on investments. However, many academics argue that the stock market follows random walk principles. These principles indicate that the prices of stocks are in reality random and unpredictable. Furthermore, historical indicators are not relevant to changes in stock prices.

The most largely accepted as well as debated academic work on this topic was presented in *A Random Walk Down Wall Street* by Burton Malkiel (2007). He submits investing professionals claim fundamental and technical analysis are in fact evidence that random walks in stocks are ineffective. His base argument is that it is impossible to outperform the market without assuming additional risks.

A more successful option often proposed for investment is to buy and hold stocks. This relies on the base principle that generally the market as a whole shows steady and incremental gains. This concept gave rise to the popular theory of passive investing, whereby ordinary people could invest in entire indexes (now called index funds) rather than specific stock.

Investment professionals may argue conversely that past performance and indicators are effective predictors and therefore that selecting the best times to sell, hold, or buy stock is the key to success in investing. This topic is still highly debated today with studies showing that in the long run, even high-end hedge fund managers have been unable to outperform the market.

The random walk concept maintains its usefulness with a myriad of applications from the outcomes of sports plays to the route a bus takes. In certain fields, random walk provides insight into the multitude of possibilities, thereby becoming useful in choosing the optimization of a specific route, particularly with respect to logistics in deliveries and more recently supply chain management.

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See also: Bonds; Stock Market; Stocks; *Vol. 1: Foundations of Economics:* Investing; National Association of Securities Dealers Automated Quotation; New York Stock Exchange

Further Reading

Doob, J. L. 1942. What is a stochastic process? *The American Mathematical Monthly* 49 (10): 648–53. doi.org/10.2307/2302572 (accessed May 21, 2016).

Knill, Oliver. n.d. Probability and stochastic processes with applications. www.math.harvard.edu/~knill/teaching/math144_1994/probability.pdf (accessed December 2, 2015).

Levy, Robert A. 1967. Random walks: Reality or myth. *Financial Analysts Journal* 23 (6): 69–77. www.jstor.org/stable/4470246 (accessed December 2, 2015).

Malkiel, Burton G. 2015. *A random walk down Wall Street*, 11th ed. New York: W. W. Norton & Company, Inc.

NPR Staff. 2015. Markets may stumble or skyrocket, but this economist says hold on tight. *NPR*. www.npr.org/2015/01/19/377698238/markets-may-stumble-or-skyrocket-but-this-economist-says-hold-on-tight (accessed December 2, 2015).

Pinches, George E. 1970. The random walk hypothesis and technical analysis. *Financial Analysts Journal* 26 (2): 104–10. www.jstor.org/stable/4470663 (accessed December 2, 2015).

Tuchman, Mitch. 2014. New "random walk" wisdom from Burton Malkiel. *Market Watch*. www.marketwatch.com/story/new-random-walk-wisdom-from-burton-malkiel-2014-12-25 (accessed December 2, 2015).

REAL ESTATE INVESTMENT TRUST

Real estate investment trusts (REITs) are a type of mutual fund. A pool of capital is collected from investors and invested directly in real estate or mortgages. REITs acquire, develop, lease, and manage real estate properties with the purpose of generating revenues from rents. They are traded on an exchange, like stocks, or grouped together in mutual funds or exchange traded funds. For example, Simon Property Group Inc (NYSE: SPG), the largest U.S. shopping mall owner, owing Simon Malls across the country, is a REIT that buys or builds shopping malls and generates revenues from the rents collected from leasing out the property to various stores. In order for a fund (pool of capital) to be qualified as a REIT, it must distribute 90 percent of its income back to the investors in the form of a dividend (also referred to as *distributions*). Given the periodic distributions, REITs are sought after by investors looking for securities with the ability to generate income along with capital appreciation.

Types of REITs

REITs are commonly classified based on the type of property in which they invest.

REITs that invest exclusively in real estate properties are referred to as equity REITs. Within equity REITs there are various subclassifications.

Retail REITs invest in properties that derive rents from retail stores (i.e., regional malls, shopping centers, free-standing stores, etc.), which usually have a large anchor store like a grocery, pharmacy, or department store, and several small stores. As investors in these malls, the REITs generate revenues from the rents collected from tenants. REITs are responsible for the daily maintenance and upkeep of the property. Simon Properties (described above) is a good example of a retail REIT.

Office REITs invest in office buildings and corporate centers and generate revenues from the rents paid by the office tenants. REITs are responsible for daily maintenance and upkeep of the office buildings. In times of recession, more office buildings become vacant, and this impacts the revenues of office REITs. Boston Properties Inc (NYSE: BXP) is an office REIT that owns several office buildings in major cities including New York City; Washington, D.C.; Boston; and San Francisco.

Residential REITs invest in apartment communities and generate revenues from the rents paid by the tenants. Based on their expertise or location, some of the residential REITs focus on one particular geographic area or sector. For example, American Campus Communities Inc. (NYSE: ACC) owns and operates private student housing units across college campuses. Home Properties Inc. owns and operates apartment communities in select cities in the United States.

Health care REITs invest in real estate serving the health care industry, such as senior housing communities, assisted living communities, medical offices, hospital buildings, research facilities, and skilled nursing facilities. Health care REIT Welltower Inc. (NYSE: HCN) is a good example of a health care REIT that invests across all of the above-mentioned facilities.

Other types of REITs target specific market niches. Included in these niche REIT investments are lodging and resorts (Hersha Hospitality Trust, NYSE: HT), self-storage properties (Public Storage, NYSE: PSA), farmlands (Gladstone Land Corporation, NASDAQ: LAND), timberlands (Weyerhaeuser Company, NYSE: WY), and data storage centers (Digital Realty Trust, NYSE: DLR).

Mortgage REITs differ from equity REITS and invest in real estate mortgages and real estate debt, which can be both residential (housing related) and commercial (nonresidential property types).

American Capital Agency Corp. (NASDAQ: AGNC) is a specific type of mortgage REIT that invests in residential mortgages (loans given out to homeowners) for which the principal and interest payments are guaranteed by the U.S. government or related agencies like Government National Mortgage Association (GNMA) or Federal National Mortgage Association (FNMA). Specifically, the lender of a government-guaranteed mortgage sells individual mortgages to the REIT company, which then combines many mortgages together into the REIT security (mutual fund). Investors purchase the REIT, which invests in the government-guaranteed mortgages. GNMA and FNMA give investors in this type of REIT a layer of protection against defaults by mortgage holders.

REITs that invest in both real estate properties and mortgages are referred to as hybrid REITs. For example, Ellington Financial LLC (NYSE: EFC) is a hybrid REIT that invests in residential mortgages, commercial mortgages (property loans issued to commercial property like office or warehouse owners), and other real estate–related securities (derivative instruments related to real estate companies).

Some REITs invest in a combination of the above property types and are referred to as diversified REITs. Vornado Realty Trust (NYSE: VNO) is a diversified REIT that invests in office buildings, shopping malls, strip malls, and lodging properties.

Leasing and Vacancies

For any property, the percentage of property that has been rented or leased is referred to as *leased* and the percentage of property that has remained vacant is referred to as *vacancy rate*. REITs aim to keep the vacancy rate as low as possible since higher vacancies lead to reduced revenues. A highly vacant shopping center will not drive the same amount of business toward the leased stores as will a fully leased center. This could lead to unhappy tenants. Hence, vacancy rate is an important measure of quality of property within the real estate space.

REITs add diversification to an investment portfolio along with cash flow through dividend distributions. REITs give investors an opportunity for exposure to real estate in their portfolio without the need to own individual properties.

Surya M. Pisapati

See also: Federal Home Loan Mortgage Corporation (Freddie Mac); Federal National Mortgage Association (Fannie Mae); Index Mutual Funds; Mutual Funds and Exchange Traded Funds; Stock Market; Stocks; *Vol. 1: Foundations of Economics:* Asset Allocation; Investing; New York Stock Exchange; *Vol. 2: Macroeconomics:* Debt; Dividend Income

Further Reading

Block, Ralph L. 2012. *Investing in REITs: Real estate investment trusts*, 4th ed. New York: Bloomberg Press.

RENEWABLE ENERGY

Renewable energy comes from the use of nondepletable sources, such as sunlight, wind, or moving or falling water. In the United States, most renewable energy is used to produce electricity. There is considerable public excitement over renewable energy options. They produce electricity with little or no emissions of greenhouse gases and other pollutants, and many of them, such as solar, contain the allure of new technology. What is the current status of these technologies? How competitive are they with other technologies? What policies are used to promote them, and what policies should be used to promote them?

According to the U.S. Energy Information Administration, in 2012, roughly 12 percent of the electricity produced in the United States was generated using renewable sources. About 56 percent of that renewable electricity was produced by hydroelectric dams, and just below 30 percent came from wind turbines. The remainder came from biomass, geothermal, and solar technologies. Hydropower dams have been around for many decades, but wind energy and solar power have grown rapidly just over the past decade. Wind generation in the United States grew from 6 billion kWh in 2000 to 140 billion kWh in 2012. Electricity generation from solar power in the United States has increased more than fivefold since 2002 and reached about 4 billion kWh in 2012.

The economics of renewable electricity depend on the costs of exploiting the renewable resource, and these costs vary by technology and quality of the resource (wind speed and persistence or solar intensity, for example). The economics also depend on the opportunity costs of the other technologies (coal, gas, or nuclear) against which renewables compete. Renewables tend to be very capital-intensive, and, with the exception of biomass, fuel costs are very low. In contrast, fuel prices, which can be variable and hard to predict, account for a large share of the cost of fossil fuel generators. Also, unlike fossil fuels, which can be transported from mines or wells to generators at low cost, renewable resources must be tapped where they are found. Many places with abundant renewable resources are distant from populated areas where electricity demand is concentrated, and therefore the cost of transmitting renewable electricity to markets can be substantial. Although renewable costs have come down over time, recent low natural gas prices and technological improvements have also reduced the costs of new natural gas generators. Overall, the average cost of a kWh produced by both wind and solar is typically greater than that of electricity generated using coal or natural gas.

The economics of renewables also depends on the value of the electricity they produce. Unlike most fossil fuel generators, which can vary their rate of electricity output to match demand, some renewables such as wind and solar are available intermittently, as they can only operate when the wind blows or when the sun is shining.

This intermittency affects the market value of wind and solar. Electricity that is supplied during periods of high demand has greater value than electricity produced when demand is low, so the value of renewable power depends on how well resource availability aligns with demand. This alignment varies by resource and region of the country. For example, wind power in the interior plains tends to be more abundant at night when electricity demand is low, whereas in coastal regions, windy periods may overlap more with peak electricity demand in late summer afternoons. Sometimes the amount of wind power generation leads to excess supply and spot wholesale electricity prices can be negative. Some renewables, such as rooftop photovoltaic installations, can be installed on a customer's premises and may generate more power than the customer needs at certain times. The excess generation can affect voltage stability and create other problems for managing the local distribution network.

Given these considerations, intermittency reduces the market value of wind and solar compared to other technologies. Greater access to energy storage, perhaps in the form of plug-in electric or hybrid electric vehicles or compressed air, might help to solve the mismatch between supply and demand. However, adding storage to a power system would affect the value of other technologies as well, and storage may or may not increase the overall value of nondispatchable renewables compared to other technologies.

Renewable technologies currently have higher costs and lower market values than conventional technologies, particularly natural gas. To overcome these economic hurdles, numerous federal, state, and local policies in the United States promote the use of renewables. Since the mid-1990s, with a few brief interruptions, the United States has had a federal policy of providing production tax credits for every MWh of electricity generated by wind and other selected renewable sources. Alternatively, investors can claim a federal tax credit for up to 30 percent of upfront investment costs for solar and other technologies. In addition, 30 states plus the District of Columbia have adopted renewable portfolio standards that typically require that renewables account for a minimum (and often growing) percentage of electricity sold in the state. These policies have helped to fuel the recent growth in renewable generation. But they also raise the question, when does it makes sense to use policy measures to promote the use of renewables?

Three rationales present themselves. The first is to counteract the failure of private markets to fully capture the environmental externalities associated with burning fossil fuels to produce electricity. Environmental emissions impose a cost to society in the form of environmental degradation and poor human health. When that cost is not included in electricity prices, electricity producers rely too much on the use of fossil fuels to produce electricity. The optimal policy raises the cost of burning fossil fuels to include those social costs. Policies such as tax credits can partially remedy that shortcoming by reducing the cost of using renewables. However, these policies are inefficient because they do not correct the market failure directly by increasing the private cost of emitting pollution.

The second policy rationale is to correct market failures associated with spillovers in research and development. Private markets produce suboptimal spending on research and development because the benefits of such activity can spill over to others without compensation to the innovator. This market failure is particularly relevant for new technologies, such as tidal or wave power, advanced wind generator technologies, or photovoltaics. These cases represent a clear rationale for government subsidies for research and development, such as the Department of Energy's Advanced Research Projects Agency Energy (ARPA-E) program.

The third rationale is to correct for underinvestment in learning. There is often considerable learning associated with developing and using new technologies. For example, rooftop photovoltaic system installers may learn how to install systems to operate more efficiently, and wind manufacturers may find ways to improve manufacturing efficiency. Learning can be thought of as an investment; the firm should price to the learning curve by initially offering the product at a low price to increase sales and to learn more. However, if firms are not able to capture the benefits of this learning, they would not reduce prices to learn and therefore will underinvest in learning. For example, other installers may observe what the first installer does and capture the benefits of learning. Subsidies for the development or use of the technology are justified if the firms are not able to capture the benefits of their own learning.

Karen Palmer
Joshua Linn

See also: Alternative Energy; *Vol. 1: Foundations of Economics:* Biodiversity; Resources; *Vol. 2: Macroeconomics:* Energy Policy; Externality; *Vol. 4: Global Economics:* International Association for Energy Economics

Further Reading

Joskow, Paul. 2011. Comparing the cost of intermittent and dispatchable electricity generating technologies. *American Economics Review Papers and Proceedings* 100 (3): 238–41.
McVeigh, James, Dallas Burtraw, Joel Darmstadter, and Karen Palmer. 2000. Winner, loser, or innocent victim: Has renewable energy performed as expected? *Solar Energy* 68 (3): 237–55.
National Research Council (NRC). 2009. *Electricity from renewables: Status, prospects and impediments*. Washington, DC: The National Academies Press.
Schmalensee, Richard. 2012. Evaluating policies to increase electricity generation from renewable energy. *Review of Environmental Economics and Policy* 6 (1): 45–64.

RETIREMENT ACCOUNTS

A retirement account is a type of investment account that allows workers to invest today's dollars for use in retirement. There are many types of retirement plans, and one can invest in one or several simultaneously depending on one's income level and personal situation. The underlying benefit of a retirement account is to provide tax benefits for individuals to increase their net worth for retirement. In general, retirement accounts are structured to give a financial incentive (usually in the form of lower taxes) and encourage workers to save and invest for retirement.

Individual Retirement Arrangement (IRA), Roth IRA, SEP (IRA), 401(k), and 403(b) are the names of the most common retirement accounts, although there are additional retirement account options for small-business owners and others.

Retirement accounts are designed to be funded during individuals' working life with the proceeds withdrawn during retirement. There are penalties and tax liabilities for withdrawing funds before retirement or age 59.5 (whichever is earlier).

This entry will discuss the most common types of retirement accounts 401(k), 403(b), traditional IRA, and Roth IRA.

401(k) or 403(b)

Named after the tax law, 401(k) retirement accounts are offered by for-profit companies, whereas 403(b) plans are offered to employees of nonprofit companies, such as schools, hospitals, and religious groups. These retirement accounts are similar; their main difference lies with the type of organization offering the plan. The law stipulates the maximum amount one can contribute to these and all retirement accounts annually.

There are several major benefits to 401(k) and 403(b) accounts. First, employees contribute a set amount every pay period into the account with pretax dollars. In other words, the contribution is taken from one's paycheck before taxes are deducted. The result is a lower taxable income. The employee chooses from a menu of various investment options for these funds.

The second benefit is that the money in the account grows tax free. No tax is due during the time the contributions are in the account. This benefit allows the money in the 401(k) or 403(b) account to compound more quickly.

Additionally, some plans allow account holders to borrow funds from their own account. There are regulations governing these withdrawals, and it is generally a poor idea to borrow from a retirement account.

In some organizations, an employer also contributes to the employee's retirement account. In most cases, the employer matches the employee's contribution up to a certain percentage. Employers most frequently use a 3 to 6 percent "matching" benchmark.

Compound Returns Increase Retirement Account Balances

Consider this common workplace retirement scenario. Colleen earns $1,000 per week, contributes 5 percent to her retirement account, and receives a matching contribution from her employer of an additional 5 percent. So Colleen contributes $50 per week and her employer contributes another $50 for a total of $100 per week. In one year, Colleen's retirement account contributions equal $5,200.

The financial benefit of investing this money for retirement is massive. Assume Colleen invests in a combination of stock and bond mutual funds, whose average annual return is 7 percent. If Colleen's account contributions continue from age 30 until age 65, she (and her employer) will have contributed a total of $182,000 ($5,200 x 35) over 35 years.

Yet, Colleen's account, invested in stock and bond mutual funds, and compounding at 7 percent per year, is worth $769,150 at age 65. These savings, along with government Social Security income, will provide Colleen with funds to live on during retirement.

There are certain restrictions for these retirement accounts. If you make a withdrawal before age 59.5, you may incur a 10 percent early withdrawal penalty as well as any taxes that are due on the withdrawal.

Traditional IRA

The traditional IRA is another type of tax-advantaged retirement account. Individuals and their spouses (if filing joint tax returns) can contribute if they have taxable compensation and are younger than age 70.5. There are contribution limits for a traditional IRA. In 2014, each individual could contribute up to $5,500, or $6,500 for those older than age 50. One cannot contribute more than one earns.

High-income workers covered by a retirement plan at work may not be able to contribute the full amount, or at all, depending on their income level.

Unless the worker is not covered by a retirement plan at work, the contributions are made with after-tax dollars. However, workers not covered by another workplace retirement account may contribute pretax to the traditional IRA and receive the same reduction in taxable income as 401(k) or 403(b) plan participants.

As with all retirement plans (except Roth IRAs), once the contributions are made, they are invested and can grow tax deferred until withdrawn at retirement.

Roth IRA

This retirement account is distinct from the other types in that the contributions are always made with after-tax income. In other words, contributions aren't tax deductible. Unlike other retirement accounts, in most cases, no tax is due when Roth IRA contributions are withdrawn.

If one has taxable income, there is no age restriction for contributing to a Roth IRA, although one's modified adjusted growth income must be below certain levels in order to make a contribution.

The contribution levels for Roth and traditional IRAs are the same, and you cannot surpass those amounts in totality. In 2013, the total amount individuals over age 50 could contribute to traditional and Roth IRAs was $6,500 each.

If monies contributed to a Roth IRA are rolled over from another type of retirement plan, to avoid penalties, they must remain in the account for at least five years. Additionally, if the Roth IRA funds are withdrawn before age 59.5, there may be a 10 percent penalty levied.

The Roth IRA is unique in another way. Funds may be withdrawn without penalty before age 59.5 if the participant is totally and permanently disabled, uses the distribution to buy a first home or to pay qualified higher education expenses, and a few other circumstances.

Required Minimum Distributions from Retirement Plans

The law requires most retirement account holders (with the exception of Roth IRA account owners) to take required minimum distributions (RMD) when they reach 70.5 and yearly thereafter. If the account holder does not comply, the amount not withdrawn is taxed at 50 percent.

Because the contributions to these retirement accounts (except Roth IRAs) were made before tax, they are taxable upon withdrawal. Employees assume that during retirement their income will be less than while working and thus they will pay lower taxes than they would have on that income without the retirement account.

There are no required minimum distributions for Roth IRAs. If the account owner is over 59.5, there is no penalty to withdraw funds from a Roth IRA, otherwise, as with a traditional IRA, there is an additional 10 percent tax penalty for ineligible early withdrawals.

The limits, types, and constraints of modern retirement accounts are constantly changing and evolving. In general, these tax-advantaged accounts are a cornerstone of modern personal finance.

Danny Kofke

See also: Pension Plans; Retirement Accounts; Tax Deferral; *Vol. 1: Foundations of Economics:* Budget; Compound Interest and Returns; Estate Planning; Financial Literacy; Investing; *Vol. 2: Macroeconomics:* Taxes

Further Reading

IRS.gov. n.d. Tax information for retirement plans. http://www.irs.gov/Retirement-Plans/ (accessed March 13, 2014).

REVENUE: TOTAL, AVERAGE, AND MARGINAL

Revenue is the goal of every business. Revenue is the money businesses obtain through their market interactions with consumers. To the business owner, the difference between gross revenue (all the revenue received) and net revenue (revenue retained after paying all costs) is significant to whether a business continues to operate. Economists take a different approach to revenue. For the economist, the difference between gross and net revenues is important for a business's operation, but identifying a firm's average and marginal revenues can help it achieve maximum revenue as it works to allocate limited resources more efficiently and effectively.

Total Revenue

Total revenue (TR) is all revenue received by the business before paying any costs or taxes. Total revenue equals the price per unit (P) multiplied by the total number of units sold (Q) (P x Q = TR). With the total revenue businesses receive, they pay their costs of production and operation, including labor, rents, and variable production costs. What remains is the accounting profit for the business to share with stockholders as dividends or remain with the firm as retained earnings.

Average Revenue

Average revenue (AR) is revenue per unit produced. Average revenue is calculated by dividing total revenue (TR) by the quantity sold (Q) (TR / Q = AR). By extension, TR is equal to P x Q (TR = P x Q). Implementing some elementary algebra, P x Q is substituted for TR so the equation is now P x Q / Q = AR. Again, simple algebra, the *Q*'s cancel so price is equal to average revenue, P = AR. Average revenue provides a picture of the firm's per-unit pricing strategy. This can be used as a measure against per-unit costs to determine the firm's per-unit profitability.

Marginal Revenue

A firm's revenue is maximized when it can efficiently allocate its limited resources to achieve maximum revenue as it adds additional resources to produce or provide additional products or services. The additional revenue earned through selling additional units of its good or service is known as marginal revenue (MR). Marginal revenue is calculated by dividing the change in total revenue by the increase in change in output (Δ TR / ΔQ). Marginal revenue can be either positive or negative, determined by the law of diminishing marginal returns. Marginal revenue can also be affected by changes in production capacity and by the firm's industry. In a perfectly competitive industry, AR and MR are always the same. However, a monopolistic or oligopolistic firm may see its marginal revenue reduced as it achieves significant size so its marginal costs per unit produced actually decrease, known as achieving economies of scale.

Whitney Wellman
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See also: Costs; Microeconomics; Monopolistic Competition; Monopoly; Oligopoly Markets

Further Reading

Businessdictionary. 2015. Gross revenue. www.businessdictionary.com/definition/gross-revenue.html (accessed December 10, 2015).
Businessdictionary. 2015. Marginal revenue. www.businessdictionary.com/definition/marginal-revenue.html (accessed December 10, 2015).
Businessdictionary. 2015. Total revenue. www.businessdictionary.com/definition/total-revenue.html (accessed December 10, 2015).
Economics Online. 2015. Revenue. www.economicsonline.co.uk/Business_economics/Revenue_theory.html (accessed December 10, 2015).
Investopedia. 2015. Average revenue per unit—ARPU. www.investopedia.com/terms/a/arpu.asp (accessed December 10, 2015).
Investorwords. 2015. Marginal revenue. www.investorwords.com/2952/marginal_revenue.html (accessed December 10, 2015).
Investorwords. 2015. Total revenue. www.investorwords.com/16831/total_revenue.html (accessed December 10, 2015).

RIGHT-TO-WORK LAW

Right-to-work laws are states' initiatives that guarantee that workers do not have to belong to or join a labor union to secure or keep a job. Under a right-to-work law, any form of agreement that stipulates union membership or the paying of union dues as a job requirement is illegal. Unions are not illegal under right-to-work laws, nor is it illegal for a union to collect union dues.

Right-to-work laws go back to 1935, when President Franklin Roosevelt signed the Wagner Act, which initiated a new set of rules and definitions to collective bargaining and labor union membership, including union shop, agency shop, closed shop, and open shop. A union shop is an employer whose employees do not have to be union members to get the job but must join the union within a specified period. Agency shop employees do not need to belong to the collective bargaining union but must pay dues. In a closed shop, employees must belong to the collective bargaining labor union to be employed, and in an open shop employees are neither required to join the union nor pay union dues. With these new classifications in place, labor unions were in a much stronger bargaining position to dictate the terms of employment and union membership.

In 1947, Congress amended parts of the Wagner Act with the passing of the Taft-Hartley Act. Specifically, Taft-Hartley repealed the idea of closed shop employment. It also gave the states permission to make illegal the employment conditions of union or agency shops, setting up the possibility for states to pass their own employment statutes or what have become known as right-to-work laws.

Right-to-work laws have both strong support and strong opposition. Those who supported such state legislation laid claim to several addressed the rights of minorities to choose how or to whom they support with their time and money. Several court cases during the 1930s supported their contention for minority right of expression. A second major argument in support of right-to-work laws centered on one's right to associate, or not, as one chooses. Finally, proponents argue that individuals should not be required to pay for or support political contributions made by a labor union if they do not agree with the union's political and campaign activities.

Opponents of right-to-work laws are just as strong in their opposition. A main opposition is the free-rider problem: Employees who do not belong to or pay for the collective bargaining activity still receive the resulting benefits. An interesting side argument of opponents is similar to that of proponents. Opponents make a strong argument that right-to-work laws actually violate freedom of association and place an undue burden on unions. As a result, opponents claim that right-to-work laws are not as freedom oriented as supporters like to propose. Finally, right-to-work law opponents argue these laws are used by states for partisan political and economic means to better compete against other states and not for the benefit of the unions.

Right-to-work laws are not a promise of employment or keeping a job. Twenty-five states and the U.S. territory of Guam have right-to-work laws as of 2015.

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See also: Labor Market Regulation; Unions; *Vol. 2: Macroeconomics:* Labor Force; National Labor Relations Act of 1935; Taft-Hartley Act, 1947; *Primary Document:* National Labor Relations Act of 1935

Further Reading

Leef, George C. 2005. *Free choice for workers: A history of the right to work movement*. Ottawa, IL: Jameson Books, Inc.

National Right to Work Legal Foundation. n.d. About. http://www.nrtw.org/about/ (accessed February 1, 2016).

National Right to Work Legal Defense Foundation. n.d. A brief history of the foundation. http://www.nrtw.org/a-brief-history-of-the-foundation (accessed February 1, 2016).

RISK

Risks are situations where individuals, families, or organizations are exposed to the possibility of a harmful aftermath through injury, death, or financial loss.

Risks can be either pure risks or speculative (investment) risks (Day et al. 2013; MacMinn 2000; Schuchardt et al. 2007; Teale 2008).

Pure Risks

Pure risk is defined as a risk with a certain negative outcome; there is no possible positive outcome. Pure risk can be handled by avoiding it altogether, controlling it, or financing it. Examples of pure risk include premature death due to illness or a natural disaster, or identity theft.

Risk avoidance is the ideal solution. The person facing the peril either removes the offending asset or stops the risky situation from taking place. Sadly, not all risks can be avoided completely, making room for risk control.

Risk or loss control is a method used to either reduce the size (magnitude) or the number of times (frequency) of the financial consequences of a loss.

The risk-financing approach is to transfer the risk to another party, such as an insurance company, by way of contract. A second risk-financing method is where someone decides to personally carry the risk (risk retention/self-insurance). This occurs especially where risk cannot be transferred and the cost of handling it oneself is less than transferring it.

Pure risks are the possibility of a peril occurring that always results in a financial loss. The main income earner of a family could die prematurely, leaving his or her financial dependents without sufficient income to pay their daily living expenses. This type of pure risk can be transferred to an insurance company or other third party.

Pure risks comprise personal risk, property risk, liability risk, and nonperformance risk.

Personal Risk

Individuals are vulnerable to personal risks when they face the possibility of death, illness, or injury causing a financial loss. If someone with financial dependents suffers a major trauma so that he or she is unable to work and earn an income, it can ruin him or her financially.

Property Risk

Property risk typically occurs when physical assets are stolen, damaged, or destroyed. Two types of property risks are direct property losses and indirect property losses. Direct property losses occur when the property itself is lost, damaged, or destroyed. On the other hand, indirect loss refers to the consequential losses or additional financial cost that occurs after suffering initial direct losses.

For example, a direct loss occurs when a driver's car is damaged in an accident and can't be driven anymore. The driver not only faces a direct loss, the damaged car, but also the indirect losses of the additional cost of using public transport, notwithstanding the inconvenience and extra travel time.

Liability Risk

When someone's actions result in the loss to another's property, the upshot is the liability risk of an expensive lawsuit. The liability can arise under statute law, common law, or the law of contract.

The government of a country creates statute law. Common law, which has developed over many years, states that everyone owes a duty of care toward others in certain circumstances. They should be held responsible for harm or loss caused by failing to observe appropriate standards, including negligence. A liability under contract explicitly or implicitly affirms that the parties entering into this agreement accept this liability, such as an employer being liable for an employee if he or she is injured at work. Public liability occurs when a member of the public sues for damages occurring on someone's business premises. An example of personal liability is a tradesperson suing for damages occurring at a residence where he or she is working.

Nonperformance Risk

Nonperformance risk is the risk of financial loss should one party agree to perform a certain service for another and then fail to perform this service completely.

Speculative Risk

Speculative risk, also known as investment risk, involves both the chance of a financial loss and, unlike pure risk, the possibility of a financial gain on an investment.

Someone who invests money in shares on the stock exchange is exposed to the possibility that the share price of the investment may decrease below the price he or she paid for the investment, leading to a financial loss. Investors are averse to realizing losses on their investments. Yet the same investor could experience a gain if the share price rose more than the purchase price. The investor has no control over this.

Investors can limit the effects of these risks by avoiding or controlling them. Not investing in the share market is a method of risk avoidance.

The risk control method used by investors is called *diversification*. Diversification means ensuring that funds are spread over a range of countries, markets, market sectors, companies, and different types of investment products rather than putting all one's eggs in one basket. If one investment performs poorly, this will be supported by the other better-performing investments.

Using hedging and derivative products is a form of risk financing when facing speculative risks. In order to protect the investment against potential losses or adverse market movements, a hedging strategy uses the performance of one investment to counter losses in another investment.

Derivative financial products comprising options, forward rate agreements (FRAs), futures, and swaps are forms of insurance against speculative risk that lock in existing gains. Assume an investor already holds shares in Coca-Cola and has significant unrealized profit. He wants to continue holding the shares but is concerned that a market correction will cause the value of shares to drop. So the investor purchases an option to gain the right to sell the shares at the current high price sometime in the future. If the share values do drop in the future, the investor can exercise his right and sell the shares at the higher price that was locked in when the Coca-Cola shares were high.

Some risky events may be relatively unimportant and have no significant effect on someone financially. Bearable losses have a severe impact on a person's financial situation but do not result in bankruptcy. Unbearable losses may result in bankruptcy. The severity and probable frequency of the peril will determine how risks should be managed to eliminate or minimize financial loss.

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See also: Asset Allocation; Derivatives; Health Insurance; Homeowners and Renters Insurance; Liabilities; Life Insurance; Savings Account; Saving versus Investing; Stock Market; Stocks; Umbrella Insurance; *Vol. 1: Foundations of Economics:* Bankruptcy; Capital Gains and Capital Losses; Estate Planning; Identity Theft; Investing; Wills and Trusts; *Vol. 2: Macroeconomics:* Inflation

Further Reading

Day, John, Paul Banister, Brett Davies, Jacqueline Campbell, Gary D. Fitton, George Flack, Sean Graham, Terry Hayes, Stuart Jones, Robert Kiddell, Sue Prestney, Nigel Fenton, and Tim Pepper. 2013. *Australian financial planning handbook 2012–2013.* Sydney, AU: Thomson Reuters.

MacMinn, R. 2000. Risk and choice: A perspective on the integration of finance and insurance. *Risk Management & Insurance Review* 3 (1): 69–79.

Schuchardt, Jane, Dorothy C. Bagwell, William C. Bailey, Sharon A. DeVaney, John E. Grable, Irene E. Leech, Jean M. Lown, Deanna L. Sharpe, and Jing J. Xiao. 2007. Personal finance: An interdisciplinary profession. *Journal of Financial Counseling & Planning* 18 (1): 61–69.

Teale, J. 2008. *Insurance and risk management*. Milton, AU: John Wiley & Sons Australia, Limited.

RISK PREMIUM

Risk premium is the excess return an investor receives to compensate for the excess risk borne by investing in any particular security other than the risk-free treasury bill. *Premium* refers to the excess return that an investor receives over a certain benchmark of return. The benchmark is usually the rate of return on an investment in a treasury bill (T-bill). T-bills are short-term borrowing instruments that are used by governments to borrow money from the public. And since the government is deemed the least risky issuer in most countries, T-bills are referred to as the risk-free asset.

Risk premium is calculated by deducting the rate of return on the risk-free asset (T-bill) from the expected rate of return on the security under consideration. For example, if a company decides to borrow long term from investors in the capital market, it will sell investors a long-term bond, and if the rate of return on that bond—referred to as the coupon rate—is equal to 10 percent and it has a maturity of five years (i.e., investors can get back their invested capital after a period of five years) and if the rate of the T-bill is 3 percent, the risk premium for the company bond will be 7 percent.

Risk premium = company bond expected return − T-bill rate (risk-free rate)

Risk premium = 10% − 3% = 7%

The 7 percent in the previous example should compensate investors for risks associated with investing in that company. Risks include default risk, since the company is riskier than the government and the odds of it defaulting are higher than the government's. Another source of risk is liquidity risk; the company's bond is a longer-term instrument (five years versus one year for the T-bill) and thus reselling it in the secondary market might not be as easy as selling a short-term instrument like the T-bill. The secondary market for securities refers to the market where securities are exchanged between investors without the involvement of the original issuers of the securities. The original issuer of a security is only present in the primary market when the security is first offered.

Risk premium was defined by the capital asset pricing model (CAPM) developed by William Sharpe in 1964. Risk premium was categorized into market risk premium (by investing in an asset with a greater than the market level of risk) and security risk premium (the riskiness of an individual security when compared with the overall market). The CAPM determines the level of return required on any investment by adding a risk premium to the risk-free rate of return.

Required Return on Asset=Risk-Free Rate+Risk Premium

The risk premium has to compensate the investor for investing in financial markets in general instead of investing in the risk-free asset. This is referred to as the market risk premium and is calculated as the difference between the return on the market portfolio (indexed by the return on a broad market index like the S&P 500) and the risk-free rate.

The security risk premium shows how much additional return an investor demands by investing in a specific asset and compensates the investor for purchasing this asset in particular. The security risk premium is determined by multiplying the market risk premium by the security's systematic risk given by beta (a measure of how much a specific security varies in return when compared to the overall market's volatility).

Taking both types of risk premium into consideration, the CAPM equation can be rewritten as: required return on an asset = risk-free rate + beta (market risk premium).

In general, the higher the risk of a security, the greater the risk premium required by the investor. Investors in the equity market purchase stocks, which entitle them to an ownership claim in a company. Equity (stock) holders endure more risk than holders of government bonds and thus should be compensated with higher returns. That explains why government bonds have lower rates of return than stocks. The excess return required by equity holders over holders of government debt is referred to as the equity risk premium.

Equity risk premiums are significant because they are the basis for many of our personal financial decisions, such as saving, investing, and choice of retirement accounts. The degree of risk an individual is willing to take, referred to as degree of risk aversion, determines the risk premium required and thus the type of investment that would achieve this. In general, riskier investments carry higher returns and greater risk premiums.

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See also: Bonds; Risk; Savings Account; Saving versus Investing; Stock Market; Stocks; *Vol. 1: Foundations of Economics:* Investing; *Vol. 2: Macroeconomics:* Treasury Securities

Further Reading

Damodaran, Aswarth. n.d. Risk premiums: Looking backwards and forwards. http://people.stern.nyu.edu/adamodar/pdfiles/country/riskpremiums.pdf (accessed August 16, 2013).

Sharpe, William F. 1964. Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance* 19: 425–42.

RUST BELT, 1980s

The ultimate result of two decades of free-trade policies, rapid technological change, high demands of union workers, and deindustrialization in the United States was a devastating collapse of the industrial infrastructure in a belt of states that included New York, New Jersey, Pennsylvania, West Virginia, Ohio, Michigan, Indiana, Illinois, and Wisconsin. The economic leveling of this geographic belt, once known as the "Arsenal of Democracy," created economic changes that led to a population shift to the west and the south. The population decline in such cities as Detroit, Cleveland, Pittsburgh, Cincinnati, Milwaukee, Buffalo, Toledo, St. Louis, Trenton, and others rearranged the list of America's top 20 cities. Medium-size cities of the Rust Belt, such as Dayton, Ohio, and Jackson, Michigan, suffered as well. These major Rust Belt cities lost an average of 40 percent of their populations, and the median incomes of those who remained fell 20 to 40 percent.

The term *Rust Belt* was popularized in the 1984 presidential race. The fall of heavy industry in the Rust Belt changed the electoral weight of the states as the country's population shifted. The Rust Belt became a scar on the American landscape by the late 1980s and remains so today. America had never seen such a devastating loss of jobs, taxes, industry, and economic hope in such a large geographic region. In 1950, the Rust Belt had more than 50 percent of the nation's aggregate employment; by 1980, it had declined to 30 percent and is under 20 percent today. The job losses in the region had been decried for decades, but the end of the 1980s saw a great migration south. This reversed a century-long trend of southern workers moving north for jobs. Chicago and Pittsburgh experienced significant loss of their African American populations as workers returned to the South.

After two decades of efforts to counteract industrial job losses by retraining workers for high-tech jobs failed to improve their employment prospects, population migration began. Efforts to revitalize the Rust Belt with new industry were not successful for the most part. The unionized workers of the Rust Belt brought too much baggage to their new jobs for these new operations to be successful. State laws in the Rust Belt required or favored unionization, preventing labor costs from declining so companies could become competitive again. In addition, the number of local government jobs started to collapse after years of lower tax receipts. Crime increased dramatically with the decline of manufacturing and rising unemployment. These factors even destroyed small businesses, services, and entertainment. The spiraling decline turned Rust Belt neighborhoods into ghettos. Empty shopping malls stripped away even the hope of retail jobs in the Rust Belt. In addition, the massive early retirements in the steel, rubber, and auto industries made the move to Florida and southern states realistic for former workers. The same south offered employment for the younger Rust Belt workers.

Initially, Rust Belt companies tried to maintain some industry in the region by implementing employee buyouts, which slowed migration in the early 1980s. The employee-owned companies lasted only temporarily as they did not address the issue of noncompetitive wages. Other strategies involved building casinos and shopping malls, but a dwindling population meant these brought only minor economic improvement. Other parts of the Rust Belt attempted to develop intellectual and high-tech centers, with varying degrees of success. The migration south would end the Rust Belt's hopes of transformation and greatly reduce its political capital.

One of the major factors that encouraged the movement of industry and workers south was the right-to-work laws in the southern states. The source of these laws was the Taft-Hartley Act of 1947, which amended the Wagner Act and slowed the progressive government support of unions. The Taft-Hartley Act outlawed closed shops but permitted union shops that required union membership after a period of time. The act allowed states to pass right-to-work laws and allowed the president to intervene in strikes that posed a national emergency. The passage of the Taft-Hartley Act had been hard fought, with President Harry Truman vetoing it and Congress overriding the veto.

The key issue the act dealt with was the so-called *closed shop*. Under the Wagner Act, once a union was certified by a National Labor Relations Board election, the union could not be removed. Furthermore, workers would be required to join the union to work at the shop. In the heavily unionized North, the closed shop was the standard. In 1947, the Taft-Hartley Act limited the application of a true closed shop, though it allowed a union shop, which is a form of closed shop. However, under the Taft-Hartley Act, states could pass right-to-work laws to make even union shops illegal.

The spread of right-to-work laws in southern and western states grew in the 1970s as a means to attract jobs. These right-to-work laws caused a movement of northern factories south because they offered companies the ability to pay wages and benefits that could compete globally. In addition, these states attracted new car-building plants from Japan and Germany. The shift of companies from the Rust Belt helped the rapid decline of the industrial unions such as the United Auto Workers. The influx of Japanese and German plants into right-to-work states divided and muted the efforts for "Buy American" campaigns by the northern unions. It is only recently that some Rust Belt states have turned to right-to-work laws to attract new industry.

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See also: Auto Import Challenge, 1965; Chrysler Bankruptcy, 1979; General Motors Bankruptcy, 2009; *Vol. 2: Macroeconomics:* Detroit Bankruptcy, 2013; Rapid Deindustrialization, 1975; Taft-Hartley Act, 1947; *Vol. 4: Global Economics:* Arab Oil Embargo Crisis, 1973

Further Reading

Hugh, Steven. 2003. *Industrial sunset: The making of North America's Rust Belt, 1969–1984.* Toronto: Univ. of Toronto Press.

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SAVING VERSUS INVESTING

For centuries saving and investing money have offered different approaches to achieving financial security, but it was not until the late 19th and early 20th century that saving money in banks became widespread in many developed societies.

Saving in the financial sense means depositing funds in an institution under terms that leave funds available upon request without fear of financial fluctuations impacting the amount at hand. In exchange for allowing the institutions, usually banks, to be custodian of the funds, the institutions promise and pay a regular interest rate of return on the funds deposited, allowing the depositor's assets to grow over time.

Traditional savings vehicles include savings accounts, checking accounts, and certificates of deposit (CDs). CDs involve investing for specified periods, after which the funds can be accessed. They traditionally pay a higher rate of interest than savings and checking accounts. The combination of a guaranteed interest rate and ready access to one's money affords a sense of security and peace of mind. Technically, depositing funds in an institution for savings purposes is investing in that institution, yet one does so with some expectation of moderate growth via interest rate earnings.

Savings funds afford security and ready access to funds. If one's goal is to use the funds for a major purchase in the near future, it's prudent to deposit the money at hand in a savings account. In the event of unexpected events that require funds, such as repairs to property not covered by insurance, medical expenses, and other such emergencies, funds saved in commercial institutions with retail offices can be readily accessed for use.

In practice, investing involves a more speculative approach and more risk than a guaranteed interest rate. Investing means committing funds to a pursuit with the expectation that a profit will be earned by the project's efforts, increasing the wealth of the investor. Individuals and institutions can and do invest widely, from commercial companies to real estate undertakings to intellectual proposals that evolve into inventions. Investing in a company is commonly done by receiving shares of stock in the firm in return for one's money.

As companies can grow and produce profits as well as lose money and fail, investing in commercial interests traditionally affords no guarantees of increasing one's funds. A greater risk is involved with investing than saving money in the traditional sense. There is also the possibility of a greater return than a guaranteed interest rate might offer.

The first historical case of major financial investing with a profit in mind was in the 17th century when British investors committed money to the East India Company with the anticipation the firm's voyages would yield positive financial returns. Both the London and New York stock exchanges date from the late 18th century, and prior to the 20th century it was rare for individuals without considerable wealth to deal with the banks or invest. Industrialization and innovation in the late 1800s made a variety of American business ventures attractive to investors and had many entrepreneurs seeking investors as well. The post-World War I boom of the 1920s saw Americans depositing funds for saving in banks in record numbers. In the interest of receiving a return on this money beyond what they would have to pay to their depositors, banks invested their account holders' funds in the roaring stock market of that decade. When the stock market crashed in 1929, the banks' investments were lost as were depositors' money.

To prevent savings institutions from engaging in investment banking practices in the future, Congress passed the Glass-Steagall Act in 1933. That same year the government created the Federal Depositors Insurance Corporation (FDIC) to insure deposits with government guarantee against losses and to build confidence in the banking system. In 1999, Congress repealed the Glass-Steagall Act. The FDIC currently insures individual deposits up to $250,000 in member banks. Savings banks now engage in a variety of investment practices and offer such services to their customers.

A growing awareness of the need to plan for retirement years in the late 20th century prompted many individuals to pursue investing on an individual basis through their banks and other retail operations. Many employers offer investment plans to their workers that also help them to save money for their retirement years.

Since the 1929 crash, the New York Stock Exchange has outperformed the returns offered in traditional savings accounts. Investing prudently can provide a return that will better help one to fund longer-term personal or institutional priorities, such as a college education a decade or more away, retirement, or other personal or business ventures well in the future. Investment opportunities usually involve risk, such as a piece of real property or company stock losing value.

Bank accounts designed for savings will occasionally require depositors to keep a minimum balance in the institution and may charge fees in the event that the funds drop below that amount. Retail investment operations such as stock brokerages charge fees for managing accounts and also for executing trades—that is, when the investor decides to sell one stock or purchase shares of a new one. A collection of stocks from one sector of the economy, such as utilities or energy companies, are also assembled in mutual funds. These funds allow investors to commit money to an entire range of companies. For a fee, fund managers endeavor to buy the best stocks in that sector and sell the worst performing ones to enhance the fund's overall performance. Investment professionals must be certified with licenses issued by the federal and state governments in which they operate, and they are trained to provide advice to individuals for fees. Technology has allowed individuals to buy and sell investments such as stocks independent of professionals, however, and day traders who devote time and research to doing so have become more common in recent years.

David S. Allen

See also: Bonds; Savings Account; Savings and Loan Crisis, 1986; Stock Market; Stocks; Thrift Institutions; *Vol. 1: Foundations of Economics:* Banking; Financial Literacy; Investing; New York Stock Exchange; *Vol. 2: Macroeconomics:* Banking Act of 1933 (Glass-Steagall Act); Stock Market Crash of 1929; Stock Market Crash of 1987; Treasury Securities; *Primary Document:* Banking Act of 1933 (Glass-Steagall Act)

Further Reading

Alhusseini, Gyath. 2013. *ABC of saving and investing*. Bloomington, IN: Xlibris Corporation.
Fischer, Michael. 2007. *Saving and investing: Financial knowledge and financial literacy that everyone needs and deserves to have*. Bloomington, IN: Saving and Investing.
Stevens, Geoff. 2000. *After taxes: Managing personal wealth*, 8th ed. Toronto, Can.: Dundurn Publishing.

SAVINGS ACCOUNT

A savings account is a type of financial account held at a bank or other financial institution. These accounts protect the consumer's bank deposits and also offer a low interest rate. There are many types of savings accounts, and most financial institutions offer a menu of account options. All bank and credit union accounts are insured and protected against loss up to $250,000 for each social security number, making these accounts very safe. Bank accounts are insured by the Federal Deposit Insurance Corporation (FDIC), and credit union accounts are insured by the National Credit Union Share Insurance Fund (NCUSIF).

Savings accounts are considered one of the most liquid investments and allow consumers easy access to their funds. These accounts are frequently linked to a checking account for easy funds transfer. Depending on the type of account, there may be monthly charges or limits on the number of transactions allowed. Online banks and financial institutions with savings and checking accounts are becoming more popular and frequently offer higher interest rates due to their lower overhead costs.

Use of a Savings Account

A savings account is where people keep money they need to access easily for emergencies and unexpected expenses. Unlike a checking account, which is used to pay monthly expenses, a savings account is used to pay for short- and medium-term financial goals as well as unexpected expenses.

Consumers use savings accounts for vacations, upcoming larger purchases such as appliances, a down payment on a car, or intermittent bills such as semiannual car insurance payments.

Types of Savings Accounts

Regular Savings Account—This account is easy to set up and use. Linking this account to a checking account at the same bank allows the consumer to quickly transfer funds between checking and savings accounts for sound money management. Many banks allow linked accounts to protect one from accidentally overdrawing the checking account (paying a bill valued at more than the checking account balance).

In spite of the convenience and accessibility of this type of regular savings account, the disadvantage of a basic savings account is low interest payments. It's a wise financial decision to keep some money in a savings account, for easy access, but maintain other types of investment and savings accounts for longer-term savings needs.

Online Savings Account—Serving the same purpose as a regular savings account, this type of savings accounts has no physical building or branch. All business is transacted online, by telephone, and/or mail. Because banks save money by not having a physical location, which is more expensive than an Internet location, they may pass those savings on to the customer. Online savings accounts frequently pay higher interest rates. Fees and expenses may also be lower than for regular savings accounts.

Money Market Deposit Account—Both regular and online banks may offer this type of savings account. In general, these accounts pay the highest interest rates of any type of savings account. The consumer's deposits are lent to corporations with very short-term financing needs in exchange for a higher interest payment. These accounts are quite safe and are insured by the same FDIC or NCUSIF insurance as other types of savings accounts.

This type of savings account is not the same as a money market mutual fund, which is uninsured and available through investment brokerage accounts.

In most varieties of savings accounts, consumers receive higher interest rate payments with higher account balances (the balance is the amount in the account).

Disadvantages of Savings Accounts

Due to their low interest rate payments, savings accounts aren't suitable for retirement or long-term goals that require a large amount of funding. One of the benefits of other types of financial vehicles, such as stock and bond mutual funds, is their higher investment returns.

How to Start Saving

Workers benefit by instructing the human resources office to automatically transfer part of their paycheck into a savings account. This automatic saving is a smart way to build an account for emergencies and short- and medium-term financial goals.

Another version of automatic saving is to have the financial institution regularly transfer a set amount from the checking to savings account.

Psychologically, the consumer is less likely to spend money that is not readily accessible. If the funds are transferred into a savings account, it is easier to consider that money "off limits" for discretionary spending.

In summary, a savings account is an account in which money is placed to save for the near future. The focus of this account should not be on earning interest; it is there to pay for unexpected life events and near- to medium-term financial expenses.

Danny Kofke

See also: Credit Union; Interest Rates; Money Market Account; Retirement Accounts; Saving versus Investing; *Vol. 1: Foundations of Economics:* Banking; Financial Literacy; Investing; Liquidity

Further Reading

Elwell, Craig K. 2010. Savings rates in the United States: Calculation and comparison (September 14). https://www.fas.org/sgp/crs/misc/RS21480.pdf (accessed September 30, 2016).

Kapoor, Jack R., Les R. Dlabay, and Robert J. Hughes. 2009. *Personal finance*, 9th ed. New York: McGraw-Hill Irwin.

Kofke, Danny. 2011. *A simple book of financial wisdom: Teach yourself (and your kids) how to live wealthy with little money.* Deadwood, OR: Wyatt MacKenzie Publishing Company.

SAVINGS AND LOAN CRISIS, 1986

The savings and loan crisis of the 1980s represents the greatest collapse of American financial institutions since the Great Depression. Although it had roots in the 1970s, the crisis was marked by the insolvency of the Federal Savings and Loan Insurance Corporation (FSLIC) in 1986. It was a classic bubble with overspeculation and excessive growth in the savings and loan industry. The FSLIC was the federal insurer of savings accounts at these thrift institutions, the thrift industry's equivalent to the Federal Deposit Insurance Corporation. By the end of 1986, 441 thrifts with $113 billion in assets were insolvent, and 533 thrifts with $453 billion in assets were on a watch list for institutions with less than 2 percent of their total assets in tangible capital. The period 1986 to 1995 would see the failure of 1,043 thrifts with combined assets of more than $500 billion. The cost to the taxpayers of bailing out these institutions was in excess of $200 billion. The savings and loan crisis would result in a number of new regulations and a 50 percent reduction in the size of the industry. Even more interestingly, the savings and loan crisis would foreshadow the 2008 banking and mortgage crisis.

American thrifts, which became known as savings and loans, were focused on housing loans and experienced rapid growth after World War II. In the 1960s and 1970s, the savings and loans competed for savers by offering high interest rates in a time of spiraling inflation. The stagflation of the 1970s, with its slow growth in housing and high interest rates, weakened the financial assets of the savings and loans. In the early 1980s, lower interest rates caused savers to move to other saving options, which further weakened the savings and loans. Congress looked at ways to help the savings and loans grow out of their problems by expanding savings and loans products and decreasing regulation.

The Depository Institutions Deregulation and Monetary Control Act of 1980 allowed savings and loans to issue credit cards, make consumer loans, invest in real estate, and offer interest-earning checking accounts. These products put savings and loans in competition with commercial banks, but without many of the regulations that governed banking activity. The Economic Recovery Tax Act of 1981 allowed savings and loans to sell their mortgage loans to Wall Street firms and allowed losses to be offset against taxes.

Savings and loans began the process of making loans, bundling them, and selling them at steep discounts to obtain new money to make more loans. The trouble began when small savings and loans became overextended, while others suffered because their loans were insufficiently backed by solid assets. The public became aware of the mess in March 1985 with the failure of Home State Savings Bank of Cincinnati. Depositors began a run on the bank's branches, causing the governor of Ohio to call for a bank holiday and the closure of the state's savings and loans. Only federally backed (FSLIC) savings and loans reopened as other depositors' withdrawals drained the state's insurance funds. The problem soon spread to other states. As federal regulators were forced to take over these savings and loans, the federal FSLIC fund was depleted by late 1986. The federal government continued to back all insured savings and loans.

From 1986 to 1989, the government bailed out an additional 296 institutions. Things got worse as the Senate and House ethics committees uncovered political scandals affecting both parties in Congress. Three U.S. senators—Alan Cranston (D-CA), Don Riegle (D-MI), and Dennis DeConcini (D-AZ)—were forced out of office; and John Glenn (D-OH) and John McCain (R-AZ) were rebuked for poor judgment and influence peddling with the Lincoln Savings and Loan, which had also failed. The scandals kept the savings and loan crisis in the news, requiring more reform by Congress. In January 1987, the Government Accounting Office declared the FSLIC officially insolvent by more than $3.8 billion. Meanwhile, the whole savings and loan industry in Texas was near collapse. Texas was home to savings and loans that had more than 50 percent of the industry's liabilities, and the situation there was worsened by a deep recession in the oil industry. In the end, 14 of the 20 biggest losses would be Texas savings and loans. The Texas savings and loan problem threatened the whole U.S. system.

By 1989, the savings and loan crisis was dragging the economy into recession. In February 1989, President George H. W. Bush announced a $50 billion bailout of the savings and loan industry. In August, Congress passed the Financial Institutions Reform, Recovery, and Enforcement Act of 1989. The Savings Association Insurance Fund (SAIF) replaced the FSLIC. The Resolution Trust Corporation was created to resolve insolvent savings and loans. A new regulatory agency, the Office of Thrift Supervision, was created. Freddie Mac and Fannie Mae were given additional responsibility to support the mortgages of low-income families. By the official end of the savings and loan crisis in 1995, more than 1,600 savings and loans were closed or had received substantial federal aid, representing 50 percent of the industry. Regulation helped restrict liberal banking practices, but many observers believe the root causes of the crisis were never fully addressed.

Quentin R. Skrabec Jr.

See also: Subprime Mortgage Bubble and Crisis; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; *Vol. 2: Macroeconomics:* Great Recession, 2009; Federal Deposit Insurance Corporation; Panic and Global Depression, 1873; *Primary Document:* Monetary Control Act of 1980

Further Reading

Curry, Timothy, and Lynn Shibut. 2000. The cost of the savings and loan crisis: Truth and consequences. *FDIC Banking Review* (December).

Holland, David S. 1998. *When regulation was too successful: The sixth decade of deposit insurance.* Westport, CT: Greenwood Publishing.

Mayer, Martin. 1992. *The greatest ever bank robbery: The collapse of the savings and loan industry.* New York: C. Scribner's Sons.

SCHELLING, THOMAS

Born: April 14, 1921, in Oakland, California; Died: December 13, 2016, in Bethesda, Maryland; Nationality: American; Professional Interests: game theory, conflict strategy, Nobel Prize (2005); Major Works: *Strategy of Conflict* (1960), *Arms and Influence* (1966), *Arms and Influence* (2008).

Thomas Schelling was awarded the Nobel Prize in 2005 with Robert Aumann for his work in the field of game theory. Schelling served the U.S. government during World War II as an analyst and foreign policy adviser. During his academic career, he was a pioneer in game theory. Schelling committed the bulk of his studies to conflict situations and how best to manage military conflicts and weapons deterrence. Consistent with the times, much of his work focused on the Cold War conflict between the United States and the Soviet Union. He wrote of the importance of both sides having a credible nuclear threat, which neither was likely to use, to serve as a deterrent.

Thomas C. Schelling was born in Oakland, California, on April 14, 1921. He earned his bachelor's degree in economics from the University of California, Berkeley, in 1944 and his PhD in economics from Harvard University in 1951. Prior to beginning his PhD work at Harvard University, he worked as an analyst with the U.S. Bureau of the Budget and then with the Marshall Plan. He continued working in the government, serving as a White House foreign policy adviser. Schelling later moved into academia, working as a faculty member at Yale University, and then spent the majority of his career, more than 30 years, at Harvard. At Harvard he worked in both the Department of Economics and International Affairs and the Kennedy School of Government. Over time, he consulted with presidential administrations from Kennedy to Nixon. After the invasion of Cambodia during the Vietnam War, Schelling led a group of Harvard faculty to meet with Nixon's national security adviser; they expressed their opposition to the invasion and severed ties with the administration.

Schelling's book *The Strategy of Conflict* is one of the more influential books on weapons policy and military deterrence. In it, Schelling proposed the rather unique idea that effective conflict strategies could be applied to any conflict situation. There are similarities in dealing with common everyday conflicts and large-scale, international military conflicts.

Schelling coined a now common game-theory term, *focal point*, also known as the Schelling point. The term refers to the solution to a problem where the players are not able to communicate with each other but must cooperate to reach the same point. The focal point is the point at which both players believe they are most likely to reach a common agreement or understanding.

Later in his career, Schelling devoted his time to studying addictive behaviors. He was motivated to explore this area by his involvement with the National Academy of Sciences on Substance Abuse and Addictive Behavior. Schelling looked at the conflict between our rational and impulsive natures and the steps we take to try to manage the two and overcome addictions. He wrote numerous essays on the subject, many of which are included in his books *Choice and Consequence* (1984) and *Strategies of Commitment and Other Essays* (2005).

Schelling embarked on a new area of economic exploration when he was invited by President Carter to chair a committee on carbon dioxide pollution. Schelling himself admitted that he knew very little on the subject at the time. However, he would go on to study the issue over a two-year period with the Carbon Dioxide Assessment Committee of the National Academy of Sciences. Schelling stated that he believed that climate change will be to the 21st century what nuclear arms control was to the 20th century.

Schelling was awarded the Nobel Prize in Economics in 2005. He was a corecipient of the award along with Robert Aumann, though the two never worked together. Schelling was awarded the Nobel Prize for his specific work on the strategic decision-making (game theory) processes through which individuals, organizations, and countries are sometimes able to cooperate and sometimes not.

Thomas Schelling was a distinguished professor of economics at the University of Maryland. He died December 13, 2016, in Bethesda, Maryland.

Andrew Probert

See also: Aumann, Robert; Game Theory; Nash, John; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics

Further Reading

Ayson, Robert. 2004. *Thomas Schelling and the nuclear age: Strategy as social science*. New York: Taylor & Francis.

Harford, Tim. n.d. Lunch with the FT: Thomas Schelling and the game of life. timharford.com/2005/12/lunch-with-the-ft-thomas-schelling-and-the-game-of-life/ (accessed September 20, 2012).

Kinsley, Michael. 2005. A Nobel laureate who's got game. *Washington Post* (October 12). http://www.washingtonpost.com/wp-dyn/content/article/2005/10/11/AR2005101101336.html (accessed September 20, 2012).

Schelling, Thomas. 1980. *Strategy of conflict.* Cambridge, MA: Presidents and Fellows of Harvard College.

Schelling, Thomas. 1984. *Choice and consequence.* Cambridge, MA: Presidents and Fellows of Harvard College.

Schelling, Thomas. 2007. *Strategies of commitment and other essays*. Cambridge, MA: Harvard Univ. Press.

Schelling, Thomas. 2008. *Arms and influence*. New Haven, CT: Yale Univ. Press.
Schelling, Thomas. n.d. Autobiography. Nobelprize.org. http://www.nobelprize.org/nobel_prizes/economics/laureates/2005/schelling-autobio.html (accessed September 20, 2012).

SCHOLES, MYRON

Born: July 1, 1941, in Timmins, Ontario, Canada; Nationality: Canadian; Professional Interests: financial markets, asset pricing, Nobel Prize (1997); Major Works: "The Market for Securities: Substitution versus Price Pressure and the Effects of Information on Share Prices" (1972), "Rates of Return in Relation to Risk: A Reexamination of Some Recent Findings" (with Merton Miller, 1972), "The Valuation of Options Contracts and a Test of Market Efficiency" (with Fischer Black, 1972).

Myron Scholes is a Canadian economist who was awarded the Nobel Prize in 1997. At the Massachusetts Institute of Technology (MIT), he worked closely with Robert Merton and Fischer Black, developing a new method in asset pricing, known as the Black-Scholes model. In 1995, Scholes was a founding member of Long-Term Capital Management (LTCM), a hedge fund that used the mathematical models of Scholes and others for selecting investments. LTCM went bankrupt when Russia defaulted, and the Federal Reserve was needed to save the financial markets. However, his influence in financial markets continued when he founded the investment firm Platinum Grove Asset Management in 2006 and was placed on the boards of the Chicago Mercantile Exchange and Dimensional Fund Advisors.

Myron S. Scholes was born in Timmins, Ontario, Canada, on July 1, 1941. In 1951, his family moved to Hamilton, Ontario. His formative years in Canada were characterized by hardships and a keen interest in economics. He was exposed to the stock market through watching investments his family made. When Scholes's uncle died, the family disputes that followed over the family business were his first exposure to the disagreements that contracts can evoke. As a teenager, he faced the death of his mother and the loss of his eyesight in a short period of time. At the age of 26, his eyesight was restored after a successful cornea transplant.

In the wake of his mother's death, Scholes wanted to stay near his family for his undergraduate work and became a student at McMaster University, graduating in 1962 with a bachelor's degree in economics. While at McMaster, Scholes read the works of future Nobel laureates George Stigler and Milton Friedman with great interest. Scholes would subsequently enroll at the University of Chicago, where he earned his MBA in 1964 and his PhD in 1969.

After finishing his dissertation, Scholes accepted an academic position at the MIT Sloan School of Management, where he met two people he would work closely with to develop the formula that would earn him a Nobel Prize in Economics. Robert Merton and Fischer Black together with Scholes developed groundbreaking work in asset pricing, including their famous option-pricing model known as the Black-Scholes model.

The Black-Scholes model was a pioneering effort because never before had traders been able to value options precisely. The impact was that investors could significantly reduce their risk by hedging their bets in the options market. Options are investment vehicles that allow one the right, but not the obligation, to buy or sell a given security at a set price in the future. With this formula, firms and households could select an appropriate amount of risk by effectively redistributing it throughout the financial markets to those who are willing and able to assume it.

The first historical attempt to use advanced mathematics to model financial markets was in 1900 and is credited to French academician Louis Bachelier. The options contract had long been an object of study by academic financial mathematicians because of the fact that it can potentially eliminate all the downside risk of trading when used as a hedge against an adverse move in the market. Before the discovery of this mathematical model by Scholes and Black, options and derivatives contracts were much more obscure, mostly because traders were not able to accurately price them. Today, options contracts and derivatives are widely traded in financial markets.

In 1995, Scholes went on to become a founding member of hedge fund called Long-Term Capital Management (LTCM), which used proprietary mathematical models to guide investments. His reputation and notoriety as a Nobel Prize winner helped him attract vast amounts of capital from high-profile investors worldwide, as people were eager to have him invest their funds. In the first three years of LTCM, the company was widely successful and outperformed all other funds. It soon became clear, however, that certain underlying market conditions were developing for which the models at LTCM were insufficient. In 1997, the Asian financial crisis caused panic in the markets, and LTCM borrowed large sums of money to hold positions because their models predicted that markets would return to normal. They were able to stay in business until August of 1998, when the highly improbable event of Russia defaulting on its foreign debt occurred. This caused a major swing in the market, which LTCM was not able to bear, and subsequently brought their operations to an end. The result was a massive bailout by the Federal Reserve for fear that LTCM was so immersed in financial markets on such a large scale that its default could lead to a freeze-up of the entire system. Scholes and his investors lost millions.

Scholes's contributions to financial economics opened markets to vast new opportunities and revolutionized how risk is managed by investors. His formula is used millions of times every day by traders as it continues to shape the development of financial markets in the world today.

John E. Trupiano

See also: Merton, Robert; Stigler, George; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics; *Vol. 2: Macroeconomics:* Friedman, Milton

Further Reading

Bernstein, Peter L. 2011. *Capital ideas evolving*. New York: John Wiley & Sons, 110.

Black, Fischer, and Myron Scholes. 1972. The valuation of options contracts and a test of market efficiency. *Journal of Finance* 27 (2): 399–417.

Johnston, David Cay. 2003. A tax shelter, deconstructed. *New York Times* (July 13). http://www.nytimes.com/2003/07/13/business/a-tax-shelter-deconstructed.html (accessed September 30, 2016)

Miller, Merton, and Myron Scholes. 1972. Rates of return in relation to risk: A re-examination of some recent findings. In *Studies in the Theory of Capital Markets*, ed. Michael C. Jensen, 47–78. Santa Barbara, CA: Praeger.

Scholes, Myron. 1972. The market for securities: Substitution versus price pressure and the effects of information on share prices. *Journal of Business* 45 (2): 179–211.

Scholes, Myron S. 1996. Financial infrastructure and economic growth. In *The Mosaic of Economic Growth*, ed. Ralph Landau, Timothy Taylor, and Gavin Wright, 281–301. Palo Alto, CA: Stanford Univ. Press.

Scholes, Myron. 1996. Global financial markets, derivative securities and systemic risks. *Journal of Risk and Uncertainty* 12 (2, 3): 271–86.

Scholes, Myron. 2007. Omega has a nice ring to it. In *Capital Ideas Evolving*, ed. Peter L. Bernstein, 110–24. Hoboken, NJ: Wiley.

Scholes, Myron S. n.d. Autobiography. Nobelprize.org. http://www.nobelprize.org/nobel_prizes/economics/laureates/1997/scholes-autobio.html (accessed April 12, 2012).

Scholes, Myron S., and Mark A. Wolfson. 1989. *Employee stock ownership plans and corporate restructuring: Myths and realities*. No.w3094. Cambridge, MA: National Bureau of Economic Research.

Scholes, Myron S., and Mark A. Wolfson, Merle M. Erickson, Edward L. Maydew, and Terrence J. Shevlin. 2015. *Taxes and business strategy*. New York: Pearson Higher Ed.

Vane, Howard R., and Chris Mulhearn. 2005. *The Nobel Memorial laureates in economics: An introduction to their careers and main published works.* London: Edward Elgar.

SELTEN, REINHARD

Born: October 5, 1930, in Breslau, Germany (now Wroclaw, Poland); Died: August 23, 2016, in Poznan, Poland; Nationality: German; Professional Interests: game theory, Nash equilibrium, multistage games, experimental economics, bounded rationality, Nobel Prize (1994); Major Works: *The Chain Store Paradox* (1974), *Game Theory and Economic Behaviour: Selected Essays*, Volume 1 (1999), *Game Equilibrium Models I: Evolution and Game Dynamics* (2010), *Models of Strategic Rationality* (2013).

Reinhard Selten was a mathematician and economist who won the Nobel Prize in 1994 for his work in game theory, specifically by furthering and deepening the equilibrium equations of fellow Nobel laureate John Nash. Selten is the only German to have won the Nobel Prize in Economics. Selten was also a leader in the field of experimental economics. He believed all economic theories should be supported by empirical evidence, so he set up economics testing laboratories where he could see his ideas in action.

Reinhard Selten was born in Breslau, Germany (now Wroclaw, Poland), on October 5, 1930. His father, Adolf Selten, was an ethnic Jew, and as a result of his mixed heritage he faced discrimination from the Nazi regime. His father was forced to sell his small business, and Reinhard was not permitted to pursue an education past the age of 14. Many of the Seltens' Jewish relatives were killed during the Holocaust. The family feared Soviet occupation even more than the Nazi threat, however, and when Red Army troops closed in on Breslau at the end of World War II, the Selten family escaped on one of the last trains out of the city.

The family fled to Austria, and Selten worked briefly as a farm laborer before he was able to return to school. He studied math in college and graduate school.

Rather than take astronomy, the standard minor for math students, he requested economics and began to apply sophisticated mathematics to social questions. When he eventually visited a game theory conference at Princeton University in the United States, his career path was sealed.

Selten's work expanded on the idea of the Nash equilibrium, which posits that given rules and a perfect knowledge of opponents' choices in a given competitive situation, one can calculate the strategy that the game players will choose. The Nash equilibrium works as a sort of snapshot of the strategic options that competitors face. Selten took it further. He explained that sometimes games unfold in stages, and while each stage has its own equilibrium (i.e., a best possible strategy), the game as a whole, what Selten called a *supergame*, has its own equilibrium, which may in turn affect the equilibria of each stage and even go back and change them.

The example he used was called the "chain store paradox." In this example, a chain store is the only store of its kind in a particular town, but there is another chain that is thinking about moving in. The original chain has a choice: Should it lower its prices to such a point that the newcomers will be unable to make a profit and therefore decide not to come? This would make sense because it would deter future competition, which could devastate the chain, but it would hurt the chain's profits in this current stage. If a second competitor appears and the choice must be made a second time, cutting prices would still be a good strategy since the point is still to discourage *future* attempts at competition. But whenever the final stage of the "game" arrives—that is, when there is only one possible competitor remaining—then it would not be worth it to lower prices. The chain would accept the new competition. But this is where the paradox begins.

Reasoning backward, we see that if the store does not lower prices in the final stage, the time before that final stage becomes the new final stage. Therefore, the store would opt a second time not to slash prices. This logic continues all the way back to the first stage. This led Selten to believe that the company would never cut prices in the first place. It would allow the competition to exist.

Selten was also a leader in experimental economics. He thought that all economic theories should be supported by empirical evidence, and to this end he set up economics testing laboratories where he could see his ideas in action. In the case of the chain store paradox, he found that companies in fact choose a middle road. They often allow some competition for a while, but at some point decide to retaliate and begin a price war. The explanation for this seemed to be simply that humans do not operate strictly according to the pure logic of game theory. There are instincts, emotions, and relationships to consider, even among competitors. These factors and the fact that people have imperfect information when making decisions led Selten to work in still another important area: the theory of bounded rationality. This theory holds that, while people are generally rational in their decision-making, their rationality has limits. Even so, such tendencies can be modeled and predicted.

In 1994, Selten was awarded the Nobel Prize along with John Nash and John Harsanyi for their work in game theory. Selten joined the University of Bonn in 1984 and later became a professor emeritus there. He died August 23, 2016, in Poznan, Poland, at the age of 85.

Stephen H. Day

See also: Game Theory; Nash, John; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics

Further Reading

Albers, Wulf, Werner Güth, Peter Hammerstein, Benny Moldovanu, and Eric van Damme. 2012. *Understanding strategic interaction: Essays in honor of Reinhard Selten*. Heidelberg, DE: Springer Science & Business Media.

McCarty, Marilu Hurt. 2001. *The Nobel laureates.* New York: McGraw-Hill.

O'Connor, J. J., and E. F. Robertson. n.d. Reinhard Selten. School of Mathematics and Statistics, University of St. Andrews. http://www-history.mcs.st-and.ac.uk/Biographies/Selten.html (accessed July 15, 2012).

Reinhard Selten. n.d. In *The concise encyclopedia of economics*, ed. David R. Henderson. The Library of Economics and Liberty. http://www.econlib.org/library/Enc/bios/Selten.html (accessed July 15, 2012).

Selten, Reinhard. 1965. *Spieltheoretische behandlung eines oligopolmodells mit nachfraget-raagheit* [An oligopoly model with demand inertia], Vol. 121. Geneva, CH: Droz.

Selten, Reinhard. 1974. *The chain store paradox.* Bielefeld, DE: Institute for Mathematics, Mathematische Wirtschaftsforschung, University of Bielefeld.

Selten, Reinhard. 1977. *A model of oligopolistic size structure and profitability*. Bielefeld, DE: Institute for Mathematics, Mathematische Wirtschaftsforschung, University of Bielefeld.

Selten, Reinhard. 1999. *Game theory and economic behaviour: Selected essays*, Vol. 1. Cheltenham, UK: Edward Elgar.

Selten, Reinhard. 2010. *Game equilibrium models I: Evolution and game dynamics*. Berlin: Springer.

Selten, Reinhard. 2013. *Models of strategic rationality.* Berlin: Springer Science & Business Media.

Selten, Reinhard. n.d. Autobiography. Nobelprize.org. http://www.nobelprize.org/nobel_prizes/economics/laureates/1994/selten-autobio.html (accessed July 15, 2012).

Selten, Reinhard, and John C. Harsanyi. 1988. *A general theory of equilibrium selection in games.* Cambridge, MA: MIT Press.

SHAPLEY, LLOYD

Born: June 2, 1923, in Cambridge, Massachusetts; Died: March 12, 2016, in Tucson, Arizona; Nationality: American; Professional Interests: mathematics, game theory, Nobel Prize (2012); Major Works: "A Value for *N*-Person Games" (1953), "College Admissions and the Stability of Marriage" (1962), *Values of Non-atomic Games, Part II* (with Robert Aumann, 1969), "On Market Games" (with Martin Shubik, 1969).

Lloyd Shapley received the 2012 Nobel Prize in Economics for his work in the fields of mathematical economics and game theory. A Bronze Star World War II veteran, Shapley is known for many mathematical economics and game-theory theorems that bear his name: Bondareva-Shapley theorem, Shapley value, Shapley-Folkman theorem, Gale-Shapley algorithm, and the Shapley-Shubik power index, to name only a few. Shapley was also influential in the development of game theory. Shapley was a professor and professor emeritus at University of California, Los Angeles (UCLA), from 1981 until his death.

Lloyd Stowell Shapley was born on June 2, 1923, in Cambridge, Massachusetts, the son of the distinguished astronomer Harlow Shapley. Shapley began his college studies at Harvard University but his studies were interrupted when he was drafted during World War II. During World War II, he was awarded the Bronze Star for breaking a Soviet weather code. Following the war, he returned to Harvard, graduating with his bachelor's degree in mathematics in 1948. Shapley next went to Princeton University, earning his PhD in mathematics in 1953, where he studied with fellow future Nobel laureate John Nash.

Shapley began his academic career by staying on at Princeton as an instructor. In 1954, Shapley left academia and rejoined the RAND Corporation where he had been a research mathematician in 1948 and 1949. At the RAND Corporation, Shapley worked on problems associated with matrix games, the Von Neumann-Morgenstern stable sets, and nonatomic games with Nobel laureate Robert Aumann. His early work on matrix games is considered so comprehensive that he left little room for future improvement. Shapley's work has significantly influenced economic theory on competition and utility theory.

Shapley has been called one of the most prolific economic mathematicians. The theorems, algorithms, and game-theory solutions that bear his name are numerous. Besides his significant work with Robert Aumann on nonatomic games, his work included block voting with the Shapley-Shubik power index and the Bondareva-Shapley theorem addressing convex games. The Shapley value was introduced in 1953 as a solution concept in cooperative game theory. In cooperative game theory, the value assigns distributions of a surplus created by a coalition of players.

In 1962, Shapley and David Gale developed an algorithm on marriage matching. The Gale-Shapley algorithm was designed as a way to create a marriage market that could pair individuals for marriage even if the individuals did not agree on what would make a good marriage.

In 2012, Lloyd Shapley and Alvin Roth were awarded the Nobel Prize in Economics for their work in market design and game theory. They were noted for the applications of their research, especially in creating markets for the purpose of matching different individuals, such as his work on matching marriage couples with the Gale-Shapley algorithm.

The 2012 Nobel Prize in Economics was one more honor for Shapley. In addition to the Bronze Star and Nobel Prize, Lloyd Shapley was a fellow of the Econometric Society, American Academy of Arts and Sciences, and INFORMS (Institute for Operations and Management Sciences). In 1981, the year he left RAND Corporation for UCLA, he received the John von Neumann Theory Prize. In 1986, Shapley received an honorary PhD from Hebrew University of Jerusalem. He died on March 12, 2016, in Tucson, Arizona.

David A. Dieterle

See also: Aumann, Robert; Edgeworth, Francis; Game Theory; Nash, John; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics

Further Reading

Aumann, Robert, and Lloyd Shapley. 1969. *Values of non-atomic games, Part II: The random order approach.* Fort Belvoir, VA: Defense Technical Information Center.
Gale, D., and L. S. Shapley. 1962. College admissions and the stability of marriage. *American Mathematical Monthly* 69: 9–14.
Lloyd S. Shapley. n.d. Nobelprize.org. http://www.nobelprize.org/nobel_prizes/economics/laureates/2012/shapley.html (accessed October 30, 2012).
Lubin, Gus. n.d. Alvin Roth and Lloyd Shapley win the Nobel Prize for Economics. *Business Insider.* http://www.businessinsider.com/alvin-roth-and-lloyd-shapley-win-nobel-2012-10 (accessed October 30, 2012).
Rampell, Catherine. 2012. 2 from US win Nobel in Economics. *New York Times* (October 16). http://www.nytimes.com/2012/10/16/business/economy/alvin-roth-and-lloyd-shapley-win-nobel-in-economic-science.html?_r=0 (accessed October 30, 2012).
Roth, A. E., ed. 1988. *The Shapley value: Essays in honor of Lloyd S. Shapley*. Cambridge, UK: Cambridge Univ. Press.
Shapley, Lloyd. 1953. Stochastic games. *Proceedings of National Academy of Science* 39: 1095–100.
Shapley, Lloyd S. 1953. A value for n-person games. In *Contributions to the Theory of Games*, Vol. 2. *Annals of Mathematical Studies*, Vol. 28, ed. H. W. Kuhn and A. W. Tucker, 307–17. Princeton, NJ: Princeton Univ. Press.
Shapley, Lloyd. 1972. *Values of non-atomic games.* Princeton, NJ: Princeton Univ. Press.
Shapley, Lloyd, and Robert Aumann. 1974. *Values of non-atomic games.* Princeton, NJ: Princeton Univ. Press.
Shapley, Lloyd, and Martin Shubik. 1954. A method for evaluating the distribution of power in a committee system. *American Political Science Review* 48: 787–92.
Shapley, Lloyd, and Martin Shubik. 1969. On market games. *Journal of Economic Theory* 1: 9–25.
Shapley, Lloyd, and Martin Shubik. 1971. The assignment game I: The core. *International Journal of Game Theory* 1: 111–30.

SHERMAN ANTITRUST ACT OF 1890

Named for Senator John Sherman, Ohio Republican, the Sherman Antitrust Act forbids certain business practices that would diminish the competitiveness of a market. The act gave the federal government the right to investigate and bring federal suits against businesses if it deemed a business practice to be in violation of the act. The act focused primarily on monopoly behavior by businesses and the collusion of companies through cartels. It was the first federal act to interfere in a private market, sharply limiting or making illegal monopolies and cartels. Even though the act was signed on July 2, 1890, by President Benjamin Harrison, it was not until 1901, under President Theodore Roosevelt, that the act was first enforced to limit the monopoly and cartel behavior of businesses.

There were three key sections to the Sherman Antitrust Act. The first was directed at defining noncompetitive behavior by businesses. This section deemed illegal any organizational structure or contract that led to restraint of trade among either the states or with another country. The second section defined which market results would constitute noncompetitive behavior. Violation of the act was a felony. The third section extended the reach of the act to include U.S. territories and the District of Columbia.

The spirit of the act was to protect consumers from the uncompetitive behavior of businesses that have either monopoly power in their market or companies that have banded together to exert cartel market behavior. Monopoly and cartel power allows the monopoly company, or companies that make up the cartel, to impose two disadvantages on consumers. First, they have the ability to withhold market information from the consumer. This allows them greater market power than would otherwise be the case under purely market conditions. This leads to the second disadvantage to consumers. Companies are allowed to charge a price higher than would be the case under pure market conditions and to control the quantity produced for the market. The Sherman Antitrust Act was legislated to diffuse and balance the market between the business and the consumer.

The act was an effort by the federal government to keep businesses from restricting market competition and trade so they could raise prices. To that end, however, the federal government clearly distinguished between purposeful monopolies and businesses that found themselves in a monopoly position purely as the result of business success. The focus of the act was on deterring and punishing those who deliberately created either monopoly power in a market or the collusion of several companies to create the market result of monopoly power.

One of the major issues at the time of the Sherman Antitrust Act was whether Congress had the authority to pass a law with such broad market limitations. Congress asserted its power to do so by way of the Constitution and its role in regulating interstate commerce. Several Supreme Court case decisions solidified the Sherman Antitrust Act as law. The act was meant to protect the competitive nature of a market, not interfere with it. Prominent Supreme Court cases confirming the Sherman Antitrust Act as law included *Addyston Pipe and Steel Company v. United States* (1899) and *Standard Oil Co. of New Jersey v. United States* (1911).

The term *trust* in the name of the act references a type of business structure that was popular at the time of the legislation. Although not a popular form of business today, at the end of the 19th century and early 20th century, C. T. Dodd of Standard Oil Company of Ohio invented the trust agreement, allowing Standard Oil to circumvent an Ohio law regarding companies owning stock (ownership) in other companies. This new business structure allowed Standard Oil to construct a vertically integrated company that eventually had such large market share that it enjoyed monopoly power. It was this intentional type of business activity that led to the 1890 Sherman Antitrust Act.

David A. Dieterle

See also: Monopoly; *Standard Oil Co. of New Jersey v. United States*; *Vol. 1: Foundations of Economics:* Market Capitalism; Supreme Court; *Vol. 4: Global Economics:* International Cartels and Monopolies; *Primary Document:* Sherman Antitrust Act of 1890

Further Reading

Cefrey, Holly. 2004. *The Sherman Antitrust Act: Getting big business under control*. New York: The Rosen Publishing Group.

Letwin, William. 1965. *Law and economic policy in America: The evolution of the Sherman Antitrust Act*. Chicago, IL: Univ. of Chicago Press.

Thornton, William Wheeler. 1913. *A treatise on the Sherman Anti-Trust Act*. Cincinnati, OH: W. H. Anderson Co.

Worth, Richard. 2011. *Sherman Antitrust Act*. Singapore: Marshall Cavendish Corporation.

SHILLER, ROBERT

Born: March 29, 1946, in Detroit, Michigan; Nationality: American; Professional Interests: behavioral economics, housing and real estate economics; Nobel Prize in Economics (2013); Major Works: *Market Volatility* (1989), *Macro Markets: Creating Institutions for Managing Society's Largest Economic Risks* (1993), *Subprime Solution: How the Global Financial Crisis Happened and What to Do about It* (2008), *Animal Spirits: How Human Psychology Drives the Economy and Why It Matters for Global Capitalism* (with George Akerlof, 2009), *Finance and the Good Society* (2013), *Irrational Exuberance* (2013).

Robert Shiller is an American economist who teaches at Yale University and the Cowles Foundation. His contributions to the economic community are varied and far reaching. While he has provided valuable insight into a variety of economic fields, such as financial markets, economic behavior, and others, his most recent contributions focus primarily on the stock market collapse of the early 21st century. His contributions include a direct analysis of the 2008–2009 subprime lending crisis and economic systems, both of which played a pivotal role in the current economic environment. Robert Shiller was awarded the 2013 Nobel Prize in Economics.

Robert James Shiller was born in Detroit, Michigan, on March 29, 1946. He earned his bachelor of arts from the University of Michigan in 1967 and continued his studies at the Massachusetts Institute of Technology, where he earned his PhD in 1972. His academic career includes time spent at the University of Pennsylvania and the University of Minnesota before he accepted a position in the economics department at Yale University and the Cowles Foundation for Research in Economics in 1982. He now serves as the Arthur M. Okun Professor in Economics, professor of finance, and fellow at the International Center for Finance at the School of Management at Yale University.

His extensive study of the housing market has proved to be a valuable addition to the real estate industry. The Standard & Poor's Case-Shiller Home Price Indices track changes in the housing market by evaluating those changes based on a three-month average with a two-month lag time. The data are based on the sales figures of specific single-family residences and condominiums at a variety of price points across 20 cities throughout the nation. These indices are produced and released each month by Fiserv Lending Services.

Much of Shiller's work has extended beyond the classroom and into the bookstores. *Market Volatility*, published in 1989, provided readers with an in-depth statistical analysis of markets and how they operate. *Irrational Exuberance* explored the stock market bubble of the late 1990s and its rapid decline near the turn of the century. In the book, Shiller claims that the rapid, extreme, and largely volatile stock market growth in the latter part of the 1990s led to the overvaluation of technology-based stocks. He argues that the tremendous growth could lead to an exponential catastrophic decline. His work proved to be largely correct as the economic environment rapidly changed as market instabilities prevailed and an economic decline plagued the global economy. The book was a great success, even becoming a *New York Times* best seller. This widespread popularity prompted Shiller and his publishers to develop and expand with a second edition in 2005. The second edition included his work on the housing and real estate markets, explaining how the extension of credit to borrowers would have a negative effect on the economy.

Shiller continued his exploration of the dire subprime lending situation through his work in the *Subprime Solution: How Today's Global Financial Crisis Happened, and What to Do about It. The Princeton Review* published this work in 2008. In it, Shiller provided a brief history of how the subprime lending crisis emerged and offered an aggressive, multifaceted remedy to resolve the crisis in the mortgage industry, including a substantial restructuring of the complex system. While some of Shiller's solutions are focused on the immediate and imminent crisis faced by many borrowers and homeowners, he also emphasizes the long-term need to develop a complex system of safeguards and protective measures to prevent similar situations from arising again. He claims that his solutions would promote further economic recovery and growth in the future as people strive to reclaim the American dream.

Shiller's contributions to economics are not limited to his writings; any estimation of his work must also take into account his career in the classroom and other economic associations, boards, and advisory councils. He has been a research associate for the National Bureau of Economic Research since 1980, he served as vice president of the American Economic Association in 2005, and he was president of the Eastern Economic Association from 2006 to 2007. He writes "Economic View" for the *New York Times* and "Finance in the 21st Century" for Project Syndicate. His career has provided much to the economic community in a variety of fields and specialties, and his contributions to his area of expertise are immense and far reaching.

Robert Shiller was awarded the 2013 Nobel Prize in Economics for his work on financial economics in the 1980s. He concluded that stock markets are inefficient and that one can predict stock market pricing only over a long period.

Shiller is a professor at Yale University and the Cowles Foundation as the Arthur M. Okun Professor in Economics and professor of finance and fellow at the International Center for Finance at the School of Management.

William S. Chappell

See also: *Vol. 1: Foundations of Economics:* Behavioral Economics; Behavioral Finance; *Vol. 2: Macroeconomics:* Okun, Arthur M.

Further Reading

Blaug, Mark, and Howard R. Vane. 2003. *Who's who in economics*, 4th ed. London: Edward Elgar.

Grove, Lloyd. 2008. The world of Robert Shiller. *The Business Journals*, *UpStart Business Journal* (May 2). http://upstart.bizjournals.com/views/columns/the-world-according-to/2008/05/02/Interview-With-Robert-Shiller.html (accessed July 16, 2011).

Nobelprize.org. 2013. Robert J. Shiller—Facts. http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2013/shiller-facts.html (accessed July 16, 2015).

Shiller, Robert. 1989. *Market volatility.* Boston: MIT Press.

Shiller, Robert. 1993. *Macro markets: Creating institutions for managing society's largest economic risks.* Cambridge, UK: Oxford Univ. Press.

Shiller, Robert. 2003. *The new financial order: Risk in the 21st century.* Princeton, NJ: Princeton Univ. Press.

Shiller, Robert. 2008. *Subprime solution: How the global financial crisis happened and what to do about it.* Princeton, NJ: Princeton Univ. Press.

Shiller, Robert. 2013. *Finance and the good society*. Princeton, NJ: Princeton Univ. Press.

Shiller, Robert. 2013. *Irrational exuberance.* Princeton, NJ: Princeton Univ. Press.

Shiller, Robert, and George A. Akerlof. 2009. *Animal spirits: How human psychology drives the economy and why it matters for global capitalism.* Princeton, NJ: Princeton Univ. Press.

Shiller, Robert, and Randall Kroszner. 2011. *Reforming U.S. financial markets: Reflections before and beyond Dodd-Frank.* Cambridge, MA: MIT Press.

Yale University. n.d. Shiller Short Biography. http://www.econ.yale.edu/~shiller/bio.htm (accessed July 16, 2011).

SIMON, HERBERT

Born: June 15, 1916, in Milwaukee, Wisconsin; Died: February 9, 2001, in Pittsburgh, Pennsylvania; Nationality: American; Professional Interests: economist, political scientist, sociologist, Nobel Prize (1978); Major Work: *Models of Man* (1957).

Herbert Simon was a 20th-century economist, political scientist, psychologist, and sociologist who spent 52 years pioneering new departments as a faculty member of Carnegie Mellon University. He is known for his research in the fields of economics, mathematics, computer science, and psychology, receiving numerous awards and recognitions over his lifetime, including the Nobel Prize in Economics and the National Medal of Science. Simon died in 2001.

Herbert Alexander Simon was born on June 15, 1916, in Milwaukee, Wisconsin, to Jewish parents. His father was a successful inventor and electrical engineer. As a young student, Simon developed an interest in economics and human behavior as he attended public school. He entered the University of Chicago in 1933 to study economics and received his BA in 1936. That same year, he became a research assistant with Clarence Ridley in the field of municipal administration, which then led him to directorship of a study at the University of California, Berkeley, from 1939 to 1942.

In 1943, Simon earned his PhD in political science from the University of Chicago. He gained a teaching position in political science at the Illinois Institute of Technology in 1942, where he remained until 1949. Being in Chicago, Simon was a contributor to the Cowles Commission for Research in Economics. His doctoral work became the focus of his publication *Administrative Behavior* in 1947. In it, Simon applied the theory of behavior and cognitive process to organizational problem solving.

Simon left Chicago and joined the faculty of Carnegie Mellon University in 1949, then known as Carnegie Institute of Technology. He, along with G. L. Bach and William W. Cooper, worked to establish a graduate school for industrial administration. He teamed with David Hawkins from 1950 to 1955 to formulate and prove the Hawkins-Simon theorem, a quantitative approach to the input-output analysis of an economy. Simon's 1957 publication, *Models of Man*, presented mathematical models of human behavior in social settings.

Over the course of his career, Simon received many awards and recognitions. For his research in the decision-making of organizations, Simon was awarded the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel in 1978. He was awarded the National Medal of Science in 1986. In 1994, he was inducted into the Chinese Academy of Sciences, an honor that had been given to only 14 scientists. He was given the Award for Outstanding Lifetime Contributions to Psychology from the American Psychological Association in 1993. Simon also received awards from the International Joint Conferences on Artificial Intelligence and the American Society of Public Administration in 1995.

In 1991, Simon published an autobiography of his life, *Models of My Life*, in which he describes his cross-disciplinary work in various fields of science.

Herbert Simon died on February 9, 2001, in Pittsburgh, Pennsylvania.

Sara Standen

See also: Modigliani, Franco; *Vol. 1: Foundations of Economics:* Behavioral Economics; Nobel Prize in Economics; *Vol. 2: Macroeconomics:* Samuelson, Paul; *Vol. 4: Global Economics:* Meade, James

Further Reading

Augier, Mie, and James G. March, eds. 2004. *Models of a man: Essays in memory of Herbert A. Simon.* Cambridge, MA: MIT Press.

Crowther-Heyck, Hunter. 2005. *Herbert A. Simon: The bounds of reason in modern America.* Baltimore, MD: Johns Hopkins Univ. Press.

Lewis, Paul. 2001. Herbert A. Simon, Nobel winner for economics, dies at 84. *New York Times* (February 10). http://www.nytimes.com/2001/02/10/business/herbert-a-simon-dies-at-84-won-a-nobel-for-economics.html (accessed October 30, 2012).

Simon, Herbert. 1957. *Administrative behavior: A study of decision-making processes in administrative organization.* New York: Free Press.

Simon, Herbert. 1957. *Models of man: Social and rational.* New York: Wiley.

Simon, Herbert A. 1978. Autobiography. Nobelprize.org. http://www.nobelprize.org/nobel_prizes/economics/laureates/1978/simon-autobio.html (accessed July 15, 2012).

SMITH, VERNON

Born: January 1, 1927, in Wichita, Kansas; Nationality: American; Professional Interests: microeconomics, experimental economics, Nobel Prize (2002); Major Works: *Experimental Economics: Induced Value Theory* (1976), *Papers in Experimental*

Economics (1991), *Rationality in Economics: Constructivist and Ecological Forms* (2008).

Vernon Smith was the 2002 winner of the Nobel Prize for establishing laboratory experiments as a methodology for empirical economic analysis and study of alternative market mechanisms. Smith revolutionized the traditional view that controlled experiments of economic theory were not possible due to the difficulty of controlling other important factors. Smith was instrumental in the use of experimental economics to study air traffic and airport management and electricity and energy trading in the utility industry and as an effective method in regulating property rights without government intervention.

Vernon L. Smith was born on January 1, 1927, in Wichita, Kansas. He was raised on a Kansas farm by his father, Vernon Chessman Smith, and his mother, Lulu Belle Lomax, under the difficult circumstances of the Great Depression. Years of struggle, unemployment, and finally foreclosure confirmed his mother's political commitment to socialism. Smith's undergraduate studies included physics and electrical engineering, and in 1949 he received his BS in electrical engineering from the California Institute of Technology. He was motivated to pursue advanced studies of economics after recognizing the correlation between the principles of physics and economics in Samuelson's *Foundations* and the reasoning found in von Mises's *Human Action*. He went on to earn his MA in economics from the University of Kansas in 1952 and his PhD in economics from Harvard University in 1955.

Vernon Smith's diverse teaching career began in 1955 at Purdue University, where he served until 1967. He went on to work as a visiting assistant professor at Stanford University in 1961–1962 and as a tenured professor at Brown University in 1967–1968 and University of Massachusetts from 1968 to 1975. In 1975, Smith moved to the University of Arizona, where he remained until 2001, followed by George Mason University, where he served as a professor of economics and law until 2008. In 2008, Vernon Smith joined the faculty as professor of economics and law at Chapman University upon founding the Economic Science Institute.

Smith began using experiments in his first year of teaching at Purdue as a tool to make microeconomic theory more comprehensible to his undergraduate students. Through Smith's induced-value experiments, students experienced actual market conditions in which price equilibrium was achieved without the participants having any knowledge of the value conditions of the other participants. Smith also observed that the efficiency of achieving equilibrium increased over several trading periods, with subsequent periods experiencing a reduced standard deviation from the theoretical equilibrium price.

Smith's continued development of experimental methodology was articulated in *Experimental Economics: Induced Value Theory* (1976) and was further expanded six years later in the article "Microeconomic Systems as an Experimental Science" (1982). Smith identifies two distinct components of a microeconomic system: the environment and the institution. The environment consists of all the participants, commodities, and characteristics within the institution and cannot be altered by the agents. The institution is the system that specifies and administers the rules and laws created within the system. The goal of the experiment is to evaluate whether the incentives created by the institution result in outcomes that are conducive to the established goals of the institution. He has authored more than 250 articles and publications.

Experimental economics has been used to solve economic problems such as determining slot allocations used by national airport management for efficient scheduling and to create new systems of electricity and energy trading that transformed the utility industry throughout the nation. Experimental economics has also been demonstrated to be effective at regulating private property rights without government intervention.

In 2002, Vernon Smith was awarded the Nobel Prize in Economics for establishing laboratory experiments as a methodology for empirical economic analysis and study of alternative market mechanisms. Smith revolutionized the traditional view that controlled experiments of economic theory were not possible due to the difficulty of controlling other important factors. The inability to empirically test traditional theory could potentially inhibit the development of economics due to the difficulty of determining the exact components or causes of success or failure of the theory. Observation of these components allows for new theories to emerge and undergo testing.

Smith received the Friedrich-August-von-Hayek-Gesellschaft Award (2008) and the 1995 Adam Smith Award. The Vernon Smith Prize for the Advancement of Austrian Economics, sponsored by the European Center of Austrian Economics, is named after him.

Heather Isom

See also: Microeconomics; *Vol. 1: Foundations of Economics:* Austrian Economic Thought; Hayek, Friedrich von; Mises, Ludwig von; Nobel Prize in Economics; *Vol. 2: Macroeconomics:* Samuelson, Paul

Further Reading

Chorvat, T., and K. McCabe. 2005. Law and neuroeconomics. In *Supreme Court Economic Review*, ed. F. Parisi and D. Polsby, 35–62. Chicago, IL: Univ. of Chicago Press.

Chorvat, T., and K. McCabe. 2005. Lessons from neuroeconomics for the law. In *The Law and Economics of Irrational Behavior*, ed. F. Parisi and V. Smith, 68–94. Palo Alto, CA: Stanford Univ. Press.

Hoffman, E., and K. McCabe. 2005. What makes trade possible? In *The Law and Economics of Irrational Behavior*, ed. F. Parisi and V. Smith, 169–85. Palo Alto, CA: Stanford Univ. Press.

Smith, Vernon. 1976. *Experimental economics: Induced value theory.* Washington, DC: Department of Economic and Business Research.

Smith, Vernon. 1977. *Economics of natural and environmental resources.* New York: Gordon and Breach.

Smith, Vernon. 1982. Microeconomic systems as an experimental science. *American Economic Review* 72 (5): 923–55.

Smith, Vernon. 1991. *Papers in experimental economics.* New York: Cambridge Univ. Press.

Smith, Vernon. 1994. Economics in the laboratory. *Journal of Economic Perspectives* 8 (1): 113–31.

Smith, Vernon. 2005. Behavioral economics research and the foundations of economics. *Journal of Socio-Economics* 34 (2, March): 135–50.
Smith, Vernon. 2008. *Rationality in economics: Constructivist and ecological forms*. New York: Cambridge Univ. Press.

SNOB EFFECT

Harvey Leibenstein showed three cases in which a market demand curve is not the horizontal summation of the individual consumer demand curves. The three cases are the bandwagon, snob, and Veblen effects. A horizontal summation means that the market demand for a product at any price can be calculated by adding the amount each buyer will purchase at that price. This assumes that all buyers are making decisions independent of other buyers—they are each Robinson Crusoe. The existence of a snob effect means that consumers are not independent of each other. The snobs buy an amount that is dependent on their expectation of how much others are buying.

There are three consumers in the market for fish tacos: Moe, Larry, and Curly. Without a snob effect, the market demand curve shows that at any price, the amount purchased is calculated by adding up what Moe + Larry + Curly buy, at any price. At $5 a fish taco, Moe buys 5, Larry buys 6, and Curly buys 16 each week. The market demand at $5 is 5 + 6 + 16 = 27. We expect that at a price of $4, the quantity purchased will be more than 27; let's say that 7 + 8 + 18 = 33. At $3 the total is 39. Lower the price and one moves down the market demand curve. However, if Moe, Larry, and Curly are dependent on the others, the quantity purchased will not be the horizontal sum of the individual demand curves. Rather, how much Moe buys depends on how much Larry and Curly purchase.

Let's assume that Moe is a snob. In the bottom table, at $5 a fish taco Moe buys 5 each week if he expects Larry and Curly to buy a total of 22 (6 + 16) each week. However, if at $4, Larry and Curly buy a total of 26 (8 + 18), Moe will buy *less* than 5; let's say he buys 4. The total at $4 is now 28, not 33. And, at $3, the total is 33 (3 + 10 + 20), not 39, because Moe buys less when Larry and Curly buy more.

What do snobs do to the market demand curve? In the upper table, without the snobs, as price falls from $5 to $3, the quantity purchased rises from 27 to 39. With the snobs, quantity rises only from 27 to 33. In other words, the elasticity of

Table 1. Snob Effect

Price	Moe	Larry	Curly	Total
$5	5	6	16	27
$4	7	8	18	33
$3	9	10	20	39
$5	5	6	16	27
$4	4	8	18	30
$3	3	10	20	33

demand of the market demand curve is less price elastic, or more price inelastic. Without the snobs, the arc price elasticity of demand is –0.72. With the snobs it is –0.40.

Sometimes the snob effect is defined as the inverse relation between the quantities purchased by lower-income people with the resulting quantity purchased by higher-income people. The examples given are luxury cars or rare works of art. The problem with these examples is that lower-income people do not purchase such luxury goods. These luxury goods are valuable, at least in part, because of their high price. These goods are, therefore, purchased in order to show off one's wealth. This may lead to an upward-sloping (to the right) demand curve: as price rises so does the quantity purchased. These are known as Veblen goods, named after Thorstein Veblen, who wrote the famous tract on conspicuous consumption, *The Theory of the Leisure Class*. The snob effect can be illustrated by the behavior of Democrats and Republicans, or USC and UCLA fans. As the price of hamburgers at Joe's Burger Shack in Malibu falls, more UCLA fans (or Republicans) purchase more burgers. USC fans (or Democrats) will be seen there in fewer and fewer numbers.

Roger Frantz

See also: Bandwagon Effect; Veblen, Thorstein

Further Reading

Frank, Robert H. 1999. *Luxury fever: Why money fails to satisfy in an era of excess*. New York: The Free Press.

Leibenstein, Harvey. 1950. Bandwagon, snob, and Veblen effects in the theory of consumers' demand. *Quarterly Journal of Economics* 64: 183–207.

Veblen, Thorstein. 1899. *The theory of the leisure class: An economic study of institutions*. New York: Macmillan.

SOWELL, THOMAS

Born: June 30, 1930, in Gastonia, North Carolina; Nationality: American; Professional Interests: political economy, economics, author; Major Works: *Race and Economics* (1975), *Inside American Education* (1993), *Basic Economics* (2007), *The Housing Boom and Bust* (2009), *The Thomas Sowell Reader* (2011), *Intellectuals and Race* (2013).

Thomas Sowell is an economist, author, professor, and syndicated columnist. He currently serves as the Rose and Milton Friedman Senior Fellow on Public Policy at the Hoover Institution of Stanford University. He has served as faculty at various institutions, including Cornell University and University of California, Los Angeles. He is the author of 40 books and numerous articles about politics, education, ethnic relations, and child development. He has a syndicated column that appears in numerous newspapers around the United States.

Thomas Sowell was born on June 30, 1930, in Gastonia, North Carolina. At the age of nine, he moved to Harlem, New York, with his family. He dropped out of high school as a teenager and began working various jobs. Sowell was drafted into the U.S. Marine Corps during the Korean War and served as a photographer. After his service, he attended classes at Howard University in Washington, D.C., receiving high marks and earning acceptance into Harvard University on recommendations from professors. At Harvard, much of Sowell's study was on German philosopher Karl Marx, on whom he wrote his senior thesis. He received his bachelor's degree in economics in 1958 and his master's degree from Columbia University in 1959. In 1968, Sowell obtained his doctorate degree from the University of Chicago, studying under George Stigler and Milton Friedman.

Sowell's economic career began when he became a labor economist for the U.S. Department of Labor from 1960 to 1961. He taught at Howard University and Rutgers before accepting a position as an economic analyst at AT&T from 1964 to 1965.

From 1965 to 1970, Sowell was on the faculty at Cornell and Brandeis University. From 1972 until 1974, he was affiliated with the Urban Institute. He served on the faculty at the University of California, Los Angeles, and he has served as a senior fellow at the Hoover Institution since 1980. When Ronald Reagan was elected president in 1980, he offered Sowell a cabinet position to bring a conservative voice to African Americans, but Sowell declined. He served on the White House Economic Advisory Board for a one-meeting stint for Reagan but quit because of the difficulty in traveling to Washington, D.C., from California.

Sowell's writings span a range of topics, including economics, political ideology, race relations, affirmative action, education, and child development. Known for his conservative and libertarian viewpoint, Sowell's writings have drawn criticism from liberal counterparts. Sowell's position on race and income is the theme of his 1975 publication, *Race and Economics*. In this book, he analyzed the relationship between blacks and wealth, drawing on factors from slavery, contrasting to other ethnicities, and criticizing government policies directed at blacks.

Also a strong critic of affirmative action, in his 1990 book *Preferential Policies: An International Perspective*, Sowell criticized the use of quotas in college admissions and employment. He asserted that such policies led to degraded standards and did not allow individuals to reach their full potential. His 2004 publication, *Affirmative Action around the World: An Empirical Study*, compares policies in recent U.S. history to those of other nations. His concluding arguments are that affirmative action policies have negligible effects on their intended groups and lower incentives for achievement. His work received critical reception, with some arguing that affirmative action had gone too far beyond its purpose.

Aside from his writing on economics and policy, Sowell has taken to writing on child development and education. His book *The Einstein Syndrome: Bright Children Who Talk Late* investigates the phenomenon of late-talking children, a follow-up to his earlier book *Late-Talking Children*. The research in his book argues that these children are misdiagnosed as autistic or as having a disorder, but he theorizes instead that they are simply developing other areas of the brain. In Sowell's book *Inside America's Education*, he is highly critical of the American educational system. He argues that the standards, practices, and programs used in educational institutions lack credibility, and he calls for reform.

Sowell detailed his life story in his book *A Personal Odyssey*, published in 2001. He writes about his childhood and stages of life and his education from growing up in the poor South, moving to Harlem, and eventually entering the Ivy League at Harvard. He also accounts for the vast differences of wealth that he has experienced in his life in this personal story.

In addition to Sowell's books, he is a syndicated columnist, writing for mass media. His column focuses on issues in the economy, affirmative action, government policy, and social issues from a free-market viewpoint. It appears in over 150 newspapers in the United States and has been featured in *Newsweek*, *Forbes*, and the *Wall Street Journal*. His conservative opinions often draw criticism from liberals. Some of his essays were published in his work *Ever Wonder Why?: And Other Controversial Essays* in 2006.

Sowell was a recipient of the Francis Boyer Award, given by the American Enterprise Institute in 1990. He was awarded the National Humanities Medal in 2002 and the Bradley Prize in 2003.

Sowell serves as Rose and Milton Friedman Senior Fellow on Public Policy at the Hoover Institution of Stanford University.

Sara Standen

See also: Microeconomics; Stigler, George; *Vol. 2: Macroeconomics:* Friedman, Milton

Further Reading

Quartey, Kojo A. 2003. *A critical analysis of the contributions of notable black economists.* Burlington, VT: Ashgate.
Sowell, Thomas. 1975. *Race and economics.* New York: McKay.
Sowell, Thomas. 1990. *Preferential policies: An international perspective*. New York: Morrow.
Sowell, Thomas. 1993. *Inside American education: The decline, the deception, the dogmas.* New York: Free Press.
Sowell, Thomas. 2000. *A personal odyssey.* New York: Free Press.
Sowell, Thomas. 2004. *Affirmative action around the world: An empirical study.* New Haven, CT: Yale Univ. Press.
Sowell, Thomas. 2009. *The housing boom and bust.* New York: Basic Books.
Sowell, Thomas. 2011. *Basic economics: A common sense guide to the economy*, 4th ed. New York: Basic Books.
Sowell, Thomas. 2011. *The Thomas Sowell reader*. New York: Basic Books.
Sowell, Thomas. 2013. *Intellectuals and race*. New York: Basic Books.
Sowell, Thomas. n.d. Thomas Sowell website. http://tsowell.com (accessed July 1, 2012).

SPORTS ECONOMICS AND ECONOMIC PSYCHOLOGY

Behavioral economics has contributed to sports economics by placing the analytical spotlight on the importance of information complexity (information is costly and asymmetric), heterogeneity or differences across individuals in preferences and capabilities, and noneconomic variables for understanding decision-making and outcomes. This is in contrast to the traditional economic toolbox, which focuses on prices and incomes. The latter two variables remain important, but enhancing the traditional economic toolbox enriches our understanding of sports.

Some evidence exists that athletes tend to choke (are less productive) under pressure and that higher levels of remuneration contribute to choking, thereby reducing productivity. On the other hand, there is evidence that, *controlling for levels of remuneration*, many athletes don't choke but rather perform well. Much depends on the athlete's level and quality of training, experience, and confidence. Higher pay does not appear to cause choking and, therefore, lower sports productivity. But increasing pay will not reduce choking. Largely noneconomic variables determine whether or not athletes choke, having a large productivity effect, especially on critical marginal outcomes.

Contrary to what conventional wisdom predicts, fans adopt what appear to be objectively ineffective rituals to help their teams improve their performance, and athletes often do the same to improve their own performance and even to win major events. This appears to be highly irrational behavior, but these rituals seem to have a positive effect on the confidence of athletes. As a counterfactual, banning such rituals should reduce productivity, especially with regards to the athletes' rituals. Belief affects performance, even if "objectively" it should not. Even to the extent that fan rituals do not affect team or athlete productivity, they positively affect the level of happiness of the fans. From this perspective, they are rational since they enhance the utility of fans.

Athletes' behavior is often most consistent with loss aversion, meaning they are more concerned with avoiding a loss than achieving an identical-sized gain. A dollar lost has more impact on a person's level of satisfaction or well-being than a dollar gained (perhaps as much as twice the impact). Many athletes therefore expend more effort to avoid a loss compared to realizing an equivalent gain. The framing of an event as a potential loss can have greater motivational impact than when it's framed as a win.

There is evidence that, on average, athletes discount future income much more than nonathletes. Many athletes and their families heavily discount the future because they believe that the athlete will be a world champion and that his or her career will be short-lived. This often results in significant investments in the present, whilst sacrificing potential future income by reducing savings and reducing time and financial investments in education. This is especially the case for athletes (and their families) who adopt the "win-at-all-cost" approach to sports. Athletes tend to adopt this approach in the face of false and misleading information, when they are uncertain about future outcomes, and when they misunderstand the viability of alternative strategies to achieve excellence in sports.

There is substantial evidence that in the short and medium term, stock market prices do not reflect the fundamental values of the assets they represent. This deviation of asset prices from fundamental values is motivated by a variety of noneconomic variables, including the outcomes of major sports events. The home team winning causes the local stock market prices to increase; losing has the opposite effect. When people feel better about themselves and their community they gain confidence, and this impacts overall investment behavior. To the extent that investment in real assets is affected by outcomes of major sports events, one can hypothesize that these can impact on the real economy.

The stereotype of the wealthy athlete ending up as a pauper is not that far off the mark. Many athletes, earning substantial sums of money, spend it all (do not save), invest in very high-risk prospects (losing most of their investments), or have their funds stolen by unscrupulous investment advisers. Although being characterized by a high rate of time discount is a problem for some athletes, a larger problem appears to be a dire lack of financial literacy and trusting individuals who, objectively, should not be trusted. But given information complexity and lack of financial literacy, and in the absence of outside intervention (such as their team or players association), athletes all too often make disastrous financial choices.

Hannah Altman
Morris Altman

See also: Asymmetric Information; *Vol. 1: Foundations of Economics:* Behavioral Economics; Financial Literacy

Further Reading

Altman, Morris. 2012. Implications of behavioural economics for financial literacy and public policy. *Journal of Socio-Economics* 41: 677–90.

Edmans, Alex, Diego Garcia, and Oyvind Norli. 2007. Sports sentiment and stock returns. *Journal of Finance* 92: 1967–98.

Krumer, Alex, Tal Shavit, and Mosi Rosenboim. 2011. Why do professional athletes have different time preferences than non-athletes? *Judgment and Decision Making* 6: 542–51.

Moskowitz, Tobias, and Jon Wertheim. 2011. *Scorecasting: The hidden influences behind how sports are played and games are won*. New York: Random House.

Syed, Matthew. 2010. *Bounce: Mozart, Federer, Picasso, Beckham, and the science of success*. New York: Harper.

Torre, Pablo S. 2009. How (and why) athletes go broke. *Sports Illustrated*. http://www.si.com/vault/2009/03/23/105789480/how-and-why-athletes-go-broke (accessed September 30, 2016).

SPORTS ECONOMICS AND PERFORMANCE INEFFICIENCIES

Behavioral economics contributes to an understanding of why and how performance outcomes of sports teams and athletes can be suboptimal and how market forces can't easily correct this inefficiency. The conventional model presumes that efficient outcomes will prevail, at least in a reasonable period of time.

There is significant evidence that organizational inefficiencies exist and often persist in sports organizations and in the piecing together of competitively successful sports teams. One good example of this was portrayed in the book *Moneyball*, where a relatively uncompetitive baseball team, the Oakland A's, adopted a different recruitment approach, paying attention to players who did not fit the accepted standard of prospective excellence. The traditional model assumed that there are only a few particular characteristics that contribute to player excellence—a one-size-fits-all approach. This is consistent with the representative agent assumption in economic theory. Such players were way too expensive for smaller franchises, so they seemed doomed to be losers given their low-revenue budget constraint. These smaller teams are assumed to be x-efficient, doing the best they can given their inputs, which are constrained by their budget.

The alternative approach, backed by statistical analysis, presumes that players regarded as subpar given their characteristics might actually be high-performance players given the right organizational mix. But given the prevailing recruitment model (what determined optimal team and player performance) these players were highly undervalued. Tapping into this player pool allowed Oakland (and other teams following this alternative model) to dramatically improve its performance. In effect, significant organizational x-inefficiency was dramatically reduced by introducing a different model of what makes for excellence in individual and team performance.

In sports, there can be significant x-inefficiencies in performance, largely assumed away by the conventional wisdom. Efficiency is linked to certain physiological and behavioral traits of players. Often, the traits of current winners are assumed to be ideal. There is a presumption of a unique equilibrium—one size fits all. There is also a small sample size bias—winning characteristics are derived from a small and unrepresentative sample. Plus, there is a clear availability bias—the data that's considered is only what's easily and cheaply available. These biases can be rational given complex and costly information. Apart from this, advocates of the status quo (experts, trainers, coaches, managers, scouts, and even athletes) have a vested interested in not changing their approach—decision-makers ignore or dismiss pertinent information. This is a form of loss aversion. There can be (or might be) a loss of power, prestige, and pride in changing one's approach to athlete selection and training. This can lock a team into an x-inefficient equilibrium unless it's shocked into another more efficient set of organizational approaches and outcomes. This approach can remain successful for wealthy teams that can purchase prized traditional talent or inputs. Other teams, with tighter budget constraints, remain financially viable in spite of being losing ventures. Such x-inefficient teams can be sustained even in the long run, through subsidies, fan support, or ownership subsidies (where owners' utility is enhanced through team ownership even while they are accruing economic loses—these are not wealth maximizers).

The performance (productivity) of athletes, whether athletes are performing at their full potential, is critically affected by human capital variables in conjunction with informational imperfection, conflicting information, uncertainty, and the capacity to understand relevant information (what we refer to as *athletic literacy*). This is similar to the variables that impact the efficiency of health care outcomes, a point elaborated upon in 1963 by Nobel laureate Kenneth Arrow. Given these realities, there can be market failures in performance outcomes.

There are different models of what determines athletes' potential performance and the pathways to achieve this potential. One perspective maintains that the potential output and even pathways are genetically determined. This incorporates the view that certain people are born to be great athletes. Body type, given one's chosen sport, yields potential performance. If trainers, coaches, and parents accept this model, they will make particular decisions on athlete selection and even training. Some young athletes even self-select out of particular sports because they don't fit genetically based models.

More recent research on genetics, brain development, the level of performance of individuals, inclusive of athletes, suggests that genes play only a partial role in determining performance. Moreover, no one individual knows what her or his potential performance is given genetic endowments—there is considerable immeasurable uncertainty here. Of equal or even greater importance to genetic endowment is the quantity and quality of training. Some argue that athletes (and others) require an average of 10,000 hours, usually over 10 years, of purposeful training (goal oriented, quality controlled with feedback, and setting higher achievement benchmarks or pushing beyond the comfort zone) to achieve high levels of performance outcomes. In other words, performance outcomes are largely a product of rigorous and persistent training; athletes are not born to be great. In addition, the parts of the brain that help determine performance outcomes evolve as a function of one's training (neoplasticity). One's capabilities are not fixed or given a priori; they are dynamically determined. Also of importance is the athlete's confidence level. Confidence, controlling for other variables, improves performance.

Whether athletes do their best and whether the best individuals are chosen to be competitive athletes often depends on the decision-makers, the model adopted in the decision-making process, and the variables that influence the decision-makers' choices. Whether the best model is chosen depends, for example, on the decision-makers' *athletic literacy*, the extent of loss aversion, and status quo bias (sticking with the status quo in the face of new information). Also, these decision-makers are typically "experts" who are trusted to make the correct choices on behalf of the athletes, in the face of information asymmetry and the uncertainty of outcomes. Moreover, parents, trainers, coaches, and others can game the selection process so that their preferred athletes are selected. This can result in underperforming athletes and the exclusion of athletes who might otherwise achieve excellence (high levels of performance outcomes), resulting in performance x-inefficiency.

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See also: Arrow, Kenneth; Asymmetric Information; *Vol. 1: Foundations of Economics:* Behavioral Economics; Financial Literacy

Further Reading

Altman, Morris. 1996. *Human agency and material welfare: Revisions in microeconomics and their implications for public policy.* Boston: Kluwer Academic.

Arrow, Kenneth J. 1963. Uncertainty and the welfare economics of medical care. *American Economic Review* 53: 941–73.

Leibenstein, H. 1966. Allocative efficiency vs. x-efficiency. *American Economic Review* 56: 392–415.

Lewis, Michael. 2004. *Moneyball: The art of winning an unfair game*. New York: W. W. Norton.

Moskowitz, Tobias, and L. Jon Wertheim. 2011. *Scorecasting: The hidden influences behind how sports are played and games are won*. New York: Crown Archetype.
Robertson, Ian. 2012. *The winner effect: How power affects your brain*. New York: Bloomsbury.
Syed, Matthew. 2010. *Bounce: Mozart, Federer, Picasso, Beckham, and the science of success*. New York: Harper.

STANDARD OIL CO. OF NEW JERSEY V. UNITED STATES

The Standard Oil Company was the largest and richest trust in the United States at the beginning of the 20th century. By 1904, it owned a Leviathan's share of all the oil production in the United States and had interests in other markets as well. Through a process of acquisition, Standard Oil ingested all market competition. Through vertical integration, Standard Oil controlled aspects of oil production from drilling to refining and eventually retail sales to customers. John D. Rockefeller, along with the other trustees, implemented product standardization that greatly enhanced sales by streamlining production, reducing costs, and undercutting competition. However, when power is unchecked or not limited by competition, that power has the potential to become corrupt.

A monopoly exists when one company has all the power to control the market. Standard Oil monopolized the petroleum industry. This market dominance was contrary to the principles of free enterprise, in which competition is fundamental. In this case, there were no viable substitutes, and prices could be set and supply could be minimized. Congress passed the Sherman Antitrust Act in 1890 to deal with monopolies that threatened consumers. The Supreme Court used the Sherman Antitrust Act to check the power of monopolies and restore the principles of the market. This case ordered the dissolution of the Standard Oil Company monopoly into separate firms due to unreasonable restraint of trade.

Case Summary

John D. Rockefeller came from modest beginnings, but his aptitude for mathematics and business helped him become one of the richest men in the world. His relationship with Standard Oil began as a partnership between himself, as an expert on running a corporation, and Samuel Andrews, who knew the petroleum industry. Competition in the fledgling oil industry was fierce. However, Rockefeller had a plan. He gathered a few partners: S. V. Harkness provided financial assets, H. M. Flagler had the power to get the railroads to cut their rates so the company could ship oil at a cheaper cost than competitors, and his older brother William Rockefeller provided a refinery. These partners formed a group of trustees that ran the company for shareholders. Through a series of acquisition strategies, the company carved out a solid foothold in the oil industry. This foothold led to a stronghold and finally a stranglehold.

During an early skirmish in the battle for total control of the oil industry, Standard Oil fought the Pennsylvania Railroad. Standard Oil had had the foresight to invest in various means of transport for its oil. It turned to new methods, such as the pipeline and the railroad tank car. In addition, anticipating the competition, Standard Oil developed its own ships, docking facilities, barrel-making plants, warehouses, and everything else connected to the manufacture, distribution, and sale of its product. Because the company did not need to rely on other businesses, the railroad eventually capitulated to Standard Oil and the monopoly was near perfect.

However, the government was slowly catching up with legislation that prohibited companies from owning the stock of another company. This made the reorganization of Standard Oil necessary. A new business arrangement emerged in the early 1880s whereby shareholders assigned their shares to trustees who held the decision-making power of the company. These new organizations became known as trusts, but soon the technical term was less important than its reputation. Many Americans believed trusts suppressed competition and led to collusion and price setting.

Meanwhile, journalist Ida Tarbell published a series of articles systematically chronicling the misdeeds of John Rockefeller and Standard Oil. *McClure's Magazine* ran the 19 articles from 1902 until 1904. Later they were compiled in a book, *The History of the Standard Oil Company* (1904). Tarbell's own father owned one of the small refineries forced out of business by Standard Oil. This condemnation added to the political pressure for government to do something about these trusts.

President Theodore Roosevelt, known as the "trust buster," encouraged the commissioner of corporations to study Standard Oil's undertakings. By 1900, Standard Oil had morphed into a holding company based in New Jersey in an effort to keep a step ahead of antitrust laws. Rockefeller had retired from active control of the company to focus on his philanthropic endeavors. At the conclusion of the government's investigation of Standard Oil, it confirmed that the trust participated in unfair competition practices and had violated the Sherman Antitrust Act. In 1909, the U.S. Department of Justice sued Standard Oil in the Circuit Court of the United States for the Eastern District of Missouri. The circuit court ruled against Standard Oil. Standard Oil of New Jersey plus 33 other holding companies, along with Rockefeller and the other trustees, appealed the case to the Supreme Court. The Court agreed to hear the case in 1910, and arguments were heard the next year.

A corporation is a legal entity that protects individual owners from the consequences of company actions. In the case of *Standard Oil Co. of New Jersey v. United States,* 221 U.S. 1 (1911), the responsibility of the Supreme Court was to determine if the Sherman Antitrust Act had been violated. The government claimed Standard Oil was an unreasonable monopoly. Standard Oil would get cheaper shipping rates and other companies would be charged higher rates regardless of distance traveled or weight, resulting in an unreasonable advantage over competitors. In addition, Standard raised prices where there was no competition and its customers had no other choices. Furthermore, it used fake companies that did not appear to be owned by Standard Oil to drop the prices of its product when competition was plentiful, starting a price war that the competition would not win.

In response to these allegations, Standard Oil disagreed upon the construction and application of almost all sections of the Sherman Act but particularly the first and second sections referencing "contract in restraint of trade." The words were vague and unclear. The company argued that the framers did not have the dismemberment of companies in mind when they included the commerce clause in Article I of the Constitution. Standard Oil produced a laundry list of underappreciated contributions. Through its better quality of goods and uniform standards, Standard Oil improved the daily lives of citizens by providing kerosene to heat and light their homes. Furthermore, in an effort to be more efficient, the company used the refinery by-products and created new uses such as paraffin wax, lubricating oils, and heating oil. In addition, it improved the environment by recycling the sludge into fertilizer for farmers instead of dumping it into the ocean. The bottom line was simply that if left alone, the market regulates itself. Standard Oil reinvested its profits into expansion, innovation, and efficiency, resulting in a benefit for the general welfare.

Chief Justice White wrote the opinion of the Court. He expressed the necessity to clarify words and terms that had meaning from English common law. Terms such as *freedom to contract* had changed over time in response to the injurious consequences of monopolies. He concluded that Congress has the right to set definitions of what a trust is as well as to prohibit restraint of trade in accordance with Article I of the Constitution. However, White briefly stated concerns about the lower courts' decree in that modifications should be made in accordance to the amount of harm or danger it may have on the public. Oil was a vital resource to people all over America, and any disruption in that market could have negative effects on the general welfare. The Court affirmed the lower court's decree with the modification that the dissolution should not affect the safety of the public. Consequently, the breakup of Standard Oil mirrored somewhat the breakup of AT&T, where the former spawned baby Standards and the latter baby Bells.

The penalty for being found guilty of conspiring to set prices and engage in unfair labor practices actually increased John Rockefeller's fortune. The price of his stock went up, and his spinoff companies became more valuable than the original.

In the case of Standard Oil, the dissenting opinion of Justice Harlan clearly expressed the idea that the Court had no business interpreting what Congress meant when it passed regulatory legislation. Nor did it have any business discussing the merits of policy passed by Congress. Harlan asserted for the minority that only Congress can make laws, and only it should make clear what it intended that law to mean.

The lack of specificity in wording of the Sherman Act made it difficult for the courts to enforce while giving Congress the benefit of appearing to be tough on monopolies. This case made Standard Oil synonymous with "trust busting." It propelled Congress to clarify the antitrust legislation and three years later pass the Clayton Antitrust Act of 1914.

Kathleen C. Simmons

See also: Clayton Antitrust Act of 1914; Monopoly; Sherman Antitrust Act of 1890; *Vol. 1: Foundations of Economics:* Market Capitalism; Supreme Court; *Vol. 2: Macroeconomics:* Regulation; *Primary Documents:* Clayton Antitrust Act of 1914; Sherman Antitrust Act of 1890

Further Reading

American Experience 25 Years. n.d. The Rockefellers. PBS.org. http://www.pbs.org/wgbh/americanexperience/features/primary-resources/rockefellers-mcclures/ (accessed September 30, 2016).

Legal Information Institute, Cornell University Law School. n.d. *Standard Oil Co. of New Jersey v. United States* 100 U.S. 1, 173 Fed. Rep. 177, modified and affirmed. http://www.law.cornell.edu/supct/html/historics/USSC_CR_0221_0001_ZS.html (accessed September 30, 2016).

Legal Information Institute, Cornell University Law School. n.d. *Standard Oil Co. of New Jersey v. United States* 100 U.S. 1, 173 Fed. Rep. 177, modified and affirmed. WHITE, C.J., Opinion of the court. http://www.law.cornell.edu/supct/html/historics/USSC_CR_0221_0001_ZO.html (accessed September 30, 2016).

Legal Information Institute, Cornell University Law School. n.d. *Standard Oil Co. of New Jersey v. United States 100 U.S. 1*, 173 Fed. Rep. 177, modified and affirmed HARLAN, J., Concurring in part, dissenting in part. http://www.law.cornell.edu/supct/html/historics/USSC_CR_0221_0001_ZX.html (accessed September 30, 2016).

OYEZ, ITT Chicago, Kent College of Law. n.d. *Standard Oil Co. of NJ v. United States*. (Facts of the case.) http://www.oyez.org/cases/1901-1939/1909/1909_398#chicago (accessed September 30, 2016).

Tarbell, Ida. 1904. *The history of the Standard Oil Company*. Boston: McClure, Phillips.

STATUS QUO BIAS

Status quo bias is one of the most powerful behavioral economic phenomena. It is defined as a preference for choice options that are the most obvious or usual, for example, the first item appearing in an Internet search, even if other options are better. Preference for the status quo is frequently nonrational (from a conventional economics perspective) because it depends on which option constitutes the status quo. Hence, changing the status quo may cause preference reversal.

Several economic and psychological factors may drive the status quo bias: (1) preference stability often results in a "naturally" preferred alternative that becomes the status quo, for example, one's regular gas station; (2) transaction costs of changing the status quo may result in relatively few deviations, for example, sticking to one's current stock portfolio; (3) uncertainty about the consequences of the non-status quo option may lead to choice of the status quo option; (4) one may believe that a status quo option is presented because it constitutes the best available option from a supplier, for example, the default type of car insurance; (5) deviations from the status quo may lead to anticipated regret that should be avoided, for example, switching between service providers; (6) status quo options may act as reference points, deviation from which is considered as a loss—the loss being considered as more painful than the forgone gain experienced by choosing the status quo, according to prospect theory; (7) anticipated blame of others for not choosing the status quo option may influence choice; (8) status quo options may be chosen in order to reduce anxiety caused by uncertainty about the value of choice options. Anxiety may be due to difficult-to-make value trade-offs between positive and negative aspects of the choice options as, for example, staying married or getting divorced. The first three factors may be considered rational, but the other factors are not, according to standard economic theory.

Status quo bias is related to two other instances of decision avoidance: omission bias and choice deferral. Omission bias is a preference for no action, resulting in choosing the default option, for example, the clause "Yes, I would like to be informed about product information" marked as the default option in an online transaction. In cases where the default option equals the status quo, status quo bias and omission bias are the same. In fact, both are influenced by the same factors mentioned above. Choice deferral is a preference for delaying the choice, for example, in order to find better alternatives, avoiding responsibility for the choice or refusing to make a choice. Choice deferral is caused to a large extent by the difficulty of making a choice.

Examples of status quo bias abound, both in experimental and field research. Frequently cited examples from the laboratory or from surveys are choice of investment portfolios (status quo being an inherited portfolio), topping up a pizza (status quo being the empty pizza) or scaling it down (status quo being the full pizza), and status quo government policies (such as voting by mail or in person). Examples from the field are insurance choices biased toward options presented as the default (from which one can deviate easily and without cost), default pension schemes for employees and default contribution rates, and opt-in versus opt-out organ donation systems in various countries.

Default options can be changed effectively by legal and commercial institutions and are considered "lightly paternalistic" because they still allow people to make free choices. However, this kind of "nudging" may in some cases be considered unethical. For example, an opt-out system for organ donation may be considered as violating the individual's or the relatives' right to make decisions about the body. Also, an opt-out system would be incompatible with the fact that organs are situated in the body of the donor at the time of death. The switching test and the reversal test are two commonly used methods to eliminate the status quo bias when deciding whether opting in or opting out is the preferred system. The switching test requires one to imagine the alternative option (opting out) as the status quo and then consider the arguments for changing back to the actual status quo. The reversal test is based on imagining a change in the opposite direction as the deviation from the status quo, for example, by increasing the transaction costs of a donation. If the reversal is rejected, the optimality of the current status quo may be questioned, which may eventually lead to the acceptance of the alternative opt-out system. Given the known power of the status quo bias, these methods might eventually lead to a reconsideration of current status quo options in legal and commercial systems.

Gerrit Antonides

See also: *Vol. 1: Foundations of Economics:* Behavioral Economics; Paternalism

Further Reading

Anderson, Christopher J. 2003. The psychology of doing nothing: Forms of decision avoidance result from reason and emotion. *Psychological Bulletin* 129: 139–67.

Johnson, Eric J., and Daniel Goldstein. 2003. Do defaults save lives? *Science* 302: 1338–39.

Rippon, Simon. 2012. How to reverse the organ shortage. *Journal of Applied Philosophy* 29: 344–58.

Ritov, Ilana, and John Baron J. 1992. Status quo and omission biases. *Journal of Risk and Uncertainty* 5: 49–62.

Samuelson, William, and Richard Zeckhauser. 1988. Status quo bias in decision making. *Journal of Risk and Uncertainty* 1: 7–59.

Thaler, Richard H., and Cass R. Sunstein. 2003. Libertarian paternalism is not an oxymoron. *University of Chicago Law Review* 70: 1159–202.

STIGLER, GEORGE

Born: January 17, 1911, in Renton, Washington; Died: December 1, 1991, in Chicago, Illinois; Nationality: American; Professional Interests: microeconomics, price theory, economics of information, government regulation, Nobel Prize (1982); Major Works: *The Theory of Competitive Price* (1946), *The Organization of Industry* (1968).

George Stigler was a scholar, teacher, and author, and his contributions to the field were immense. Stigler's primary contributions to economics were in the fields of price theory, economics of information, government regulation, and organization of industry. Stigler wrote many articles and books during his tenure in academia. His emphasis on microeconomics and empirical data changed the direction of economic study during the second half of the 20th century and even drove the development of new areas of exploration, such as organization of industry, economics of information, and capture theory. Stigler died in 1991.

George Joseph Stigler was born in Renton, Washington, on January 17, 1911, the son of two European immigrant parents. He attended public schools throughout grade school and upon graduation attended the University of Washington. Stigler earned his bachelor of arts in 1931 during the early part of the Great Depression. The challenging economic times led Stigler to apply for and receive a fellowship for graduate studies at Northwestern University in Illinois. He earned his master of business administration in 1932 before continuing his education at the University of Chicago during the mid-1930s. He earned his PhD in 1938.

While obtaining his education in Chicago, Stigler worked with and was greatly influenced by W. Allen Wallis and Milton Friedman. He was part of an economic movement during the 1930s and 1940s that altered the way people viewed economic policy and decision-making. Stigler taught at a variety of colleges and universities for over five decades, including Iowa State College, University of Minnesota, Brown University, Columbia University, and the University of Chicago. Stigler held positions with several organizations, including the Mont Pelerin Society, the American Economic Association, and the National Bureau of Economic Research.

The Theory of Competitive Price was one of Stigler's earliest works, published in 1942. He wanted to know how the real world operated and used this book as an inquiry into this realm as he tried to mesh price theory with authentic observation. His goal was to test theories with real-world data and research.

In 1947, Stigler was one of 36 economists, including some of the most influential economic minds of the time, selected by F. A. Hayek to attend a meeting in Switzerland to discuss the dangers facing the free-market system. The Mont Pelerin Society formed at this monumental meeting of academic elites to research, renew, and promote the key principles of a free society. Stigler served as president of the group from 1976 to 1978.

Stigler's most prized contribution to the field of economics is arguably his article "The Economics of Information." He believed that information itself was largely overlooked and undervalued. His study of price dispersion and advertising changed that. According to Milton Friedman, Stigler had a way of explaining familiar things in a unique and insightful manner. Stigler's study of information prompted many other scholars to follow and began a new discipline within economic circles.

Stigler's curiosity about how the real world worked guided much of his research. Government regulation and its effects were one of Stigler's curiosities. He understood that government regulation was intended to help people, but there was a substantial lack of data and research on the topic. Stigler wanted to go beyond just the effects of regulation and understand its causes. He studied a variety of topics, from the markets for electricity to securities. As a result of his data-driven studies, he developed a greater skepticism about the role of government in the economy. He claimed that government influence had little effect on prices and in fact harmed consumers and created monopolies in some instances. This general idea is known as the *capture theory*. The businesses that benefit from regulation will capture more of the market than their competition will. Through regulation, he claimed, the government interfered with competition, therefore generating monopolies in the market. His work led to the emergence of public choice economics. His influential study gained considerable support in the economic community and led to the deregulation movement of the Carter administration in the late 1970s.

The Organization of Industry, a collection of 17 of Stigler's articles, was published in 1968. Stigler used empirical data to test theories related to various aspects of the organization of industry and other topics, most notably evaluating past economic policy and offering recommendations for future policy.

The Nobel Prize in Economics was awarded to George J. Stigler in 1982 for his comprehensive and exhaustive study of the causes and effects of government regulation.

George Stigler died on December 1, 1991, in Chicago, Illinois.

William S. Chappell

See also: Microeconomics; *Vol. 1: Foundations of Economics:* Hayek, Friedrich von; Nobel Prize in Economics; *Vol. 2: Macroeconomics:* Friedman, Milton

Further Reading

The Library of Economics and Liberty. n.d. George J. Stigler. In *The concise encyclopedia of economics*, ed. David R. Henderson. http://www.econlib.org/library/Enc/bios/Stigler.html (accessed January 10, 2012).

National Academies Press. n.d. George Joseph Stigler. http://www.nap.edu/html/biomems/gstigler.html (accessed January 10, 2012).

Rowley, Charles K., and Friedrich Schneider, eds. 2004. *The encyclopedia of public choice*. New York: Kluwer.

Stigler, George. 1946. *The theory of competitive price*. New York: Macmillan.

Stigler, George. 1952. *The theory of price*. New York: Macmillan.

Stigler, George. 1965. *Essays in the history of economics*. Chicago, IL: Univ. of Chicago Press.

Stigler, George. 1968. *The organization of industry*. Chicago, IL: Univ. of Chicago Press.

Stigler, George J. 1982. Autobiography. Nobelprize.org. http://www.nobelprize.org/nobel_prizes/economics/laureates/1982/stigler-bio.html (accessed January 10, 2012).

Stigler, George. 1988. *Memoirs of an unregulated economist*. New York: Basic Books.

STOCK MARKET

A stock is a share of ownership in a company. Companies offer shares of their ownership in order to raise additional sources of capital. In the U.S. market, individuals invest in the stock market to save for retirement and other long-term financial goals.

The stock market, also called the equity market, is the aggregation of buyers and sellers exchanging stocks. The stock market has grown to become a multitrillion-dollar market. The full spectrum of asset classes available to investors offers a variety of risk and return profiles, and the stock market remains relatively attractive. In 2013, the S&P 500, the stock market index composed of 500 large U.S. companies, soared by nearly 30 percent.

The Stock Market as a Source of Funds for Companies

Before tackling the stock market from an investor's perspective, it is critical to understand the essence of the market and its function as an important economic agent.

The stock market is an important place for companies to raise funds. The first time that a company decides to raise money through the stock market is called an initial public offering or IPO. This offering happens in a primary market and is orchestrated by investment bankers. Once the IPO is completed, the stocks continue to trade in the stock market (secondary market).

By listing their stock in the stock market, firms become public corporations. A public corporation's goal is to maximize shareholders' wealth. As a result, the value of the stock becomes the essential metric to assess the corporation's success.

Companies can raise funds by issuing equity or by borrowing money in the debt markets. While debt is usually considered cheaper than equity, because interest expenses are tax deductible (unlike dividends, for instance), increasing debt is not always optimal when it comes to managing the firm's capital mix. Managers will seek the right balance between debt and equity, and this balance can be found by issuing more money in the stock market.

The Stock Market as a Mirror of the Economy

The stock market is often considered a good proxy for the U.S. economy. A positive trend in the stock market often translates into a positive trend in GDP growth, a positive consumer sentiment, a strengthening housing market, and positive trends in most of the macroeconomic drivers. Investors reward stocks of companies with good growth prospects. As a result, the aggregation of all the stock should approximate an aggregation of growth prospects for all the companies. Also, stocks' performance, when divided into sectors, industries, or other categorizations, can offer insights on how a particular group is anticipated to behave.

How to Invest in the Stock Market

The U.S. stock market offers a diversified range of investment options. Investors can choose to buy stock of companies with different categories of market capitalization or size, different sectors appurtenance, different positions in the business cycle (growth companies; mature companies), different exposure to the global marketplace, different risk profiles, and so on.

Before investing in or purchasing a stock, the investor needs to analyze the company. The investment analysis to conduct when investing in the stock market will depend on whether you are investing in many stocks or one security alone. When looking at one particular stock, it is very important to understand what causes stocks to appreciate or depreciate. When valuing stocks, investors always consider the ability of the firm to create future value. The ability of the firm to generate future cash flows will be rewarded by an appreciation of the value of the stock. The methods used to value a stock will differ depending on the company. The reader interested in stock valuation methodologies should consult literature about valuations. Professor Aswath Damodaran at NYU Stern has a website with all the stock valuation models.

When valuing a firm, it is important to keep in mind the key drivers of growth associated with the business model. For example, if the investor is looking at a pharmaceutical company, the competition around the drugs and the patents associated with the drugs are key drivers of the top line. When looking at a biotechnology firm, the value of its research pipeline and its ability to innovate as well as the regulation of the drug industry will be critical to make financial forecasts.

The equity analyst should be familiar with business analysis, accounting, and financial statements analysis and be able to intelligently analyze special trends in the industry in which the company is involved. Different investors of the stock market have different investment philosophies and value different signals and drivers. New trends in equity investments also involve high-frequency traders who use advanced technologies to make money by reacting very rapidly on small changes that happen at the stock level.

Equity Portfolios

When you invest in many stocks at the same time, you are building an equity portfolio, and the relationship between the different stocks requires an additional overlay of analysis. For example, investors who are trying to build a portfolio with an exposure to all the sectors will have to think about the allocation of their money in every sector. Also, investors usually invest in a portfolio of stocks versus one stock alone as a way to diversify their investments and reduce the risk of holding one very volatile security.

The principle of diversification is based on the fact that if an investor is able to find companies that are uncorrelated, when one of them is being hurt financially, the others will be able to offset the investment loss. When managing a portfolio of equities, portfolio construction becomes as important as the selection of stocks. Also, building a portfolio can be a way for investors to incorporate their macroeconomic outlook to the investment process. For instance, if an investor thinks that oil prices are going to increase because of a shortage in the supply due to increasing turmoil in the Middle East, he or she might buy stock in oil companies that generate their revenues by selling oil and sell stock in companies that use oil as a raw material. Institutional investors who manage portfolios of equities will usually use an existing index as a benchmark for their stock-picking skills. For example, investors who focus on large U.S. companies will assess their stock-picking skills by comparing their returns to the returns of the S&P 500 index.

Most consumers invest in the stock market by purchasing mutual funds instead of individual stocks. As discussed in the mutual fund entry, these investment vehicles allow investors to pool their money with others and buy a basket of stocks managed by a professional. This gives consumers exposure to investing in the stock market without the responsibility or effort of researching and buying and selling individual stocks.

Yousra Acherqui

See also: Bonds; Index Mutual Funds; Mutual Funds and Exchange Traded Funds; Stocks; Time Value of Money; *Vol. 1: Foundations of Economics:* Asset Allocation; Capital Gains and Capital Losses; Capitalism; Compound Interest and Returns; The Great Depression and Wall Street Crash, 1929; Investing; National Association of Securities Dealers Automated Quotation; New York Stock Exchange; Standard & Poor's 500; *Vol. 2: Macroeconomics:* Stock Market Crash, 1987

Further Reading

Damodaran Online. n.d. Website of Aswath Damodaran. http://pages.stern.nyu.edu/~adamodar/ (accessed April 10, 2014).

Teweles, Richard J., and Edward S. Bradley. 1998. *The stock market*, 7th ed. New York: John Wiley.

STOCKS

A stock, also called an equity, is a financial security that represents an ownership stake in a publicly listed corporation's equity. A corporation can finance its operations by using debt or equity. Debt means borrowing money. Equity refers to the nondebt cash injected into the company by the owners and investors.

The terms *stocks*, *shares*, and *equity* are often used interchangeably. There are two types of stock: common stock and preferred stock. Common stock confers voting rights on the stockholder on top of receiving cash payments called dividends. Preferred stockholders do not have voting rights but have seniority over common stockholders. Seniority means that preferred stockholders receive dividend payments before common stockholders. It also means that in case of bankruptcy or liquidation, preferred stockholders are paid prior to common stockholders.

A public corporation's goal is to maximize shareholder wealth, and the value of the company's stock is a good proxy for shareholder value. Thus, every corporation will make financial decisions that will increase its stock price. When a consumer purchases stock in a corporation, he or she becomes a partial owner. When the corporation prospers, share price goes up, and the stockholder makes money.

Equity Financing

Corporations can use equity, debt, or both to finance their operations. The proportions of debt and equity define the capital structure of the corporation. Debt financing is generally cheaper than equity financing because debt expenses are tax deductible. However, debt is not always available to corporations, and using too much debt can alter a corporation's financial strength. If a corporation has too much debt and experiences a drop in sales, the interest payments may be too great to handle. That is why it's important for corporations to maintain reasonable debt levels.

Public corporations are able to raise money by issuing new shares of equity. In order to issue new stock, corporations need to use investment bankers who orchestrate the new issue by underwriting the stocks and organizing the primary sale in the stock market. For example, Twitter and Facebook recently issued stock and began trading in the public stock markets. Investors can buy shares in these newly issued stocks and become part owners.

Investing in Equity

Most retail investors invest in the secondary market by buying or selling shares of stocks from equity retail brokers. Investors will buy a company's stock if they think that the value of the company will appreciate over time. The gains made by holding a stock and selling it at a higher price are called capital gains. Investors will also buy a stock if they think that they will receive dividend payments. The total gains or losses incurred by a stockholder are calculated as the sum of capital gains and dividend payments. For example, if an investor buys company ABC stock at $100 and then receives $10 in dividends and sells it for $200, the total gains are $110 comprised of $100 capital gains and $10 from dividend gains. If we divide the total gains by the initial investment, we calculate a total return of 110 percent.

Equity Valuation

In order to make profitable investments, investors need to educate themselves on the stock they are choosing and to value the company in order to derive the value of one share of the equity. Fundamental equity valuation has evolved to become a whole industry comprised of analysts who thoroughly follow a universe of stocks or a particular industry.

In order to value a stock, an analyst prepares financial projections for the company drawing on his or her forecasts of the economy, the industry, and the revenue drivers. Once future cash flows are projected, they are discounted to the present to derive the equity value. This equity value divided by the number of shares outstanding is equal to the intrinsic value of a stock. If this intrinsic value is higher than the market price, investors should consider investing in the stock, and if it's lower than the market price, they should not consider investing in it.

Although equity or stock valuation sounds straightforward, it is based on assumptions and future projections. The intrinsic value is very sensitive to the assumptions made about the future; this is why the stock market is considered a barometer of investors' sentiment about the economy.

Another way to value a stock is to compare it to the stock of a similar company. If a comparable stock trades at a certain multiple of its earnings, we can assume that our stock would trade at the same multiple of its earnings. For example, if company A trades at five times its earnings per share, and we know that comparable company B's earnings per share are $2, then we can price company B at $10 per share. We can also use multiples of revenues or any other fundamental measure. Most analysts will apply different valuation frameworks and take some weighted average of the results as the intrinsic value. As mentioned earlier, it's essential to have knowledge of a stock and its industry to conduct equity valuation. In addition to fundamental equity valuation, there are many other methods to value stocks, such as quantitative analysis and technical analysis.

Risk

When investing in a stock, investors expose themselves to two kinds of risks: systematic and nonsystematic. Systematic risk refers to how the stock moves when the market fluctuates. Systematic or market risk is common to all stocks. For example, a major disaster such as a tsunami in Japan will likely impact all stocks in Japan. This risk is captured by a measure called beta. Beta measures the comovement of a stock with the market. Market risk is inherent in all stock investing and cannot be diversified away. In other words, no matter how many stocks are in an investment portfolio, systematic or market risk remains.

The second type of risk is related to the company's specific risk and is called nonsystematic or firm-specific risk. It is measured by the company's volatility, which is commonly calculated as the standard deviation of historical returns. Unlike systematic risk, stand-alone risk is diversifiable. This means that by investing in negatively correlated stocks, an investor can hold a portfolio that is overall less risky than investing in one stock alone because the different holdings' stand-alone risks will cancel out.

For example, if we know that when company A is profitable, company B does not perform well, we can say that these two companies are negatively correlated.

Thus, company A and B stock prices will tend to move in opposite directions. If we hold a portfolio composed of company A and company B, we are offsetting movements in company A by movements in company B, which makes our position less volatile than holding a single stock. When investing in stocks, assessing risk is as important as the valuation.

Investing in the stock market offers individuals an opportunity to participate in the growth of corporations and offers companies a ready source of funding.

Yousra Acherqui

See also: Index Mutual Funds; Mutual Funds and Exchange Traded Funds; Risk; Savings versus Investing; Stock Market; *Vol. 1: Foundations of Economics:* Asset Allocation; Behavioral Finance; Capital Gains and Capital Losses; Capitalism; Compound Interest; Financial Literacy; Investing; *Vol. 2: Macroeconomics:* Dividend Income

Further Reading

Brigham, Eugene F., and Joel F. Houston. 2012. *Fundamentals of financial management*, 13th ed. Mason, OH: Southwestern Publishing.

Graham, Benjamin. 1949. *The intelligent investor.* New York: Harper & Brothers.

O'Neil, William J. 2003. *How to make money in stocks*. New York: McGraw-Hill.

STUDENT LOAN MARKETING ASSOCIATION (SALLIE MAE)

The Student Loan Marketing Association (also known as Sallie Mae) is a financial services organization whose primary function is to provide student loans. Sallie Mae is publicly traded on the New York Stock Exchange. Sallie Mae was incorporated as the Student Loan Marketing Association in 1972, originally as a government-sponsored enterprise. In 2004, Congress ended Sallie Mae's federal charter, allowing it to become fully independent. Sallie Mae owns the debts of millions of students, approximately 25 percent of all U.S. student loans, totaling over $150 billion of debt. In 2013, Sallie Mae had a profit of $1.4 billion.

The federal government's purpose in supporting Sallie Mae was to direct credit toward those seeking student loans. Sallie Mae has been credited with allowing millions of students to borrow as they pursued their education. Sallie Mae has also been cited in numerous controversies, especially in the wake of the U.S. financial crisis that began in 2007.

While student loans must be repaid, they enable borrowers to attain an education they likely would not have accessed otherwise. Sallie Mae's lending increases the overall education level of the population, enabling millions to gain skills and certifications that would otherwise not be feasible. This investment in education is often considered wise. Most people who take out student loans can ultimately repay them with income from jobs that they could only attain with education. Because of increasing demand for skilled labor in the U.S. workforce, attaining an education is generally regarded as a necessity for Americans to ensure their financial stability. Many economists recognize a "spill-over" benefit to society from increases in education levels. While most economists espouse the net benefit of student lending, several controversies involving Sallie Mae have emerged. In 2007, a class-action lawsuit claimed that Sallie Mae had discriminated against minority loan applicants. The case was settled in 2011 with Sallie Mae making a $500,000 donation to the United Negro College Fund. In 2014, federal regulators fined the corporation almost $100 million for employing discriminatory lending practices. Sallie Mae was reported to have overcharged active-duty U.S. military personnel.

Alongside these specific examples, a more general complaint has emerged with the rise of student debt levels. There have been claims that Sallie Mae is profiting from higher and higher levels of student borrowing. Most economists suggest that students choose to borrow despite knowing the challenges of paying off the debt, suggesting their decisions are rational. Furthermore, Sallie Mae's increased profit could be attributed to an increasing number of borrowers and the increasing cost of a college education.

Adam Vallus

See also: Household Decisions; Labor Economics; *Vol. 1: Foundations of Economics:* Financial Literacy; Human Capital; *Vol. 2: Macroeconomics:* Labor Force; Labor Productivity

Further Reading

Congressional Budget Office. 1991. *Controlling the risks of government-sponsored enterprises*. Washington, DC: Congressional Budget Office.

Investopedia. n.d. Sallie Mae—Student Loan Marketing Association. http://www.investopedia.com/terms/s/salliemae.asp (accessed September 30, 2016).

SallieMae. n.d. https://www.salliemae.com/ (accessed September 30, 2016).

SUBJECTIVE EXPECTED UTILITY

Expected utility theory is a framework widely used by economists who study decision-making under conditions of uncertainty. The theory assumes that individuals assign subjective values (utilities) to all possible outcomes and make choices that yield the highest "expected" utility, that is, the greatest weighted sum of utilities, where the weights are the probabilities that the specified outcomes will occur. In its classical form (and in much of contemporary applied economic research), the probabilities implicit in the decision problem were assumed to be objective (observable) and known to the decision-maker.

Suppose, for example, that I find myself standing on a street corner next to a café. I happen to know that the coffee in this café is not very good, but if I want a better cup I will need to cross the street, which entails some possibility of injury due to the fast-moving traffic. Notice that if I choose to cross the street, the outcome is uncertain: I may arrive safely and enjoy a superior cuppa, but there is a positive probability that I will be injured en route (and get no coffee at all!). Expected utility theory requires that I make the decision as follows: If the utility of visiting the lesser café is U_L (an arbitrary number), of safely reaching the superior café is U_S (a number larger than U_L), and of being injured in the street is U_I (a much smaller number!), then expected utility theory requires that I cross the street if and only if [INLINE EPS], where p is the probability of injury, given that I have chosen to cross the street.

The casual observation that most people are unable to state the probabilities of even common everyday events (much less rare events such as injuries incurred during street crossings) led to the development of subjective expected utility theory (SEU), which allows for the possibility that people might apply personalistic or subjective probabilities when faced with uncertainty. In the preceding example, the fact that I (say) chose to cross the street would imply to an observer that some combination of a sufficiently high subjective value (U_S) and a sufficiently low subjective probability of injury (p) were enough to justify the crossing. Proponents of SEU often emphasize its status as a normative theory, meaning it can be shown that people who follow a relatively simple and (mostly) intuitive list of behavioral rules (which can be stated as mathematical axioms) will in fact behave as if they are maximizing subjective expected utility.

Though SEU is a powerful theoretical tool widely used by economists in empirical studies, it has been noted that individuals often seem to violate its axioms, and the violations are in some cases systematic and predictable.

Trenton G. Smith

See also: Kahneman, Daniel; Prospect Theory; Utility, Experienced; Utility, Remembered; *Vol. 1: Foundations of Economics:* Behavioral Economics; Tversky, Amos

Further Reading

Kahneman, Daniel, Paul Slovic, and Amos Tversky. 1982. *Judgement under uncertainty: Heuristics and biases*. Cambridge, UK: Cambridge Univ. Press.

Kreps, David M. 1988. *Notes on the theory of choice*. Boulder, CO: Westview Press.

Savage, Leonard J. 1954. *The foundations of statistics*. Hoboken, NJ: John Wiley and Sons.

Von Neumann, John, and Oskar Morgenstern. 1947. *The theory of games and economic behavior*. Princeton, NJ: Princeton Univ. Press.

SUBPRIME MORTGAGE BUBBLE AND CRISIS

The United States subprime mortgage bubble and crisis was a nationwide banking emergency that coexisted with the U.S. recession of December 2007 to June 2009. The recession began in December of 2007 with the root cause being the bursting of the housing bubble and the resulting credit crisis. The combination of the Department of Housing and Urban Development (HUD) regulations, low down payment requirements, and the Fed's low interest policy of 2002–2004 resulted in the rapid growth of both subprime and adjustable rate mortgage (ARM) loans during the first five years of this century. Initially, the effect was positive. The policy changes created encouraging short-term effects, such as a strong demand for housing prices, increased housing prices, and a construction boom. The long-term effects of these policies were catastrophic. The increasing share of subprime loans began to push default rates upward.

The low short-term interest rates that made adjustable rate mortgages so attractive in the past soon reversed and led to higher monthly payments as the interest rates on the ARM loans were reset. With the encounter of these two elements, the negative ramifications created falling house prices coupled with lofty mortgage default and foreclosure rates.

To fully understand the crisis, it is vital to investigate how the events leading up to it resulted in a devastating blow to the U.S. economy. In the early 1990s, housing prices were relatively stable and began to rise rapidly in the last decade of the century. Housing prices continued to boom between January 2002 and mid-year 2006 before they finally started to wane at the end of 2006. Housing prices began to level off but were falling by the end of 2006. What was once a boom had now turned into a bust, and prices continued to fall well into 2008.

The reason for this significant decline in housing prices can be attributed to several factors that occurred within that time span, resulting in the crisis itself. One factor was the federal policy designed to promote more home ownership among households with below-median incomes. The federal government imposed several regulations and mandates that forced lending institutions to extend more loans to low-income households.

The Federal National Mortgage Association and Federal Home Loan Mortgage Corporation commonly known as Fannie Mae and Freddie Mac, respectively, played a central role in the relaxation of these lending standards. Fannie Mae and Freddie Mac serve as government-sponsored enterprises purchasing mortgages originated by banks, mortgage brokers, and other lenders. The two entities are able to borrow funds at a much cheaper rate than private lenders, giving them a competitive advantage. As a result of their cheaper access to funds, both Fannie Mae and Freddie Mac grew extremely popular and dominated most of the secondary mortgage market. In 1995, HUD mandated regulations requiring that Fannie Mae and Freddie Mac extend a larger share of their loans to low-income families. To illustrate, under the HUD regulations, 56 percent of new loans financed in 2008 by Fannie Mae and Freddie Mac had to go to borrowers below the median income. In 1999, HUD guidelines required Fannie Mae and Freddie Mac to accept smaller down payments and extend larger loans relative to income.

The Community Reinvestment Act (CRA) of 1995 also loosened mortgage-lending standards. Under this act, banks were required to meet numeric goals based on the low-income and minority population in the area they served when extending loans. In order to meet these requirements, many banks were forced to lower their lending standards in order for their population of service to meet the borrowing criteria.

The lowering of standards resulting from the HUD and CRA regulations essentially lowered lending standards universally. The number of subprime loans, those made to borrowers with low credit scores or who provided limited creditworthiness documentation, increased significantly. The subprime loans coupled with Alt-A loans, loans extended with little documentation or verification of their ability to repay, meant a majority of the loans issued in 2005–2006 were to borrowers with poor or questionable credit. Individuals were getting approved for mortgages they could not afford.

Another contributing factor to the bursting of the housing bubble was the artificially low short-term rates established by the Fed. These extremely low rates increased the demand for interest-sensitive goods as well as the attractiveness of ARMs. An ARM is a home loan in which the interest rate is tied to a short-term rate and then is reset at various intervals. The interest rate and monthly payment will vary over the life of the loan. The low initial interest rates on the adjustable rate mortgages made it possible for homebuyers to afford monthly payments for larger, more expensive home. Because interest rates were so artificially low, homebuyers would face a much higher monthly payment down the road. This is precisely what happened.

In 2005, the Fed shifted to a more restrictive monetary policy, pushing interest rates higher. Many of those who had purchased homes with little to no down payment and adjustable rate loans when interest rates were low were now faced with substantially higher monthly payments. With virtually no equity invested in their homes, many people simply walked away. The Fed policy encouraging ARM loans, the increasing proportion of these loans issued, and their high default and foreclosure rate contributed heavily to the housing boom and bust.

Lauren A. Drum

See also: Bubbles; Federal Home Loan Mortgage Corporation (Freddie Mac); Federal National Mortgage Association (Fannie Mae); Interest Rates; Subprime Mortgage Bubble and Crisis; *Vol. 1: Foundations of Economics:* Banking

Further Reading

Federal Reserve History. n.d. Subprime mortgage crisis—A detailed essay on an important event in the history of the Federal Reserve. The Federal Reserve History Gateway provides historical materials that illustrate how the Fed has changed over its first 100 Years. http://www.federalreservehistory.org/Events/DetailView/55 (accessed June 7, 2015).

Gwartney, James D., Richard Stroup, and Russell S. Sobel. 2000. *Economics: Private and public choice*. Fort Worth, TX: Dryden Press.

Holt, Jeff. 2009. A summary of the primary causes of the housing bubble and the resulting credit crisi: A non-technical paper. *Journal of Business Inquiry* 8 (1): 120–29. http://www.uvu.edu/woodbury/docs/summaryoftheprimarycauseofthehousingbubble.pdf (accessed June 7, 2015).

SUNK COST FALLACY

The sunk cost fallacy (or sunk cost effect) is a decision bias that "is manifested in a greater tendency to continue an endeavor once an investment in money, effort, or time has been made" (Arkes and Blumer 1985, 124). Arkes and Blumer (1985) designed an experiment in which participants were asked if they would invest $1 million in developing a new airplane that cannot be detected by conventional radar systems. They had just learned that a competitor would bring a similar plane to market that was even more efficient than the model their own company had planned. When participants were told that $9 million had already been invested, 85 percent were willing to invest, but only 17 percent would do so if no sunk costs were mentioned. Hence, prior investments seem to increase the commitment to a project, even if it would be more advisable to quit, based on standard economics. Sunk costs are also known to affect decisions by increasing the willingness to take risks (Thaler 1980), particularly if a risky outcome would allow a firm to break even (Thaler and Johnson 1990). The sunk cost phenomenon violates the economic principle that only incremental costs and benefits should be considered in decisions.

Regarding nonmonetary sunk costs, Zeelenberg and van Dijk (1997) criticize that the majority of studies deal with sunk costs of a financial nature. They found risk aversion to be more pronounced if behavioral sunk costs, such as workload and effort, had been invested. Soman (2001) reports that no effects of sunk time are observable unless the invested time units can be easily converted into money, by providing an hourly wage rate, for example.

One example of the sunk cost fallacy in the real world is the supersonic airplane Concorde, which, despite rather modest financial expectations, was built anyway because a lot of money had already been invested in its development. Other examples include the observation that more people attend plays when theater subscription prices are higher and the U.S. government's decision to continue the Vietnam and the Gulf wars (Hastie and Dawes 2001).

A variety of explanations for the sunk cost fallacy have been proposed. Decision-makers who honor sunk costs may not want to appear wasteful (Arkes and Blumer 1985), and by continuing investments they justify their initial choice (Brockner 1992). Future investments may appear smaller than they are in light of large prior expenditures (Garland 1990), and furthermore, sunk costs may induce a loss frame for the investment decision, which results in more risk-seeking choices (Thaler 1980).

Stephan Muehlbacher

See also: Prospect Theory; Thaler, Richard

Further Reading

Arkes, Hal R., and Peter Ayton. 1999. The sunk cost and Concorde effects: Are humans less rational than lower animals? *Psychological Bulletin* 125: 591–600.

Arkes, Hal R., and Catherine Blumer. 1985. The psychology of sunk cost. *Organizational Behavior and Human Decision Processes* 35: 124–40.

Brockner, Joel. 1992. The escalation of commitment to a failing course of action: Toward theoretical progress. *Academy of Management Review* 17: 39–61.

Garland, Howard. 1990. Throwing good money after bad: The effect of sunk costs on the decision to escalate commitment to an ongoing project. *Journal of Applied Psychology* 75: 728–31.

Hastie, Reid, and Robyn Dawes. 2001. *Rational choice in an uncertain world: The psychology of judgment and decision making*. Thousand Oaks, CA: Sage Publications.

Soman, Dilip. 2001. The mental accounting of sunk time costs: Why time is not like money. *Journal of Behavioral Decision Making* 14: 169–85.

Thaler, Richard H. 1980. Toward a positive theory of consumer choice. *Journal of Economic Behavior and Organization* 1: 39–60.

Thaler, Richard H., and Eric J. Johnson. 1990. Gambling with the house money and trying to break even: The effects of prior outcomes on risky choice. *Management Science* 36: 643–60.

Zeelenberg, Marcel, and Eric van Dijk. 1997. A reverse sunk cost effect in risky decision making: Sometimes we have too much invested to gamble. *Journal of Economic Psychology* 18: 677–91.

SUNSTEIN, CASS

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Cass Sunstein is the administrator of the Office of Information and Regulatory Affairs (OIRA), part of the Office of Management and Budget. OIRA was created by Congress in the 1980 Paperwork Reduction Act and is an agency within the Executive Office of the President. Sunstein was nominated to the position by President Barack Obama and confirmed by the U.S. Senate. In this position, Sunstein and his colleagues review and collect information. They also develop and oversee the implementation of government policies in many areas, including statistical standards and the quality of information.

Cass Robert Sunstein was born on September 21, 1954, in Concord, Massachusetts. After graduation from Middlesex School in Concord in 1972, he attended Harvard University. He graduated from Harvard with his BA magna cum laude in 1975. He then attended Harvard Law School, obtaining his JD in 1978, graduating magna cum laude. During this time, he served as the executive editor of the *Harvard Civil Rights-Civil Liberties Law Review.*

After finishing law school, Sunstein worked as a law clerk. His first position was with Hon. Benjamin Kaplan of the Supreme Judicial Court of Massachusetts. Next he worked as law clerk for Hon. Thurgood Marshall of the U.S. Supreme Court. He then worked as an attorney-adviser in the Office of the Legal Counsel of the U.S. Department of Justice from 1980 through 1981.

Following his work in government, Sunstein entered academia. He joined the faculty of the University of Chicago Law School in 1981 and remained there until 2008. He held visiting professor positions at Harvard Law School and Columbia Law School before joining the faculty of Harvard Law School in 2008. He assumed the position of Feliz Frankfurter Professor of Law.

While at Harvard, Sunstein was also the director of the Program on Risk Regulation. The focus of the program was on how law and policy deal with some of the central hazards of the 21st century. Among the topics for study were climate change, terrorism, occupational safety, natural disasters, infectious diseases, and other high-consequence events that have a low probability of happening.

Sunstein has been a prolific writer. He has written hundreds of scholarly articles and more than 15 books. Topics cover many aspects of public law, including rights, judicial decision-making, environmental and constitutional doctrine, the regulation of risk, and the relationship between the law and human behavior. He has also authored articles that have appeared in newspapers and magazines such as the *Boston Globe*, *New York Times*, *Washington Post*, *Harper's*, and *The New Republic*. He has testified before congressional committees on many subjects and has been involved in the law reform activities of countries including Russia, South Africa, Poland, Ukraine, and China.

In the book *Nudge: Improving Decisions about Health, Wealth, and Happiness*, Sunstein studied legal questions using information from research on human behavior. He explored these issues in several areas, including family law, environmental protection, and the stock and mortgage markets.

In the position he currently holds as administrator at OIRA, Sunstein oversees extensive research and the implications of various governmental measures on society. He and his colleagues explore the costs and benefits of various governmental agencies' regulations. Data analysis may predict the number of lives saved or resources spent on a specific course of action designed to prevent a particular type of emergency, for example. Such analysis is applied to many sectors of society and influences policy decisions.

Diane Fournier

See also: Thaler, Richard; *Vol. 1: Foundations of Economics:* Behavioral Economics; Law and Economics

Further Reading

Kysar, Douglas A. 2010. *Regulating from nowhere: Environmental law and the search for objectivity.* New Haven, CT: Yale Univ. Press.

The Law School, University of Chicago. n.d. Cass R. Sunstein. http://www.law.uchicago.edu/faculty/sunstein/ (accessed October 25, 2012).

Sunstein, Cass. 1990. *After the rights revolution: Reconceiving the regulatory state.* Cambridge, MA: President and Fellows of Harvard College.

Sunstein, Cass. 1997. *Free markets and social justice.* New York: Oxford Univ. Press.

Sunstein, Cass, ed. 2000. *Behavioral law and economics.* New York: Cambridge Univ. Press.

Sunstein, Cass. 2002. *Risk and reason: Safety, law and the environment.* New York: Cambridge Univ. Press.

Sunstein, Cass. 2007. *Worst-case scenarios.* Cambridge, MA: President and Fellows of Harvard College.

Sunstein, Cass R. 2009. *Republic.com 2.0.* Cambridge, NJ: Princeton Univ. Press.

Sunstein, Cass R. 2014. *Simpler: The future of government.* New York: Simon & Schuster.

Thaler, Richard H., and Cass R. Sunstein. 2008. *Nudge: Improving decisions about health, wealth, and happiness.* New Haven, CT: Yale Univ. Press.

Washington Post. n.d. Cass R. Sunstein: Administrator of the Office of Information and Regulatory Affairs at the Office of Management and Budget (since September 2009). *Washington Post.* http://www.washingtonpost.com/politics/cass-r-sunstein/gIQAb1bBAP_topic.html (accessed April 12, 2012).

SUPPLY

Of all the concepts in the world of economics, *supply* (along with its partner, *demand*) is arguably the most famous and most used term. Supply (and demand) is used to describe economic actions of producers and to predict future prices and further actions of the producers. All other things being equal, supply describes the behavior of the producers and how they respond to changes in prices.

Law of Supply

The law of supply describes the relationship between price and quantity supplied by producers. The law of supply states that price and quantity supplied have a positive relationship, all other things being equal. As the price of a good or service increases, the producers' willingness and ability to produce the good or service increases. Conversely, as the price lowers, the producers are less willing to produce their product.

Supply Schedule

For each product or service there is a relationship between price and quantity supplied, also known as the law of supply. The relationship is determined through surveying the willingness and ability of producers to produce their product at various prices. The results of the survey create a data set of the quantity producers are willing to supply at each price. The law of supply states this relationship will be positive. As price rises, quantity supplied will also rise, and vice versa, all other things being equal. The data set is the supply schedule. For an analogy, think of a product's supply schedule as its "story."

Supply Curve

The relationship between a set of prices and the quantities producers are willing to produce at each price, the supply schedule, allows one to graphically depict the price/quantity supplied relationship. The graphical depiction is called the supply curve. From the law of supply, to the supply schedule, the graphical supply curve will illustrate this relationship by being upward sloping to the right. To extend the analogy, if the supply schedule is the story, the supply curve is the picture. The story/picture analogy is useful in determining whether a change is a change in quantity supplied or a change in supply. To do this, it is necessary to identify whether the "story" changes or just the price.

Determinants of Supply

Determinants of supply are those elements that change a producer's willingness and ability to produce the product at all prices. These determinants change the "story."

Examples of these determinants include:

- *Costs of production:* may be defined as all those costs related to the production of the good or service; further, costs of production are the sum of all direct and indirect costs
- *Raw materials:* the materials that are used to create the product (steel, oil, wood, etc.)
- *Subsidies:* economic support from the domestic government to help pay for the production of a domestic good
- *Tariffs or quotas:* government actions to protect a domestic producer

Supply versus Quantity Supplied

One confusing aspect of supply is the difference between supply and quantity supplied. To determine whether a change was in quantity supplied or supply, think in terms of the earlier analogy. If the change is only price, the producers' willingness did not change. The story remains the same. Since the story did not change, the picture did not change. When the picture does not change, it reflects a movement of price and quantity supplied along the original curve.

However, if one of the determinants identified earlier creates the change, producers' willingness at each price changes and we have a new story. The new story creates a new picture (i.e., a change in supply and a new supply curve).

David A. Dieterle
Whitney Wellman

See also: Demand; Elasticity; Markets; *Vol. 1: Foundations of Economics:* Capital Resources; Land Use; Resources; *Vol. 2: Macroeconomics:* Labor Productivity; *Vol. 4: Global Economics:* Subsidies

Further Reading

Boundless.com. n.d. Determinants of supply. www.businessdictionary.com/definition/determinants-of-supply.html (accessed November 30, 2015).

BusinessDictionary. n.d. Costs of production. www.businessdictionary.com/definition/cost-of-production.html (accessed November 30, 2015).

Ehrbar, Al. n.d. Supply. Library of Economics and Liberty. www.econlib.org/library/Enc/Supply.html (accessed February 2, 2016).

T

TAX DEFERRAL

Tax deferral is a useful financial strategy for putting off payment of tax until a future date, ideally a time when the tax bill will be lower.

There are two primary tax deferral methods. The first method postpones income until a future period, thus deferring when the tax will be due on that earned income.

In the second method, funds are transferred to a special type of account where access to the funds and the tax payment itself is deferred. Specifically, this method requires the individual to place the income in a special retirement account for many years.

In determining whether tax deferral is appropriate, one must take into account income and current budgetary requirements, current and future tax rates, and an assessment of future retirement goals and what the tax scenario might be in those coming years.

Deferring Income

When facing a potentially large tax bill, a common approach is to defer some of the taxable income into the future. This can be done by delaying receipt of income or by accelerating tax-deductible expenses.

Most salaried employees have little control over when they receive their regular compensation. However, they may have workplace options that allow them to transfer receipt of income to a later period. Self-employed individuals have more control over when income is received by how they bill their customers.

Retirement Accounts for Tax Deferral

The most popular tax-deferral strategy is enrolment in a workplace retirement savings plan. The plans are known as defined contribution plans because workers put a specific amount of their pay into the accounts. In some cases, the employer matches a portion of the money workers contribute to these retirement accounts.

The most common type of defined contribution account is the 401(k) plan, named after the section of the tax code that created the retirement savings option.

The primary benefit of a 401(k) plan is that one regularly saves for retirement. But there is a tax benefit too. The worker contributions are made with pretax dollars; that is, the 401(k) money is automatically deducted from the paycheck before federal and state income taxes are withheld. This reduces the worker's taxable take-home pay, lowering tax liability.

Take, for example, a single worker making $40,000 in 2012 who contributes 6 percent of his salary to a 401(k). That $2,400 annual contribution total lowers the worker's taxable salary to $37,600. Assuming all of the $40,000 income was taxable, the individual's tax bill in 2012 would be $6,024. After contributing $2,400, the single taxpayer's federal tax bill on an income of $37,600 is $5,436. By saving in a tax-deferred retirement account, the worker reduced his tax bill by almost $600 and deferred paying taxes on that money until retirement.

Many workers find that the tax savings of 401(k) contributions can help ease the blow of reduced take-home pay.

Compounded Earnings

Both the worker's contributions and any amount put into the account by the employer grow tax deferred. In other words, no tax is due on the principal or earnings until the funds are withdrawn.

The combination of compounding earnings and no taxes being collected works to dramatically increase retirement savings. This principle also applies to a traditional individual retirement account (IRA), or Roth IRA, another type of tax-deferred retirement account.

In 2013, a worker younger than age 50 could put up to $5,000 (or as much as the worker earned for those making less than $5,000) into a traditional IRA. IRA contribution amounts are adjusted annually to reflect inflation.

If a worker invests $3,000 into a traditional IRA or 401(k) at the beginning of each tax year with a hypothetical 8 percent investment return, compounded annually with reinvestment of dividends and capital gains, in 30 years the investment will be worth $367,038.

The end return value of this tax-deferred retirement account far surpasses the identical taxable investment account whose final value after 30 years is $173,181. Even after taxes are due, the tax-deferred account is worth $264,267 or $91,086 more than the retirement account.

Deferring Taxes

With a 401(k), traditional IRA, or any tax-deferred account, it is important to remember that taxes eventually will be due. Delaying the withdrawal of the retirement account money until the account owner is older and likely receiving less taxable income usually means the taxes due on the distributions are taxed at a lower rate.

The tax code calls for specific withdrawals, known as required minimum distributions (RMDs), from certain tax-deferred retirement accounts once the account holder turns 70.5. These annual withdrawal amounts are calculated as a percentage of the total tax-deferred account based on the account owner's age. The RMD amount is then taxed at the owner's ordinary income tax rate.

If an account holder fails to take an RMD, he or she could face a penalty of 50 percent of the amount that was to have been withdrawn.

And while the Internal Revenue Code demands that money eventually be withdrawn from tax-deferred accounts so that the federal government can finally begin collecting taxes on the funds, early distributions are penalized.

Money taken from a tax-deferred retirement account before age 59.5 could be subject to a penalty of 10 percent of the amount withdrawn.

Tax-Rate Crystal Ball

A lower future tax bill, however, is not necessarily a given. While a taxpayer might expect to be in a lower tax bracket in the future when the deferred tax amount is paid, that cannot be guaranteed.

An older owner of a tax-deferred retirement account might be working in retirement or have other investments that add to his or her overall taxable income amount, pushing the older taxpayer into a higher tax bracket.

It is also possible that individual income tax rates could increase in coming years.

Because each person's tax situation is unique, tax-deferral strategies must be carefully evaluated based on individual tax and financial goals and needs. Before contributing to a tax-deferred account, it is important to examine current budgetary requirements to determine how much one can afford to reduce daily living expense cash flow. And always be aware of the possibility of future tax rate hikes.

Kay Bell

See also: Interest Rates; Life Insurance; Retirement Accounts; Saving versus Investing; *Vol. 1: Foundations of Economics:* Compound Interest; Investing; *Vol. 2: Macroeconomics:* Tax Forms: U.S. Federal Tax System; Taxes

Further Reading

Brandon, Emily. 2013. How to save for retirement on a small salary: Don't let a low income prevent you from building a retirement nest egg. *U.S. News & World Report* (July 15). http://money.usnews.com/money/retirement/articles/2013/07/15/how-to-save-for-retirement-on-a-small-salary (accessed August 1, 2013).

FINRA. n.d. Tax-deferred and tax-free accounts. *FINRA, Building Your Portfolio.* http://www.finra.org/Investors/SmartInvesting/GettingStarted/BuildingYourPortfolio/P117327 (accessed August 1, 2013).

Purcell, Patrick, and John J. Topelski. 2009. 401(k) plans and retirement savings: Issues for Congress. *Congressional Research Services* (July 14). http://digital.library.unt.edu/ark:/67531/metadc26189/m1/1/high_res_d/R40707_2009Jul14.pdf (accessed August 1, 2013).

TECHNOLOGICAL INNOVATION

Technological innovation can lower the cost of achieving climate-change mitigation objectives. As such, understanding the links between market conditions, policy context, and technological innovation is important. Innovation relates to both the invention of new climate-change mitigation technologies (CCMTs) as well as their adoption in the marketplace by firms, households, and other market participants. Examples include energy-efficient appliances, renewable energy technologies, carbon capture, and storage. In developing countries, some of the most significant mitigation opportunities relate to technologies that also yield important local environmental and health benefits (e.g., improved indoor cooking stoves). The benefits of such technological innovation can be supported by organizational innovations that encourage the more efficient use of such technologies, as well as substitution between different economic activities (e.g., between transport modes).

Unfortunately, in the context of CCMTs, there are at least three reasons to expect that innovation will not be optimal in the absence of public policy interventions. First, the costs associated with greenhouse gas emissions (GHGs) are externalized by the emitter, resulting in insufficient incentives for the invention and adoption of mitigating technologies. Innovation will bend in the direction of GHG-emitting technologies since they are not priced. Second, there are important positive information and knowledge spillovers associated with the invention and adoption of CCMTs, which means that the benefits are imperfectly captured by investors. This results in a slower rate of innovation in CCMTs (and other technologies) than would otherwise be the case. Third, many of the most important GHG-emitting sectors exhibit additional market failures (e.g., imperfect competition, network externalities, split incentives, etc.), which can adversely affect innovation in different ways. For example, there can be important barriers to entry and exit in the electricity or transport sectors.

The first problem is specific to CCMTs and requires a targeted policy of internalization. All climate policies impose a price on polluting, whether implicitly or explicitly. The change in opportunity costs of emitting GHGs, then, translates into increased cost of some factors of production and thus incentives to innovate in a manner that saves on the use of these factors. Clearly, the choice of policy instrument has an effect on innovation. Different measures of equal stringency (i.e., with equivalent environmental objectives) may have very different effects on both the rate and direction of innovation.

In the theoretical literature, a strong case has been made for the use of market-based instruments (e.g., taxes, emissions trading), rather than direct regulation (e.g., technology-based controls) in order to induce innovation in CCMTs. The hypothesis is that if more prescriptive policies are applied, technology invention and adoption decisions are constrained by the precise characteristics of the standard. Thus, in order to induce a search for the optimal technology to meet a given environmental objective, governments should allow for more flexibility in their policy regimes when this can be achieved at reasonable administrative cost.

Unfortunately, the empirical evidence on the benefits of market-based instruments to promote the development of CCMTs is scant. This may be due in part to the greater difficulty associated with assessing the innovation impacts of more flexible policy instruments. Indeed, the very nature of the advantages of flexible market-based instruments gives rise to difficulties associated with assessing the innovation effects of their implementation: the innovations induced can take on a myriad of forms and come from a myriad of sources. In many cases, the climate-change mitigation benefits of a particular technology may have been incidental to the motivation for its development and adoption. Nonetheless, recently there has been increased empirical evidence to support the theoretical findings that flexible market-based instruments are more innovation friendly.

The second and third problems should be addressed primarily through more general policy framework conditions that are not specific to CCMTs. Support for basic research, protection of intellectual property, higher education policy, and other measures will at least partially overcome the positive information and knowledge externalities. Similarly, general structural policy conditions, such as competition policy, will help to ensure that market failures are obviated.

Given the long-run and potentially catastrophic impacts associated with climate change, increased attention has been paid to the need to induce breakthrough (or radical) innovations in CCMTs, such as advanced nuclear power, third-generation biofuels, and even geo-engineering innovations. There are good reasons to think that the mere pricing of GHGs will not be sufficient to call forth the kinds of innovation needed to stabilize concentrations to safe levels, even if knowledge and market failures are addressed. Indeed, it is significant that assumptions about the timing and cost of backstop technologies are often the most important determinants of macroeconomic modeling assessments of the costs of climate-change mitigation.

Since the time frame for the development of breakthrough technologies is long, the predictability of the policy framework is vital. For example, investments in R&D for breakthrough are (approximately) irreversible. The costs of such investments cannot usually be recovered should policy (or market) conditions change. As a consequence, policy uncertainty can serve as a significant brake on invention.

Moreover, with respect to adoption, many of the most GHG-intensive sectors have long-lived capital, for which investment decisions are only reversible at great cost or after a significant lapse of time. Adoption will also be slower than optimal.

The uncertainty of the policy framework is also partially a consequence of the global nature of climate change. Since all countries benefit from GHG mitigation irrespective of the location of emission, investors need to assess the credibility and viability of policy initiatives against a backdrop of unpredictable international negotiations. For this reason, increased attention is being paid to the use of international technology-oriented agreements as a complement to emissions-based agreements. Such agreements can result in more efficient allocation of invention efforts as well as encourage the wider global diffusion of knowledge and technologies.

Nick Johnstone

See also: Trademarks and Patents; *Vol. 1: Foundations of Economics:* Biodiversity; Capital Resources; *Vol. 4: Global Economics:* Globalization

Further Reading

Carraro, C., E. DeCian, L. Nicita, E. Massetti, and E. Verdolini. 2010. Environmental policy and technical change: A survey. *International Review of Environmental and Resource Economics* 4 (2): 163–219.

Jaffe, A. B., R. Newell, and R. N. Stavins. 2002. Environmental policy and technological change. *Environmental and Resources Economics* 22 (1–2): 41–69.
Johnstone, Nick, and I. Hascic. 2012. Policy incentives for energy and environmental technological innovation: Lessons from the empirical evidence. In *Encyclopedia of Energy, Natural Resource, and Environmental Economics*, ed. J. Shogren. Amsterdam: Elsevier.
Popp, D. C., R. G. Newell, and A. B. Jaffe. 2009. *Energy, the environment, and technological change*. NBER Working Paper 14832.

TENNESSEE VALLEY AUTHORITY

The Tennessee Valley Authority (TVA) was established in 1933 to deliver low-cost electricity to the Tennessee Valley and manage the region's natural resources. The Tennessee Valley Authority includes all or parts of the states of Tennessee, Georgia, Alabama, Kentucky, Virginia, Mississippi, and North Carolina, encompassing 80,000 square miles and serving over 9 million people. The TVA has grown to be the largest provider of power by a public entity in the United States. Originally funded as part of Roosevelt's New Deal, the Tennessee Valley Authority is now totally financed through power delivery sales.

History

On May 18, 1933, Congress passed and President Franklin D. Roosevelt signed the Tennessee Valley Authority Act. A novel business structure in 1933, the TVA Act created a government agency with the characteristics of a private business.

As part of President Roosevelt's New Deal recovery programs, the TVA built dams in the Tennessee River to turn the river's power into electricity. The TVA aimed to create much more than just electricity. It was also intended to enrich the land; to create fish-filled lakes that would, in turn, increase tourism; and to provide jobs for the residents of the Tennessee Valley. Although the TVA achieved some of these goals, it was not well received by everyone. Farmers whose lands were permanently flooded by the backwaters the dams created were unhappy. Also, some business leaders considered the government-sponsored agency an unfair competitor in the electric industry. They argued that the TVA could charge extremely low rates with which private industries could not compete.

The Tennessee Valley was a microcosm of the Great Depression. The valley's farmland had been depleted. Farmers had smaller-than-normal crop yields, and thus smaller incomes than normal. Timberlands had been laid bare. The one resource remaining was the rivers in the region. One role of the TVA was to build dams to generate electricity, control flooding, and allow for better navigation of the rivers. As Roosevelt's New Deal job creation unfolded, the TVA was a prime component. The TVA included an educational unit, teaching farmers how to use fertilizers and improve crop yields. Jobs were created to plant trees for forests, recreate wildlife and fish habitat, and operate the dams to generate electricity. These many efforts attracted new industry and more jobs to the region.

By the 1950s, 650 miles of navigation had been channeled through the Tennessee River. The TVA was the largest supplier of electricity in the United States.

By 1959, the TVA had become a self-financing public-private corporation. By the 1960s, the Tennessee Valley had seen significant economic growth in agriculture and industry. The TVA continued to grow and adapt as the region grew. Through private financing and growth, electricity costs were some of the lowest in the nation.

Additional change came to the TVA during the 1990s when it was forced to reduce operating costs and workforce and delay its nuclear plant plans while increasing power generation. As the 21st century began, the TVA focused on combining environmental issues and economic development in the region. In 2004, the TVA corporate structure was changed by Congress to a nine-member part-time board, replacing the full-time three-member board. The TVA returned to building a nuclear plant in 2007 with the approval of the Watts Bar Nuclear Unit 2. The TVA supported new environmental policies with lower carbon emission standards in 2008 and worked closely with regional leaders to improve the region's environment.

Present-Day TVA

The Tennessee Valley Authority has continued to improve its business model. The TVA's vision for the future focuses on cleaner air, increased nuclear production, and improved efficiency in power delivery. The Bellefonte nuclear plant was approved for completion by 2020. In regards to improving the environment, beyond the continuation of the nuclear plant construction, the TVA began working with the EPA to disconnect 59 coal-fired plants by 2017. Since 1977, the TVA has spent $5.3 billion on clean-air technology, reaching new heights in the reduction of sulfur dioxide and nitrogen oxide emissions.

Tracy L. Ripley

See also: *Vol. 1: Foundations of Economics:* Environmental Protection Agency; The Great Depression and Wall Street Crash, 1929; New Deal; Nuclear Energy: Safety and Waste; Roosevelt, Franklin D.; *Vol. 2: Macroeconomics:* Public Goods

Further Reading

Culvahouse, Tim, ed. 2007. *The Tennessee Valley Authority: Design and persuasion*. New York: Princeton Architectural Press.

Nash, Gary B. 1997. *American odyssey*. New York: Glencoe/McGraw-Hill.

teachinghistory.org. n.d. Tennessee Valley Authority. http://teachinghistory.org/history-content/national-resources/23637 (accessed September 30, 2016).

Tennessee Valley Authority. n.d. Tennessee Valley Authority. www.tva.com (accessed September 30, 2016).

THALER, RICHARD

Born: September 12, 1945, in East Orange, New Jersey; Nationality: American; Professional Interests: behavioral finance, behavioral economics; Major Works: *Quasi-Rational Economics* (1991), *The Winner's Curse: Paradoxes and Anomalies of Economic Life* (1991), *Nudge: Improving Decisions about Health, Wealth, and Happiness* (2008), *Misbehaving: The Story of Behavioral Economics* (2015).

Richard Thaler, an American economist, is one of the pioneering theorists in the field of behavioral finance and behavioral economics. He is the Ralph and Dorothy Keller Distinguished Service Professor of Behavioral Science and Economics at the University of Chicago, Booth School of Business. He also serves the university as the director of the Center for Decision Research and teaches MBA courses in behavioral economics and managerial decision-making.

Richard H. Thaler was born on September 12, 1945, in East Orange, New Jersey. He received his bachelor's degree from Case Western Reserve University in 1967 and his master's from the University of Rochester in 1970. He pursued a doctorate degree at the University of Rochester, which culminated with his dissertation "The Value of Saving a Life: A Market Estimate," under the supervision of Sherwin Rosen. While pursuing the PhD, he worked as an instructor with the Graduate School of Management, then as program associate with the Rochester-Monroe County Criminal Justice Pilot City Program. He accepted a position as assistant professor upon graduation.

Early in his 20 years of research, from 1976 to 1977, Thaler partnered with ASPER (Assistant Secretary for Policy and Research) with the U.S. Department of Labor as principal investigator in the research project "An Equalizing Difference Model of Employment." Thaler continued his inquiries in a 1983 project for the U.S. Department of the Navy that explored descriptive choice models, followed by research in psychology and economics for the Alfred P. Sloan Foundation. A seven-year research stint financed by the Alfred P. Sloan Foundation and Russell Sage Foundation furthered the study of behavioral economics in a project titled "Continued Research in Psychology and Economics." Another example was the 1995 project "Myopic Loss Aversion," sponsored by the National Science Foundation.

Widely recognized for his independent and collaborative research, Thaler has published a plethora of articles in revered journals such as the *American Economic Review*, *Journal of Finance*, *Journal of Political Economy*, *and University of Chicago Law Review*. Thaler was editor of the publication *Advances in Behavioral Finance* (1992) and a successive volume by the same name in 2005.

In the leading-edge *Nudge: Improving Decisions about Health, Wealth, and Happiness* (2008), Thaler and coauthor Cass Sunstein offered forward-thinking answers to society's most perplexing conundrums. Thaler's other major works include *Quasi-Rational Economics* (1991) and *The Winner's Curse: Paradoxes and Anomalies of Economic Life* (1991). The content of *The Winner's Curse* was expertly distilled from his "Anomalies" columns, previously published in the *Journal of Economic Perspectives* from 1987 to 1990.

His research questioned established economic theories by exposing inconsistencies from actual case studies. Thaler ingeniously morphed his findings into a fresh perspective ideal for the everyday consumer. A resurgent thread in Thaler's work is the view of economics through a human lens, whereby he projects people as emotional creatures rather than hardwired, data-driven machines. Consequently, Thaler submits that humans are inclined to behave or make decisions based on a combination of factors, such as emotion or attachment, even if to do so is irrational. The humanist element of his research and writings has led to the emerging acceptance of behavioral economics. Thaler's attempts to narrow the gap between the worlds of psychology and economics is evidenced in a recent collaborative effort titled *Deal or No Deal?: Decision Making under Risk in a Large-Payoff Game Show*, in which Thaler and others illustrate the distinctive role of psychology in the economic choices of game-show contestants.

Thaler served as a research economist for the Public Research Institute and the Center for Naval Analyses and as professor of economics at Cornell University Johnson Graduate School of Management. He has been a visiting professor and scholar at several distinguished institutions, including Cornell, the Massachusetts Institute of Technology, the Russell Sage Foundation, and Stanford University's Center for Advanced Study in Behavioral Sciences. He currently serves as director of the Center for Decision Research, University of Chicago, a position he previously held for six years.

In 2009, Thaler began writing a column for the *New York Times* on an assortment of economic-minded and finance-related themes to address challenging issues plaguing the United States. Most notably, Thaler infused the earlier notions of Thomas Hazlett to craft a solution to the nation's monstrous deficit in his piece "Selling Parts of the Radio Spectrum Could Help Pare US Deficit." Thaler proposed a strategy for the Federal Communications Commission (FCC) to leverage existing broadcast frequency as an income channel for the United States to cut national spending and strengthen future technological prospects.

In May of 2012, Thaler was chosen as the Nicholas Molodovsky Award recipient by the CFA Institute, a worldwide membership organization of investment professionals. Thaler is the founder of Fuller & Thaler Asset Management, which applies research-driven methods to wealth creation and management.

Richard Thaler maintains a conversation on behavioral economic topics in a grant-funded lecture series for the National Bureau of Economic Research with Robert Shiller.

Joy Dooley-Sorrells

See also: Kahneman, Daniel; Sunstein, Cass; *Vol. 1: Foundations of Economics:* Behavioral Economics; Behavioral Finance

Further Reading

Cassidy, John. 2010. Interview with Richard Thaler. *The New Yorker* (January 21). http://www.newyorker.com/online/blogs/johncassidy/2010/01/interview-with-richard-thaler.html (accessed October 1, 2012).

Chicago Booth, University of Chicago School of Business. n.d. Richard H. Thaler. http://www.chicagobooth.edu/faculty/bio.aspx?person_id=12825835520 (accessed October 1, 2012).

Thaler, Richard. 1974. The value of saving a life: A market estimate. PhD dissertation, University of Rochester.

Thaler, Richard. 1991. *Quasi-rational economics*. New York: Russell Sage Foundation.

Thaler, Richard. 1991. *The winner's curse: Paradoxes and anomalies of economic life*. New York: Free Press.

Thaler, Richard, ed. 1993. *Advances in behavioral finance*. New York: Russell Sage Foundation.

Thaler, Richard H. 2000. Toward a positive theory of consumer choice. In *Choices, Values, and Frames*, ed. Daniel Kahneman and Amos Tversky, 269–89. Cambridge, UK: Cambridge Univ. Press.

Thaler, Richard. 2005. *Advances in behavioral finance*, Vol. 2. Roundtable Series in Behavioral Economics. Princeton, NJ: Princeton Univ. Press.

Thaler, Richard. 2015. *Misbehaving: The story of behavioral economics*. New York: W. W. Norton & Company Incorporated.

Thaler, Richard, and Cass R. Sunstein. 2008. *Nudge: Improving decisions on health, wealth, and happiness.* New Haven, CT: Yale Univ. Press.

Van Overtveldt, Johan. 2007. *The Chicago School: How the University of Chicago assembled the thinkers who revolutionized economics and business.* Chicago, IL: Agate.

THRIFT INSTITUTIONS

Thrift institutions include savings and loan associations, mutual savings banks, and credit unions. Savings and loan associations (S&Ls) and mutual savings banks obtain funds primarily from long-term, fixed-rate assets and have relied principally on time and savings deposits for their funding. Thrift institutions, along with commercial banks, are depository institutions and are referred to as financial intermediaries. S&Ls and mutual savings banks accept deposits on which checks can be written and make long-term loans primarily on home mortgages.

In contrast to thrifts, commercial bank assets are predominately short-term commercial loans, and their liabilities are more diverse. In the past, regulations restricted thrifts' activity primarily in regard to mortgage loans. Over time, the differences between thrifts and commercial banks became blurred.

Credit unions are another form of thrift institution. They are typically small cooperative lenders organized by a particular group such as a union or for the employees of a firm. Credit unions acquire their funding from deposits and primarily make loans to their members. Savings and loan associations can be chartered by the federal government or by individual states. Most are members of the Federal Home Loan Bank System (FHLBS) styled after the Federal Reserve System. The FHLBS provides members with long-term loans that are financed by selling bonds. The loans are offered to member S&Ls at interest rates lower than they could borrow in the open market on their own.

The slow demise of the thrift industry started three decades ago. In 1980, there were 4,000 thrift institutions. As of 2010, there are just 734. After originating almost two-thirds of the country's home mortgages in the 1960s, by 2010 thrifts accounted for less than 25 percent of the nation's mortgage volume.

The S&Ls experienced a serious crisis in the 1980s. In 1982, Congress passed the Depository Institutions Deregulation and Monetary Act of 1982 (DIDMCA) and Depositary Institutions Act of 1982. These acts deregulated the thrifts, giving them the ability to grow but at the same time assume greater risk. The DIDMCA also increased the amount of federal deposit insurance from $40,000 per account to $100,000. The new deregulations allowed S&Ls to take riskier positions than they had in the past. After deregulation, thrifts were allowed to hold up to 40 percent of their assets in commercial loans and leases, up to 30 percent in consumer lending, and up to 10 percent in high-risk junk bonds or in direct investment. When loans began to fail, the excessive risk resulted in significant losses and failures with over 200 bank failures per year by the late 1980s. Many attribute the failures to adverse selection and moral hazard problems created by deregulation.

After the great recession of 2008, new financial regulations were created called the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank). Dodd-Frank rules make life even more difficult for thrift institutions. On July 21, 2011, thrift institutions began a new regulatory structure; the regulatory responsibility for these institutions shifted from the Office of Thrift Supervision (OTS) to the other federal banking agencies. Other Dodd-Frank reforms include increased capital requirements and examinations from up to three new regulators. These changes brought thrifts and bank charters closer together. Though the thrift charter and thrift holding company framework survived Dodd-Frank, the act has significantly eroded previous regulatory and business benefits. The result is that thrifts have found it increasingly difficult to remain competitive with bank holding companies.

Dale Johnson

See also: Deregulation; Federal Home Loan Bank; Subprime Mortgage Bubble and Crisis; *Vol. 1: Foundations of Economics:* Banking; *Vol. 2: Macroeconomics:* Banking Act of 1933 (Glass-Steagall Act); Financial Reform Act of 2010 (Dodd-Frank Act); Shadow Banking; *Primary Documents:* Banking Act of 1933 (Glass-Steagall Act); Financial Reform Act of 2010 (Dodd-Frank Act)

Further Reading

Brumbaugh, J. A. Dan. 1987. *Thrift industry crisis: Causes and solutions.* Brookings papers on economic activity, Brookings Institution. http://www.brookings.edu/~/media/Projects/BPEA/1987%202/1987b_bpea_brumbaugh_carron_jaffee_poole.PDF (accessed November 30, 2014).

Mishkin, Frederic S. E. 2012. *Financial markets and institutions.* Boston: Prentice Hall.

Protess, B. 2010. Thrift banks' long decline. *New York Times* (December 8). http://dealbook.nytimes.com/2010/12/08/thrifts-last-stand/?_r=0 (accessed November 30, 2014).

PWC. n.d. Impact on thrifts & thrift holding companies. A closer look at the Dodd-Frank Wall Street Reform and Consumer Protection Act. https://www.pwc.com/us/en/financial-services/regulatory-services/publications/assets/closer-look-thrift-holding-companies.pdf (accessed November 30, 2014).

TIME VALUE OF MONEY

Time value of money refers to the famous notion that a dollar today is worth more than a dollar tomorrow. This statement is true because of the interest or return earned by the money. There are two types of interest: simple interest and compound interest. Simple interest is interest earned on the original amount invested (e.g., money deposited in a bank). For example, if one deposits \$100 in a bank savings account earning 5 percent per year, the interest earned for the first year is \$5 (100×0.05). Interest earned is the same amount each year. Given that the investor earns interest only on the original \$100 invested, the deposit grows in the following manner; year 1 (\$105), year 2 (\$110), year 3 (\$115), and so forth.

But that is a rather naïve method of calculation, because we don't only earn interest on the original amount; rather, we earn interest on the original amount and on the interest earned. Earning interest on interest is referred to as compound interest. According to this method, the deposit in the previous example will grow at a slightly higher rate. In the first year, the deposit will grow to \$105, but in the second year it will reach \$110.25 (\$105 x 0.05 = \$5.25 interest + 105 = \$110.25).

If we think of money as we would any other commodity, it should have a price. And the price of money is the interest rate. When companies or individuals need to buy money (borrow), they will pay interest as the cost, and when companies or individuals want to sell money (save/invest), they receive interest from the buyer as a return on the investment. Inflation must be accounted for when investing or borrowing. An increase in inflation decreases the amount a dollar will purchase. With inflation, today's dollar buys more goods than that same dollar tomorrow.

Now, we know that a dollar today is worth more than a dollar tomorrow, but how much more? That question is answered with time value calculations. Time value calculations have two basic concepts: present value and future value. In order to determine present value and future value using time value calculations, one must determine an expected rate of interest during the time period in question.

Present Value

Present value calculation determines today's value of a future amount of funds, to be received at a certain date in the future. So if an investment pays \$1,000 in one year, present value answers the question, What is the maximum amount an investor will be willing to pay now in order to receive this future sum? To answer this question, we need to identify the interest rate (referred to as the discount rate) expected to prevail during that year and reduce the \$1,000 by that rate. If the interest rate expected is 3 percent, the maximum amount an investor will be willing to pay is equal to $\frac{1000}{(1+0.03)^1} = \$970.90$. This amount is referred to as the present value of the \$1,000. The previous process is referred to as *discounting*, and it simply means the act of removing the interest effect period by period from a future sum of money.

As a general rule:

$$PV = \frac{FV}{(1+i)^n}$$

Where:
PV: Present value
FV: Future Value
i: Interest or discount rate
n: Number of time periods

The cash flow pattern may differ. Instead of receiving a future sum as a lump sum amount, we could receive it in equal installments. In this case, the cash flow pattern is referred to as an *annuity*. Calculating the present value of an annuity is a bit different and uses the following equation (the Internet offers many online present value calculators that will complete the calculations):

$$PVA = PMT \times \left[\frac{1-(1+i)^{-n}}{i} \right]$$

Where:
PVA: Present value of the annuity
PMT: Cash flow per period
i: Interest rates
n: Number of periods

Future Value

Future value is the opposite of present value. Rather than calculating the present value of a future sum now, it calculates the future value of a sum invested now after a period of time. For example, future value calculations can help estimate the future value of a sum of money deposited today in a savings account after a specified period of time. The interest rate is the key component in the calculation. Simply, future value calculation builds interest into a certain amount of money invested. The process is referred to as *compounding*. Following from the previous formula of present value is the future value formula:

$$FV = PV \times (1+i)^n$$

In cases when the cash flow pattern is an annuity, we use this formula to obtain the future value:

$$FVA = PMT \times \left[\frac{(1+i)^n - 1}{i} \right]$$

Sometimes the cash flow is neither an annuity nor a lump sum amount. If an investment makes different payments every period, it is said to be following a mixed stream cash flow pattern. If that is the case, one can use lump sum amount calculations every period and sum them all at the end to obtain present or future value.

In perpetuity refers to cash flows that occur periodically but without a given maturity. Thus, a perpetuity is an annuity without an identified number of years. A good example of a perpetuity is retirement benefits. The beneficiary receives a monthly sum for an unknown amount of time into the future.

The key idea to understanding present value and future value calculations is to understand that we cannot compare different investments unless we place them all at one point in time; whether that point is in the future or the present is irrelevant. That way one can compare investments with different life spans and cash flow patterns to choose the best-paying investment.

Time Value Importance

Time value is important because it explains why one would give up consumption now in favor of investing for future returns. If there was no advantage to saving and investing, people would not give up consumption. People give up consumption now for a promise to consume more in the future, and that can only be possible if the amount saved or invested today will grow into a larger sum through compounding of returns (i.e., interest).

Consumers use time value calculations to decide between taking a lump sum payout or an annuity. For example, if you were offered $50,000 today or $5,500 per year for 10 years, which would you choose? A time value calculation would determine the potential present value of each of those sums. The one with the higher present value would be the optimal choice. The decision is not perfect as the consumer must choose an accurate discount (interest) rate by which to calculate the present value of the future cash flows. For example, calculate the present value of a $5,500 per year cash flow for 10 years with an interest rate of 3 percent and the result is $48,324. Use a discount rate of 7 percent and the present value falls to $41,334. The higher the discount rate employed, the riskier the present value calculation. It's more difficult to obtain higher rates of return than lower. In either case, the consumer is better served taking the $50,000 today than $5,500 each year for the next 10 years.

For a corporation, time value is very important for capital budgeting. Capital budgeting is the process by which a corporation decides among long-term investments such as expansion, research and development, or purchasing equipment. Given the nature of the decisions, cash flows may take years to materialize and thus a corporation needs to estimate if the expected cash flows will be worth the initial investment or not. Time value calculations answer that question.

Yasmine H. A. Razek

See also: Annuity; Investing; Risk; Retirement Accounts; Saving versus Investing; *Vol. 1: Foundations of Economics:* Compound Interest and Returns; *Vol. 2: Macroeconomics:* Inflation

Further Reading

Kapoor, Jack, Les Dlabay, and Robert J. Hughes, 2007. *Personal finance*. New York: McGraw-Hill. http://highered.mcgraw-hill.com/sites/0073106712/student_view0/ebook/chapter1/chbody1/opportunity_costs_and_the_time_value_of_money.html (accessed September 6, 2013).

Merrit, Cam. n.d. Why is the time value of money so important in capital budgeting decisions? *Houston Chronicle*. http://smallbusiness.chron.com/time-value-money-important-capital-budgeting-decisions-61898.html (accessed August 16, 2013).

TIPPING

Tipping is a social norm that exists in many countries and in many service occupations, where the customer voluntarily gives money to the service staff without a legal obligation to do so. In the United States and many other countries, the economic magnitude of tipping is largest in restaurants. Most recently, Azar estimates the annual tips left in the U.S. food industry to be around $46.6 billion. However, tipping is also common in many other occupations, as many as 33, according to Lynn, Zinkhan, and Harris (1993). The prevalence of tipping in many countries, and the large international diversity of social norms about who should be tipped and how much, cause many travel guides to include guidelines about the tipping customs for a country. There are even books dedicated to international comparisons of tipping customs in different countries, such as by Star (1988).

Tipping is an old social norm that evolved over time. Tipping in Europe initiated hundreds of years ago and in the United States over a century ago. During the early 1910s, it was estimated that 5 million workers in the United States, more than 10 percent of the labor force, had tip-taking occupations. Over the years, tipping has spread to additional countries and occupations. In some countries, workers who were not tipped in the past try to encourage tipping by putting out tip jars, a phenomenon that annoys many consumers who feel uncomfortable with the pressure to tip in more and more places. Interestingly, however, tipping is not on the rise everywhere. Some European countries where restaurant tipping was common previously have switched to service charges that are included in the bill, with no tipping or relatively low tips (only rounding up the bill).

Azar (2007) divides tipping into six main categories:

1. Reward tipping: Post-service tipping, for example, tipping servers in a restaurant; because tips are given after the service and may be higher when service is better, reward tips may encourage higher service quality because they are given after the service is completed
2. Price tipping: Tips that are the actual price of service, where no formal price is charged, such as tipping skycaps who carry one's luggage in an airport
3. Tipping in advance: Tips that are given before the service is provided to induce good service, for example, tipping the hotel concierge in advance
4. Bribery tipping: Tips that are given before service as bribery (to get better service at the expense of others), for example, when tipping a maître d' to get a table quickly when customers with reservations are waiting in line
5. Holiday tipping: Tips that are given to workers, such as the newspaper boy or the building doorman, during holidays for a longer period of service (often a year)
6. Gift tipping: Tips that are nonmonetary, for example, giving chocolates to nurses who took good care of a patient

The academic research on tipping is published in psychology and economics and includes several main research methods. One method is customer field surveys, where the researcher approaches customers (e.g., diners who exit a restaurant) and asks them questions related to the service and their tipping behavior. A related research method also employs customer surveys but asks more generally about their tipping habits or about a hypothetical scenario. Another common approach is to collect data from the establishment (e.g., a restaurant) and examine empirically how tips vary with different factors, such as the tipper's gender or age and the service worker's appearance. Another version of this method involves service staff cooperating with the researcher to document how certain behaviors (e.g., touching the customer) affect tips. Another methodology, mostly used by economists, employs formal mathematical models to analyze certain tipping aspects, such as the economic and social welfare implications of tipping or how future service considerations should affect tipping. Tipping research also includes lab experiments that mimic tipping situations, meta-analyses, cross-country comparisons, and literature reviews.

Tipping has attracted the interest of researchers not only because of its economic magnitude but also because it is a prominent example of how psychological and social considerations affect economic behavior, which is key to behavioral economics. Without incorporating noneconomic motivations into our models, it is hard to explain why people tip voluntarily even in places to which they do not plan to return.

Ofer H. Azar

See also: *Vol. 1: Foundations of Economics:* Behavioral Economics; Decision Costs; Ethical Production; Golden Rule and Behavioral Economics; Moral Motivation

Further Reading

Azar, Ofer H. 2004. The history of tipping—from sixteenth-century England to United States in the 1910s. *Journal of Socio-Economics* 33 (6): 745–64.

Azar, Ofer H. 2007. Why pay extra? Tipping and the importance of social norms and feelings in economic theory. *Journal of Socio-Economics* 36 (2): 250–65.

Azar, Ofer H. 2011. Business strategy and the social norm of tipping. *Journal of Economic Psychology* 32 (3): 515–25.

Lynn, Michael, George M. Zinkhan, and Judy Harris. 1993. Consumer tipping: A cross-country study. *Journal of Consumer Research* 20 (3): 478–88.

Star, Nancy. 1988. *The international guide to tipping*. New York: The Berkley Publishing Group.

TOTAL QUALITY MANAGEMENT

Total quality management is a method of quality control popularized by U.S. government agencies like the Department of Defense and the army. It employs statistical methods to ensure the quality of products, focusing on meeting consumers' demands. The method arose in the 1970s and 1980s in Western countries facing stiff economic competition from Japan and remained popular into the 1990s. Because Japan could manufacture goods at lower cost than most Western nations, it was able to offer lower prices on goods and services than U.S. and British producers. This led these nations to seek alternative means of increasing efficiency, with the total quality management system developing from earlier methods, including some popularized by the Japanese. Developed in highly hierarchal organizations like the military, the method of total quality management became renowned for its use of inspection at every level of the production process. These thorough analyses of both the physical production of goods and the management that oversaw production led to widespread gains in efficiency. This success attracted private-sector firms, which adopted many aspects of total quality management throughout the 1980s and 1990s.

Seeking to improve efficiency, the first U.S. entities to adopt total quality management discovered it through investigation of Japanese methods in productivity. Finding that much of the efficiency in Japanese organizations came from dedicated quality control, these U.S. organizations began to adopt this approach to total efficiency. This led to a process of continuous statistical analysis of all levels of production, including management and overall organizational structure. Employing standardized evaluations of each of these methods, organizations like the U.S. Department of Defense began seeking the permanent improvement of each phase of production. As the ultimate goal was to match consumer (or government) demands, this required assessment of not just internal production but also firm interaction with the market. By seeking to improve all aspects of production, these U.S. departments began to see improved productivity, reduced costs, and increased ability to meet consumer demands at a lower price. This led to increases in overall efficiency, allowing organizations to produce more while using fewer resources.

Seeing the success of government agencies in adopting total quality management, private corporations in the United States and the United Kingdom began adopting the system's conventions as well. These companies were able to reduce prices using total quality management to assess how efficiently goods and services were produced while also analyzing consumer demands. This allowed for increased market competition with efficient firms from nations like Japan. This was particularly true in the private sector, where target consumers are generally individuals rather than the government. The reduction in production costs led to increased opportunities for innovation, allowing for the creation of new services and ultimately leading to the general increase in standards of living.

Since the late 1990s, total quality management as a system of quality control has been replaced by other quality control methods, including "lean manufacturing" and "ISO 9000 family" systems. These newer systems include added dimensions of analysis. ISO 9000 also includes a focus on meeting regulatory requirements. However, the key aspects of these systems, increasing the efficiency of production and focusing on consumer demands, match the central themes of total quality management.

Adam Vallus

See also: Business Structures; Profit Maximization and Behavioral Economics; *Vol. 1: Foundations of Economics:* Factors of Production; Resources; *Vol. 4: Global Economics:* Product Cycle Theory

Further Reading

Charantimath, Poornima M. 2011. *Total quality management*, 2nd ed. Tamil Nadu: Pearson Education India.

Kanji, Gopal K., and Mike Asher. 1996. *100 methods for total quality management*. London: Sage Publications.

Murray Martin. n.d. Total quality management (TQM). About Money. http://logistics.about.com/od/qualityinthesupplychain/a/TQM.htm (accessed September 30, 2016).

TRADEMARKS AND PATENTS

Even though in the Unites States monopolies are illegal under the Sherman Antitrust Act, the government can grant some firms monopoly power through issuing trademarks and patents. Trademarks distinguish a producer's good from other goods, preventing other firms from selling the same good. A patent gives the creator a 20-year monopoly on a good or service. The government allows trademarks and patents to encourage progress through new ideas and inventions.

Trademarks

A trademark is a word, name, symbol, or device used in trade with goods to indicate the source of the goods and to distinguish them from other goods. A trademark may be used to prevent competitors from using a similar mark but not to prevent others from making and/or selling the same good. An example of a trademark would be the "swoosh" of the Nike logo. Even though there are many shoe and clothing makers in the marketplace, no other maker of these items can use the same logo on its shoes or clothing. Technically speaking, this gives the Nike Company a monopoly on its particular product since no competitors are able to produce the exact same product using the same image and name.

Patents

A patent is a government-granted monopoly of a good or service for 20 years. In order to encourage new ideas and inventions, the U.S. government allows inventors to control, sell, and reap the rewards of their invention without competition. Progress would be limited if someone could steal or copy a person's idea, since inventing a good or service consumes a lot of time, energy, and resources.

Whenever a new product first enters the market, most likely the inventor has obtained a patent so no one else can replicate the product. One of most famous patents recorded is the patent Thomas Edison received for the incandescent light bulb in 1880. Edison has been considered one of the most active inventors, with over 1,000 patents.

In 2010, over 500,000 patents were filed with the U.S. Patent and Trademark office. Patents for new drugs are the lifeblood of pharmaceutical companies. Patents provide companies incentives to invest millions of dollars and thousands of hours in research and development. Once a drug receives final approval by the government for production and distribution, the company has approximately half of the 20 years remaining to recover those costs by producing the drug under its brand name, such as Lipitor for cholesterol. Once the patent expires and generic drugs from other companies are allowed to enter the market, the patent-holding pharmaceutical company can, and often does, reapply for a renewed patent with a newer version of the original patent.

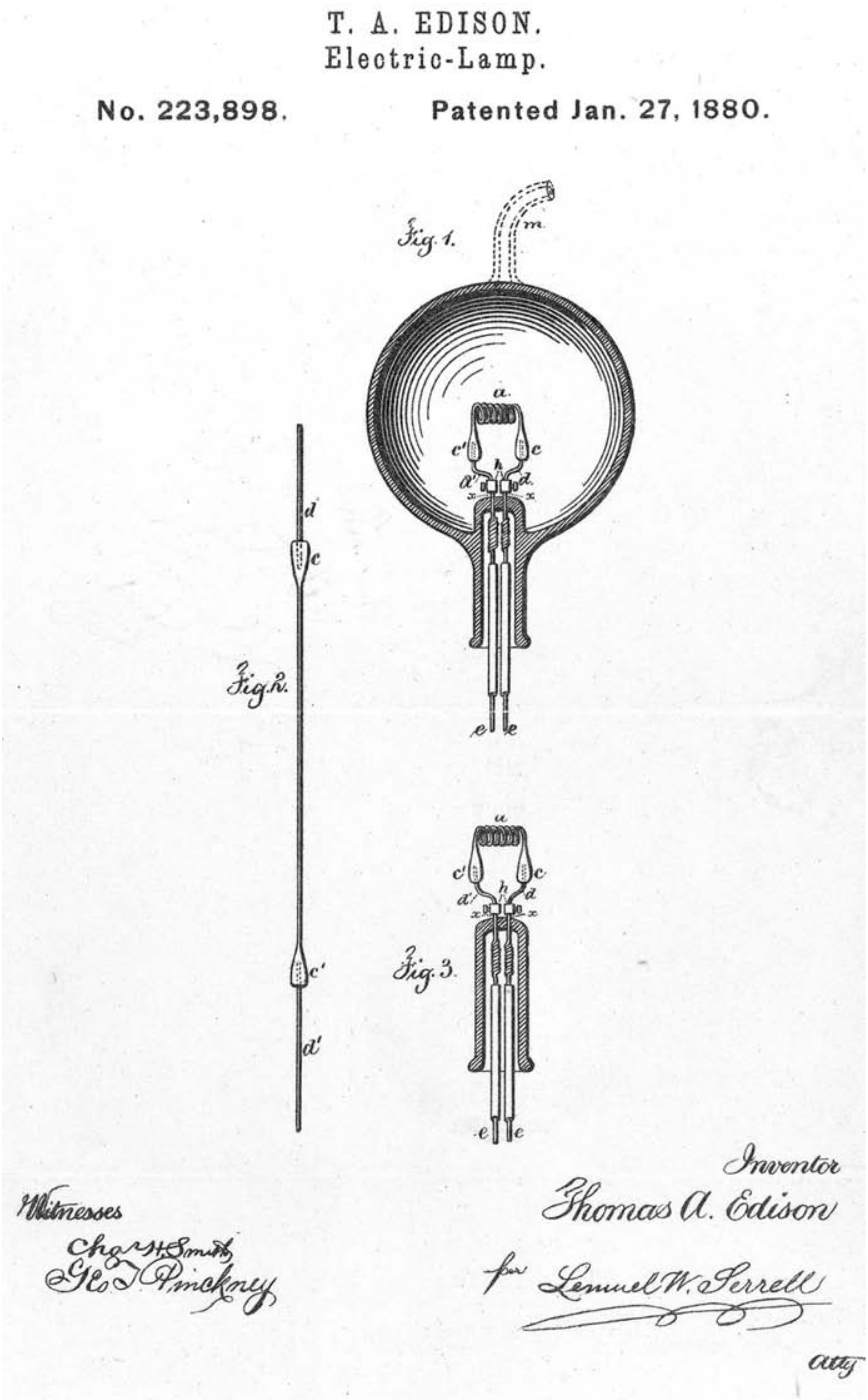

Figure 1. Thomas Edison's patent drawing and application for an improvement in electric lamps, patented January 27, 1880; Records of the Patent and Trademark Office; Record Group 241; National Archives.

Effects of Trademarks and Patents

There are positive and negative effects of the government's issuance of trademarks and patents. From the perspective of the inventor/business owner, he or she is allowed a government monopoly and will be able to have complete control over the good or service. Therefore, the inventor will be able to charge a higher price for the good or service than what would normally be the equilibrium price if there were competitors. Another positive effect is that with the issuance of these types of government monopolies, the financial incentive encourages others to create new goods and services, which benefits both the business owner and the consumer. It is also a positive for the nation, since progress is being made and encouraged.

When a drug company is issued a patent for a new drug, it will also be encouraged to continue researching new drugs, benefitting consumers in the long run. On the other hand, trademarks and patents can cause higher prices, since the producer has a monopoly for the goods and services. Consumers are price takers if they want the particular good or service.

Consumers' lack of choice does not mean the patent- or trademark-holding monopolist can charge any price for his or her good or service. Even a monopolist faces a choice of whether to increase output or price, but not both. Typically, once someone is issued a patent or trademark, he or she will want to maximize profit. The patent or trademark holders had to spend time, money, and resources to create the product or idea. They will want to reap the financial reward of their new good or service. In order to maximize profit, the firm will need to produce fewer products at a higher price. Since the firm has market power, the business owner will use price discrimination in order to maximize profits.

Tracy L. Ripley

See also: Monopoly; Profit Maximization and Behavioral Economics; Sherman Antitrust Act of 1890; *Primary Document:* Sherman Antitrust Act of 1890

Further Reading

Mandal, Ananya. 2016. Drug patents and generic pharmaceutical drugs. News Medical: Life Sciences and Medicine. www.news-medical.net/health/Drug-Patents-and-Generics.aspx (accessed May 11, 2016).

Mankiw, N. Gregory. 2011. *Principles of microeconomics.* Mason, OH: South-Western/Cengage Learning.

O'Sullivan, Arthur, and Steven M. Sheffrin. 2007. *Economics principles in action.* Upper Saddle River, NJ: Pearson/Prentice Hall.

Ourdocuments.gov. n.d. Thomas Edison's patent application for the light bulb (1880). www.ourdocuments.gov/doc.php?flash=true&doc=46 (accessed May 11, 2016).

U.S. Department of Commerce. 2014. United States Patent and Trademark Office. www.uspto.gov (accessed May 11, 2016).

TRAGEDY OF THE COMMONS

First introduced by Garrett Hardin in a 1968 *Science* article of the same name, "the tragedy of the commons" has become synonymous with society's overuse of common-pool resources. Common-pool resources are resources that can be used by a large group of individuals but are not owned by any one person. These resources have features of both private and public goods. As with public goods, access is open to all. Because a rationing mechanism is not used to prohibit access by potential users of the resource, these goods are characterized as nonexcludable in provision. But as with private goods, the benefit is enjoyed individually. Because use by one individual diminishes the quantity or quality of the resource available for others, these goods exhibit rivalry in consumption. Examples of common-pool resources include fishing grounds, public forests, groundwater aquifers, nonrenewable energy resources, and the atmosphere.

According to Hardin, the tragedy arises when the characteristics of common-pool resources are coupled with individual self-interest. Left to their own devices, humans will overuse the commons because the individual benefit exceeds the cost paid by that individual. Costs imposed on other users by an individual's own use are ignored. Self-interest provides a compelling incentive to continue to use the commons, even if continued use by all may lead to depletion.

Hardin used the parable of a common pasture shared by self-interested herdsmen to describe this incentive and the resulting unsustainable outcome. He suggested that the tragedy manifests itself today in overgrazing on national lands, overfishing in the world's oceans, and overuse of national parks. The tragedy of the commons has been used to explain species extinction, water supply depletion, climate change, and other environmental threats. Many forms of pollution are likewise understood by considering the individual utility calculations associated with using the commons as a means of disposal.

Hardin ascribed the underlying cause of the tragedy to exponential population growth, an issue to which he dedicated much of his essay. Population growth, Hardin argued, was one of a special class of societal problems: those without technical solutions. Suggesting that a world with finite resources can support only a finite population, Hardin inferred that population growth must at some point equal zero. Noting that the associated maximum population level would be uncomfortably compromised, Hardin suggested that the optimal population level is below this maximum. He proposed that a laissez-faire approach to human reproduction cannot be expected to result in the optimal rate of population growth.

Hardin did not just describe the dilemma in his essay; he suggested solutions. Appeals to conscience are decidedly not among those suggestions. In fact, Hardin argued that appeals to conscience will tend to eliminate from the human race those who have a conscience. His logic is simple. Those who voluntarily restrain themselves from overexploiting the common resource will receive fewer resources. Those who do not succumb to appeals to conscience will gain more resources. Those with more resources will outcompete those with fewer and will produce offspring with similar tendencies.

If people cannot be convinced to voluntarily restrain themselves from overgrazing, what can be done? One possibility is privatization of public resources. Enclosure laws that converted common grazing areas to fenced, individually owned parcels led to better stewardship of the land because each landowner had a private incentive to maintain his or her own property. Some find this market approach appealing, but it cannot easily be applied to oceans, the air, or other widely dispersed commons. Hardin preferred the coercive power of laws, arguing that rules that limit our freedom, but to which we have mutually agreed, can help us avoid the tragedy of the commons. He admitted that regulation has its drawbacks but argued that we must do something and all other available mechanisms are worse.

It is interesting to note, as Hardin did, the contrast between the prevailing sentiment of the tragedy and that which Adam Smith noted in *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776) regarding the outcome of individual self-interest in the context of markets. Smith can be interpreted as suggesting that individual interest can lead to maximum social benefit, which stands in stark contrast to Hardin's suggestion that individual interest leads to ruin. Understanding that Smith's proposition applies in the context of market goods, while Hardin's thesis applies to common property, helps us see that both positions hold merit.

The tragedy of the commons is easily seen as an application of the prisoner's dilemma, whereby the actions that each individual is compelled to undertake due to self-interest result in suboptimal conditions for society at large, thereby implying that cooperative action would be preferred. According to Hardin, because individuals behave opportunistically, to avoid the tragedy, use of the commons must be governed by some form of regulation, including private property rights, resource allocation, or taxation.

While Hardin's simple examples and unflinching language are compelling, his essay is not without controversy or criticism. We do observe examples of sustained, cooperative use of common-pool resources. In recent years, behavioral economists have chipped away at the starkest assumptions about self-interest on which some of Hardin's claims rest, providing arguments against the inevitability of overuse. Elinor Ostrom (winner of the Nobel Prize in Economic Sciences in 2009) argued that collective institutions and polycentric governance could serve as an effective alternative to government control or privatization of the commons. Ostrom presents numerous case studies illustrating that collective rules and norms can achieve environmentally sustainable and economically efficient outcomes for common-pool resources.

In addition to misjudging the capacity of communities to establish and enforce rules for governing the commons, Hardin underestimated the impact that technology would have on crop yields. Hardin also did not foresee the impending declinations in population growth that would result from advances in health care and social welfare systems in developed nations. In later years, Hardin wrote that he should have specified that the tragedy followed from unmanaged commons. The commons can be managed sustainably, and in his original 1968 essay Hardin advocated for rules designed to manage the commons.

Kate Krause
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See also: Fisheries Management; Hardin, Garrett; *Vol. 1: Foundations of Economics:* Common Property and Common-Pool Resources; Nobel Prize in Economics; Smith, Adam; *Vol. 2: Macroeconomics:* Externality; Ostrom, Elinor; Public Goods

Further Reading

Hardin, G. 1968. The tragedy of the commons. *Science* 162 (3859): 1243–48.
Ostrom, E. 1990. *Governing the commons: The evolution of institutions for collective action (political economy of institutions and decisions)*. Cambridge, UK: Cambridge Univ. Press.
Smith, A. 1937. *The wealth of nations*. New York: Modern Library.

TRUST GAME

The trust game (also referred to as the investment game) is a two-player one-shot sequential game with salient fairness considerations. Trusting and trustworthy behavior in the game allows players to reap the benefits from cooperation and increase their earnings. The game was first introduced to the literature by Berg, Dickhaut, and McCabe (1995), who designed it to experimentally study trust and reciprocity behavior in an investment setting.

The game is played by two players, the first mover (FM; also referred to as *trustor*) and the second mover (SM; also referred to as *trustee*), both endowed with \$10 from the experimenter. In stage one, the FM decides how much of his or her initial endowment to send to his or her counterpart. The remaining portion of the endowment is his or hers to keep. The amount sent is tripled by the experimenter while the amount kept is not transformed. In stage two, the SM observes the tripled amount and decides how much of it to return to the FM and how much to keep. The amount kept by the SM is added to his or her own endowment (if any). Each dollar returned by the SM to the FM costs the SM one dollar. Following the SM's choice, the game ends and the payoffs are realized.

The unique subgame perfect Nash equilibrium of the trust game for the self-regarding preferences (or *economic man*) model with perfect information can be solved for using backward induction: In stage two, a selfish SM will return zero. Realizing this, a selfish FM will send zero in stage one. Such play yields equilibrium payoffs of (\$10, \$10). This subgame perfect Nash equilibrium is Pareto-inferior to some alternative feasible allocations in which the FM sends a positive amount to the SM, which increases the stake to be divided between them. For example, if the FM sends all \$10 and the SM receives \$30 and returns \$20 to the FM, the players end up with final payoffs of (\$20, \$20).

In experiments, human participants in the role of FMs identify the possibility of creating a surplus by sending positive amounts to paired SMs, which has been interpreted as using trust for mutual gain. Moreover, many SMs share the created surplus with FMs by returning positive amounts to FMs, which has been interpreted as the existence of trustworthiness. For example, in the original Berg, Dickhaut, and McCabe (1995) experiment, FMs sent \$5.15 on average, while as many as 30 out of 32 sent at least some money. These amounts were then tripled by the experimenters and thus FMs' actions resulted in higher total payoffs to the pair. Of the 30 SMs who received a positive amount, only 6 responded with returning zero, while all other SMs returned positive amounts, \$15.48 on average.

Explanations for this behavior have incorporated alternative motives for other-regarding behavior, including trust, reciprocity, and other-regarding preferences. In particular, the FM could send a positive amount because of trust that the SM will return some of the money and/or because of unconditional other-regarding preferences, for example, altruism. The SM could return some money because of positive reciprocity and/or because of unconditional other-regarding preferences, for example, altruism or inequality aversion. Cox (2004) presents an experiment that distinguishes between these explanations. His design includes the standard trust game and two specially designed dictator games that eliminate the possibility of trust and reciprocal behavior by FMs and SMs, respectively. By comparing subjects' behavior in the three games, Cox finds that the FMs in the trust game exhibit both trust and other-regarding behavior and that the SMs exhibit both reciprocity and other-regarding behavior as well.

Extensions and modifications: In some experimental settings, the choices of both players are restricted to whole-dollar amounts or to a binary decision, endowments and the multiplicative factor are varied, or multiplicity of players is introduced. Other experiments vary procedures: participants have to earn the initial endowments, the game is played repeatedly, players change roles, or the degree of anonymity can vary and communication is allowed.

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See also: Nash, John; Nash Equilibrium; Pareto, Alfredo; Pareto Optimality

Further Reading

Berg, Joyce, John Dickhaut, and Kevin McCabe. 1995. Trust, reciprocity, and social history. *Games and Economic Behavior* 10: 122–42.

Cox, James. 2004. How to identify trust and reciprocity. *Games and Economic Behavior* 46: 260–81.

Johnson, Noel D., and Alexandra A. Mislin. 2011. Trust games: A meta-analysis. *Journal of Economic Psychology* 32: 865–89.

U

UMBRELLA INSURANCE

An umbrella insurance policy is the next personal finance asset protection a consumer may need after homeowner (or renters) and vehicle insurance coverage. This policy, as its name suggests, is a broad protection against the cost of losing a lawsuit over a vehicle accident or an accident on one's property. Umbrella insurance provides additional coverage over that of the consumer's home and vehicle insurance protection.

The umbrella policy protects the consumer's existing assets as well as future potential assets (such as wages, future inheritance, or lottery winnings) against the cost of losing a lawsuit from a car accident or accident on one's property. Even if the consumer currently has few assets, umbrella insurance may be recommended to avoid the potential loss of future wages.

If the consumer loses the lawsuit, he or she would be responsible for paying the winning party for medical expenses, lost wages, and other costs.

How Does Umbrella Insurance Work?

Because this is an additional insurance policy, after homeowners and vehicle insurance, there are certain minimum insurance coverage requirements for the vehicle and homeowners policies.

For example, let's assume that your vehicle insurance pays $300,000 per person per accident for medical expenses and you have a $1 million umbrella insurance policy. If you are in an accident and sued for $900,000 and lose the suit, your auto insurance will pay $300,000 and the umbrella policy will cover the remaining $600,000 ($300,000 + $600,000 = $900,000).

The typical umbrella policy covers from $1 million to $5 million (or more if you have more assets to protect). As with all insurance, there will be a deductible or amount that the insured (or policyholder) pays before the insurance pays out.

What Level of Vehicle and Homeowners Insurance Is Necessary with an Umbrella Policy?

Umbrella insurance requires the policyholder to purchase a baseline amount of both vehicle and homeowners (if property is owned) insurance along with the umbrella policy. Although vehicle insurance is required by law in most states and homeowners is required by mortgage companies, the levels of coverage are specified by the umbrella insurance policy.

According to Amy Fontinelle (2012) in "It's Raining Lawsuits: Do You Need an Umbrella Policy?" umbrella insurance requires the vehicle policy to provide a minimum level of coverage; typically, at least $250,000 per person bodily injury coverage and $500,000 per accident. Auto insurance property damage minimum coverage is usually at least $100,000 per accident. And homeowners insurance personal liability coverage must be at least $500,000.

These minimum vehicle and homeowners policy amounts may vary depending on the specific umbrella policy. The examples above provide an idea of how the three types of insurance policies interrelate.

Additional Benefits of Umbrella Insurance Coverage

The umbrella policy may also cover the policyholder's dependent children. For example, when 16-year-old Amelia causes a car accident, the umbrella policy can protect her as well.

Depending on the specific provisions of the policy, it may cover the holder and family from lawsuits arising from slander, libel, defamation of character, false arrest, detention or imprisonment, abuse of process, malicious prosecution, shock/mental anguish, and more, although the consumer's umbrella policy should not be considered insurance for business-related liability.

Additionally, the umbrella policy can be written to cover accidents caused by the policyholder and family while driving a boat or accidents that happen on one's rental property.

Limitations of an Umbrella Insurance Policy

There are many exclusions to an umbrella policy, and as with any insurance policy, the consumer needs to understand the policy exclusions.

As stated in the prior section, umbrella insurance is personal coverage and won't protect one from lawsuits related to a business the policyholder owns. For example, if you offer childcare in your home, an umbrella policy is not the appropriate liability coverage.

Umbrella insurance isn't for risky activities such as drag racing or piloting an airplane. It may not cover all types of vehicles, such as recreational motor vehicles, tractor trailer trucks, farm vehicles, or other vehicles that exceed a particular weight limit.

Umbrella insurance does not cover damage to the policyholder's own car or property; that coverage is provided by standard vehicle and homeowners coverage.

If you lose a liability suit after committing a crime, the umbrella insurance will not cover the damages. If Jamal is convicted of driving under the influence and required to pay restitution, an umbrella insurance policy will not pay. Other illegal acts such as sexual harassment, discrimination, intentional harm to another person or property, or malicious acts aren't covered.

Umbrella insurance does not supplement health insurance nor pay health insurance–related claims. For additional health-related coverage, the consumer should purchase a policy designed to compensate for medical-related concerns.

Some umbrella insurance policies require the policyholder to use the same insurance carrier not only for the umbrella policy but for the vehicle and homeowner policies as well. In general, premium rates are usually less expensive the more policies the consumer has with the same insurance company.

Who Needs an Umbrella Policy?

If you ride the bus and don't own a home, you probably don't need an umbrella liability policy.

Consumers with a pool, a dog, and a long commute are more likely to encounter a scenario where they are sued. If one is at greater risk, purchasing an umbrella policy will provide peace of mind and additional protection.

In general, umbrella policies are reasonably priced due to the fact that they are supplemental to home and auto insurance. As consumers acquire greater income and assets, this type of insurance may be an important addition to their insurance protection suite of products.

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See also: Homeowners and Renters Insurance; Life Insurance; Risk; Risk Premium; *Vol. 1: Foundations of Economics:* Budget

Further Reading

Businessdictionary.com. n.d. Bumbershoot policy. http://www.businessdictionary.com/definition/bumbershoot-policy.html (accessed April 1, 2014).

Fontinelle, Amy. 2012. It's raining lawsuits: Do you need an umbrella policy? Investopedia (March 12). http://www.investopedia.com/articles/insurance/09/do-you-need-an-umbrella-policy.asp (accessed April 1, 2014).

UNDERGROUND ECONOMY

An underground economy consists of illegal and legal activities that are either not reported or underreported to the proper authorities. An underground economy exists where goods and services are traded or bartered for without the payment of taxes. The underground economy is also frequently referred to as a shadow, parallel, or informal economy. These types of dealings are also frequently correlated with the black market. The black market refers specifically to the illegal trading of goods and services. This sort of trade is usually related to restricted or banned items or services. However, the illegal trade of legal items can also be considered a part of the underground economy. Seemingly nonthreatening activities such as a poker game among friends or paying a babysitter in cash could also be considered aspects of an underground economy.

The underground economy can be particularly hard to track and enforce. Since most dealings are made in cash and unreported, regulatory forces have difficulty assessing their effect with relation to the real economy.

As the International Monetary Fund also points out, crime and unreported activity are a way of life, but there are multiple potentially hazardous consequences

Table 1. Types of Underground Economic Activities

Type of Activity	Monetary Transactions		Nonmonetary Transactions	
ILLEGAL ACTIVITIES	Trade in stolen goods; drug dealing and manufacturing; prostitution; gambling; smuggling; fraud.		Barter of drugs, stolen, or smuggled goods. Producing or growing drugs for own use. Theft for own use.	
	Tax Evasion	**Tax Avoidance**	**Tax Evasion**	**Tax Avoidance**
LEGAL ACTIVITIES	Unreported income from self-employment. Wages, salaries, and assets from unreported work related to legal services and goods.	Employee discounts, fringe benefits.	Barter of legal services and goods.	All do-it-yourself work and neighbor help.

Source: Structure of table from Lippert and Walker, *The Underground Economy: Global Evidence of Its Size and Impact*. Vancouver, B.C., The Fraser Institute, 1997.

of growing shadow economies. First, it is often difficult to identify a shadow economy, so the size and scope of the shadow economy is hard to calculate with reliable accuracy. This type of misinformation can lead to over- or under-sighted policies. Second, shadow economies can become a vicious cycle where the growth of these activities represents an increase in tax avoidance. Therefore, the tax base of the real economy is lower, which may lead officials to raise taxes. Subsequently, this may lead to a further increase in underground economic activities. Last, growing shadow economies may attract labor and resources away from the real economy. Ironically, more than two-thirds of money earned in the shadow economy is quickly spent within the real economy.

There are many potential causes for the growth of underground economies. Most poignantly, whenever a regulatory agency or government extends restrictions or laws, more businesses or individuals are likely to move toward underground economic activities. Furthermore, the increase of illegal migration can lead to more under-the-table paid work. The underground economy has increased in recent times mainly due to continued government restrictions, the legal business environment, tax structures, and immigration (legal and illegal). Conversely, nations with relaxed tax requirements and fewer (but well-established) laws have smaller shadow economies.

Shadow economies are larger proportions of the total economy in developing nations. This is mainly due to the lack of enforcement strength of governments. Many developing nations do not have the same tax and regulatory restrictions but also lack well-established and enforced laws. For example, in developing nations, contract work for infrastructure and construction may include the transaction of bribes or pay-offs to gain first-mover advantage, cut corners, reduce labor costs, or gain necessary legal permits. This type of corruption is a major issue in developing economies and is directly attributable to how well structured systems can remedy underground economic activities. Developed nations also face challenges in restricting the shadow economy.

In 2013, it was estimated that the underground economy of the United States reached $2 trillion (Koba 2013). This massive number could be due to corporate greed in tax evasion or necessity for small businesses facing increased legal restrictions and requirements. It could be due to an increase in shadow economic labor due to unsustainably low wages, or an increase in supply and demand for day laborer work. There are many factors and iterations of the shadow economy. The underground economy is therefore a crucial item to understand when deciphering national economies and determining relative strength or future fiscal or legal policies.

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See also: Black Market Economy; *Vol. 1: Foundations of Economics:* Capitalism; Entrepreneurship; *Vol. 2: Macroeconomics:* Tax Avoidance, Tax Evasion, and the Shadow Economy; *Vol. 4: Global Economics:* Developing Nations

Further Reading

Koba, Mark. 2013. $2 trillion underground economy may be recovery's savior. *CNBC*. www.cnbc.com/id/100668336 (accessed December 2, 2015).

Lippert, Owen, and Michael Walker. 1997. *The underground economy: Global evidence of its size and impact*. Vancouver, BC: The Fraser Institute.

Schneider, Friedrich, and Dominik Enste. 2002. Hiding in the shadows: The growth of the underground economy. *Economic Issues* 30. International Monetary Fund. www.imf.org/external/pubs/ft/issues/issues30/ (accessed December 2, 2015).

Thale, Christopher. 2004. Underground economy. *Encyclopedia of Chicago*. www.encyclopedia.chicagohistory.org/pages/1280.html (accessed December 2, 2015).

Trueman, C. N. 2010. The black market. The History Learning Site. www.historylearningsite.co.uk/world-war-two/world-war-two-in-western-europe/britains-home-front-in-world-war-two/the-black-market/ (accessed December 2, 2015).

Zeiler, David. 2013. What America's $2 trillion underground economy says about jobs. *MoneyMorning*. moneymorning.com/2013/04/29/what-americas-2-trillion-underground-economy-says-about-jobs/ (accessed December 2, 2015).

UNIONS

The origins of organized labor can be found in medieval Europe where labor guilds parsed workers by specialization and took in apprentices in order to educate them with a skill so as to perpetuate the trade.

The earliest establishment of what could be called *the union* can be traced to 1794 in Philadelphia where the federal society of journeyman cordwainers (shoemakers) organized in the interest of consistent earnings for all in the trade. As industrialization spread in the young United States and the United Kingdom, workers began to express concern that the introduction of new technologies would supplant them. In the United Kingdom, Ned Lud was said to rail against new machines in factories, smashing looms out of fear that they would displace workers. An actual federation of workers' groups finally met in Baltimore in 1866 to form the National Labor Union, which organized to push for political and social reform more so than wages (Tindall and Shi 2007, 765).

The first recorded job action, a strike, occurred in New York in 1768 when tailors stopped work to protest a cut in wages (History.com 2014). A strike occurs when employees of a firm refuse to work, endeavoring to bring the firm's operations to a halt until their demands in terms of working conditions or pay are met.

Issues over pay and working conditions arose elsewhere after the American Civil War, including in the building of railroads and in the coal-mining industry. Both experienced strikes that sometimes turned violent in their confrontations between labor and business owners.

The Knights of Labor, founded in 1869, extended across state lines and pushed for reforms such as an eight-hour workday, the elimination of convict labor, and equal pay fr equal work. In 1886, a number of craft unions formed the American Federation of Labor (AFL), and with the advent of the 20th century, labor leaders such as Samuel Gompers and Mother Jones emerged as national and forceful advocates for workers' rights.

Worker concerns led to more unionization with the increased industrialization of the automotive sector. As Ziegler and Gall note in their chronicle of American labor, "in 1914, Henry Ford's Highland Park, Michigan, plant had 15,000 power-driven machines on site that outnumbered its 13,000 workers" (Ziegler and Gall 2002, 2).

The migration north of thousands of African Americans in the early 20th century swelled blue-collar ranks in major cities. Ziegler and Gall explain that the labor movement did not embrace these new workers. "White unionists, with some notable exceptions, remained steadfast in their unwillingness to include black coworkers in the common struggle" (Ziegler and Gall 2002, 35). The economic turmoil of the Great Depression brought new energy to unions, prompting them to protest the closure of factories in the face of reduced demand for goods such as Henry Ford's. In 1935, Congress passed the National Labor Relations Act, also known as the Wagner Act, which moved litigation of labor issues into the courts.

By the end of World War II, unions made up 35 percent of the civilian labor force with over 14 million members (Ziegler and Gall 2002, 144). A major economic and political force at the time was the AFL-CIO. The aforementioned AFL had merged with the Congress of Industrial Organizations. So emboldened were unions at this point that strikes in industries such as steel and coal mining were common. The scope of these job actions was such that more than once President Harry Truman threatened to draft striking workers in these industries in the event that their job actions did not end. McCarthyism of the 1950s fostered a link in many minds between union activities and communism.

In geographic areas where union membership was traditionally strong, it has often been insisted that the benefits and wages that unions earned for the employees were key in building the middle class in states such as Michigan, Ohio, and Pennsylvania. The historical record supports this sentiment to some degree. In

2011, the Service Employees International Union (SEIU) touted a Bureau of Labor Statistics analysis concluding union employees earn an average of 28 percent more than their nonunion counterparts in the same line of work (Long 2013).

Other economic interests cite problems that unions have wrought in the course of their growth. In 1919, the Boston police went on strike, which led to several days of lawlessness and thousands of dollars of damage to the city. President Truman suggested that strikes in the coal-mining and steel industries threatened national security during the Cold War, and in the 1981 air-traffic controllers strike in the United States it was necessary for the government to limit air travel to 2 percent of its normal capacity to accommodate the striking controllers. Some have also criticized educators who have taken job actions on several occasions, such as teachers in Detroit who struck in 2006 and their counterparts in Chicago in 2012.

A more educated generation entered American business in the 1950s thanks to the college opportunities provided by the GI Bill. A more educated baby boom population emerged in the 1960s, turning away from career paths one would associate with the labor movement. The size and pursuits of this demographic led to the emergence of a white-collar middle class in America, resulting in a decreasing percentage of American workers who were traditionally unionized. Sloan Wilson's 1955 *The Man in the Gray Flannel Suit* was made into a film showcasing a new American worker who was definitely not a union man.

Organized labor was dealt a setback by President Ronald Reagan in 1981 when he fired striking air-traffic controllers who had brought the national airline industry to a halt. During the same decade in the United Kingdom, the British government began closing unproductive coal mines, which left thousands of unionized miners unemployed with few other skills to offer the economy.

As globalization gained steam in the 1990s, organized labor felt threatened with the prospect of offshoring. Offshoring is the relocating of jobs from an original domestic site to one in another nation. Often the other nation was considered to have fewer work safety standards and a lower wage structure that combined to lower business costs. The main union issue of offshoring was the loss of jobs, many of them unskilled.

Widespread and violent protests about this trend involving U.S. union members erupted in Seattle during a World Trade Organization meeting in 1999. Labor's struggles continued into the 21st century when in 2005 America's largest service employees' union and the Teamsters (national union representing various manual trades) split from the AFL-CIO. This separation ended a 50-year alliance of labor groups.

As the Gen X and Gen Y generations entered the workforce, they continued the trend of seeking careers in sectors of the economy where unions were scarce, such as finance, communications, and technology. By the end of the first decade of the 21st century, the Bureau of Labor Statistics reported that union membership in the nation had reached the "lowest figure ever since the bureau started collecting data" (Bureau of Labor Statistics 2011).

While the early years of the 20th century saw the union movement gaining steam nationally, trends of the early 21st century are not as promising for organized labor.

Globalization has sent many manufacturing jobs that were normally unskilled union jobs in the United States to developing nations where union membership is uncommon and American business owners have no incentive to inspire it. As the capital-intensive information-driven economy continues to incentivize workers to be more technologically literate, there is no evidence the transient and educated workforce has interest in joining unions within firms or across sectors as their ancestors in the historically more labor-intensive careers once did.

David S. Allen

See also: Auto Import Challenge, 1965; General Motors Bankruptcy, 2009; Labor Economics; Labor Market Regulation; National Steel Strike, 1919; National Steel Strike, 1959; *Vol. 1: Foundations of Economics:* American Federation of Labor and Congress of Industrial Organizations; Economic History; Progressive Era; *Vol. 2: Macroeconomics:* Detroit Bankruptcy, 2013; Labor Force; Labor Productivity; Labor Uprisings, 1936–1939; *Lechmere, Inc. v. National Labor Relations Board*; National Labor Relations Board; National Labor Unrest, 1894; *Vol. 4: Global Economics:* Offshoring; Outsourcing; *Primary Document:* National Labor Relations Act of 1935

Further Reading

Bureau of Labor Statistics. 2011. Union members 2010. Bureau of Labor Statistics, U.S. Department of Labor (January 21). www.bls.gov/news.release/archives/union2_01212011.pdf (accessed March 15, 2014).

Bureau of Labor Statistics. n.d. Differences between union and nonunion compensation 2001–2011, U.S. Department of Labor. www.bls.gov/opub/mlr/2013/04/art2full.pdf (accessed March 15, 2014).

CBS News. 2012. Chicago teachers strike: Give change a chance. CBS News (September 13). www.cbsnews.com/news/chicago-teachers-strike-give-change-a-chance (accessed March 15, 2014).

History. n.d. Labor Movement. www.history.com/topics/labor (accessed March15, 2014).

Holman, Spence. n.d. The Homestead and Pullman strikes. projects.vassar.edu/1896/strikes.html (accessed March 15, 2014).

Long, George I. 2013. Differences between union and nonunion compensation, 2001–2011. U.S. Department of Labor. www.bls.gov/opub/mlr/2013/04/art2full.pdf (accessed March 15, 2014).

Peled, Micha. 2001. Store wars: When Wal-Mart comes to town. www.pbs.org/itvs/storewars/stores3.html (accessed March 15, 2014).

Tindall, George Brown, and David Emory Shi. 2007. *America: A narrative history*, 7th ed., Vol. 2. New York: W. W. Norton and Company.

Ziegler, Robert H., Timothy J. Minchin, and Gilbert J. Gall. 2014. *American workers, American unions: The twentieth and early twenty-first centuries*. Baltimore, MD: Johns Hopkins Univ. Press.

UNITED FARM WORKERS

The United Farm Workers is a major organized agricultural labor union in the United States. Founded in 1966 with the merger of the Agricultural Workers Organizing Committee (AWOC) led by Larry Itliong and the National Farm

Workers Association (NFWA) founded by Cesar Chavez, the union organized for the rights of hard-working farm workers, mostly in the southwest. The two groups officially combined on August 22, 1966, and became known as the United Farm Workers.

An agreement between the United States and Mexico, the Bracero program, allowed millions of Mexican workers to migrate to U.S. farms on short-term contracts to fill in for the low-supplied farm work that most Americans dreaded doing. The program became Public Law 78 in 1951. The law specified that temporary workers from the Bracero programs could not replace domestic workers. However, the farm employers rarely enforced the law. The laborers worked long hours and were compensated with very low wages and living standards.

In the early 1960s, Cesar Chavez began organizing farm workers in central California. Over the next decade, Chavez allied with churches, community groups, and other organizations associated with the civil rights movement. This alliance group was able to force the government to terminate the Bracero program in 1964.

Despite the end of the Bracero program, conditions still did not meet workers' expectations. In 1965, many of the workers, such as grape pickers, were only compensated \$0.90 every hour with an additional \$0.10 for every full basket picked. Also, workers often had to pay for their housing, which consisted of a metal shack with no power or sanitation. They were required to pay \$2 a day or more as well as a quarter for every cup of water they wished to drink. The average lifespan for a farm worker was only 49 years.

Since 1966, the United Farm Workers have been a major influence, representing farm workers in several industries, including grape and vineyard growers along with vegetable, fruit, and tomato workers. Their geographical influence extends beyond their original California roots to Florida, Washington, and Texas.

They have succeeded in achieving rights to assemble and unionize and collective bargaining rights for farm workers. Increasingly the UFW fights for the rights of undocumented farm workers to earn legal residency rights in the United States. The UFW was a major influence in the passage of the AgJobs Bill in 2005. The United Farm Workers has also gained political influence, gathering grassroots support for candidates who support pro-farm-worker initiatives.

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See also: Unions; *Vol. 1: Foundations of Economics:* American Federation of Labor and Congress of Industrial Organizations; *Vol. 2: Macroeconomics:* Labor Productivity; *Vol. 4: Global Economics:* Mexico: General Economy

Further Reading

History of the United Farm Workers. n.d. History of the UFW. www.laits.utexas.edu/jaime/cwp2/ccg/historyofufw.html (accessed January 24, 2016).

UFW: The Official Web Page of the United Farm Workers of America. n.d. ufw.org/_page.php?menu=research (accessed January 24, 2016).

UNITED MINE WORKERS

Founded in Columbus, Ohio, in 1890, the United Mine Workers of America (UMWA) was originally known for its representation of coal miners. It was also known to represent other public employees in the United States, such as health care workers and truck drivers. Trade associations the Knights of Labor Trade Assembly No. 135 and the National Progressive Union of Miners and Mine Laborers merged to create the UMWA.

Leaders of the union were John L. Lewis (who was the president of the UMWA from 1920 until 1960 and also the founding president of the Congress of Industrial Organizations), Phil Murray (vice president of the UMWA), William “Bill” Green (elected secretary of the Coshocton Progressive Miners Union in 1891, which became one of the locals of the UMWA), William B. Wilson (served as secretary-treasurer of the UMWA from 1900 to 1908 and served as a chairman in the House Committee on Labor from 1911 to 1913), John Mitchell (subdistrict organizer of the UMWA in 1894, vice president in 1898, and president in 1899), and Mother Jones (an advocate for union workers in the early 1900s and became known as the Miners’ Angel).

The United Mine Workers’ constitution focused on eliminating discrimination because of religion, race, or national origin. Leaders of the UMWA took note of the acceptance of discrimination in America and realized its destructiveness. Not only did the UMWA struggle with discrimination, miners faced many other challenges in reaching their goals.

Major accomplishments of the UMWA during its long history include the eight-hour workday (1898), collective bargaining (1933), health benefits (1946), and health and safety protections for miners (1969). Miners also faced struggles during the Great Depression, when brief competition set in against the radical West Virginia Mine Workers Union and the National Miners Union. With the development of the New Deal, created by President Roosevelt, federal legislation put a stop to contracts between workers and employers in which workers agree to not remain in or join a union. It also limited antiunion injunctions and gave workers the right to bargain collectively.

The UMWA was influential in the mass-production industry, with things such as steel and automobiles. With the creation of health and retirement benefits in 1946, the union permanently changed health care throughout all coal mines in the nation and established clinics and recruited young doctors into the rural coal areas. Seeing as the UMWA works around so much dust, they became experts in occupational lung diseases like silicosis and pneumoconiosis and pushed for the protection of miners’ safety and compensation for those suffering from black lung disease.

The UMWA continues to have a strong voice in the American labor movement by pioneering new fields of mass production and advocating strongly for better health care and workers’ rights.

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See also: Labor Market Regulation; Unions; *Vol. 1: Foundations of Economics:* American Federation of Labor and Congress of Industrial Organizations; Great Depression and Wall Street Crash, 1929; New Deal; *Vol. 2: Macroeconomics:* Labor Productivity

Further Reading

AFL-CIO. n.d. Philip Murray (1886–1952). www.aflcio.org/About/Our-History/Key-People-in-Labor-History/Philip-Murray-1886-1952 (accessed February 25, 2016).

AFL-CIO. n.d. William Green (1873–1952). www.aflcio.org/About/Our-History/Key-People-in-Labor-History/William-Green-1873-1952 (accessed February 25, 2016).

United Mine Workers of America. n.d. A brief history of the UMWA. www.umwa.org/?q=content/brief-history-umwa (accessed February 25, 2016).

United Mine Workers of America. n.d. John L. Lewis. www.umwa.org/?q=content/john-l-lewis (accessed February 25, 2016).

UNITED STATES V. SOUTH-EASTERN UNDERWRITERS ASSOCIATION

The Supreme Court's responsibility in *United States v. South-Eastern Underwriters Association*, 322 U.S. 533 (1944), was to determine whether insurance constitutes commerce, and if so, if insurance companies can be regulated by the power the commerce clause grants to Congress to regulate transactions across state lines. Until this case in 1944, insurance was not considered commerce as defined by the commerce clause of the U.S. Constitution and interpreted by the courts. However, the business of providing financial stability through insuring property for monetary loss was comparable to the auto and coal industries in size and employment.

Monopolies were a national concern in the late 19th century. Congress passed the Sherman Antitrust Act in 1890 in an attempt to prevent monopolies, collusion, price-fixing, conspiracy, and intimidation tactics that would discourage competition and fair trade. Insurance was not considered commerce and therefore did not adhere to the laws and regulations of the Sherman Act. This case established that insurance was indeed commerce. In addition, transactions of the insurance industry took place between various states and therefore were subject to the regulation of the federal government.

Case Summary

Historically, the timing for this case is set well into the United States' fight against fascism, when patriotic values and national attitudes of unity to win World War II were prevalent. By 1944, the insurance industry had grown to represent a substantial portion of the economy. The *South-Eastern Underwriters Association* case challenged the American free-enterprise principles of fair trade, honest prices, and true competition. The case dealt with collusion, conspiracy, price-fixing, and whether or not insurance was a form of commerce.

Insurance refers to a contract in which one party agrees to indemnify (compensate for loss or damage) another for a previously agreed-upon category in exchange for a premium (payment). This was significant in regard to U.S. industrial development because it provided an economic stabilizer. The Great Depression had underscored the importance of this stabilizing mechanism. It spread the loss from an individual or a few to a greater number of people, or a collection of premium payers. The insurance company is the safe-keeper of these pools of money. By the 1940s, the insurance industry generated revenue comparable to an average of all-revenue receipts for the federal government. Within the previous decade, it had employed as many people as the automobile and coal-mining industries combined. Insurance touched almost every home and person, as well as places of employment, constituting a significant portion of the U.S. economy.

Several decades earlier, and coincidental to the growth of the insurance industry, was the growth of trusts and monopolies. These monopolies in steel, railroads, and oil had the power to restrict production, crush small businesses, and concentrate power in the hands of a few to the detriment of the many. In 1890, the U.S. Congress passed the Sherman Antitrust Act in response to this era of great fear and corruption. It was named after its author, Senator John Sherman, and signed by President Benjamin Harrison. The goal of this federal legislation was to protect competition, and consequently, consumers. The Sherman Act was passed almost unanimously in both the House and the Senate, giving antitrust or competition law nonpartisan status in the Congress of 1890.

The South-Eastern Underwriters Association (SEUA, underwriters evaluate potential risk for insurance companies and review applications for coverage, giving either approval or denial) and its affiliates were indicted in a district court in northern Georgia for alleged violations of the Sherman Antitrust Act. The defendants failed to deny any activities of colluding to fix prices or intimidation tactics to limit competition. SEUA simply demurred (a demurrer does not dispute the facts, just objects on the grounds that there is not sufficient cause of action) with the intention of getting away with these activities.

The insurance industry claimed that fire insurance was not included as interstate commerce according to the commerce clause of the Constitution and therefore could not be prosecuted under the Sherman Antitrust Act of 1890. *Paul v. Virginia*, 75 U.S. 168 (1869) had established this precedent. The rationale in the *Paul* case maintained that insurance policies were not commodities that were transported, bartered, or traded from state to state. They did not represent a tangible commodity that could be taken to market. On the contrary, insurance policies were intangible, personal contracts. The parties involved may live in different states, but when any actual transaction took place, it was as a contract within a local setting subject to state laws. The defendants obtained a judgment sustaining the demurrer. Under the Criminal Appeals Act, the federal government appealed this case to the Supreme Court.

On January 11, 1944, the Supreme Court heard the case. There were two alleged conspiracies. First, the fixing and maintaining of arbitrary and noncompetitive premium rates on fire and other allied lines (allied lines include sprinkler leakage, explosion, tornado, riot, and civil commotion coverage, as well as water damage, etc., which are usually purchased together with fire protection) within several of the southern states (Alabama, Florida, Georgia, North Carolina, South Carolina, and Virginia). The second alleged conspiracy involved monopolizing trade and commerce in the same lines of insurance in and among the same states, since SEUA had orchestrated the actions. Tactics included boycotts and other types of intimidation and coercion. SEUA did not argue otherwise.

It was the majority opinion of the Supreme Court in *United States v. South-Eastern Underwriters Association* that insurance was commerce. Justice Black referred to Chief Justice Marshall's definition of commerce in *Gibbons v. Odgen* (1824). This definition included more than just traffic and trade of goods. Chief Justice Marshall employed a comprehensive definition that it had to be such, otherwise Congress may lack the power necessary to discharge its constitutional duty to govern interstate commerce. The Constitution did not have to name every industry in its text to include it in its intent. The transmission of an electronic impulse over a telegraph line between two states was considered commerce and subject to vital federal regulation (*Pensacola Telegraph Co. v. Western Union Telegraph Co.*, 1877). Furthermore, it held that insurance, even though it might transpire locally, did in fact happen over state lines and therefore functioned as interstate commerce, making it subject to federal regulation and statutes. The dissenting opinion argued that this was an issue more appropriately regulated by state law. Chief Justice Stone and Justice Jackson, in their separate dissenting opinions, expressed their desire to use judicial restraint.

In March 1945, following the ruling on *United States v. South-Eastern Underwriters Association*, Congress passed the McCarran-Ferguson Act, addressing where and when it was appropriate and applicable to have state regulation and taxation versus federal regulation with regard to the insurance industry.

Kathleen C. Simmons

See also: Monopoly; Sherman Antitrust Act of 1890; *Vol. 1: Foundations of Economics:* Fascism; Supreme Court; *Primary Document:* Sherman Antitrust Act of 1890

Further Reading

Bittker, Boris I., and Brannon P. Denning. 1999. *Bittker on the regulation of interstate and foreign commerce*. New York: Aspen Law & Business.

Cornell University Law School, Legal Information Institute. n.d. *United States v. South-Eastern Underwriters Ass'n et al.* http://www.law.cornell.edu/supremecourt/text/322/533 (accessed September 30, 2016).

Justia.com, U.S. Supreme Court Center. n.d. *Paul v. Virginia, 75 U.S. 168* (1869). http://supreme.justia.com/cases/federal/us/75/168/ (accessed September 30, 2016).

Justia.com, U.S. Supreme Court Center. n.d. *United States v. South-Eastern Underwriters, 322 U.S. 533* (1944). http://supreme.justia.com/cases/federal/us/322/533/case.html (accessed September 30, 2016).

UTILITY, EXPERIENCED

Experienced utility is the moment-to-moment experience of life as it is being lived. The concept has become popularized by the work of Nobel laureate psychologist Daniel Kahneman, who draws the distinction in the psychological literature between experienced utility and decision utility, sometimes referred to as remembered utility. Experienced utility is closely aligned with Francis Edgeworth's (1845–1926) concept of the "hedonimeter," where each moment-to-moment experience of pleasure is able to be evaluated and displayed on a fictional instrument (Edgeworth 1881, 101). Edgeworth—inspired by the psychophysics of his day—suggested that the sum happiness of an episode could be measured by the area under the curve between two periods as captured by the ebbs and flows of a hedonimeter in much the same way physiological recordings display peaks and troughs of bodily activity. Decision utility, by contrast, is concerned with the rational assessment of choices. Kahneman suggests that decision theorists and economists apply decision utility as a way of conceptualizing "wantability," a term originally coined by Irving Fisher (1867–1947) (Fisher 1918, 336).

Remembered utility has been shown to be a poor representation of actual experienced utility. In an influential investigation on the differences between these concepts—known as "the cold hand experiment"—researchers conducted two trials in which participants were asked to immerse one hand in painfully cold water. The first trial lasted for 60 seconds; the second trial was identical to the first except that it was extended by a further 30 seconds, during which the water was gradually warmed by one degree—still painfully cold but slightly less so than during the first episode. When given the choice of which trial to repeat, 69 percent of participants said they would prefer to repeat the second trial, despite this experience involving a longer exposure to pain than in the shorter trial. What this experiment and many others like it show is the influence of a cognitive bias called the *peak-end rule* on decision utility when applied to remembered experience. Because the longer immersion trial was less painful at its conclusion it was remembered more favorably, causing more participants to prefer to repeat that experience than the shorter, more rational choice. Experienced utility as life is actually lived is not always how it is represented during decision-making.

Global assessments of experienced utility—such as traditional measures of life satisfaction—have also been shown to be sensitive to local effects of mood and circumstance. For example, in one experiment participants' life satisfaction ratings were shown to be positively influenced by finding a dime on a photocopier that was planted there by an experimenter. In another experiment, researchers asked participants the number of dates they had been on in the previous month, a measure otherwise unrelated to life satisfaction, before they asked about life satisfaction—a technique known as *priming*. When they did this, the two answers were found to be highly correlated.

In order to measure experienced utility, researchers have increasingly turned to techniques that resemble Edgeworth's hedonimeter. In the experience sampling methodology (ESM), participants are frequently prompted, often via an electronic beeper or cellular phone, to report their momentary experience. This technique is credited to psychologist Mihaly Csikszentmihalyi (1934–), and it has the advantage of providing high *ecological validity*, meaning that the findings are based on real-world responses that can be generalized.

Another technique called the day reconstruction method (DRM) asks participants to systematically break down their previous day into episodes, which are then rated on areas of interest. These techniques, including conventional daily diary studies, attempt to measure more directly experienced rather than remembered utility to avoid the biases and distortions that relying on decision utility and memory typically produce.

Carsten Grimm
Simon Kemp

See also: Edgeworth, Francis; Kahneman, Daniel; Priming and Financial Decisions; Utility, Remembered; *Vol. 1: Foundations of Economics:* Emotions and Decision-Making; *Vol. 2: Macroeconomics:* Fisher, Irving

Further Reading

Colander, David. 2007. Edgeworth's hedonimeter and the quest to measure utility. *Journal of Economic Perspectives* 21: 215–25.
Edgeworth, Francis Ysidro. 1881. *Mathematical psychics: An essay on the application of mathematics to the moral sciences*. New York: AM Kelley.
Fisher, Irving. 1918. Is "utility" the most suitable term for the concept it is used to denote? *American Economic Review* 8: 335–37.
Kahneman, Daniel. 2011. *Thinking, fast and slow*. New York: Farrar, Straus and Giroux.

UTILITY, REMEMBERED

Remembered utility describes the pleasure, happiness, sorrow, or pain that people associate with a past event or episode. A distinction is often made between remembered utility and experienced utility. The distinction derives from the well-established finding that remembered and experienced utility do not correspond particularly well. There are situations under which the remembered utility of event A is higher than that of event B, even though taken over the duration of the events the experienced utility of event B was higher.

Most research on remembered utility has focused on relatively brief events, for example the painfulness of a medical intervention or the pleasantness of a task or a film clip, in part because the quality of brief events is much easier to manipulate experimentally. The usual method of research has been to obtain some moment-to-moment record of experienced utility during the event and then to see how the overall remembered utility depends on these records. It has been consistently found that the duration of the event is unimportant, and for many brief experiences the overall evaluation is quite well predicted from its peak and end moments. This phenomenon is known as the peak-end rule. Other factors, for example, whether the experience increases or decreases in pleasantness over its course, can also be important. An important general finding is that only a few moments or features of the experience contribute to the overall evaluations and that remembered utility is reconstructed from this small number of components. For example, an observer may have actually found watching waves on a beach more pleasant than watching a puppy playing with a flower but the latter may be remembered as pleasanter because the idea is more appealing.

Although the factors that affect remembered utility are easier to investigate with brief events, it is more important to investigate their influence with longer events. What makes people remember a long episode of their life, for example, a marriage, a particular job, or indeed their lives to date, as enjoyable or satisfying? One would not expect simple formulae such as the peak-end rule to apply so well to such events, in part because longer experiences vary so much more in experienced pleasantness, and indeed the research done with longer events bears out this expectation. However, for longer events too, it has been found that remembered utility does not depend much on duration, does not always correspond with experienced utility, and can often be well predicted from a small sample of the original experience. It is well known in the autobiographical memory field that few details of past events can be recalled or even recognized, and a large part of our memory for such events is reconstructed. The limited research on the remembered utility of longer events is consistent with the autobiographical memory findings.

It is clear that remembered and experienced utility are different. Which of the two is more important for how one conducts one's life does not seem readily answerable. But there are important question that can be addressed, such as which of the two is more important for how people choose to behave in the future. The presumption may be that remembered utility is more causally significant, but arguments could be mounted on the other side. Also important is the extent to which remembered events are products of context, the circumstances of recall, and the quality of remembered events. Such questions make it clear that there is still much to learn about how we remember utility.

Carsten Grimm
Simon Kemp

See also: Kahneman, Daniel; Utility, Experienced; *Vol. 1: Foundations of Economics:* Emotions and Decision-Making

Further Reading

Ariely, Dan, and Gal Zauberman. 2000. On the making of an experience: The effects of breaking and combining experiences on their overall evaluation. *Journal of Behavioral Decision Making* 13: 219–32.

Fredrickson, Barbara, and Daniel D. Kahneman. 1993. Duration neglect in retrospective evaluations of affective episodes. *Journal of Personality and Social Psychology* 65: 45–55.

Kahneman, Daniel, and Alan Krueger B. 2006. Developments in the measurement of subjective well-being. *Journal of Economic Perspectives* 20: 3–24.

Kemp, Simon, Christopher D. B. Burt, and Laura Furneaux. 2008. A test of the peak-end rule with extended autobiographical events. *Memory & Cognition* 36: 132–39.

Kemp, Simon, and Zhe Chen. 2012. Overall hedonic evaluations and evaluation of specific moments from past relationships and high school days. *Journal of Happiness Studies* 13 (6): 985–98.

Redelmeier, Donald A., and Daniel Kahneman. 1996. Patients' memories of painful medical treatments: Real-time and retrospective evaluations of two minimally invasive procedures. *Pain* 66: 3–8.

V

VEBLEN, THORSTEIN

Born: July 30, 1857, in Cato, Wisconsin; Died: August 3, 1929, in Menlo Park, California; Nationality: American; Professional Interests: evolutionary and institutional economics; Major Works: *The Theory of the Leisure Class: An Economic Study of Institutions* (1899), *The Theory of Business Enterprise* (1904).

Thorstein Veblen was best known for his theories on conspicuous consumption in the area of evolutionary economics and sociology. He believed that technological advances were the driving forces behind cultural change but refused to automatically connect change with progress. His most famous work was *The Theory of the Leisure Class* (1889). Veblen died in 1929.

Thorstein Bunde Veblen was born on July 30, 1857, in Cato, Wisconsin. He grew up in a small Norwegian community of central Wisconsin speaking very little English. Veblen began his formal higher education at Carleton College Academy, completing his undergraduate degree at Johns Hopkins University. Veblen earned his PhD from Yale University in 1884. While at Yale, Veblen was greatly influenced by Charles Darwin. During his graduate work he rejected the views of John Bates Clark, a neoclassical, and William Graham Sumner, founder of the pragmatist school of philosophy. Veblen's interest in Darwin was the springboard for his later interest and study in economics as an evolutionary science. Unable to find work after graduating from Yale, he returned to the family farm. Six years later he entered Cornell University to study economics.

Thorstein Veblen began his professional career with an appointment to the University of Chicago, where he also edited the *Journal of Political Economy*. In 1906, Veblen left the University of Chicago for Stanford University. This began a series of professional moves for Veblen, moves often initiated for personal reasons or because of relationship issues with colleagues. Veblen's credibility was often negatively influenced by a somewhat tumultuous personal life.

It is often thought that major contributors to a discipline are necessarily lifelong academics. This was not the case with Veblen, who evolved from sociologist to economist. Veblen's most prominent work was *The Theory of the Leisure Class* (1899). In it, he first offered two new theories both contrary to the capitalist thinking of the day. First, he countered the prominent premise of private property of the period with his own idea that ownership brought excessive consumption beyond meeting basic economic wants. This excessive consumption Veblen named *pecuniary emulation*. He went on to claim that pecuniary emulation would eventually spread from a personal issue to an issue for an entire economic system.

From his idea of pecuniary emulation, Veblen broadened his theory to his second major contribution to economic thought. Due to pecuniary emulation, he theorized that people sought excessive wealth beyond satisfying their basic economic wants because they liked the social prestige it gained them. One's ownership of the large estate, the fancy carriage, and the expensive suit, according to Veblen, were used as symbolic of one's wealth. It was Veblen who identified this consumption pattern as the theory of conspicuous consumption. With *The Theory of the Leisure Class*, Veblen and his ideas of pecuniary emulation and conspicuous consumption became conceptual models in historical, sociological, and economic disciplines.

It was quite clear through his writings that Veblen did not accept the economic theory of his day. He did not support the marginalist solutions or proposed economic cures for the capitalist economy. Veblen believed the orthodox economic theories of his day were incorrect in their approaches by addressing the economy's ills directly. Through his sociological background, Veblen submitted that it was the culture and society that needed to be fixed, which in turn would solve the ills of the economy. To achieve this result, Veblen favored a complete restructuring of the capitalistic economy, not just reforming it, which could be accomplished only with extensive government exploitation through a socialistic economic system.

To call Veblen unconventional would be a gross understatement. As sociologist Alan Wolfe writes, Veblen "skillfully . . . wrote a book that will be read so long as the rich are different from the rest of us; which, if the future is anything like the past, they always will be."

Thorstein Veblen died on August 3, 1929, in Menlo Park, California, at the age of 72.

Dave Leapard

See also: Microeconomics; *Vol. 1: Foundations of Economics:* Marshall, Alfred; Marx, Karl

Further Reading

Diggins, John P. 1999. *Thorstein Veblen: Theorist of the leisure class.* Princeton, NJ: Princeton Univ. Press.

Dowd, Douglas Fitzgerald. 2000. *Thorstein Veblen.* New Brunswick, NJ: Transaction.

Mills, Charles Wright, and Alan Wolfe. 1956. *The power elite.* New York: Oxford Univ. Press.

Rienert, Erik, and Francesca Lidia Viano. 2012. *Thorstein Veblen: Economics for an age of crises.* London: Anthem Press.

Veblen, Thorstein. 1899. *The theory of the leisure class: An economic study of institutions.* New York: Macmillan.

Veblen, Thorstein. 1904. *The theory of business enterprise.* New York: Charles Scribner and Sons.

Veblen, Thorstein. 1914. *The instinct of workmanship: And the state of industrial arts.* New York: Macmillan.

Veblen, Thorstein. 1915. *Imperial Germany and the Industrial Revolution.* New York: Macmillan.

Veblen, Thorstein. 1917. *An inquiry into the nature of peace and the terms of its perpetuation.* New York: Macmillan.

Veblen, Thorstein. 1921. *The engineers and the price system.* New York: B. W. Huebsch.
Veblen, Thorstein. 1923. *Absentee ownership: Business enterprise in recent times: The case of America.* New Brunswick, NJ: Transaction.

VENTURE CAPITAL

Venture capital is an alternative form of funding for organizations. Instead of being publicly traded through an initial public offering (IPO) and subsequent secondary trade on the stock market, some firms may opt for funding from a venture capital firm. A venture capital firm is a private equity organization that raises money from a small number of high-wealth investors. Venture capital fills a need for investment in unproven, new companies that cannot secure funding from traditional methods like commercial bank loans or public trading. The first venture capital firm, called American Research & Development, came into existence in 1946. In the 1950s and 1960s, venture capital helped in the development of real estate and the oil industry. Now, venture capital is highly influential in the technology industry. Many start-ups fail; therefore, venture capital is an extremely high-risk, high-reward type of investing.

Venture capital firms typically operate by gaining capital commitments from pension funds, corporations, and wealthy individuals. A typical investment for a partner is relatively high, out of reach for the normal investor. Venture capital investments are long term and may not see returns for a number of years. Generally, an investor may hope to see returns on investment in the 7- to 10-year range. Venture capital firms will normally pool funds together to invest in a number of ventures, since success by a small number of these investments can prove very profitable for the venture firm and its partners. Generally, venture funds are specialized in a particular market segment, either by industry or even geographical location. A venture capital firm can be active in the invested company's development. The experience and knowledge gained from the market can be used to help avoid common mistakes made by start-ups.

There are three types of venture investing: seed, early stage, and later stage. Around 60 percent of venture capital goes toward seed investments, which represents investing in an organization before it has an established product or even company. Conversely, later-stage investing is more focused on growing an established company in the final stages of development into an organization that can transition into public financing. If a company has an initial public offering or is purchased through mergers and acquisitions with another organization, the venture capital process ends. Once an organization "goes public," the venture capitalist gains a portion of the profits from the public offering and frequently receives stock options in the organization. If an organization is purchased by another organization, the partners in the venture will gain a portion of the profits.

Most start-ups are not successful. It is estimated that 30 to 40 percent of high-potential U.S. start-ups fail to the extent of liquidating assets and losing investment funds. An even larger amount, between 75 and 95 percent, fail to reach targeted returns on investment. Therefore, the right combination of organization and venture capital firm can be key in increasing chances of success.

A venture capital firm can be attractive as financing for a number of reasons. Many venture capitalists write in conditions where they sit on the board of directors of the given investment, allowing them to actively guide, advise, and connect the organization to necessary business resources. This business acumen and active investment can represent a broader perspective on what it will take for the start-up to succeed. They may combine multiple complementary ventures into one organization to increase chances of success. A venture fund may also wish to instill controlled dispersion of financing in order to guide the organization through growth phases; this provides protection for the given investment and also incentivizes certain growth initiatives. Some notable venture firms include newer market entrants Andreessen Horowitz and Google Ventures, who have funded projects such as Uber, Facebook, Airbnb, and Twitter. Other established firms such as Kleiner Perkins Caufield & Byers and Sequoia Capital have invested in PayPal, Google, Instagram, Amazon, and Snapchat.

One of the recent developments in venture funding was the creation of crowdsourcing. Crowdsourcing is where a large number of public investors can commit money to help develop an organization. However, the advantage of venture capital is that it frequently comes with years of business experience and advice. Furthermore, having a few active, knowledgeable investors can often make the difference in successfully incubating a new firm. Recent trends in the venture capital environment have also seen the number of venture capital firms continue to rise. Previous successes and increased social media attention have made start-ups more visible than ever. As a result, competition over who gets to fund these ventures has greatly increased in recent years. Furthermore, there has been expansion in the amount of corporate investments in start-ups with an eye to future collaborations or partnerships. This represents a change from previous venture investments coming mainly from pension funds and before that wealthy individuals (Calhoun 2016). Many of the major venture firms are looking for larger commitments in terms of capital from both investors and in what the organization will require in funds. This leaves room for smaller start-ups and their needs for private financing from either individuals, crowdsourcing, or emerging venture firms.

Daniel S. Talwar

See also: Markets; *Vol. 1: Foundations of Economics:* Capitalism; Entrepreneurship; Market Capitalism

Further Reading

Calhoun, Lisa. 2016. 10 growing trends in venture capital for 2016. www.inc.com/lisa-calhoun/10-big-venture-capital-trends-to-watch-in-2016.html (accessed January 30, 2016).

Florida, Richard, and Martin Kenney. 1988. Venture capital and high technology entrepreneurship. *Journal of Business Venturing* 3: 301–19. http://www.creativeclass.com/rfcgdb/articles/38%20Venture_Capital_and_High_Technology_Entrepreneurship.pdf (accessed January 30, 2016).

Gage, Deborah. 2012. The venture capital secret: 3 out of 4 start-ups fail. *Wall Street Journal*. www.wsj.com/articles/SB10000872396390443720204578004980476429190?cb=logged0.780045022983336 (accessed January 30, 2016).

Madhavan, Ravi, and Akie Iriyama. 2009. Understanding global flows of venture capital: Human networks as the "carrier wave" of globalization. *Journal of International Business Studies* 40 (8): 1241–59. http://www.jstor.org/stable/27752445 (accessed January 30, 2016).

Mishkin, Frederic S., and Stanley G. Eakins. 2012. *Financial markets & institutions*, 7th ed. Boston: Prentice Hall.

Newman, Kira M. 2015. The 25 top VC firms. tech.co/top-vc-firms-to-pitch-your-startup-to-2015-02 (accessed January 30, 2016).

Zider, Bob. 1998. How venture capital works. *Harvard Business Review*. hbr.org/1998/11/how-venture-capital-works (accessed January 30, 2016).

W

WALRAS, LEON

Born: December 16, 1834, in Evreux, France; Died: January 5, 1910, in Claren, Switzerland; Nationality: French; Professional Interests: equilibrium theory, quantitative economics; Major Work: *Elements of Pure Economics* (1874, 1877).

Leon Walras greatly contributed to economic thought by introducing what we call today general equilibrium theory. Walras explained how the economy fits together with many goods using mathematical modeling. His seminal work was published in 1874 and 1877: *Elements of Pure Economics*. He is also credited as one of the founders of the "marginal revolution," developing the idea of marginal utility and the Lausanne School of economics. Walras died in 1910.

Marie-Esprit-Leon Walras (pronounced Valrasse) was born on December 16, 1834, in Evreux, France. His father, Auguste Walras, was a proto-marginalist economist and schoolteacher who encouraged his son to study mathematics. Walras was heavily influenced by his father's socialist views regarding taxation and land reform. The senior Walras particularly influenced his son regarding the application of mathematics to economics. Augustin Cournot, a friend of Walras's father, also influenced the young Walras.

As a young man, Walras was enrolled in the Paris School of Mines to study engineering. Not content with engineering, Walras worked in banking and journalism. He was a published romance novelist and a railway clerk. However, when Walras finally turned to economics, he experienced professional pleasures he had never before felt from his previous endeavors. He had found his professional calling. In 1870, Leon Walras was appointed to the Academy of Lausanne in Switzerland. This was his first and only academic appointment.

The dominant economic thinking of the time was centered in Great Britain and published works in English. Walras's work *Elements of Pure Economics* (in French), published in 1874 and 1877, was largely ignored because he wrote in French and was in Switzerland at the Academy of Lausanne training lawyers. He founded the Lausanne School of economics with the help and support of Vilfredo Pareto.

In what we call today general equilibrium theory, Walras devised a mathematical model using simultaneous equations to describe an entire economy. He attempted to show how an entire economy fits together, leading to equilibrium. In his model there was an equation for each unknown leading to an equilibrium price and quantity for each commodity. Through his system of equations, a unique price and quantity was hypothesized (determined) for each good in the economy.

Although he was not successful in showing how the economy fit together, he is considered the founder of general equilibrium theory. The system of equations developed by Walras led to the idea that if all the markets of an economic system are in equilibrium, the economic system as a whole must be in equilibrium.

Walras made a major contribution to the concept of marginal utility. Marginal utility is the study of the change in consumer satisfaction that results from adding (or subtracting) one more unit of a good or service. Marginal analysis is also used to determine the results of adding (or subtracting) one more unit of a productive resource (land, labor, or capital) in the production process. Walras's study of marginal utility came three years after William Stanley Jevons and Carl Menger described the same theory. Walras had developed the idea of marginal utility in complete isolation while in Switzerland. Yet along with Jevons and Menger, today he is considered one of the pioneers of the marginal economic way of thinking.

Walras retired in 1892, at the age of 58, very disillusioned by the neglect of his work. Walras's legacy to the world is the transformation of economics to a mathematical-based discipline from its literacy roots. He explained how all markets are interrelated and that relationships between variables (e.g., commodities) can be described and analyzed mathematically.

Later in Walras's life, with his health failing, he attempted to enlarge on his writings in *Elements*. In 1896, he wrote *Social Economics* and *Studies in Applied Economics*. Walras himself considered these along with *Elements* as one integrated series devoted to his general equilibrium theory models. However, the academic world of economists rejected his final two works as substandard. Some economists even regarded them as a political statement for socialism.

Joseph Schumpeter hailed Leon Walras as one of the greatest of all economists for his equations in *Elements*. Walras has been claimed to be the third-most-read 19th-century economist, behind David Ricardo and Karl Marx.

Leon Walras died on January 5, 1910, in Claren, Switzerland, having spent his last years living with loneliness and dementia.

Martha R. Rowland

See also: Jevons, William Stanley; Microeconomics; Pareto, Vilfredo; Stigler, George; *Vol. 1: Foundations of Economics:* Marginal Analysis; Menger, Carl; Schumpeter, Joseph

Further Reading

Blaug, Mark. 1986. *Great economists before Keynes.* Atlantic Highlands, NJ: Humanities Press International.

Schumpeter, Joseph, and Elizabeth Schumpeter Boody. 1994. *History of economic analysis*, ed. Elizabeth Schumpeter Boody. Oxford, UK: Oxford Univ. Press.

Stigler, George J. 1941 (1994). *Production and distribution theories.* New York: Macmillan.

Walras, Leon. 1874. *Elements of pure economics.* Lausanne, CH: L. Corbaz & Cie.

Walras, Leon. 1954. *Elements of pure economics.* Translated and annotated by William Jaffe. London: Allen & Unwin.

WATER CONSERVATION

Water conservation has subjective meanings: some define it as an unmitigated good—that is, a reduction in water loss, waste, or use. Others define it as a reduction in measured water use, which may, if forced, actually reduce utility. A third group will note that measured water conservation in one place may increase water use on an unmeasured margin; for example, the conserved yield from lining an earth canal may be used to irrigate golf courses when it formerly recharged aquifers. Regardless of the definition, water conservation can be encouraged with price or nonprice instruments. Price increases reduce quantity demanded; nonprice instruments can shift the demand curve.

Water prices are more often directed at cost recovery than water conservation. They vary with location and use. A farmer pays one price to receive water from an irrigation ditch; a family pays a different price to receive drinking water at its tap; an organization might pay a variety of prices to buy water that is then left to flow in-stream for environmental purposes. Prices may be found in an auction, determined by the average cost of utility service, or set through an administrative procedure. An increase in price often results in a reduction in quantity demanded, but the elasticity of this response varies with the price level, use of water, availability of substitutes, and incidence of water prices (i.e., who actually bears their burden). Incidence results from political or regulatory decisions to use block prices, social tariffs, sectorial cross-subsidies, regulatory exemptions, and other adjustments. These adjustments target particular goals, but they also distort consumption decisions and conservation investments.

Suppose for simplicity that it costs $1 to receive one cubic meter of drinking water (265 gallons), a number that is close to $3 per ccf (hundred cubic feet of water, or 748 gallons). Wholesale water buyers usually pay far less for water (e.g., $100 for 1 million liters, or 0.81 acre foot) because the water is neither suitable for drinking nor typically pressurized for 24/7 delivery through a distribution system.

A 20 percent price increase, from $1.00 to $1.20 per cubic meter, may be too low for retail users to notice. The same percentage increase may produce a noticeable response from a farmer who can pump his own groundwater or no response from a farmer who needs water to finish his crop.

These responses can be attributed to sliding up a demand curve to a point of lower quantity demanded. A direct increase in water conservation (a decrease in water consumption) results from shifting the demand curve inward. Shifts occur, all else being equal, from changes in income, technology, or taste. Most of these are beyond the control of the utility. Higher income increases direct and indirect water demand via respective increases in irrigated landscaping or meat consumption; environmental awareness reduces demand by lowering consumption of all resources. Utilities can encourage inward shifts by subsidizing replacement of water-intensive appliances or landscaping; "education" on the value of water can lead people to shut off faucets while brushing their teeth. Utilities can reinforce changes in taste by ensuring that water prices are high enough to remind consumers of its scarcity. Note that the net conservation impact of each response is affected by offsetting forces. A low-flush toilet may take two flushes to clear the toilet bowl. Low-flow showerheads may lead people to shower more to remove soap or merely enjoy their virtue. Others may wash their car more often. These responses will not be easy to predict in cases where people lack a water meter or do not receive feedback on their water use very often, due to our psychological tendency to put more weight on virtuous acts and less weight on vices.

Water meters, in fact, improve water conservation by making volumetric pricing relevant (nonzero price elasticity) and triggering a behavioral response to measurement of use. Smart water meters that deliver consumption data on short intervals inside one's house strengthen this response by increasing the frequency with which price signals are received and behavior is noted. They also make it easier to spot leaks and change prices in response to surges or drops in demand.

It is possible to promote water conservation without meters by mandating the installation of high-efficiency appliances, banning outdoor watering, or educating people to use less, but these command-and-control methods are less efficient than meters. A higher price for metered water will reduce use; a mandated low-flow showerhead in the guest bathroom does little. That said, meters might not be efficient where the opportunity cost of water use or price of water is low relative to the cost of installing meters. In those circumstances, it makes sense to ignore water use or rely on nonprice mechanisms, respectively. A master meter on a multifamily building and some neighborly coercion may be more efficient than meters on each apartment.

Rebound effects can be even stronger with wholesale or bulk water consumption. Farmers who install drip irrigation systems often divert conserved water to other crops or other land parcels (Ward and Pulido-Velazquez 2008). Such diversions must be put into the proper context. For example, dividing off-stream use into consumed water, nonconsumed recoverable water, and nonconsumed, nonrecoverable water will clarify that consumed water reductions may be beneficial while reductions in recoverable water that reduce return flows thereby impairing the rights of downstream users may not be. Meters that reduce diversions at the trunk canal give farmers an incentive to minimize or eliminate tailwater flows that previously percolated into groundwater or flowed downstream to neighbors and ecosystems. Meters or higher prices for thermoelectric or industrial users can make it cost-effective to invest in recirculating cooling systems or closed-loop processes.

These investments may not be socially efficient if they are exceptions to an otherwise lax attitude to conservation (in a service area or watershed where industry shares water with urban and agricultural users) for two reasons. First, conservation investments may conserve water at a high cost per unit. Second, investments may crowd out or distort substitutions to or from labor, energy, capital, and other resources.

People often want examples of successes and failures in water conservation. Las Vegas is a notable failure, not because of its program to subsidize lawn removal (and thus reduce water used for outdoor irrigation), but because it charges one of the lowest prices for water in the western United States (about $0.30 per cubic meter) at the same time as the threat of imminent water shortage is used as a justification to spend $800 million to bore a deeper third straw intake into Lake

Mead. For examples of successes, consider how Australians dramatically reduced their water consumption mostly through demand reduction in the middle of their 10-year drought, or how water managers in Santa Barbara used a combination of very steep prices and public awareness to reduce demand by 50 percent in the middle of their 1987–1991 drought; demand returned to 60 percent of predrought levels when water supplies returned and prices were reduced.

David Zetland

See also: Brownfields; Demand; Jevons, William Stanley; Regulation; Supply; *Vol. 1: Foundations of Economics:* Natural Resource Economics; *Vol. 2: Macroeconomics:* Public Goods

Further Reading

Brean, H. 2012. Worker killed, another injured at Lake Mead third intake construction site. *Las Vegas Review Journal* (June 11). http://www.reviewjournal.com/news/las-vegas/worker-killed-another-injured-lake-mead-third-intake-construction-site (accessed September 30, 2016).

Loaiciga, H. A., and S. Renehan. 1997. Municipal water use and water rates driven by severe drought: A case study. *Journal of the American Water Resources Association* 33: 1313–26.

Ward, F. A., and M. Pulido-Velazquez. 2008. Water conservation in irrigation can increase water use. *Proceedings of the National Academy of Sciences* 105 (47): 18215–20.

Zetland, David. 2011. *The end of abundance: Economic solutions to water scarcity*. Mission Viejo, CA: Aguanomics Press.

WELFARE AND EQUITY

Welfare in economics means either the well-being of individuals or the aggregation of individual welfare into the well-being of society. One of the great philosophical questions, and a question of everyday political importance, is whether a society's welfare will be improved following a reallocation of resources. This question appears regularly: Is society better off by switching energy production methods; by educating more people; by putting more criminals in jail? The question can also be asked in hindsight (retrospectively): Were we made better off by an action? Economics has reached a carefully qualified answer in theory and applies practical methods that are severely limited versions of that theory through benefit-cost analysis. It is the problem of a bridge between welfare and a sense of fairness or equity, which is unresolved by more exactly answering the question of social welfare.

What economists call efficiency is maximizing the welfare of society when it is assumed that such welfare depends on the sum (a very specific form of aggregation) of the welfare of individuals who only care about themselves. Society views each of these individuals as equally important. Economists further assume that each person receives the same additional welfare from added income. The result is that applied welfare analysis, called benefit-cost analysis, generally adds benefits or subtracts costs from affected individuals regardless of their position or characteristics within the society, especially, but not limited to, their income status.

While the default social welfare analysis based on the earlier assumptions is transparent to those knowledgeable of these assumptions, it may give undue credence to a result said to be efficient when these assumptions are not generally viewed as being globally accepted. In addition, the well-known Arrow impossibility theorem establishes that an aggregate social welfare function cannot exist without violating seemingly reasonable criteria.

These assumptions may not be so burdensome if perfectly competitive markets are universal. Generations of economists have learned the first welfare theorem of economics, that a society with perfectly competitive markets will achieve an efficient social outcome. However, the confounding (and somewhat more restrictive) second welfare theorem of economics states that a completely different but still efficient market outcome can result if there is a change in the distribution of income. Thus efficiency, the well-being of a society, is not uniquely determined without consideration of the distribution of income.

The many sources of market failure, such as externalities, imperfect competition, and incomplete markets with uncertainty, removes the presumption that even a market-based society begins at an efficient point. Further, it would be convenient if policy proposals were of the win-win type; in this case, it is clear that society would be better off taking the action (called a Pareto improvement in honor of Vilfredo Pareto, the economist who first formalized the criterion). The problem results when virtually all changes involve both some winners and losers. If the winners fully compensated the losers, then the win-lose problem is changed into a win-win problem. In the absence of such compensation, a potential for compensation may exist, but uncompensated outcomes with both winners and losers may not qualify as a clear improvement.

The default approach taken in benefit-cost analysis is termed the (Kaldor-Hicks) potential compensation criteria. In effect, analysts state that society's welfare is improved if the winners could potentially compensate the losers, although such compensation is not required. Hence a policy that benefits the rich at the expense of the poor could be assessed as efficient.

If social welfare is assessed using a transparent but likely incorrect set of assumptions, assuming equal social welfare and equal marginal utility of income across individuals, how can equity concerns be integrated into applied welfare analysis? Several supplemental analyses to basic welfare analysis have been advanced, and new approaches are being investigated.

A supplemental analysis can be done for a subgroup of concern. The subgroup might be disadvantaged youths receiving training in an employment program, those people below some income level, a minority, the government, or the residents of a smaller area such as a state or locality. Analysis can reveal whether the identified subgroup appears to gain or lose from an action, and a decision-maker can choose whether or how to take such a result into consideration regarding a project. Further, legal constraints or policies may suggest that some group should not be made worse off as the result of a policy action. A subjective, but explicit, weighting can be applied to the gains or losses of identified subgroups. The most common application is to weight gains or losses received by different income groups according to assumptions about the incremental utility (satisfaction) from income.

The U.S. Census Bureau reports poverty information by weighting information using such Atkinson weights, which imply a ratio, such as 2:1 or 4:1, between those in low- or high-income groups. The World Bank and the U.K. government have supported weighting approaches at various times. Alternative weighting approaches such as those based on relative marginal tax rates, relative income, or more complex measures such as the Lorenz curve have been suggested. New analysis is pursuing the concept that equity is a value some individuals place on the well-being of others, which should not be treated any differently than other values included in a welfare analysis. There are theoretical complications as to whether double counting may occur when preferences are of a particular form, but survey research is beginning to investigate and quantify the monetary value people place on the well-being of others. General equilibrium or multimarket analysis, as has been carried out in regard to allocating the legal right to emit pollution, has also indicated a fairly direct trade-off between efficiency and equity when property rights are being allocated.

Few topics divide analysts as much as does the debate about the separation of efficiency and equity, the equity assumptions of benefit-cost analysis, and methods to integrate equity into an analysis.

Scott Farrow

See also: Arrow, Kenneth; Pareto, Alfredo; Pareto Optimality; *Vol. 1: Foundations of Economics:* Cost-Benefit Analysis; Welfare Economics

Further Reading

Farrow, Scott. 2011. Incorporating equity in regulatory and benefit-cost analysis using risk based preferences. *Risk Analysis* 31 (6): 902–07.

Foster, J., and A. Sen. 1997. On economic inequality after a quarter century. In *On Economic Inequality, Expanded Edition*, ed. A. Sen. Oxford, UK: Clarendon/Oxford Press.

Harberger, Arnold. 1978. On the use of distributional weights in social cost-benefit analysis. *Journal of Political Economy* 86 (2:2): S87–S120.

Lave, Lester. 1996. Benefit-cost analysis: Do the benefits exceed the costs? In *Risks, Costs, and Lives Saved*, ed. R. Hahn. Cambridge, UK: Cambridge Univ. Press.

Loomis, John. 2011. Incorporating distributional issues into benefit cost analysis: Why, how, and two empirical examples using non-market valuation. *Journal of Benefit-Cost Analysis* 2 (1): Article 5.

Scarborough, Helen, and Jeff Bennett. 2012. *Cost-benefit analysis and distributional preferences: A choice modeling approach*. Cheltenham, UK: Edward Elgar.

WEST COAST HOTEL CO. V. PARRISH

The Great Depression set the stage for the *West Coast Hotel Co. v. Parrish*, 300 U.S. 379 (1937), case in 1937. The specific circumstances of the case involve the constitutionality of minimum wage laws. The case served as an early example of a shift in thought regarding the role of government in the economy from the traditional laissez faire (an economic environment where transactions are free from government intervention) to more active participation (e.g., Roosevelt's New Deal legislation).

In a broader social view, this case was about women as socioeconomically disadvantaged workers; the responsibility of businesses to adhere to wages that allow people to meet basic living demands; the extent to which the U.S. Constitution guarantees individuals freedom of contract (the liberty to contract with another without government restrictions); and the appearance of political manipulation of the Supreme Court by the president to realign review powers safeguarding New Deal policies.

Case Summary

The West Coast Hotel Company owned the Cascadian Hotel in Wenatchee, Washington, where Elsie Parrish and her husband were employed in 1933. Elsie Parrish was paid a weekly wage of $12 for 48 hours of cleaning hotel rooms. A couple of decades earlier, in 1913, the state of Washington had passed an act establishing working standards for businesses hiring women and minors. The particular vulnerability of women to be potentially exploited by employers was deemed by the Washington State Legislature as meriting legal protection.

The 1913 act established the state-based Industrial Welfare Commission to set minimum standards for working conditions, hours, and wages. A minimum wage of $14.50 for 48 hours of work was stipulated in the law. Washington was not the only state to pass such legislation. New York, Washington, D.C., and others had also passed similar minimum wage standards for women. Elsie Parrish requested compensation in the amount of $216.96. This accrued amount was the difference in wages actually paid to her and what should have been paid to her during her employment from 1933 to 1935, according to the state minimum wage statutes.

The West Coast Hotel Company did not adhere to these state standards on the grounds that the standards infringed upon its freedom of contract as an employer and were oppressive to its business operations. Elsie Parrish sued the West Coast Hotel Company in Washington's Chelan County Superior Court. Judge Parr heard the case and ruled in favor of the respondent, West Coast Hotel. The court held that minimum wage legislation for women was an unconstitutional infringement on the freedom of contract, as protected by the due process clause of the Fifth Amendment to the U.S. Constitution, which limits the power of the federal government. The judge stated that the Supreme Court's ruling in *Adkins v. Children's Hospital* (1923) had established that minimum wage laws for women were unconstitutional. The *Adkins* case involved a Washington, D.C., statute regarding minimum wage for women and was, according to Judge Parr, appropriate to this case as well. Elsie Parrish appealed her case to the Washington State Supreme Court, which upheld the legislature's statute supporting minimum wage for women and declared that *Adkins* was not applicable in the case of Washington's law. West Coast Hotel Company appealed its case to the U.S. Supreme Court and in 1936 was granted certiorari (a writ to the lower court to send the case for review). The question for the Supreme Court was whether or not to overrule *Adkins*.

The following events happened to coincide with these legal proceedings and should be noted due to the contribution they made to the lasting significance of this case. In November 1936, Franklin Roosevelt was reelected president. Roosevelt's New Deal policy continued, though several programs were struck down by the Supreme Court as unconstitutional. Subsequently, President Roosevelt submitted to Congress a proposal for legislation to add one federal judge for every federal judge over the age of 70, which would allow the president to add six justices of his political ideology to the Supreme Court. This would change the composition of the Supreme Court from 9 justices to 15, gaining a majority of New Deal like-mindedness on the Court. This proposal was announced on December 19, 1936. Of the nine justices on the Supreme Court who heard this case, four were over 70 years old and voted against President Roosevelt's New Deal policies (Justices Sutherland, Van Devanter, Butler, and McReynolds). In addition, Justice Owen Roberts voted with these four conservative justices, constituting a conservative majority that determined much of President Roosevelt's New Deal legislation unconstitutional.

The Supreme Court heard the arguments in *West Coast Hotel Co. v. Parrish* on December 16, 1936, and announced the opinion of the Court in March 1937. Justice Roberts, who prior to this case voted in favor of *Adkins*, changed his vote to the opposite opinion, leaving the four older justices in the dissenting opinion. The dissenting opinion affirmed the *Adkins* case, using the argument that freedom of contract made minimum wage laws unconstitutional. The majority opinion was written by Chief Justice Hughes, who included the current conditions of the economy as a reason to revisit *Adkins*. Thus he gave insight into the capacity of the Constitution to adapt to changing times, which was a clear indication of a change in judicial philosophy. In addition, the majority argued that minimum wage laws for women were not arbitrary, due to the fact that denial of a living wage cast a direct burden for their support on the community and harmed the general welfare. The Court also distinguished the fact that the Constitution did not speak of freedom of contract; rather, it spoke of freedom only in the context of liberty, which is not absolute and uncontrollable. Within the context of a society, liberty is safeguarded, but these limitations to individual liberty are what allow a government to enact laws to protect the general welfare. The Court also noted that due to practical realities, employers and employees did not share equal freedom in negotiating contracts.

The Supreme Court overruled the *Adkins* case and the judgment of the Supreme Court of the state of Washington was affirmed. This case had enduring significance in that it gave a green light to states to pass minimum wage laws. Furthermore, it opened the floodgates to other New Deal legislation. Two weeks later, the Supreme Court upheld the National Labor Relations Act of 1935 (Wagner Act), and six weeks later, the Social Security Act, which gave the appearance of a simultaneous change of judicial ideology coinciding with Roosevelt's plan to add six federal judges to the Supreme Court who agreed with his New Deal philosophy.

Whether or not President Roosevelt's idea to stack the court with judges who favored his New Deal politics affected the decision of Justice Roberts is unclear. After the *West Coast Hotel Co. v. Parrish* decision, President Roosevelt's plan to add federal judges lost steam. However, Roosevelt encouraged the justices who were 70 years old and older to take advantage of the Judiciary Act of 1869, where Congress voted to fund pensions for retiring judges at their full salary. Whatever conclusions may be drawn from these coincidental events, the fact remains that after this case, there was a marked change in Supreme Court majority opinions from a conservative judicial philosophy to increased government regulation and participation in the economy and no increase in the number of judges on the Supreme Court.

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See also: *Vol. 1: Foundations of Economics:* New Deal; Roosevelt, Franklin D.; Supreme Court; *Vol. 2: Macroeconomics:* National Labor Relations Act of 1935; Social Security Act of 1935; *Primary Documents:* National Labor Relations Act of 1935; Social Security Act of 1935

Further Reading

Cornell University Law School, Legal Information Institute. n.d. *West Coast Hotel Co. v. Parrish (No. 293)* 185 Wash. 581; 55 P.2d 1083, affirmed. http://www.law.cornell.edu/supct/html/historics/USSC_CR_0300_0379_ZS.html.

WHALE OIL SHORTAGE: THE FIRST ENERGY CRISIS, 1850

From 1760 to 1860, whale oil was America's main energy source for lighting and lubrication. Its use started with the production of spermaceti candles in the 1750s, which were known for their superior lighting. Spermaceti is waxy oil found only in the heads of sperm whales. The clear white light produced by these candles would become the standard of light measurement in the unit known as a *lumen*. A lower-grade, less-expensive oil, known as *whale oil*, was made by boiling blubber from baleen and bowhead whales. Whale oil was the most popular in lamps for homes. It was also used to lubricate machines and make soap. Sperm whale blubber produced a higher grade of oil that found key applications in lighthouses, street lamps, and public buildings because of its stronger lighting characteristics. Sperm oil was also the superior lubricant.

By 1850, whale oil and sperm oil were necessities for a growing United States. In fact, the world had become dependent on whale oil for lighting and lubrication. The appetite for oil forced whalers to search the world's seas for more whales. As the searches extended, the price of whale oil went from $0.30 a half gallon in 1831 to $0.63 in 1843 to its peak of $1.92 a half gallon in 1854. The rising prices and concerns about shortages of whale oil created what many have called America's first energy crisis.

By the early 1800s, whaling had become one of America's largest industries. The industry was centered in New Bedford, Massachusetts. Of the more than 700 whaling ships around the world in 1840, about 400 considered New Bedford their home port. The Americans overtook the British in whaling by building ships that could manufacture oil while on the water versus bringing the blubber back to port.

An American whaling ship was a floating factory that caught whales and boiled blubber into oil. Whalebone was also harvested and modified to be used as springs and needles.

The better design and efficiency of American whalers had given them dominance in the world market by the 1840s. Whalers could produce 25 to 45 barrels of oil per whale depending on the type; sperm whales had the highest dollar yield. Just as whaling was in its golden years in the late 1840s, many doomsayers started to talk about whales being hunted to extinction. Such fears clearly added to the rapid rise in price. The cost of the oil was also increasing because whalers were literally spending years at sea to bring the precious oil to port. Demand was also increasing because of population growth, industrialization, and the growth of cities.

The rise in whale oil prices and fear of future supply shortages created a search for alternatives. Oil from lard, linseed oil, alcohol, and coal all entered the market but at higher prices. The prediction of whale extinctions would be proven wrong but helped fuel investment in alternative energy sources. In the 1850s, experiments in coal distillation produced cheaper oil but only in limited amounts. One source was rock oil, which seeped out of the ground in Pennsylvania and sold for $0.50 a half pint as a medicine for tuberculosis and other ailments. At the time it was known as Seneca oil because the local Seneca Indians had long used it as a medicine. Pennsylvania distillers experimented with the rock oil, producing a lighter oil called kerosene.

The double distillation process of producing kerosene became a matter of speculative investment, and many of the investors were from New England. The lighter oil (kerosene or "illuminating oil") could be used to replace whale oil in lamps. The discovery was very timely, as whale hunting could not keep up with the demand for whale oil. Even so, these early kerosene stills could only produce about three to four gallons a day. In 1854, Samuel Kier improved the distillation process by opening up a Pittsburgh refinery at Seventh and Grant Street, the present location of the United States Steel Building. The refinery was considered the first in the Western Hemisphere and had a capacity of six barrels a day. Kier had expanded capacity to 15 gallons a day by 1857. Illuminating oil sold for $1.50 a gallon (the equivalent of about $40 today) versus $2.50 a gallon for whale oil. One early and small investor, Andrew Carnegie, would make his first fortune in this Pittsburgh oil refinery.

Petroleum-based kerosene now had a price advantage over whale oil, but a day's production was about that of the oil from a single whale. Investors, however, lined up to invest in new petroleum technology. All the crude oil Samuel Kier was getting was as a by-product of salt mining. The market for lamp oil seemed limitless. Kier had created demand and incentive for profit, which spurred exploration and technology. The abundance of oil in the woods north of Pittsburgh was a well-known fact, but a method was needed to increase the volume of its production.

That method came from the drilling operation of Edwin Drake in Titusville, Pennsylvania, in 1857. This new source of crude oil was followed by improvements in refining technology. The first real commercial refinery with extensive condensing equipment and chemical treatment capabilities was built in 1861. Though the capacity was 250 barrels of oil a day, this still was only a small amount of the total lamp oil market. The price differential favored kerosene, but it would take another decade for kerosene to fully overtake whale oil.

The American whaling industry saw the handwriting on the wall and downsized quickly. The real reason for the decline of the whaling industry was the high cost of hunting whales, not the shortage of whales. The demand for whale oil continued; wealthier consumers preferred the brighter light of whale oil. It was still favored for many years as a lubricant and was even used by Henry Ford in Model T transmissions. Whale oil also found a niche as cooking oil.

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See also: Market Risk; Markets; *Vol. 4: Global Economics:* Arab Oil Embargo Crisis, 1973

Further Reading

Davis, Lance E., Robert E. Gallman, and Teresa D. Hutchins. 1988. The decline of U.S. whaling: Was the stock of whales running out? *Business History Review* 62 (4, Winter): 129–40.

Skrabec, Quentin R. 2010. *The world's wealthiest neighborhood: How Pittsburgh's East Enders forged American industry*. New York: Algora Publishing.

WILDCAT BANKING

Wildcat banking, also known as free banking, was the practice of state-chartered banks operating without U.S. federal government oversight from 1836 to 1863. The defining characteristic of this period was the establishment of banks in remote places that were not readily accessible. This made it difficult for note holders to redeem their savings. These banks often issued notes without a federal bank and issued their own currencies without adequate security, which led to many cases in which note holders lost their savings.

The period of wildcat banking began when the federal charter for the Second National Bank of the United States was allowed to expire in 1836. In the absence of a national direction in banking, states began regulating banks themselves. This created a variety of standards for factors like minimum capital requirements to open and the process of opening banks. This continued until the National Bank Act of 1863 reestablished national banks, bringing some state-run banks under federal control.

Under state laws dictating the procedures and requirements for chartering banks after federal regulations expired in 1836, banks in less-regulated states opened with less bureaucratic oversight, including a lower minimum amount of capital and fewer restrictions on factors like location. This led many financiers to establish banks without sufficient levels of capital. To discourage redemption, these banks were often opened in places that were far away from population centers and difficult to access. Over almost three decades of free banking, many banks established under state regulation closed, often due to default.

This turnover caused great hardship for note holders. Note holders first had to contend with the unreasonable locations in which many banks opened. This made accessing savings much more difficult, decreasing frequency of withdrawal.

When savers did arrive to make withdrawals in states that facilitated free banking, the possibility of their bank having failed was much higher than under stable national rules. State regulations first adjusted factors like the reserve requirement, decreasing the amount of capital that banks had to maintain as they loaned out their clients' savings. Having less cash on hand at any time magnified the risk of being unable to fulfill savers' requests to withdraw their assets. This often led to "bank runs" in which economic scares would lead many people to try and withdraw their savings at the same time, often unsuccessfully. The banks made riskier investments than typically allowed under federal regulations. Thus, the risk of borrowers defaulting (being unable to return note holders' money to the banks) also increased.

Many banks failed, losing their clients' entire savings. Decades of such monetary uncertainty and bank failure led to pressure for the reestablishment of oversight. Finally, Congress passed the National Bank Act of 1863. This act established a single national currency to replace the multitude of state currencies and created some national banks. The next year, this act was superseded by the National Banking Act of 1864, further increasing national regulation of banks by removing all state control in banking. The second act removed states from the business of chartering banks altogether. Upon passage, it became the responsibility of only the federal government to issue bank charters. This standardized the regulations to establish new banks. To accelerate the implementation of these changes, over 1,500 state banks were converted to national banks, providing immediate stability to the nation's banking climate.

The era of free banking lasted through many turbulent times, including the beginning of the Civil War. The lack of consistency and deregulation of many banks during the era of free banking served to amplify the need for federal regulation. When decades of banking futility led Congress to act, the return to a national currency standard and the reestablishment of national banks helped resolve this instability. This served not only the interests of private savers but also of the U.S. government as it sought to finance and later recover from the Civil War. Ultimately, many tenets of the National Bank Acts of 1863 and 1864 have grown into today's banking laws, including the presence of national banks and federal control of currency production.

Adam Vallus

See also: *Vol. 1: Foundations of Economics:* Banking; *Vol. 2: Macroeconomics:* National Bank Act of 1863; *Primary Document:* National Bank Act of 1863

Further Reading

Dowd, Kevin. 2013. *Laissez faire banking*. London: Routledge.

Dwyer, Gerald P. Jr. 1996. Wildcat banking, banking panics, and free banking in the United States. *Federal Reserve Bank of Atlanta Economic Review* 81 (December): 1–20.

Investopedia. n.d. Wildcat banking. http://www.investopedia.com/terms/w/wildcat-banking.asp (accessed March 1, 2015).

Schweikart, Larry. 1987. *Banking in the American South from the age of Jackson to Reconstruction*. Baton Rouge: Louisiana State Univ. Press, 169–70.

Shaffer, Daniel S. 2005. *Profiting in economic storms*. Hoboken, NJ: Wiley & Sons, 102.

Y

YIELD CURVE AND ITS ROLE

The yield curve is a graph that plots time from shortest to longest maturity date on the horizontal axis and yield on the vertical axis. It is used to show the relationship between yield and maturity. In particular, the yield curve works best when different maturity dates are plotted for the same type of bond; this displays that the major difference in the securities is their maturity date. For example, a yield curve could plot maturities and the corresponding yields for treasury bonds, corporate bonds with high credit ratings, municipal bonds, or any other type of bond. Thus, by comparing the yield of bonds that are similar, but with different maturities, economists can generate a graph that shows how yields change as the maturity date lengthens.

Moreover, there are several different types of yield curves, all with different meanings. For example, a normal yield curve is upward sloping and shows that a bond with a longer maturity pays a higher yield than the same bond with a shorter maturity. This slope pattern tends to be the normal situation because generally speaking, individuals and institutions lend money for shorter rather than longer periods of time. The risk that the lender will need the funds, or the borrower will be unable to pay, increases with time. In other words, the longer the term of the loan or bond, the greater the chance of an unforeseen event happening. To compensate for the risk associated with lending money for longer periods of time, lenders generally demand a higher rate of interest.

Another type of yield curve is the steep yield curve. This curve signals that investors are expecting interest rates to rise in the future, thus they are going to demand a higher rate of return when buying longer-term bonds. If longer-term bonds did not pay a higher rate of interest in this situation, investors would simply buy shorter-term bonds with the expectation that when the bonds mature, they could obtain a higher return on the next purchase. Oftentimes, when the economy is coming out of a recession, future interest rate expectations will increase. This is due to the fact that during economic recoveries, corporations normally want to borrow more, which increases the demand for money, putting upward pressure on interest rates. This will result in a steep yield curve.

The third type of curve is the flat yield curve. This occurs when yields of all maturities are close to one another, or when inflation expectations have decreased to the point that investors are demanding no premium for borrowing for longer periods of time. When the yield curve moves from normal to flat, it is an indication that the economy will experience a slowdown.

Humped yield curves occur when short- and long-term rates are closer to each other than medium-term rates. This happens when there is either an increase in demand or a decrease in supply for longer-term bonds. For example, say there has been a larger increase in demand for 30-year treasury bonds than 20-year treasury bonds; this would result in the yield curve for treasuries forming a humped shape.

The final type of yield curve is an inverted yield curve, which occurs when longer-term rates are actually lower than short-term interest rates. This is a rare occurrence, but it is one of the surest signs of an economic slowdown on the horizon considering investors anticipate less future demand for money, resulting in lower interest rates.

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See also: Bonds; Interest Rates; *Vol. 1: Foundations of Economics:* Banking; Investing; *Vol. 2: Macroeconomics:* Inflation

Further Reading

Choudhry, Moorad. 2004. *Analyzing and interpreting the yield curve*. Singapore: John Wiley & Sons (Asia).

Kennon, Joshua. n.d. The yield curve. http://beginnersinvest.about.com/lw/Business-Finance/Personal-finance/The-Yield-Curve.htm (accessed March 12, 2016).

Waring, David. n.d. The yield curve: What it is and how it works. LearnBonds. http://learnbonds.com/14545/the-yield-curve/ (accessed March 12, 2016).

YOUNGSTOWN SHEET & TUBE CO. V. SAWYER

In *Youngstown Sheet & Tube Co. v. Sawyer*, 343 U.S. 579 (1952), the executive branch of government, which is constitutionally charged with enforcing the law rather than making it, in effect made policy that tipped the scales in favor of government control of the means of production in the name of national security. The case addressed whether the president of the United States could, by executive order, essentially nationalize an industry in the name of national defense. The Supreme Court upheld the means of production as private property and the relationship between ownership and labor in a market economy.

In a capitalist system, private ownership of the factors of production is a foundational principle. In the case of *Youngstown Sheet & Tube Co. v. Sawyer*, the president of the United States seized operations of a private steel manufacturing company by executive order. For President Truman, the decision came on the heels of the Korean conflict and was essential to keep armaments necessary for national security in production. The police action in Korea was, at worst, a potential World War III, and at best a test of American resolve during the Cold War era. This case is commonly referred to as the Steel Seizure Case, and it begs the question of how much power the federal government has in a free-enterprise system.

In September 1950, Congress passed the Defense Production Act in response to the military involvement in Korea. This act authorized the president to, among other things, requisition property, impose wage and price controls, and settle wage disputes in the course of national defense. Congress did not declare the conflict in

Korea a war. President Truman engaged Secretary of Commerce Charles Sawyer to take authority over the steel industries to avoid a labor strike that, in the president's opinion, would delay production of steel vital to the defense effort. The Steelworkers Union, which was invited to speak at the trial as an *amicus curiae* (friend of the court), had submitted a wage proposal that was met by the steel industry with the demand for a commensurate increase in the price of steel. The president's Wage and Price Stabilization Commission feared the impact this would have on inflation and did not approve the price increase. The extent to which a market economy is free and the degree to which rules defining private property are secure is a matter of politics and public policy. The term *mixed economy* has been used to describe this balance between market forces and governmental power.

Case Summary

In a surprise move by Kim Il Sung in June of 1950, North Korea invaded South Korea. The United Nations voted to condemn this invasion and provide assistance to South Korea. On June 25, 1950, President Harry Truman sent U.S. troops to support the United Nations. There were no congressional measures or wartime controls in place to stabilize the economy at this time, and the nation was experiencing a post–World War II inflationary period. In September 1950, Congress passed the Defense of Production Act. This act had several parts, but in one major section, it authorized the president to requisition property, force industry to expand production, and impose wage and price controls.

The allocation of raw materials to national security was also a part of this legislation. Hence, President Truman created the Wage Stabilization Board in an effort to control prices and avoid inflation. This, however, did not work well with the steel industry. The United Steelworkers Union offered a wage increase that the steel industry rejected. The steel industry's request for higher prices to meet wage increases was rejected as well by the government's Wage Stabilization Board. In response, the union prepared to strike.

The Truman administration believed that this interruption of steel production would jeopardize the strength of the U.S. Navy and Air Force in the current police effort in South Korea and the domestic economy in general. Therefore, on April 8, 1952, he ordered Charles Sawyer, his secretary of commerce, to take possession of and operate most of the nation's steel mills. It was announced on television and radio. The lawyers for the steel industry filed an immediate restraining order (legal barrier to an action) with a U.S. district judge, and the hearing took place the following day.

The motion was denied, and the case was assigned to another district judge, who heard the steel companies' motion for a preliminary injunction (legal stop to an action) and asked the assistant attorney general where the president's authority to seize private property came from; the response was Article II of the Constitution and all the powers implied therein. The plaintiffs began with a persuasive summary of what the constitutional framers had outlined executive power to include and ended with the image of a president overreaching those intentions. An injunction was issued, and thereafter the steelworkers' union began its strike.

The government appealed immediately to a D.C. Circuit Court of Appeals. On April 30, the appellate court held in favor of the government, placing a stay on the action of the district court. Meanwhile the steel companies had already filed and were granted certiorari (request for a lower court to send the records of the case to a higher court) by the Supreme Court.

The case was heard on May 12, 1952. The government pointed to the long record of seizures of private property during wartime, from the Revolutionary War to Lincoln during the Civil War, Wilson during World War I, and Roosevelt during World War II. The steel industry argued that only Congress had the power to enact laws that allowed the seizure of private property. John W. Davis gave an extensive speech on behalf of the steel industry, saying that too much power in the hands of an executive is exactly what the framers wanted to safeguard against when they wrote Article II of the Constitution. Meanwhile, the solicitor general for the Truman administration concluded the respondent's argument by claiming that this was wartime and the president did have the power to seize the mills. Unfortunately, the justices responded with the statement that Congress had in fact not declared war. The Supreme Court heard additional statements from the steelworkers' union and railroad unions.

The court ruled in a surprising 6–3 vote in favor of the steel industry. Justice Black delivered the opinion of the court. He stated that Congress had been informed by the president of the danger a strike would pose on national defense yet chose to take no action, signaling that the legislative branch thought that action was not necessary. Indeed, no action was necessary, due to legislation already in place to handle such national crisis: the Defense Production Act. However, Justice Black continued, the government admitted that it did not meet the conditions necessary in this act for the president to take possession of private property. Justice Black added that the president's power as commander in chief of the armed forces also did not justify such a broad interpretation, whereby military authorities could settle a labor dispute using possession of private property. In conclusion, Justice Black stated that if previous presidents had acted in such a capacity without authority from Congress, it did not discount the fact that only Congress has the vested power to make all laws necessary and proper to carry out the functions of the government. The Supreme Court upheld the judgment of the district court.

Although Justice Black wrote the opinion of the court, each of the justices who voted in the majority wrote individual opinions. Justice Jackson's concurring opinion, frequently referenced by legal scholars, agrees with Justice Black but warns that presidents and judges alike cannot confuse the issue of a power's legitimacy with the grounds it is called upon to endorse, making policies that deal with wages or price stabilization and forgetting that the Constitution established the legislative powers to do just that. Five different concurring opinions contributed to future difficulty in interpreting executive power.

In his dissent, Chief Justice Vinson wrote for all three justices that were not in the majority. He stated that the power of future presidents to act in times of national crisis and military emergency was crucial, and therefore they could not agree with the majority, who in their numbers could agree on the ruling but not on the reasoning. As the last chief justice appointed by a Democratic president (Truman), Fred M. Vinson warned that extraordinary measures were needed when the nation was experiencing extraordinary times, as it was in 1952. In addition, he stated that when Congress approved Truman's defense budget, by funding the president's policies, it had given approval of them for all intents and purposes. To limit the president's power to statutes could endanger the nation and have global effects as well. In contrast, Justice Frankfurter speculated that history does more than teach us nothing; rather, in his concurring opinion he emphasizes the appropriate use of government's use of power within the necessary system of checks and balances. The *Youngstown* case was a check on executive power and a weight on the side of property rights.

Kathleen C. Simmons

See also: *Vol. 1: Foundations of Economics:* Economic Systems; Factors of Production; Market Capitalism; Private Property; Supreme Court; *Vol. 2: Macroeconomics:* Inflation; Labor Uprisings, 1936–1939; Property Rights; Wage and Price Controls, 1971

Further Reading

Adler, David Gray. 2008. *Youngstown Sheet and Tube Co. v. Sawyer (1952): A DocNotes Analysis*. Dallas, TX: Schlager Group.

4LawSchool, the Law School Authority. n.d. *Youngstown Sheet and Tube Co. v. Sawyer* case brief. http://www.4lawschool.com/conlaw/tub.shtml (accessed April 12, 2013).

Justia, U.S. Supreme Court. 1952. *Youngstown Sheet & Tube Co. v. Sawyer, 343 U.S. 579* (1952). Transcript, Justice Black's majority opinion and all concurring and dissenting opinions. http://supreme.justia.com/cases/federal/us/343/579/case.html (accessed September 30, 2016).

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Index

Boldface numbers refer to volume numbers.

Economics

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The Definitive Encyclopedia from Theory to Practice

Volume 4: Global Economics

DAVID A. DIETERLE, EDITOR

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Contents

Volume 3: Microeconomics

Preface

When I was in graduate school a professor described the subject of economics as the "clothesline of life." There were several meanings to his phrase. One, there are many ways to approach the world of economics. Two, economics is a living, breathing discipline we use to play out our lives every day. Economics is part art, part science, part history, and all human behavior. If one digs down into the subjects of life, one will find a component of economics in virtually every subject. Economics surrounds us daily. *Economics: The Definitive Encyclopedia from Theory to Practice* has been created in a way to make economics come alive. Within our four volumes, including the comprehensive glossary, document excerpts, and other appendices, *Economics: The Definitive Encyclopedia from Theory to Practice* explores all corners of economic history, the individuals who gave economics life, the economic events that have shaped our world, and the foundational concepts and ideas that make, define, and sculpt our economic world.

We began this project with several goals. Our first, and most important, was to assemble a comprehensive and varied collection of entries on economic history, personal finance, money and banking, environmental, and behavioral economics, to name a few of the subdisciplines that hang from the "economics clothesline." An extension of that first goal was to provide a comprehensive, readable, one-stop resource for the general reader as well as for students, teachers, and researchers of economics, personal finance, and entrepreneurship.

To do so required assembling a diverse collection of economics material. Contained within the four volumes of the *Definitive Encyclopedia* are the people who laid the groundwork for economics as a science, the historical events upon which economics grew, and the concepts and ideas on which they built their legacy. I strongly believe we have accomplished these goals.

Volume 1, Foundations of Economics, is the "economics clothesline." In Volume 1 we present the people, concepts, history, the events, and places and institutions on which economics is built. It includes basic economic concepts such as opportunity cost and marginal analysis. Also included are the business tycoons who shaped the early U.S. economy, such as Henry Ford and John D. Rockefeller. No book on foundations of economics would be complete without the economists who laid the groundwork for economics such as Adam Smith, John Maynard Keynes, and Friedrich Hayek. Not to be forgotten are the political leaders whose contributions to their respective economies during their lives is still with us today, including U.S. president Ronald Reagan, Great Britain's Margaret Thatcher, and the Soviet Union's Joseph Stalin.

Volume 2, Macroeconomics, is our big picture volume. As the title suggests, Volume 2 focuses on the institutions, people, events, and places that have shaped the roles and responsibilities of the economy as a whole—the macroeconomy. Volume 2 presents the different methods and ways in which economies are measured and also explores government's role in the economy. Macroeconomics is about the institutions that measure our economies, such as the Bureau of Economic Analysis (BEA) or the Bureau of Labor Statistics (BLS). Key political figures such as Winston Churchill and President Franklin D. Roosevelt are featured for their economic contributions to world history.

Volume 3, Microeconomics, takes on markets, prices, and looking at the economy under the proverbial microscope. Volume 3 presents how markets function and the institutions that allow markets to work more efficiently and equitably for both the producer and the consumer. In Volume 3 you will find the concepts, economists, institutions, and historical events along with major market events such as the transitioning of the automobile industry and the economic bubbles, such as the "dot-com" bubble, that have determined the behavior and interaction of producers and consumers in today's modern economy. In Volume 3 we explore subfields such as environmental economics with entries such as "Tragedy of the Commons," "Clean Water Act," and "Clean Air Act," along with other environmental issues. Personal finance is a highlighted subfield in the "Annuity," "Debt Credit Counseling," and "Health Insurance" entries.

Volume 4, Global Economics, is the volume of the future. Volume 4 encapsulates the first three volumes in the context of an ever-growing global economy. Barring a cataclysmic event, today's world will continue to get smaller and smaller, translating into a more global economic community. Volume 4 includes concepts such as "Comparative Advantage" and "Balance of Payments." Volume 4 introduces the reader to the individuals changing the world, such as Muhammad Yunus and his Grameen Bank. As the new rules of a global community take shape to include all of the world's 7 billion inhabitants, at the forefront of those conversations and debates are the global institutions: the International Monetary Fund (IMF) and the World Bank, along with the United Nations.

Of equal value to the teacher, student, and researcher are primary documents in economic history; a list of Nobel laureates in economics; a timeline of economic events; and a glossary. The Primary Documents section includes 27 documents, such as the Tariff Act of 1930 and the Financial Reform Act of 2010, better known as the Dodd-Frank Act. The *Definitive Encyclopedia* would not be complete without highlighting some of the most important documents that have shaped the economic landscape of the United States. The Appendix of Nobel laureates highlights those individuals who have changed the course of economics. The Timeline presents key events in the global economy from 1776 to 2016. The Glossary presents a second layer to the all-inclusive nature of the *Definitive Encyclopedia*. Approximately 1,000 additional concepts, people, and events in the Glossary go beyond the four volumes' 850-plus entries.

Throughout my career in economics and economic education one of my main concerns has been that economics often has been presented as a subject beyond the scope of the average reader. In compiling *Economics: The Definitive Encyclopedia from Theory to Practice* we took aim at that notion head-on. Our goal was to bring to both the general and experienced student of economics a readable source to better understand the economic world around them. I strongly believe we have succeeded in this goal.

Of course, a project of this magnitude would not be possible without a team of highly dedicated contributors. I owe a huge debt of gratitude and big thank-you to the contributors without whose efforts this project would not have succeeded. My team of contributors possessed the quality and expertise needed for this project. As some of the best college professors and high school AP economics teachers anywhere, they represent all that is good about economic education. I am humbled they would give of their precious time to be part of the team. I owe them a major debt of gratitude. I owe a debt of gratitude as well to Jillian Davidson for her research and editing assistance.

I would like to thank Brian Romer for bringing me onto this project and then passing the baton into the capable hands of Hilary Claggett, Patrick Hall, and the rest of the ABC-CLIO team who had a hand in this project's development. Thanks for making us look good. I also need to thank my many colleagues, students, and friends who also provided support, feedback, and a kick in the pants when necessary. Most of all I need to thank my family and friends for putting up with me during this time. There were times I was a bit like the candy bar commercial. I owe a big thanks to each and every one of them for their patience and understanding. Finally, I dedicate this project to my mom and my four daughters—Branda, Laura, Jillian, and Mary. They say behind every successful man is a woman. Well, I don't know about being successful but I do have five very precious women behind me. This is for you.

David A. Dieterle

Introduction to Volume 4: Global Economics

The global economy is here to stay. In reality, the "global" economy has always been with us. The United States' participation in it has waxed and waned during our more than 200 years of history but a link to the economies of other nations has always existed. Global economics is the future of economics because our world continues to grow smaller and smaller as communication and travel make connecting with each other easier and easier. Like every economic system, the global economy has growing pains. Two are particularly significant.

There are two major battles going on today as the global economy continues to grow and find its way. They are battles in which not very many people are involved, however, or about which many even care. We see glimpses of them in political discussions and debates around the world but mostly from a microeconomic "what's in it for me?" attitude. Whether the battles are acknowledged or not, they are upon us and they are happening on several fronts.

One battle is that of participation in the ever-growing global economy between nations considered the developed and already participating against the emerging and developing nations who want to participate and be part of the global economic community. The second is the battle within developed nations as to whether they remain in the old industrial model of a labor-intensive economy or elevate themselves to the new model of a capital-intensive economy. Both battles have benefits and costs every that nation has to deal with internally. The two battles are interdependent as well.

The battle between the haves and the have-nots is an age-old tale. As the new rules of the global economy evolve, however, the battle is very real and for very high stakes. For emerging and developing nations such as China, Brazil, Zambia, and Vietnam, the results can be economic growth and higher standards of living for their citizens, or economic stagnation and continued nation-wide poverty. Yes, China is still considered an emerging nation. For developed nations such as the United States and those in Western Europe, the battles can mean major, permanent shifts in their domestic economies that will have life-changing consequences for many of their citizens.

Developing and emerging nations are eager to participate in the global economy. But they want to do so as equal partners. This position is made quite clear by the stances they have taken on trade at World Trade Organization (WTO) meetings. Developed nations, however, while expressing enthusiasm for the developing and emerging nations to join the world market, are not making it easy for them to do so. Case in point is the global microeconomics of agriculture.

Participation in the global economy is based on one major aim, trade. A key economic principle is that trade creates wealth. Whether it's two neighbors trading garden equipment or two nations trading wheat for computers both trades leave everyone better off after the trade. Adam Smith's "invisible hand" works even for a global economy. How this translates to the battle between developed and developing nations is that one market in which the developing nations have a comparative advantage to trade is the one market most of the Western world, including the United States, protects from foreign competition: agriculture. Microeconomics states when there is market intervention by a third party the decisions made by the buyers and sellers are altered. The developed countries' use of subsidies and price floors in the agricultural markets prohibit developing countries from participating. Therein lies the battle. The developed countries choose to protect their domestic sellers at the expense of the foreign sellers, most notably in the developing and emerging countries.

This battle leads to a second significant battle—more an internal domestic battle within the developed nations with developing and emerging nations the potential winners. Most nations that are considered part of the developed world today rose to that level of economic growth and standard of living from their economic participation in the Industrial Revolution. From the Industrial Revolution well into the 20th century economic growth relied on the growth of the industrial and manufacturing complex, a mostly unskilled labor-intensive economic sector. Enter the computer and technology.

With the advent of the computer and technology, the industrial manufacturing complex began to change. The trade-off between the use of labor and the use of capital became an issue. The second issue became the cost of unskilled labor. Economics states low-cost, unskilled labor, will always find its least-cost position. For industries where low-cost, unskilled labor was still a key resource, developing nations had a role in the manufacturing process.

Within the developed countries the labor–capital trade-off became increasingly more intense. As labor costs rose and the cost of technology decreased, the point of cost equality was reached. At that point in the technology revolution developed nations became more capital-intensive economies and the labor-intensive industries continued to relocate to other nations with a more labor-intensive industrial base. Many of the unskilled jobs were replaced by technology and the job disappeared. Turmoil within the developed nations increased as more and more unskilled domestic laborers were replaced by capital, that is, technology, or the jobs were moved to other nations. The short-run winners in the global economy were the developing and emerging nations who were able to take advantage of the technological transitions such as those that occurred in the automobile industry. Again, with the auto industry in the developed nations as an example, the short-run losers were the unskilled laborers who lost their jobs to the auto industry's technological changes. The global economy was now becoming more interconnected than ever before.

Both of these battles continue to play out and probably will for some time to come. They will play out in many forums and on different fronts. Political leaders in several developed nations have expressed concern over the costs of globalization, specifically the loss of jobs. Most, though not all, of the jobs lost have been unskilled jobs replaced by technology or outsourced to developing or emerging countries. In more than one developed nation politicians have gone so far as to suggest an isolationist posture to world trade and globalization. The continued growth of the global economy and global influence on domestic economies strongly suggest being an isolationist in this new global economy is not an option. A nation must be willing to be a global player if the nation intends to grow and improve the standard of living of its citizens.

Trade makes the world go 'round. Even with all its growing pains and the internal problems within the developed nations, the global economy is the future. The world will not get larger but continually smaller as we as a global community with the use of technology get better and better at communicating. Peruvian economist Hernando de Soto notes a word of caution. While he promotes capitalism as the way out for many in the developing world, he suggests the global economy not leave behind over roughly 1 billion of the world's population in the developing nations.

A

ABSOLUTE ADVANTAGE

An *absolute advantage* exists when a nation or other economic region is able to produce a good or service more efficiently than a second nation or region. Adam Smith, who penned *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776), used the principle of absolute advantage to defend regional specialization and free trade in global markets. There are two main ways to measure a region's absolute advantage.

First, a region has an absolute advantage if it can produce the same quantity of a product as another region while using fewer resources in the process. Resources, or factors of production, include natural resources, human resources, and capital goods. Economists often measure a region's absolute advantage in terms of labor inputs used in the production of a good. Consider the production of wheat by farmers in Australia and South Africa, as shown in *Absolute Advantage: Daily Production of Wheat.* In this hypothetical example, Australia enjoys an absolute advantage over South Africa in the production of wheat. Measured in terms of labor inputs, Australia is able to produce 10,000 bushels of wheat per day with 100 workers, while South Africa needs 200 workers to produce the same amount of daily output.

Second, a region has an absolute advantage if it can produce a greater quantity of a product than another region using the same amount of resources. Consider the production of coffee by farmers in Brazil and China. *Absolute Advantage: Daily Production of Coffee Beans* shows that Brazil enjoys an absolute advantage over China in the production of coffee beans. Brazil's absolute advantage stems from its ability to produce 1,000 bushels of coffee beans per day with 10 laborers, while China can produce just 500 bushels of coffee beans per day with 10 laborers.

Nations or other regions achieve an absolute advantage in the production of a good in different ways. In some cases, the absolute advantage stems from conscious policies or business practices. For example, a nation that invests heavily in education is likely to create a skilled labor force. This type of investment in human resources may result in the nation's absolute advantage in the production of sophisticated manufactured goods, such as computers and software, and commercial services in the realms of banking and finance, insurance, consulting, and so on. Complementing a skilled work force are a society's investment in capital goods, research and development (R&D), a solid economic infrastructure, and other forces that contribute to a stable business climate. In today's global economy many of the advanced economies of the world have pumped significant amounts of money into public education, infrastructure construction, and so on. Predictably, these advanced economies also have an absolute advantage over most developing economies in the production of many types of consumer goods, capital goods, and commercial services.

A nation's absolute advantage in the production of a certain product might also be derived from its supply of natural resources, such as large tracts of arable land, plentiful rainfall and sunlight, expansive forests, or generous mineral deposits. Because the earth's natural resources are unevenly distributed, production advantages vary from one geographic region to another. For example, some Middle East nations such as Saudi Arabia, Kuwait, and the United Arab Emirates harbor large reserves of crude oil. Not surprisingly, nations with large reserves of oil have chosen to specialize in the production of this valuable primary energy source. The major oil-producing nations have an absolute advantage in the production of oil over countries such as Japan, France, and Germany, which have scant oil reserves. A similar argument can be made for nonpetroleum commodities. For instance, favorable soil conditions and climate give other nations an absolute advantage in the production of certain agricultural goods such as cocoa from Ghana, coffee from Brazil, cotton from China, natural rubber from Indonesia, sugar from Cuba, timber from Canada, and wheat from the United States.

The concept of absolute advantage underscores the economic benefits associated with specialization. First, specialization channels scarce resources into a nation's most productive areas at a moment in time. This is not to say that a nation's economic future is eternally bound to a single commodity or a narrow range of productive activity, however. Dynamic economies that support innovation, entrepreneurship, business formation, and other forward-looking endeavors can alter their competitive advantages over time. Many development economists even caution against overspecialization, viewing most "one-crop economies" as economically unstable. Second, specialization promotes international trade. Specialization requires nations to import items that are not produced domestically and to export their surpluses. Specialization promotes economic integration in the global economy. Economists generally agree that open trade is an engine of global growth.

British economist David Ricardo took the free trade argument one step further. Ricardo popularized the theory of comparative advantage in his classic *The Principles of Political Economy and Taxation* (1817). Comparative advantage extols the benefits of free trade between two countries even when one country has an absolute advantage in the production of both traded products.

David E. O'Connor

See also: Comparative Advantage; International Trade; Terms of Trade; *Vol. 1: Foundations of Economics:* Ricardo, David; Smith, Adam

Further Reading

Bhagwati, Jagdish N. 2003. *Free trade today.* Princeton, NJ: Princeton Univ. Press.
Irwin, Douglas A. 2003. *Free trade under fire.* Princeton, NJ: Princeton Univ. Press.
Ricardo, David. 1911. *The principles of political economy and taxation.* New York: E. P. Dutton & Company, Inc.

United Nations Conference on Trade and Development. 2004. *Trade and development report 2004*. New York and Geneva: United Nations.
The World Bank. 2004. *Global Economic Prospects 2004*. Washington, DC: World Bank.
World Trade Organization (WTO). 2004. *International Trade Statistics 2004*. Geneva, Switzerland: World Trade Organization.

AFRICAN DEVELOPMENT BANK GROUP

The African Development Bank Group (ADB Group) is a regional development bank that serves the continent of Africa. It is one of four major regional development banks currently operating in the global economy. Today, the ADB Group comprises three institutions: the African Development Bank (ADB), which was founded in 1964 and began operations in 1966; the African Development Fund (ADF), which was founded in 1972 and began operations in 1974; and the Nigeria Trust Fund (NTF), which was established by the government of Nigeria in 1976. The ADB Group is headed by a Board of Governors, which sets the bank's general policies. The Board of Governors, in turn, selects a Board of Directors, which, in conjunction with the bank's management, conducts the bank's business. The ADB Group's permanent headquarters is located in Abidjan, Cote d'Ivoire, but was temporarily relocated to Tunis, Tunisia, in the early 2000s.

The ADB Group, like other regional development banks, is owned and operated by member countries to support the development efforts of regional member countries (RMCs). Today, the ADB Group consists of 77 member countries—53 regional member countries located on the continent of Africa and 24 nonregional member countries located in Asia, Europe, North America, and South America. The bank's mission, as stated in Article 1 of the Agreement Establishing the Bank, is to "contribute to the economic development and social progress of its regional members—individually and jointly." Today, the overarching goals of poverty reduction and sustainable economic development reflect this mission statement.

To break the vicious cycle of poverty in Africa, the ADB Group extends development loans to RMCs, encourages investment in the private and public sectors, and supplies technical assistance. In recent years, the bank's resources have focused on achieving several key objectives. First, at the country level the bank's efforts emphasize agricultural and rural development, including the construction of roads, irrigation systems, and other elements of an economic infrastructure; investments in human capital, including education and health care services; and reforms to create an attractive environment for entrepreneurship, business formation, and domestic and foreign investment. Second, on a broader regional level the bank has given high priority to programs that support good governance and the rule of law; gender equity, especially in the realms of education, health needs, and employment; environmental protection, including efforts to prevent resource depletion, land degradation, and the loss of bio-diversity; and regional cooperation, including the reduction of tariffs and other barriers to trade and investment among RMCs. Loan and grant approvals in 2015 reflected these bank priorities. The top three categories—finance, transport, and water supply and sanitation—accounted for one-half of all bank operations. Other major categories of loan and grant approvals included agriculture and rural development, education, power, and poverty reduction and microfinance.

Today the three institutions of the ADB Group address a variety of development needs of African countries. The African Development Bank extends loans on a non-concessional basis to the more creditworthy RMCs. Non-concessional loans are made at prevailing interest rates. In 2015, total ADB loans and grants to RMCs totaled $8.8 billion.

The African Development Fund (ADF), on the other hand, provides development loans with concessional terms to the low-income RMCs. Concessional loans are often interest free, have longer repayment periods of 40 to 50 years, and include financial grants to the poorer RMCs. Low-income RMCs not eligible for loans through the normal ADB channels obtain these "soft loans" from the ADF. In 2015 total ADF soft loans and grants to poorer RMCs was $1.5 million. The Nigeria Trust Fund (NTF) also extends loans on highly favorable concessional terms to low-income RMCs to stimulate economic development. In 2015 the NTF offered $12.5 million in new loans to poorer RMCs.

Since the commercial operations of the ADB Group began in 1967 the bank has approved $112 billion in loans and other assistance to African countries. The ADB Group has coordinated its development projects with a variety of outside groups.

The ADB Group raises funds in four main ways. First, operating capital is raised through subscriptions or assigned contributions by RMCs and non-regional member countries through a General Capital Increase. Second, the bank collects interest payments on past loans. Interest rates vary, depending on the income status of the RMC. The interest rate charged by the ADB to middle-income RMCs is comparable to prevailing market interest rates in the economy. The ADF, on the other hand, normally extends interest-free loans to low-income countries. Third, the bank negotiates replenishments, or financial commitments from donor countries, to bolster bank coffers. Replenishments usually span three years and are a main source of revenue for the ADF. In the Ninth Replenishment (2002–2004) donor countries pledged an additional $2.4 billion to support the ADF's concessional lending to Africa's poorest countries. Fourth, the bank borrows money in global capital markets. The ADB borrows money by selling bank bonds to international investors. Traditionally, the security of ADB bonds has enabled the bank to borrow on favorable terms.

Regional and sub-regional development banks are a major source of development loans and other development assistance in the global economy. The four main regional development banks are the African Development Bank Group, Asian Development Bank, European Bank for Reconstruction and Development, and Inter-American Development Bank Group. Smaller, sub-regional development banks also dot the economic landscape and include the Caribbean Development Bank, Central American Bank for Regional Integration, East African Development Bank, and West African Development Bank.

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See also: Asian Development Bank; African Union; Development Economics; European Bank for Reconstruction and Development; Inter-American Development Bank Group

Further Reading

African Development Bank. 2014. *African development report 2014.* New York: Oxford Univ. Press.

African Development Bank. n.d. "Projects and Operations." www.afdb.org/en/projects-and-operations/ (accessed May 11, 2016).

African Development Bank, Statistics Division. 2004. *Compendium of statistics on bank group operations: 2004,* vol. 27. Tunis, Tunisia: ADB Group.

Gardner, Robert K. A. 1984. *The African Development Bank, 1964–1984: An experiment in economic cooperation and development.* Abidjan, Cote d'Ivoire: African Development Bank Group.

Mule, Harris M., and E. Philip English. 1996. *The multilateral development banks: The African Development Bank.* Boulder, CO: Lynne Rienner Publishers.

World Bank. 2004. *African development Indicators 2004.* Washington, DC: World Bank Publications.

AFRICAN UNION

Former president of Ghana, Kwame Nkrumah, founded the Organization of African Unity (OAU) that also became known as the African Union (AU). Prime Minister Nkrumah's idea of a united Africa was re-introduced by Colonel General Muammar Gaddafi in the mid-1990s.

The African Union, also known as the AU, was officially founded on September 9, 1999, and consists of 54 member nations. Morocco is the only African nation not a member and it removed itself from the AU. The African Union is headquartered in Addis Ababa, Ethiopia, with additional offices in Lagos, Nigeria, and Johannesburg, South Africa. The AU promotes the process of integration on the continent of Africa to enable it to play its rightful role in the global economy while addressing topics of social, economic, and political problems that have serious consequences, positively or negatively impacting the rest of the world.

The main objectives of the AU are to rid the continent of the remaining vestiges of colonization and apartheid; to promote unity and solidarity among African states; to coordinate and intensify cooperation for development; to safeguard the sovereignty and territorial integrity of the member states; and to promote international cooperation within the framework of the United Nations.

The African Union envisions a continent of nations integrated, peaceful, and economically prosperous led by Africans, and an economic force in the global economy. The AU has further elaborated its vision as a new, forward-looking, dynamic, and integrated Africa that will be fully realized through relentless struggle on several fronts as a long-term endeavor. The African Union has transitioned its focus from supporting liberation movements in the African territories under colonialism and apartheid to an organization that is now focused on spearheading Africa's development and integration.

The mission of the African Union Commission is the creation of institutions that are efficient and add value to African integration and development. AU nations strive for African integration and collaboration among African Union member states and the African citizens.

The African Union's core values are:

- Respect for diversity and team work
- Think Africa above all
- Transparency and accountability
- Integrity and impartiality
- Efficiency and professionalism
- Information and knowledge sharing

Under the umbrella of the AU there are smaller, topical divisions whose scope is represented by the subject matter of its divisions: the assembly; the executive council; the commission; the permanent representatives committee; the peace and security council (PSC); pan-African parliament; the Economic, Social and Cultural Council (ECOSOCC); the court of justice; the Specialized Technical Committees; the Financial Institutions; the AU Commission; Members of the Commission; and Portfolios of the Commission. These divisions are expertise driven and serve the AU in various forms, as checks and balances and to increase the levels of productivity while achieving the AU's goals.

The AU has four major bodies: executive, legislature, judiciary, and advisory and financial body. These bodies help the AU operate efficiently and effectively. For the purpose of geographical identification the AU has grouped its members into four geographic categories: North, East, West, and South. In addition to this the AU has formed geographical financial bodies that create inter-communities within the African Union. These communities have objectives such as serving as a peacekeeper, promoting free trade, and the movement of goods and employment. As a result there have been 17 communities formed. The Economic Community of West African States (ECOWAS) is a notable community, and consists of the following members: Benin, Burkina Faso, Cape Verde, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. The Eastern African Community (EAC) is another popular community and is also known as the African Great Lakes region. The EAC consists of the following countries: Burundi, Kenya, Rwanda, Tanzania, and Uganda. The African Central Bank (ACB) has been created in hopes of taking over responsibilities from the African Monetary Fund in the future. The goal is for the ACB to handle all financial transactions on behalf of the African nations in hopes of having a single currency in the future.

The African Union has an annually appointed chairperson, who is always a president of one of the 54 member nations. The chairperson of the African Union is elected by the assembly of heads of state for a period of one year. The chairmanship rotates within the continent's regions. Notable recent chairs included the president of the Republic of Zimbabwe, His Excellency Robert Mugabe; the president of Malawi Her Excellency Dr. Joyce Hilda Mtila Banda, who was the first female president in southern Africa and the second female president in all of Africa; the former president of the Republic of South Africa, Thabo Mbeki; John Kufuor, the former president of Ghana; and Muammar Gaddafi, the former president of Libya.

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See also: African Development Bank; Dependency Theory; Development Economics; Developing Nations; Duflo, Esther; Easterly, William; Globalization; World Bank

Further Reading

African Union. n.d. AU in a nutshell. au.int/en/about/nutshell (accessed September 5, 2015).

International Monetary Fund. 2014. *Regional economic outlook: Sub Saharan Africa fostering durable and economic growth, APR 2014.* Washington, DC: International Monetary Fund.

Moolakkattu, S. J. 2010. The role of the African Union in continental peace and security governance, *Indian Quarterly: A Journal of International Affairs* 66 (2): 151–165.

ANCIENT TRADE ROUTES

A trade route is a complex system of managed passageways and endpoints employed in commerce. A singular transport course may contain long separate veins of trade, which may further be associated with smaller byways permitting merchandise to achieve distance business. Ancient trade routes trace their origins to as far back as the middle of the second millennium BCE and extend to the start of the Common Era (CE). The development of significant transportation systems for commercial exchange is seen earliest in Western Asia, East Asia, South Asia, and the Mediterranean region.

During the initial long-distance stages of trade, travel was possible via beasts of burden. The trade networks of the Sumerians may have been at the center of a burgeoning regional trade, but it was patrolled by Arab merchants situated between the Far East and the Arabian Peninsula that significantly improved trade in part through the domestication of the camel. Large numbers of pack animals carried highly valued commodities. The advances in bronze and iron metallurgy helped further increase trade during this period.

Ocean-going trade extending across early civilizations dates back two millennia. It is known that maritime trade already existed in Sumer between 4000 and 3000 BCE and was likely utilized by people in the Indian subcontinent and the China prior to the Sumerians. Further, the Red Sea allowed Egyptians to import spices from east Africa and the Arabian Peninsula.

Early oceanic trade developed along coasts and adapted to the monsoon seasons bringing interregional commerce across the Indian Ocean and Arabian Sea. Multiple networks of sea routes interlaced Southeast Asia and India. In the Mediterranean, due to more constant wind conditions, Roman merchants transported cheaper and more sizeable commodities across a greater surface area at a significantly cheaper price.

The Incense Road was the major early trade route from around the third century BCE to the second century CE connecting primarily spice-producing and spice-consuming civilizations through interlinking land- and ocean-based pathways. The goods exchanged consisted of various spices and high-value commodities. Cross-cultural regional trade meant that the Mediterranean Sea was linked to Arabic, South Asian, and East Asian sources of goods. Ancient trade flourished, facilitating the transportation of products such as frankincense and myrrh from the Arabian Peninsula; silk, textiles, and spices from the Indian subcontinent; and east African goods.

Pre-Columbian trade in the Americas dates back to the second millennium BCE. As early as 1600 BCE, portions of southern modern-day Mexico were involved in trade networks in luxury goods and exotics included obsidian. A golden age for the section of the Americas within the scope of the Yucatan Peninsula occurred from the first century BCE to about 800 CE. Relatively homogenous inland lowland regions traded extensively with the highlands and coastal regions, ushering in prosperity to the region.

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See also: China: General Economy; *Vol. 1: Foundations of Economics:* Economic History

Further Reading

Blashford-Snell, John, and Richard Snailham. 2000. *Kota Mama: Retracing the lost trade routes of ancient South American people*. London: Headline.

Curtin, Philip D. 1984. *Cross-cultural trade in world history*. New York: Cambridge Univ. Press.

Prasad, Prakash Charan. 2014. *Foreign trade and commerce in ancient India*. New Delhi, India: Abhinav Publications.

ARAB OIL EMBARGO CRISIS, 1973

The Arab oil embargo would be the true beginning of the American energy crisis. The root cause of the crisis was the rising power of the Organization of Petroleum Exporting Countries (OPEC), which was formed by Arab countries so they could use oil as a political force. The industrialized nations were heavily dependent on Arab oil producers for supplies of oil for their economies. In October 1973, however, U.S. support of the Israeli military in the Yom Kippur War created a political backlash in the Arab nations. Arab oil-producing countries imposed an oil embargo on the United States and increased prices to its European allies by 70 percent. Oil jumped from $3 a barrel to more than $5 a barrel overnight. By the end of the embargo, it had reached $11 a barrel.

In 1973, the United States relied on foreign countries for 36 percent of its oil. The embargo caused consumer panics, with stations running out of gas and mile-long lines of cars waiting to refuel. Gas trucks were followed by long lines of automobiles as drivers hoped to find the gas station that was to be refueled. Millions of Americans were forced to carpool and rationing became necessary. The American auto industry was caught off guard with large gas-guzzlers in their showrooms. Sales of imported gas-efficient cars surged.

Even though the embargo lasted only six months, American car-buying patterns changed forever. At the end of the embargo, oil would be $18 a barrel. The shock of the embargo helped the Congress pass the Trans-Alaska Pipeline Bill in 1973 and expanded oil exploration. Mass transit projects, carpooling, and other conservation projects came into vogue. In addition, the huge jump in oil prices created a worldwide recession. The real problem for the United States had been growing for years. American dependence on foreign oil had increased through the 1960s from under 20 percent to 32 percent. Demand for oil was growing at 5 percent annually. By 1973, about 7 percent of oil in the United States came from the Arab states. The root of the 1973 oil crisis goes back to the formation of OPEC in 1960 as a cartel to control the supply and the price of oil. In 1973 OPEC members were Algeria, Indonesia, Iran, Iraq, Libya, Nigeria, Kuwait, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela, and OPEC nations were supplying 45 percent of the world market. The price of oil had remained around $1.00 a barrel for most of the 1960s and was $1.30 a barrel at the start of 1970. President Nixon's decision to end the convertibility of dollars into gold in 1971 caused a devaluation of the dollar, to which OPEC, paid for its oil in dollars, was unable to adjust. The inflation of the 1970s was putting pressure on OPEC to increase their prices, but it would be politics more than supply or demand that created the energy crisis. Thus far, OPEC had proved ineffective in holding or raising oil prices because cartel members could cheat by secretly selling extra oil on the world market. In 1967, OPEC had failed to embargo the United States over the Six-Day War between Israel and the Arab nations surrounding it.

On October 6, 1973, Syria and Egypt launched a surprise attack on Israel, beginning what became known as the Yom Kippur War. A week later, the United States began an airlift to supply Israel in response to the Soviet Union supplying Syria and Egypt. In response, on October 16, OPEC raised the price of oil to $5.11 a barrel. The Arab States of OPEC announced that they would continue to increase the price of oil in 5 percent increments until their political goals (to pressure Israel) were met. When Congress voted for a $2.2 billion relief package for Israel on October 20, the Arab States quickly announced a boycott against the United States. Oil prices rose to $12 a barrel and continued at this level through the 1970s. Prices at the pump went from 30 cents a gallon to $1.30 a gallon. The United States initially absorbed the impact of higher prices with limited pain. On November 5, however, the Arab states announced a 25 percent output cut, which started to put serious pressure on supplies in the United States.

The November output cut took the crisis to the main streets of the United States as gasoline station lines grew and reports of stations running out of gas created panics. President Nixon responded with a ban on Sunday gasoline sales, and daylight saving time was extended into winter to save fuel. Because consumers were topping off and keeping gas tanks full, odd-even sales days were implemented based on license plate numbers. Various other voluntary conservation moves were also implemented. Still, local panics occurred in highly populated areas. The government prepared to use ration coupons but never had to use the system as the embargo ended in March 1974.

Secondary effects of the embargo included a national trucker strike over the cost of fuel and toilet paper panics based on oil shortages in the paper industry. Eventually the government imposed a 55 mph speed limit on the nation's interstate highways. The 45 percent increase in fuel prices also caused a recession and helped contribute to what would be called "stagflation." The higher fuel costs rippled throughout the U.S. economy, resulting in higher food costs and high inflation. The 1970s will always be remembered for its out-of-control inflation. A number of energy acts were passed in the late 1970s to address conservation and energy usage, and the Department of Energy was created in 1977.

The bigger and longer-lasting impact of the oil embargo was its effect on the automotive industry. The embargo was the beginning of the end of the popularity of big six-cylinder and V8 cars. Japanese four-cylinder cars, such as the Toyota Corona, the Toyota Corolla, the Honda Civic, and the Datsun 510, became popular. American manufacturers suffered from their inventory of large cars and strategic line of designs. The Big Three were forced to develop four-cylinder and smaller models such as the Ford Pinto, Chevy Vega, and Plymouth Valiant. The oil crisis would allow a huge influx of foreign autos into the market and start the decline of American dominance in auto manufacturing.

Light cars required by the Clean Air Act and the increase in oil prices changed the very infrastructure and customs of the city of Detroit. Woodward Avenue was the heart and soul of the Motor City. In the morning, Woodward brought automotive executives to their offices from Detroit's best suburbs in their large Bonnevilles and New Yorkers. In the evening, Detroit's youth cruised the endless avenue of diners and gasoline stations in their muscle cars. Woodward's wide lanes made it ideal for urban racing of Mustangs, Plymouth Road Runners, T-Birds, and Corvettes. Many executives looked to Woodward as a marketing test site. By the late 1970s, the muscle cars were gone and Woodward Avenue, like Detroit, would show the destruction of deindustrialization. Woodward Avenue was an augur of the change in the automotive industry and Detroit. By 1979, Japanese cars were appearing on Woodward Avenue.

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See also: Organization of Petroleum Exporting Countries; *Vol. 2: Macroeconomics:* Economic Embargo and Depression, 1807; Sugar Act, Currency Act, and Stamp Act Boycotts, 1764–1765; *Vol. 3: Microeconomics:* Clean Air Act; Corporate Average Fuel Economy; General Motors Bankruptcy, 2009; Whale Oil Shortage: The First Energy Crisis, 1850

Further Reading

Carroll, Peter N. *It seemed like nothing happened: America in the 1970s.* New Brunswick, NJ: Rutgers Univ. Press, 1990.

Merrill, Karen R. *The oil crisis of 1973–1974: A brief history with documents.* New York: St. Martin's Press, 2007.

ARCTIC CIRCLE NATURAL RESOURCES

Much of the Arctic Circle lays undiscovered. Several countries, including Canada, Russia, Greenland, Norway, Finland, and the United States, claim the Arctic Circle. More than half of the Arctic has not been discovered. This as-yet undiscovered territory could create a huge economic boom by the discovery of certain minerals.

The Arctic minerals could be a great resource for these countries. As the Arctic continues to melt more minerals will be available within the Arctic for the nations involved. Though scientists are still uncertain as to the extent of the minerals available in the Arctic, the Arctic is known to be full of minerals for today's use.

With new waterways opening up in the Arctic, shorter travel time between continents is now a reality. Traders can now travel through the Arctic Circle instead around it. This shorter access will save fuel and allow for greater imports and exports. This will be an asset to many businesses and economies will grow as a result. Because the waterways will be more open, the trade of all resources will be more easily distributed. Economies will increase, businesses will get more money, and countries will have more oil or gas.

The Arctic also holds valuable amounts of oil and natural gas. The melting of the Arctic will make these resources more readily available. The competition between countries for these resources has already begun. Russia has started the licensing process to begin drilling for the offshore oil. Access to these oil reserves could be a big economic boom to the countries who can access it first and most efficiently.

It will be a time-consuming process and costly but also very profitable to those who can mine the natural resources successfully. The resources will not be retrieved in the near term. For starters the Arctic needs to melt further for the minerals to be accessible. Once they are accessible, however, the demand and competition for them will be fierce.

The Arctic is a massive landmass with huge potential energy resources. If accessible, one day it will certainly improve the economies of the nations that will be to access the resources. Oil and natural gas continue to be heavily in demand by the developed world and also more and more by developing and emerging nations as their economies become more advanced. The resources of the Arctic could make a significant difference in the energy supply of the globe in the future.

Mallory Macksood
David A. Dieterle

See also: Absolute Advantage; Comparative Advantage; *Vol. 1: Foundations of Economics:* Environmental Economics; Environmentalism; Renewable Energy; Resources; *Vol. 2: Macroeconomics:* Energy Policy

Further Reading

Alaska Public Lands Information Center. n.d. Minerals in Alaska. www.alaskacenters.gov/minerals.cfm (accessed December 10, 2015).

The Economist. 2012. The melting north. June 16. www.economist.com/node/21556798 (accessed December 10, 2015).

Jha, Alok. 2009. New survey of Arctic's mineral riches could stoke international strife. *The Guardian,* May 28. www.theguardian.com/environment/2009/may/29/survey-arctic-gas-oil-reserves (accessed December 10, 2015).
Masters, Jonathan. 2013. "The thawing Arctic: Risks and opportunities." Council of Foreign Relations, December 13. www.cfr.org/arctic/thawing-arctic-risks-opportunities/p32082 (accessed December 10, 2015).

ASIA-PACIFIC ECONOMIC COOPERATION

The Asia-Pacific Economic Cooperation (APEC) is an organization that includes 21 nations located in or around the Pacific Ocean. The explicit goal of the organization is to promote and foster cooperative efforts among its members to engage in liberalized trade policies and to promote free trade principles. The organization was founded in 1989 and its administrative headquarters is located in Singapore.

APEC includes some of the world's most significant economies, including the United States, Japan, China, and Russia. Interestingly, it is one of the few worldwide organizations where the disparate Chinese political entities of the People's Republic of China (mainland China), the Republic of China (Taiwan), and Hong Kong are members at the same table. This interesting arrangement is possible because the organization allows membership for a geographical unit deemed to be a distinct "economy" instead of being basing membership on the concept of a political state possessing a distinct national sovereignty.

APEC's potential impact is significant. If all of its member populations are added together, the organization comprises approximately 37 percent of the global population. The only formal economic organization representing a larger constituency is BRICS (Brazil, Russia, India, China, and South Africa).

However, APEC's accomplishments since its inception have been somewhat limited. In large part, this can be attributed to the significantly different economic environments among its most significant members. While the United States and Japan have long-standing economic cultures that embrace liberalized principles and, with some notable exceptions, have advocated against protectionist trade policies, both China and Russia have historically endorsed very different traditions. The Russian and Chinese experiments with Communism in the 20th century have been largely replaced in the early part of the 21st century, but neither country has fully embraced economic liberalism. The Russian economy features close relations between the state and a private sector dominated by economic oligarchy. China's government retains significant control over the nation's production and has also been accused of currency manipulation.

Some economists have encouraged APEC to consider creating a free trade zone that, to some extent, mirrors the European Union. In 2014, at the annual meeting in Beijing, APEC members committed to a study considering the establishment of a Free Trade Area of the Asia-Pacific (FTAP). The initiative's likelihood for success will be challenged by the fact that the United States has persistently resisted including either Russia or China in a free-trade zone in the past. Similarly, proposals to create free-trade zones within APEC without Russia and/or China have likewise been offered in the past, but have languished and never reached a point of serious consideration.

APEC's membership composition has also generated contention. India has requested membership, but been denied and instead has been granted observer status. Guam, a Pacific island territory governed by the United States, also has requested membership on the grounds that it is a distinct economy, a position that the United States opposes. Although a number of smaller Pacific Rim countries have been discussed for membership, the membership roll has not been added to since 1998.

Although APEC has not achieved some of its most lofty strategic objectives, it nonetheless has made important contributions to making private sector commerce within member countries more efficient and user friendly. The organization has made measurable progress on reducing trade barriers and harmonizing quality standards, regulations and customs procedures throughout its member nations. Further, member countries succeeded in meeting established goals of reducing border transaction costs by 5 percent between 2004 and 2006, and then again by 5 percent between 2007 and 2010. APEC estimates that these initiatives have saved businesses $58.7 billion.

APEC's most recent initiative is the *Ease of Doing Business Action Plan*, which was started in 2009. The *Plan*'s goal has been to expedite the time and cost associated with doing transnational businesses within the organization's member entities. By its internal measures, APEC has improved the ease of business in these benchmark categories by 11.3 percent between 2009 and 2013. As a specific example, the time needed to procure construction permits was reduced from 169 day to only 134.

Ultimately, APEC's long-term influence and effectiveness rests upon the willingness of its members to engage in meaningful efforts to encourage more transnational commerce and to reduce trade barriers. Because the organization includes some of the most economically powerful nations in the world, the results of greater cooperation can be significant. In light of the great geo-political tensions and rivalries along the western Pacific Rim, increased economic cooperation can also potentially create the benefit of reduced political and military rivalry within the region as well.

John Moore

See also: Asian Development Bank; Asian Crisis, 1997–1998; China: General Economy; East Asia: General Economies; Japan: General Economy; Russia: General Economy

Further Reading

Asia Pacific Economic Cooperation. n.d. History. www.apec.org/About-Us/About-APEC/History.aspx (accessed September 30, 2016).

Chang, Ha-Joon. *East Asian development experience: The miracle, the crisis and the future*. London: Zed Books, 2007.

Maddison, Angus. 2003. *Development Centre Studies: The world economy: Historical statistics*. Paris: Organisation for Economic Co-operation and Development.

ASIAN CRISIS, 1997–1998

The Asian financial crisis of 1997–1998 was one of the most dramatic economic downturns of the 20th century. Investors were unprepared for both how quickly it happened as well as how deeply it impacted what were thought to be robust Asian economies. While most Asian economies were adversely affected, the focal point of the crisis revolved was Indonesia, Thailand, and South Korea. The crisis ultimately was short-lived, in part due to successful intervention by the International Monetary Fund (IMF), which supplied bailout loans to the three aforementioned countries.

One of the key causes of the crisis was the fact that several Southeast Asian nations were engaged in the monetary policy of pegging their domestic currency to the US dollar. The effect of these policies was an attempt to create a fixed exchange rate relationship since these respective governments guaranteed to pay a fixed quantity of dollars in exchange for their own currency. The potential danger of this type of policy is that if too many investors present domestic currencies in a short period of time, and there are insufficient dollars within that nation's foreign currency to make good on redemption, the peg policy will collapse, accompanied by bad economic consequences.

Southeast Asian economies enjoyed very robust growth rates throughout the early 1990s, and foreign investors were attracted by high rates of return. The surge in investment capital, in turn, spurred speculative activity, particularly in real estate.

In 1996 and 1997 the United States Federal Reserve (the Fed), chaired by Alan Greenspan, began to raise interest rates in response to fears of potential inflation. This strategy had the side-effect of shifting expected investment returns, as investments in American markets now became relatively more attractive than those available in Southeast Asia. In addition, many private-sector enterprises in the Southeast Asian countries utilized U.S. dollar denominated debt, and the Fed policy moves made the cost of debt more expensive to Southeast Asian borrowers.

In July 1997, Thailand ran low on its inventory of foreign currencies and consequently could not meet its obligations for a scheduled debt repayment. This forced the country to "de-peg" off of the U.S. dollar. The result was a financial crisis that was brought about by a very quick drop in investor confidence in many Southeast Asian nations, causing a rapid withdrawal of capital by foreign investors. The Southeast Asian countries were unable to adequately respond to the run on their capital markets and they were forced to abandon their pegged relationship to the U.S. dollar and float their currencies. This necessary action compounded the problems as investors became even more panicked.

To make matters worse the rapid economic growth in Thailand, Indonesia, and South Korea were primarily export driven, and a significant portion of these national exports were sent to American consumers. When the pegged relationship between the U.S. dollar and the various domestic Asian currencies was broken, and the domestic currencies weakened between 30 and 80 percent to the dollar, a huge debt bomb was created. The region's economic rapid growth pattern over the previous decade quickly devolved into a bust situation. Investors liquidated their investments and shifted them elsewhere; the United States was a favorite destination.

In response to these developments, the International Monetary Fund (IMF) was forced to quickly intervene and bailout a number of the impacted nations in order to stabilize and restore investor confidence. The IMF loans came with "conditionality" requirements, which were terms that the IMF imposed on borrower nations to force them to adopt economic policies that would stabilize the situation and restore the economies of those nations to a more sound footing.

The IMF loans were successful in stemming the panic that had gripped international capital markets. In late 1997 the IMF advanced $20 billion to Thailand, $23 billion to Indonesia and arranged a $58 billion bailout package for South Korea. The respective economies stabilized. The three bailout nations, which had combined GDPs of $2,006 billion in 1997, suffered a 9.5 percent reduction in production to $1,875 billion in 1998, but rebounded to $1,999 billion by 1999.

There are mixed interpretations of what caused the Asian financial crisis. Some blame American monetary policy and the risk taken by the major Asian countries in pegging their currencies to the American dollar. Others suggest that the Asian episode was a classic boom-bust event brought about by excessive speculation.

Ultimately, the Asian crisis was short-lived. The impacted nations stabilized quickly, were largely recovered within a few years, and were able to repay the IMF ahead of schedule. The long-term impact was actually more significant in political terms, as the crisis led to the downfall of the authoritarian Suharto regime in Indonesia in 1998. The Asian financial crisis also indirectly exacerbated the international economic problems that arose in late 1998 through Russia's default on its debt and the Long Term Capital Management Crisis. In retrospect, the Asian crisis of 1997–1998 remains an important example of how delicate international economic relationships can be, as well as the volatility and risk present in the contemporary global economy.

John Moore

See also: Asia-Pacific Economic Cooperation; China: General Economy; International Monetary Fund; Japan: General Economy

Further Reading

IMF Staff. 2000. Recovery from the Asian Crisis and the role of the IMF. International Monetary Fund. www.imf.org/external/np/exr/ib/2000/062300.htm (accessed September 30, 2016).

Mayer, Christopher. 2004. The failure of fixed rates, *Mises Daily Articles*, August 20. https://mises.org/library/failure-fixed-rates-0 (accessed October 18, 2016).

Moreno, Ramon. 1998. What caused East Asia's financial crisis? *FRBSF Economic Letter*, August 7. Federal Reserve Bank of San Francisco.

ASIAN DEVELOPMENT BANK

The Asian Development Bank (ADB) is a regional development bank that serves Asia and the Pacific region. It is one of four major regional development banks currently operating in the global economy. The ADB was founded in 1966. The main operations of the ADB are conducted by the bank and its Special Funds, which include the Asian Development Fund (ADF), Technical Assistance Special Fund, Japan Special Fund, and ADB Institute Special Fund. The ADB also administers other funds and grants to support bank goals. A Board of Governors, which convenes once each year at the annual meeting, is the bank's highest decision-making body. The Board of Governors elects a 12-member Board of Directors to conduct the day-to-day operations of the bank. The ADB headquarters is located in Manila, the Philippines.

The ADB is owned and operated by member countries. Since its founding in 1966 the ADB has expanded from 31 member countries to 67 members—45 countries located within the Asia and Pacific region and 18 countries from outside the region. Most of the regional members are low-income or middle-income developing countries, often referred to as Developing Member Countries (DMCs). According to the Agreement Establishing the Asian Development Bank, the purpose of the bank is "to foster economic growth and co-operation in the region of Asia and the Far East . . . and to contribute to the acceleration of the process of economic development of developing member countries in the region, collectively and individually." In 1999 the ADB sharpened its central mission to emphasize poverty reduction in the region.

With poverty reduction as the centerpiece of the ADB's mission, the bank's main operations—development loans, public and private investments, and technical assistance—are designed to address the causes of poverty. In recent years the ADB's development strategy has stressed economic growth; infrastructure building, including transportation and communications; human resources development, including education and health care; gender equity; environmental protection; good governance; regional cooperation, including the reduction of trade barriers; social development; and private sector development, including support for small- and medium-sized firms and microcredit.

The institutions of the ADB are sensitive to the different development needs of its Developing Member Countries. The ADB, for example, makes loans from the bank's ordinary capital resources (OCRs) to members deemed capable of repaying the loan, plus interest, on schedule. The bank evaluates the creditworthiness of a member country by its per capita income and current external debt burden. These non-concessional loans carry interest rates comparable to prevailing market interest rates. In 2015 total ADB topped $27.17 billion. The ADF, sometimes called the ADB's "soft window," offers loans with concessional terms—lower interest rates and longer repayment schedules, perhaps 40 to 50 years. Concessional loans are reserved for the poorer countries that already suffer from higher external debt burdens.

The funding for ADB and ADF operations is derived from four main sources. First, ordinary capital resources (OCR) are raised through country subscriptions. Subscriptions represent the assigned monetary contribution that each regional and nonregional member country pays into the ADB. By paying their subscriptions, member countries become shareholders, or owners, of the bank. Second, the ADB raises funds through borrowing in global capital markets. The bank borrows by selling bank bonds to a variety of investors such as foreign banks and governments. ADB bonds, which carry an AAA rating, are typically viewed as an attractive investment. Third, the bank earns interest from loan repayments and profits from its other investments. Finally, additional funds are solicited regularly by the ADF from donor countries. These donations are called replenishments. Donor countries have also contributed money to the ADB's Special Funds.

Regional and sub-regional development banks are a major source of development loans and other development assistance in the global economy. The four main regional development banks are the African Development Bank Group, Asian Development Bank, European Bank for Reconstruction and Development, and Inter-American Development Bank Group. Smaller, sub-regional development banks also dot the economic landscape and include the Caribbean Development Bank, Central American Development Bank for Regional Integration, East African Development Bank, and West African Development Bank.

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See also: African Development Bank Group; Asia-Pacific Economic Cooperation; Bhagwati, Jagdish; European Bank for Reconstruction and Development; Inter-American Development Bank Group

Further Reading

Asian Development Bank. 2014. *Asian development outlook 2014*. New York: Oxford Univ. Press and the Asian Development Bank.

Asian Development Bank. 2015. Key indicators for Asia and the Pacific 2017: Technical assistance report. December. www.adb.org/projects/documents/key-indicators-asia-and-pacific-2017-tar (accessed May 1, 2016).

Asian Development Bank. 2016. *ADB annual report 2015*. April. Manila: Asian Development Bank.

Brooks, Douglas H., and Hall Hill, eds. 2004. *Managing FDI in a globalizing economy: Asian experiences*. New York: Palgrave Macmillan.

ASIAN TIGERS

Asian Tigers has become a term to denote the fast industrialized growth of several Pacific rim nations. There are prominent growth economies in Asia, including Singapore, South Korea, Taiwan, and other Southeast Asia nations such as Vietnam. These economies have steadily flourished since the 1960s and hence they have been revered as some of the most stable economies. Hong Kong and Singapore are very important to the world of finance and trade and have made a name for themselves in that regard, whereas South Korea and Taiwan are better renowned for their manufacturing of goods mainly in the automobile, vehicle parts, and technology industries. Vietnam is second only to China with the fastest per capita economic growth rate at 7 percent in the 1990s.

The Asian Tigers are also known as the Asian Dragons. They all mainly focus on goods that are shipped out of the country, better known as exports. Each country containing these prominent economies also has a bright economic future ahead of them. They have very high educational standards and therefore will have good, smart people in charge.

Since the U.S. established the open door policy in China and countries from around the world claimed their own spheres of influence to trade inside the country, China's ability to trade has not been the same. The entire world has looked to China for exported goods and investment. In subsequent years, China has moved its exporting industry to the mainland in search of cheap labor, which is still used today for most of their exports.

When it first became an independent nation in 1965, Singapore was a very poor third-world country, hardly seeming worthy of being known as a great economy. However, it soon faced this problem head on. The small island's biggest problem was unemployment. In order to create new jobs for their people, an environment conducive to industrial development was formed, putting people to work in the factories to make toys and woodcrafts to sell while the government was busy convincing the rest of the world that Singapore was a good place to do business.

Between 1960 and 2014 South Korea made more financial progress than any other country in history. In 1961 the country had a national GDP of 2.36 billion U.S. dollars. As of 2014, the national GDP was 1,410.38 billion U.S. dollars. How has the country created such a growth over the years? The Korean War (1950–1953) devastated the country and the people rebelled to overthrow their corrupt leader 10 years later. This is when they decided to start working on economic development. South Koreans mostly worked on heavy and chemical exports, but later had to switch to light exports due to an oil shock that struck the country in 1979. They also had a monopoly on tobacco and ginseng products and made many important government enterprises.

In the 1950s Taiwan relied mostly on American aid. This actually worked in its favor because it was able to have a large military presence and not have overburdened their economy by having to pay for it. In the late 1950s an industrial boom hit the small country due to a growing interest in exporting manufactured goods and a large change in governmental policy.

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See also: Asia-Pacific Economic Cooperation; Asian Development Bank; Hong Kong: General Economy

Further Reading

Investopedia. n.d. Four Asian Tigers. http://www.investopedia.com/terms/f/four-asian-tigers.asp (accessed December 2, 2015).

The Economist. 2016. The other Asian Tiger—Vietnam's success merits another look, August 6. http://www.economist.com/news/leaders/21703368-vietnams-success-merits-closer-look-other-asian-tiger (accessed October 18, 2016).

Trading Economics. 2015. South Korea GDP 1960–2015. www.tradingeconomics.com/south-korea/gdp (accessed December 2, 2015).

Watkins, Thayer. n.d. The economy of South Korea: Notes on Korean economic development: An interpretive model by Paul Kuznets. San Jose State University Department of Economics. www.sjsu.edu/faculty/watkins/korea1.htm (accessed December 2, 2015).

ASSOCIATION OF SOUTHEAST ASIAN NATIONS

The Association of Southeast Asian Nations (ASEAN) is a regional association of 10 countries designed to foster regional economic growth, cultural development, social progress, and peace among its members. The Asean Declaration, more commonly referred to as the Bangkok Declaration, established ASEAN in 1967. This founding document declared that ASEAN "represents the collective will of the nations of Southeast Asia to bind themselves together in friendship and cooperation and, through efforts and sacrifices, secure for their peoples and posterity the blessings of peace, freedom and prosperity." ASEAN's five original members were Indonesia, Malaysia, the Philippines, Singapore, and Thailand. Since ASEAN's founding, five additional countries have joined the association, including Brunei Darussalam (1984), Vietnam (1995), Laos and Myanmar (formerly Burma) (1997), and Cambodia (1999). In 1999 ASEAN negotiated a Joint Statement on East Asia Cooperation with Japan, the Republic of Korea, and the People's Republic of China to widen the spirit of cooperation throughout the East Asia region. In 2013 the ASEAN region had a population of about 625 million people and average per capita GDP of $3,832.

ASEAN has a multi-tiered organizational structure. At the top of the power pyramid is the Meeting of the ASEAN Heads of State. The first Heads of State meeting took place in 1976. An annual ASEAN Summit and an annual ASEAN Ministerial Meeting also discuss issues of critical concern to the region. Regular sectoral meetings discuss more specialized topics such as agriculture and forestry, energy, the environment, poverty, and social welfare. ASEAN maintains a permanent headquarters in Jakarta, Indonesia, and diplomatic missions in 15 capital cities around the world. The chief official of ASEAN is the secretary-general, who has a five-year term of office. The secretary-general and staff are responsible for coordinating ASEAN's activities and programs and overseeing work of the association's 15 missions, 29 committees, 122 working groups, and communications with numerous agencies, nongovernmental organizations, and related groups.

The Bangkok Declaration identified a series of goals for the association. First, member countries pledged to promote economic growth and social progress in the region. To stimulate economic growth and prosperity, ASEAN approved a number of agreements to build economic relationships and use scarce resources wisely. For example, member countries have liberalized trade and investment among association members. In 1977 ASEAN adopted a Preferential Trading Arrangement (PTA) to reduce tariffs in intraregional trade. Additional trade agreements were concluded in the following years, including the 1988 Enhanced PTA Program, the 1992 Framework Agreement on Enhancing Economic Cooperation, and the 1997 ASEAN Vision 2020, which promised the creation of a "highly competitive ASEAN Economic Region in which there is a free flow of goods, services and investments." The creation of the ASEAN Free Trade Area (AFTA) in 1993 was one important step toward the goal of regional economic integration. Between 1993 and 2003 the average tariff for ASEAN-6 nations—Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand—dropped from 12.8 percent to just

1.5 percent on listed items. AFTA stimulated trade within the region and helped the ASEAN-6 nations more than double their exports. ASEAN negotiated separate trade agreements with the People's Republic of China, Japan, and India in the early 2000s.

The liberalization of investment also progressed during the 1990s and early 2000s. Following closely on the heels of ASEAN Vision 2020, the association approved the 1998 Framework Agreement on the ASEAN Investment Area (AIA). This framework liberalized investment by reducing barriers to foreign investment, outlawing discriminatory practices against foreign firms or output produced by foreign firms, expanding cross-border flows of skilled labor, increasing the transparency of rules and policies, and encouraging flows of technology among association members. Under the provisions of the AIA most investment restrictions on goods-producing and agricultural industries will be phased out by 2020. Most FDI inflows have come from the European Union (EU), the United States, Japan, and other ASEAN countries. Current negotiations are focused on expanding the more liberalized investment rules to the services-producing industries such as health care, insurance, telecommunications, and banking and finance.

A second major ASEAN goal identified in the Bangkok Declaration was to promote peace in the region. Many of the principles underlying this pledge of peaceful relations among association members are found in the 1976 Treaty of Amity and Cooperation. In this treaty, members agreed to respect each nation's sovereignty and territorial integrity. The treaty also reaffirmed earlier commitments to peaceful methods of conflict resolution. The 1994 ASEAN Regional Forum (ARF) was established to expand the use of diplomacy, rather than armed conflict, to reconcile differences. Parties to the ARF include all 10 members of ASEAN plus Australia, Canada, the European Union, India, Japan, Mongolia, New Zealand, Papua New Guinea, Russia, and the United States. In 2003 the Declaration of ASEAN Concord II, also called the Bali Concord II, created the ASEAN Security Community (ASC), which committed members to "rely exclusively on peaceful processes in the settlement of intraregional differences."

A third ASEAN goal outlined in the Bangkok Declaration was to promote and expand regional cooperation in a variety of other areas of common interest, such as science and technology, education, transportation and communications, and culture and cultural studies. Concrete progress has been achieved in these areas. For example, in 1996, the Framework for Elevating Functional Cooperation to a Higher Plane was approved to create specific plans of regional action in the areas of social development, culture and information, science and technology, the environment, drug control, and international crime. Calls for additional cooperation were made in later documents including ASEAN Vision 2020 and the Bali Concord II of 2003. Association members have also strengthened their bonds by designing regional transportation networks, communications systems, and power grids.

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See also: Regional Trade Agreements; Terms of Trade; Trade Policy

Further Reading

ASEAN. 1967. *The ASEAN Declaration*. Declaration of the ASEAN Ministerial Meeting, August 8. Bangkok, Thailand: ASEAN

ASEAN. 1997. *ASEAN Vision 2020*. Declaration of the ASEAN Heads of State, December 15. Kuala Lumpur, Malaysia: ASEAN

ASEAN. 2003. *Declaration of ASEAN Concord II (Bali Concord II)*. Declaration of ASEAN Heads of State, October 7. Bali, Indonesia: ASEAN

ASEAN. 2004. *ASEAN annual report 2003–2004*. Manila, Philippines: ASEAN.

ASEAN. 2015. *ASEAN Statistical Yearbook 2014*. Manila, Philippines: ASEAN. http://asean.org/?static_post=asean-statistical-yearbook-2014 (accessed May 1, 2016).

Gill, Ranjit. 1997. *ASEAN towards the 21st century: A thirty-year review of the Association of Southeast Asian Nations*. London: Asean Academic Press.

AUSTRALIA: GENERAL ECONOMY

The Australian economy exists as a mixed market economy and enjoys some of the highest rankings in the world. This is largely due to sensible banking policies, a long-standing fiscal surplus, and growth areas in mining, natural resources, and the service sector. Furthermore the national banks have been able to successfully curtail inflation rates in order to keep monetary value stable and experience very little corruption.

Australia's economy is largely based in the service industry with estimates from 2014 of total gross domestic product composed of approximately 67 percent from the service industry. (CIA, n.d.). The Australian economy faces a unique challenge with the majority of the labor force and population based in coastal cities such as Sydney, Melbourne, Perth, and Canberra. Yet there is a vast amount of landmass which is uninhabitable or very sparsely utilized. Supplementing the service industry, the next most important product comes from mining. In the early 21st century Australia experienced a boom in demand for minerals being mined. These commodity markets make up a large part of Australia's export base.

One of the largest challenges to the Australian economy is geographical location. Due to the distance between it and many of the world's largest economies, importing and exporting is a difficult and potentially costly process due to transportation costs. Despite Australia's continued economic growth there is increasing concern regarding the recent growth of the national deficit. This national deficit originated from a stimulus package offered by the government during the 2008 financial crisis that was largely considered to have had little effect on Australia, aided especially by its natural gas and energy resources.

However, with the highest reported trade deficit in 40 years there is a growing concern. The trade deficit identifies the difference in exports and imports. It defines the balance of trade and the overall deficit or surplus of a nation. The trade deficit may be largely due to the dropping of commodity prices.

In major cities in Australia the cost of living is high but so is the minimum wage. The median household income was estimated around AU$222,000 a figure that is relatively large compared to most major economies. As a result of this relative strength Australia also consistently rates high for GDP per capita purchasing power parity (PPP). The PPP measures the relative price of a basket of goods purchased in a given economy relative to other nations in long run consideration. It is a reflection of relative strength of the economy and cost of living.

Even with the difficulty of transportation Australia has continued to grow its economy over the past 20 years and control its inflation rate. The cost of living is high but the quality of life and jurisprudence of financial practices has supplemented Australia's relative strength. To that end Australia has continually increased its quantity of trade with various global partners. In connection with economic indicators it also boasts a reasonable low unemployment rate. These factors have all contributed in solidifying Australia as a top 20 nation across the board in economic measures.

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See also: Exchange Rates; Trade, Measures of; World Trade Organization; *Vol. 2: Macroeconomics:* Gross Domestic Product; Gross National Product

Further Reading

The Daily Reckoning. 2015. Australian economy records its worst trade deficit in 44 years. http://www.dailyreckoning.com.au/australian-economy-records-its-worst-trade-deficit-in-44-years-cw/2015/06/05/ (accessed June 20, 2015).

Reserve Bank of Australia (RBA). n.d. Exchange rates. http://www.rba.gov.au/statistics/frequency/exchange-rates.html (accessed June 20, 2015).

U.S. Central Intelligence Agency (CIA). n.d. Australia. The World Factbook. https://www.cia.gov/library/publications/the-world-factbook/geos/as.html (accessed June 20, 2015).

B

BALANCE OF PAYMENTS

The *balance of payments* refers to net monetary transactions by a nation. By definition, the balance of payments for any specified period must balance and net out to zero. In this regard, the balance of payments differs from a country's balance of trade, which can be either positive or negative.

There are three major categories that comprise the balance of payments: (a) the current account, (b) the financial account, and (c) the capital account. Each of these three accounts can operate on a surplus or deficit, but in sum they must net each other out.

The current account, in very general terms, reflects the net cash flows of a country in the exchange of goods and services with other nations. In a similar manner as a double entry accounting system income statement, credit entries act like revenues and debit entries act like expenses. The current account is positively impacted by exported goods, which require payment from a foreign source. A second major source in the current account is returns from investments made in foreign countries. In contrast, imports, which require payment to foreign sources and returns on investment in the domestic nation to foreign sources both act negatively on the current account balance. A final component of current account activity are transfers of currency either in or out between the domestic country and foreign countries. A good analogy for this fifth item would be the settling up on accounts receivable or accounts payable arising from exchanging goods, services, or investment opportunities on credit between nations.

The financial account primarily measures the amount of money invested by individuals in the domestic country abroad as well as monies that flow in the opposite direction from foreign nations that are invested in the domestic country. Both of these items could potentially be either an inflow or outflow. First, consider monies invested from the domestic nation to foreign countries. If we consider just the investment, that would be a financial account outflow.

However, it is also possible to withdraw invested monies from foreign nations as well. If a domestic country invests more than it withdraws in foreign nations, there is a net cash flow out in the balance of payments. Inversely, when withdrawals exceed investments made, this results in a net positive impact. The same principles work in reverse in terms of foreign investments into a domestic country. When foreign sources make more investments than withdrawals, then the financial account is positively impacted. When foreign sources withdraw more money than they invest, the financial account is negatively impacted. Lastly, the financial account is impacted by changes in financial derivative contracts arising from fluctuations in exchange rates. This line item is typically small relative to other line items.

The capital account is the third category and is usually a small item as well. This category largely reflects changes in real asset ownership or transfer of personal property between nations. An example of this would be transfer of ownership of a house or commercial real estate. If a domestic nation citizen purchased a residence in a foreign country and shipped a car and furniture there the domestic country would experience a capital account outflow.

Although the balance of payments must theoretically net to zero, the tools used to measure each of the three major categories is imperfect. There is simply no way to capture all of the transactions and events that take place. As a result, the estimates that result from statistical samples used to measure each category almost always create three category results that don't net out to zero. The difference is always assigned to a last line described as the "Statistical Discrepancy." Ideally, this line item is not relatively large.

All of the above descriptions can be summarized as follows:

Balance of Payments

1. Current Account
   a. Add: Exports
   b. Add: Investment income from foreign sources
   c. Less: Imports
   d. Less: Investment income to foreign sources
   e. Add transfers in less transfers out
2. Financial Account
   a. Add: Net foreign investment in the domestic economy
   b. Less: Net domestic investment in foreign economies
   c. Net change in financial derivatives
3. Capital Account
   a. Changes in real and personal property
4. Statistical Discrepancy
5. Sum Total = Zero

Some people mistakenly believe that running a deficit current account is bad for a country. The United States has been experiencing an excess of imports over exports for several decades, which creates negative current account activity. Yet, the United States is considered a successful and stable economy. Although the American current account is negative it is always offset by an equal amount of positive activity in the financial and capital accounts. There are a number of factors that might explain why foreign capital is attracted to the United States. These reasons include, but are not limited to, a broad array of quality investment opportunities, expectations of good returns on investment, as well as a stable legal, business, and economic environment.

Another way in which to view the contemporary American balance of payments situation is that the country, on a net basis, imports goods and services and, in exchange, exports investment opportunities. In general, more developed countries such as the United States are often more likely to run current account deficits and financial/capital account surpluses. Conversely, less developed economies tend to run their balance of payments in the opposite direction.

A good understanding of how the balance of payments operates allows an individual to gain greater insight into the dynamics of how individual nations interact within the context of a global economy.

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See also: Balance of Trade; Capital Account; Financial Account; Trade, Measures of; Trade Policy

Further Reading

Bureau of Economic Analysis. n.d. International economic accounts. www.bea.gov/International/index.htm (accessed September 30, 2016).

Federal Reserve Bank of New York. 2009. Balance of payments. www.newyorkfed.org/aboutthefed/fedpoint/fed40.html (accessed September 30, 2016).

Gerber, James. 2014. *International economics*. 6th ed. New York: Pearson.

BALANCE OF TRADE

The balance of trade refers to the net movement of goods and/or services to and from a country through imports and exports. If a nation exports more goods/services than it imports, it is functioning with a trade surplus (also referred to as a "positive trade balance"). If it imports more goods/services than it exports, then it is functioning with a trade deficit (also referred to as a "negative trade balance").

Up to the 18th century the predominant economic thought about national trade was expressed through mercantilism. Mercantilism's core premise was that national power was derived from wealth. Wealth, in turn, was measured by the possession of gold and silver. This line of thought logically led to a viewpoint that any successful, powerful, and wealthy nation must maintain a trade surplus. Because the monetary medium of exchange at that time in history was metallic coin, the optimal mercantilist economy would export goods in exchange for specie currency. In fact, this worldview was a motivating factor in the 15th through 18th centuries among western European nations that tried to establish colonial empires in order to become economically self-sufficient with the raw materials necessary to support their respective economies.

In theory, the balance of trade is a zero-sum game in the sense that one country's imports are another's exports. However, individual nations can run long-term trade surpluses or deficits. In contrast to mercantilism, modern economic theory holds that a trade surplus is not necessarily a good thing and a trade deficit is not necessarily bad. This assertion is empirically demonstrated by the experience of the United States over more than two centuries. From the nation's founding in 1789 through World War I (1914–1918), the United States consistently ran a trade deficit. It was during this same time frame that the American economy transitioned from being a backwater, agricultural nation to becoming a leading economic world power. From World War I through the 1960s the United States consistently ran a trade surplus, only to see another long-term trade deficit run that began in the 1970s and has persisted into the second decade of the 21st century. In spite of these three long-range trends that include both surpluses and deficits the American economy has consistently produced long-term economic growth over the course of more than two centuries.

How a nation can possibly sustain long-term economic growth in spite of trade deficits can be partially explained by understanding how the related "balance of payments" works. The balance of payments, by definition, must be in balance. As a result, if a nation sustains long-term trade deficits, the cash outflows associated with more imports than exports must be counterbalanced. This occurs when foreign sources send compensating cash flows into a country in the form of IOUs or capital investments. In the earliest stages of American economic history, foreign investors invested significant amounts of capital into emerging American business enterprises, and in particular railroads. More recently, American trade deficits have been possible because foreign sources continue to positively view the opportunities to invest their capital within the United States, whether in the private sector or through the purchases of United States Treasury securities. In summary, the United States is able to sustain long-term trade deficits because foreign investors believe that there are good investment opportunities there. In contrast to the American historical example, nations that do not present opportunities for foreign investment are generally unable to maintain trade deficits for long-term periods.

As a general rule, more advanced economies are more likely to run trade deficits and less economically developed nations tend to run trade surpluses. Although these generalized trends are the result of differing circumstances in the case of every individual country, one of the more significant variable factors is that advanced economies produce more wealth, which can be used to purchase goods and services both domestically and internationally. Conversely, poorer nations often have only natural resources or basic goods to trade while offering fewer investment opportunities for foreign-sourced capital. Consequently, these poorer nations frequently run trade surpluses.

Since World War II, the relative volume of international trade has steadily increased. Consequently, the balance of trade is an increasingly important element in every nation's economic outlook. This trend is likely to continue as a result of growing international support of trade through the World Trade Organization (WTO), regional agreements such as the North American Free Trade Agreement (NAFTA) and regional integration as exemplified by the European Union (EU).

John Moore

See also: Balance of Payments; Current Account; International Trade; North American Free Trade Agreement; Trade, Measures of; World Trade Organization; *Vol. 1: Foundations of Economics:* Mercantilism

Further Reading

Bureau of Economic Analysis. 2015. International economic accounts. www.bea.gov/International/index.htm (accessed September 30, 2016).

Gerber, James. 2014. *International economics*. 6th ed. New York: Pearson.
Viner, Jacob. 1960. *Studies in the theory of international trade.* London: George Allen & Unwin, Ltd.

BANK FOR INTERNATIONAL SETTLEMENTS

The Bank for International Settlements (BIS) is a bank that is collectively owned by the world's major central banks. It provides a wide array of services to its members. As of 2015 a total of 60 central banks make up the member ownership and the organization's headquarters are located in Basel, Switzerland. Two other branch offices are located Hong Kong and Mexico City. The BIS's overall mission and objective is to facilitate global financial stability.

The BIS's mission is primarily accomplished through two major functions. First, it facilitates information exchange in order to promote cooperation and coordinated action by its members. Second, the BIS serves as a counterparty or trust agent for certain transactions carried out by member banks. These functions are particularly important in light of the very large volume of international currency exchange occurring in the 21st century global economy. The BIS estimates that in 2010 almost $4 trillion in currency exchange took place on a daily basis.

Its efforts to promote knowledge exchange and coordinated activities are primarily accomplished through conferences and a series of subcommittees in which member banks participate. In particular, the BIS promotes transparency and adequate reserve level policies within the private banking sectors acting within each member's borders that actively participate in international finance. These goals are best exemplified by its participation in establishing the Basel Capital Accord agreements of 1988, 2004 (Basel II), and 2010 (Basel III).

The BIS offers member banks services including such examples as accepting foreign exchange reserves for deposit, creating unique portfolio pools that central banks can invest excess reserves in, and providing short-term advances to members on a collateralized basis. The BIS only offers these services to central banks. It does not transact directly with national government or private sector individuals or organizations.

Founded in 1930 the original purpose of the BIS was to coordinate German war reparations for World War I. However, with the forgiveness of war debts in 1932 pursuant to the Lausanne Agreement, the BIS quickly redirected its focus to research and promoting cooperation by central banks. During World War II the BIS suspended board meetings but continued limited operations. Immediately after the war, the members of the Bretton Woods conference initially decided to close the BIS down, but it soon began to be used as a vehicle to support cooperative European monetary policy in the post-war era. Beginning in the early 1960s, the BIS became increasingly involved in fulfilling its goals on a global basis.

In the wake of the 1971 Smithsonian Agreement and the collapse of the Bretton Woods system in the early 1970s the BIS became an increasingly important entity. The creation of global currency markets primarily operating under a floating exchange rate system gave rise to greater uncertainties and risks. In response the

BIS has focused its mission on compiling and sharing significant global banking information for use by central banks, fostering communication and cooperation by the various central bank members, other relevant research, and establishing best practices standards for international banks to use to reduce chances of disruptive financial failures and contagion effects.

One of the most relevant areas where the BIS has made a serious contribution to contemporary international banking is in its role with the Basel Accords. These agreements, the result of consensus agreement among the world's leading economic nations from discussions dating back to the 1970s, have sought to establish prudent capital reserve benchmarks for private sector banks. The Basel Accord administrative offices are housed at BIS headquarters and the BIS has assumed a leading role in producing data and disseminating information relative to the Basel initiatives.

In addition to the Basel Accords the BIS mission has taken on an added sense of urgency in the wake of an increasing number of global financial crises. These include, but are not limited to, the Asian Crisis (1997), Russia's debt default (1998), and the global financial crisis of 2007–2009. Collectively, BIS activities are acknowledged as important contributions in the efforts to reduce risk and the likelihood of unanticipated banking failures in an ever growing and more deeply integrated global economy. The organization's ability to produce high-quality information helps leading officers within both central banks and the private sector in their daily responsibilities.

John Moore

See also: Asian Crisis, 1997–1998; Bank of Japan; Bundesbank; Russia: General Economy; *Vol. 1: Foundations of Economics:* Central Bank; *Vol. 2: Macroeconomics:* Federal Reserve System

Further Reading

Baker, James Calvin. *The Bank for International Settlements: Evolution and evaluation*. Westport, CT: 2002.

Bank of International Settlements. n.d. BIS chronology, 1929–2013. www.bis.org/about/chronology.htm?m=1%7C4%7C550 (accessed September 30, 2016).

Bank for International Settlements. n.d. BIS history-overview. www.bis.org/about/history.htm?m=1%7C4 (accessed September 30, 2016).

BANK OF JAPAN

The Bank of Japan is the central bank of Japan and has been established since 1882. When it was established it came up with core objectives and they still have and use those objectives today. The Bank of Japan plays a key role in the economy and its distribution of the yen. Over the decades it has grown and flourished all thanks to Matsukata Masayoshi.

The Bank of Japan is located in Tokyo. The bank's founder, Matsukata Masayoshi was born on February 25, 1835, in Shimoarata, and died on July 2, 1924, in

Tokyo, Japan. Masayoshi belonged to the independent politician party. He had one child, Kojiro Masayoshi. Masayoshi established the Bank of Japan in June of 1882. It then became the nation's central bank on October 10, 1882. The Bank of Japan was created to be the only bank to print money because the country had a problem with inflation. Money was changed to the yen when the Bank of Japan was established. The Bank of Japan became widely known in February of 1942 because of the Bank of Japan Act. The act of 1942 reflected war being waged at that time but it had four objectives in Article One to regulate the currency, facilitate and control credit, maintain the credit system, and to enhance the general economic welfare. After World War II, in June of 1949, the act of 1942 established a policy board to increase the scope of the Bank of Japan's policy-making. The original building only had 55 employees and it was modeled after the national Bank of Belgium. Japanese government moved the Bank of Japan in 1896 to three new buildings.

The bank has three main objectives: to issue the official Japanese banknotes and coins, to achieve price stability, and to maintain a stable financial system by facilitating smooth funds settlements between the Japanese financial institutions. The Bank of Japan's monetary policy aims to secure price stability by manipulating the money supply in the economy and influence interest rates. The Bank of Japan changes the money volume in the economy by buying and selling Japanese government securities. This is called money market operations. To make sure Japanese financial markets, banks, and other institutions run smoothly the Bank of Japan came up with the financial system stability. It watches all the activity and if something seems to slip the Bank of Japan is there to help and be the lender of last resort. The Bank of Japan is the only bank that can issue banknotes and coins. It strives to maintain confidence in the yen and is responsible for the circulation of the economy.

The Bank of Japan now has three buildings: the new building, which is ten stories high, built in 1973; the Annex Building, which holds the currency museum; and the old building in Nakanoshima. The policy board of Japan recently voted to continue to the program of quantitative easing. The Bank of Japan is printing about ¥80 trillion ($660 billion) a year to buy bonds. In 2016, the Bank of Japan was in a mild deflation and was trying to create a 2-percent inflation by printing a large amount of yen. In July 2016 it published a new index of inflation called the "new core CPI."

Even though the Bank of Japan has been around for long time it has maintained its core objectives and main goals to the present day. Despite its small beginnings, with only 55 employees, the Bank of Japan plays a crucial role in the Japanese economy through its monetary policy.

Alex Nemer

See also: *Vol. 1: Foundations of Economics:* Central Bank; *Vol. 2: Macroeconomics:* Federal Reserve System; Monetary Policy; Money Supply

Further Reading

Bank of Japan. n.d. History. www.boj.or.jp/en/about/outline/history/index.htm/ (accessed December 15, 2015).

Central Banks. 2015. Bank of Japan. www.centralbanksguide.com. www.centralbanksguide.com/bank+of+japan/ (accessed December 15, 2015).
Ginko, Nihon. 2004. *Functions and operations of the Bank of Japan*. Tokyo: Institute for Monetary and Economic Studies, Bank of Japan.

BHAGWATI, JAGDISH

Born: July 26, 1934, in Bombay (now Mumbai), India; Nationality: Indian-American; Professional Interests: international trade, economic policy reforms, immigration; Major Works: *India: Planning for Industrialization* (1970), *India* (1975), *In Defense of Globalization* (2004), *Termites in the Trading System: How Preferential Agreements Undermine Free Trade* (2008).

Jagdish Bhagwati joined the faculty at the Massachusetts Institute of Technology (MIT) where he was the Ford International Professor of Economics from 1968 to 1980. His early work at MIT is credited for laying the foundation for the current economic reforms in India. Bhagwati stresses that global trade is a two-way exchange benefiting both parties (countries). Of note is his argument against critics of offshoring. Bhagwati suggests that offshoring is only one facet of free trade and with time the United States will benefit from other countries offshoring labor back to the United States, particularly India. The end result will be higher standards of living for citizens in both India and the United States.

Jagdish Natwarlal Bhagwati was born in Mumbai (formerly Bombay), India, on July 26, 1934. He did his undergraduate work at Sydenham College in Mumbai. He then attended Cambridge University and MIT where he received his doctorate in 1967. His early works included a number of publications, two of which were *India: Planning for Industrialization* (1970) and *India* (1975). It was during his tenure at MIT that he founded and edited the *Journal of International Economics*. Bhagwati left MIT to join the faculty at Columbia University.

During his time at Columbia, Bhagwati continued as a prolific writer and a vociferous defender of free trade. He wrote many of his most popular works during this period including *Protectionism, World Trading System at Risk, A Stream of Windows: Reflections on Trade, Immigration and Democracy, The Wind of the Hundred Days*, and, in 2004, *In Defense of Globalization,* which he wrote to combat an antiglobalization sentiment gaining supporters and momentum. In his follow-up book, *Termites in the Trading System,* Bhagwati discusses the harmful consequences that can result from preferential trade agreements.

Bhagwati is also a regular contributor to the *New York Times*, the *Wall Street Journal,* and the *Financial Times*, writing on trade policy and trade issues. He also founded and edited another academic journal, *Economics and Politics,* while at Columbia. He also provides reviews for *New Republic* and the *Times Literary Supplement.* He also contributes to the blogs *Project Syndicate* and *The American Interest.*

As a professor, Bhagwati has worked with a great many students. Two of his former students include Dartmouth professor Douglas Irwin and Princeton professor, writer, and Nobel laureate Paul Krugman.

Bhagwati has been the economic policy adviser to the director-general for the General Agreement on Tariffs and Trade (GATT) from 1991 to 1993. He served as special policy adviser to the United Nations on globalization in 2000, and as external adviser to the director-general of the World Trade Organization in 2001. He has served as a member of UN Secretary-General Kofi Annan's advisory group of the New Partnership for Africa's Development (NEPAD) process in Africa. Additionally, Bhagwati serves as a senior fellow in international economics at the Council of Foreign Relations where he also publishes and as a director at the National Bureau of Economic Research where he has authored a large number of articles over the years.

In a professional capacity, Bhagwati is a fellow of the Econometric Society. He is a member of the American Philosophical Society and the American Academy of Arts and Sciences. He has been honored as a distinguished fellow of the American Economic Association. As a result of his research and advisory efforts, Bhagwati has been awarded honorary degrees at a number of schools including Erasmus University (Netherlands), Sussex University in the United Kingdom, and the London School of Economics.

He was chosen as one of the world's 100 Most Influential Policy Intellectuals by the respected periodicals *Prospect* (United Kingdom) and *Foreign Policy* (United States). Internationally, he has received the Padma Vibhushan award from the government of India, and the Order of the RisingSun, Gold and Silver Star from the government of Japan.

Timothy S. Schilling

See also: China and India Emerge as World Economics Powers, 2005; Dependency Theory; Developing Countries; Duflo, Esther; Easterly, William; Globalization; India: General Economy; International Monetary Fund; Krugman, Paul; Sachs, Jeffrey; Trade Policy; Trade, Measures of; World Bank

Further Reading

Balasubramanyam, V. N., and David Greenaway, eds. 1996. *Trade and development: Essays in honor of Jagdish Bhagwati.* London: Palgrave Macmillan.

Bhagwati, Jagdish. 1970. *India: Planning for industrialization: Industrialization and trade policies since 1951.* Oxford, UK: Oxford Univ. Press.

Bhagwati, Jagdish. 1985. *Essays in development economics. Vol. 1, Wealth and poverty.* Edited by Gene Grossman. Cambridge, MA: MIT Press.

Bhagwati, Jagdish. 1985. *Essays in development economics. Vol. 2, Dependence and interdependence.* Edited by Gene Grossman. Cambridge, MA: MIT Press.

Bhagwati, Jagdish. 1988. *Protectionism.* Cambridge, MA: MIT Press.

Bhagwati, Jagdish. 1991. *The world trading system at risk.* Princeton, NJ: Princeton Univ. Press.

Bhagwati, Jagdish. 1993. *India in transition: Freeing the economy.* New York: Oxford Univ. Press.

Bhagwati, Jagdish. 1998. *A stream of windows: Unsettling reflections on trade, immigration, and democracy.* Cambridge, MA: MIT Press.

Bhagwati, Jagdish. 2000. *The wind of the hundred days.* Cambridge, MA: MIT Press.

Bhagwati, Jagdish. 2002. *Free trade today.* Princeton, NJ: Princeton Univ. Press.

Bhagwati, Jagdish. 2004. *In defense of globalization.* Oxford, UK: Oxford Univ. Press.

Bhagwati, Jagdish. 2008. *Termites in the trading system: How preferential agreements undermine free trade.* Oxford, UK: Oxford Univ. Press.

Bhagwati, Jagdish, and Alan Blinder. 2009. *Off shoring of American jobs: What response from U.S. economic policy?* Edited by Benjamin M. Friedman. Cambridge, MA: MIT Press.
Feenstra, Robert C., Gene M. Grossman, and Douglas A. Irwin. 1996. *The Political Economy of Trade Policy: Papers in Honor of Jagdish Bhagwati.* Cambridge, MA: MIT Press.
Koekkoek, Ad. 1991. *International trade and global development: Essays in honor of Jagdish Bhagwati.* Abington, UK: Taylor & Francis.

BOSERUP, ESTER

Born: May 18, 1910, in Copenhagen, Denmark; Died: September 24, 1999, in Geneva, Switzerland; Nationality: Dutch; Professional Interests: economic development; Major Works: *The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure* (1965).

Ester Boserup is renowned in the post–World War II era for positing and challenging the neo-Malthusian view that food supply can only grow slowly and is the main factor governing the rate of population growth. She proposed that the primary stimulus to agricultural productivity is population growth itself by developing a model of economic development that groups land use into five different types in order of increasing intensity. For her works on agricultural change, gender, and development, she received three honorary doctorate degrees in the agricultural (Wageningen University), economic (Copenhagen University), and human sciences (Brown University). Boserup was elected foreign associate of the National Academy of Sciences, United States, in 1989. Boserup died in 1999.

Ester Boserup was born Ester Børgesen on May 18, 1910, in Copenhagen, Denmark. She was the only daughter of an engineer who died when Boserup was two years old. After his death, financial hardship forced her mother to move the family to live with other family members and to take up menial work to support the family. With encouragement by her mother, and knowing she would have a better prospect in life through education, Ester studied diligently and entered the university when she was 19. During university, against the background of the Great Depression, her search for alternatives to the prevailing theories of equilibrium and marginal utility led her to join a Socialist intellectual debating group and to her choice of two divergent topics (American Institutionalist School and the Marxian theory of crises) for a multidisciplinary degree in theoretical economics, sociology, and agricultural policy.

Following her graduation, she published her first article, which compared Keynes's theory of propensity to consume with the Marxist theory of underconsumption and began her research work at the United Nations and its agencies on agricultural trade policy in the late 1940s. In the early years of her career, her unconventional views attracted attention.

From 1957 to 1960, she and her economist husband, Mogens Boserup, worked on a joint project assessing the future of India using Western models of development. While traveling about the country, she observed women working in the fields, noted the agricultural impact of various forms of tenure, and learned about the flexibility of agricultural labor, which made her question many of the Western-based assumptions about agricultural production, particularly the theories relating to surplus labor, population density, and migration. This experience transformed her view of development and she became increasingly convinced that the prevailing theory of zero marginal productivity and agrarian surplus population in densely populated developing countries was an unrealistic theoretical construction.

Returning to Denmark, Boserup combined consultancies with her research and writing as she penned her most important work, *The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure* (1965). Boserup offered a powerful set of ideas that had far-reaching impacts on interdisciplinary research and real-world practice and became the subjects of intensive academic scrutiny. Based mainly on the experience of Asian countries, the book challenged the dominant Malthusian paradigm (accepted by the majority of classical economists) that at any given time there is in any given community a warranted rate of population increase with which the actual growth of population tends to conform.

In this work, Boserup proposed using a new approach in which population growth rather than the impact of new technologies is the primary mechanism of agrarian development within traditional communities. She maintained that population pressure can lead to agricultural intensification as the principal means of increasing agricultural output and to the adoption of improved methods of production. Population growth, Boserup argued, is independent of food supply, and population increase is a cause of changes in agriculture. This theory of agricultural development is more subtle and complex than that of any of her predecessors.

More than a simple rejection of Malthus's economic development theory, Boserup aimed at explaining all the characteristics of agriculture in any specific area and time according to the resource endowment–the land-labor ratio. Boserup asserted that the more dense population is the more intensive cultivation becomes. Thus she grouped land use into five different types in order of increasing intensity: (1) forest-fallow or slash and burn (15–20 years of fallow), (2) bush-fallow (6–10 years), (3) short-fallow (1–2 years), (4) annual cropping (a few months), and (5) multicropping (no fallow). For Boserup, this land use typology is not just a classification scheme but also a characterization of the main stages of the evolution of agriculture from prehistoric times to the present.

Boserup asserted that methods of cultivation and fertilization to produce more crops per acre become more labor intensive with the shortening of fallow periods. This increase requires far more human labor to produce these higher yields. Although Boserup's central argument was not widely accepted, the ideas put forward in the book are an insightful interpretation of agrarian change.

In addition to this landmark book, Boserup also made other major contributions to the literature on development: *Woman's Role in Economic Development* (1970) and *Population and Technological Change: A Study of Long-Term Trends* (1981). Both books addressed the two major topics to which she had devoted most of her research and writings in the 1970s and 1980s.

In the *Woman's Role in Economic Development*, Boserup argued that although gender is one of the main criteria for the division of labor in all societies, there is a great diversity in this division of labor between the sexes across societies. She emphasized population density and the availability of land as the primary factors that are related to the work and subsequent status of women. This division of labor is not limited to farming systems; it carries over into nonfarm activities as well.

Boserup's main contribution to economics was a more complex picture of the relationships between population, agricultural production, and the environment than was initially put forward by the English economist Thomas Robert Malthus. Her model had great influence on the social evolutionary theory of Mark Cohen, Marvin Harris, and Gerhard Lenski.

Ester Boserup died on September 24, 1999, in Geneva, Switzerland, at the age of 89.

Ninee Shoua Yang

See also: China and India Emerge as World Economic Powers, 2005; Dependency Theory; Developing Countries; Duflo, Esther; Easterly, William; Globalization; India: General Economy; International Monetary Fund; Sachs, Jeffrey; Trade Policy; Trade, Measures of; World Bank; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Malthus, Thomas; Marx, Karl

Further Reading

Boserup, Ester. 1965. *The conditions of agricultural growth: The economics of agrarian change under population pressure.* Piscataway, NJ: Transactions.

Boserup, Ester. 1970. *Woman's role in economic development.* London: Earthscan.

Boserup, Ester. 1980. *Economic and demographic relationships in development.* Baltimore, MD: Johns Hopkins Univ. Press.

Boserup, Ester. 1999. *My professional life and publications, 1929–1998.* New York: Museum Tusculanum Press.

Jain, Devaki. 2005. *Women, development and the UN.* Bloomington: Indiana Univ. Press.

Tinker, Irene. 2003. *A tribute to Ester Boserup: Utilizing interdisciplinarity to analyze global socio-economic change.* Edited by Lourdes Beneria. London: Routledge.

BRAIN DRAIN

The brain drain refers to the migration of skilled professionals from one country to another country for an extended period of time. Implied in this definition is that the exodus of this professional elite has a direct, negative impact on the sending country and a corresponding positive impact on the receiving country. The brain drain is sometimes called human capital flight. The term human capital refers to human labor that has been enhanced by knowledge and skills acquired through education or training. Thus, human capital flight highlights the loss of skilled labor from an economy. It is commonly assumed that the brain drain applies only to the departure of skilled professionals from poorer, developing countries to greener pastures in the advanced countries. The brain drain, however, is also a concern for some advanced countries. In fact, the term brain drain was first used by the British Royal Academy to describe the immediate post–World War II migration of scientists and researchers from the United Kingdom to the United States. Today, heated discussions about the brain drain have focused on the loss of skilled professionals from countries in the developing world. These discussions often pit countries of the global South, which incur a net loss of professionals through emigration, against the countries of the global North, which incur a net gain through immigration. Categories of skilled professionals involved in cross-border migrations include scientists and researchers, information technology (IT) technicians, physicians and other medical personnel, educators, and business managers or consultants.

Measuring the brain drain in today's global economy is a tricky business. Credible organizations such as the World Bank, International Monetary Fund (IMF), and the International Organization for Migration have only recently initiated scholarly research on the brain drain and its impact, both positive and negative, on the global economy. The research relies mainly on data from the U.S. Census and the Organisation for Economic Co-operation and Development's (OECD's) Continuous Reporting System on Immigration. This data tend to concentrate on immigrants with a tertiary education—formal education beyond the high school level. While incomplete, the data shed some light on the main motivations for emigration, the most popular destinations, the direct and indirect impact of cross-border migrations, and the types of enticements needed to lure skilled professionals back to their homelands.

Skilled professionals are motivated to uproot themselves and their families by a number of push-pull factors. In the developing and transition economies the "push" factors are compelling and include relatively poor wages or salaries; a poor quality of life, marked by limited educational opportunities, inadequate health care, and the lack of basic services such as clean water and sanitation systems; unemployment and underemployment; an underdeveloped economic and IT infrastructure; government corruption and cronyism; and political instability and civil conflict. The "pull" factors focus on a wide variety of economic and social opportunities that are readily accessible in a different country. Pull factors attract skilled professionals from high-income and low-income countries to the advanced countries. Pull factors include attractive wages and salaries, thus a higher standard of living; increased access to education, particularly for advanced degrees; the availability of extensive social services; a solid economic and technological infrastructure; higher social and economic mobility; and a stable and secure political environment. Some governments in advanced economies also recruit talented foreign professionals. Germany, for example, loosened its immigration policies to recruit thousands of IT specialists, mainly from Eastern European countries. The United States relaxed its H1B Specialty Occupation Visas to attract additional university-educated specialists from other countries.

A relatively small number of advanced economies attract most of the world's skilled immigrants, including Australia, Canada, France, Germany, and the United States. The IMF estimates that over 90 percent of all inflows of skilled professionals migrating to advanced countries select one of these five nations. The world's leading country of destination is the United States. The OECD reported that the United States had attracted roughly 1 million skilled professionals, many in the field of information technology, from the early 1990s to the early 2000s. A sizable proportion of these skilled workers came from India, China, and Russia. Recent data suggest that migrations of professionals from the world's poorer regions to the

United States and other advanced countries is one way because only a small percentage of these people return to their homelands. The migration of professionals from one advanced economy to another tends to be more temporary, however. It is not unusual for professionals from Canada or the United Kingdom to work in the United States for a number of years and then return to their homelands.

This temporary migration is often called "brain circulation" rather than "brain drain" to emphasize the mutual benefits to sending and recipient countries. The brain drain among developing countries also occurs. In recent years professionals from Eritrea, Ethiopia, Somalia, and Sudan were pushed from the Horn of Africa to escape the carnage of bloody civil war or domestic unrest. Professionals from India, on the other hand, were often "pulled" to jobs in the oil-rich countries of the Middle East such as Bahrain, Kuwait, Qatar, and the United Arab Emirates.

The impact of the brain drain on countries, particularly developing and transition countries, is difficult to assess. On the one hand, the migration of significant numbers of skilled professionals from poorer nations is a major impediment to economic growth in less developed regions. The depletion of a nation's talent pool affects some countries more than others. For example, over half of all college-educated professionals from Jamaica and Haiti—two of the Western hemisphere's poorest countries—live and work in the United States or United Kingdom. The brain drain from other Latin American countries, including the Dominican Republic, El Salvador, Guatemala, Guyana, and Mexico, depletes these countries' human capital. The United States also attracts disproportionately high percentages of highly educated people from Africa.

On the flip side there are benefits derived from the exodus of human capital. First, significant remittances return to professionals' homelands. Remittances are monetary sums that are earned by workers in one country but sent to relatives, friends, business associates, or others in the home country. According to the International Organization for Migration, total remittances by skilled and unskilled workers in the global economy surpassed $100 billion in 2003.

Remittances stimulate consumer demand for goods, provide seed money for business investments, and otherwise support business activity in developing countries. Second, the availability of sophisticated information and communications technologies encourage professionals to network with one another, within nations and between nations. Networking between expatriates and their colleagues back home promotes positive transfers of knowledge to developing countries. Further, globalization has relaxed many barriers to cross-border travel and the movement of labor. In time, the brain drain from the developing world might be replaced with the brain circulation—the return of skilled nationals to their land of origin. This influx of human capital could be a significant step toward sustainable economic development.

The brain drain has been a sensitive topic in relations between the global North and global South for many years. To lure expatriates back to their homelands and retain professionals already residing in developing countries, national governments must create a suitable economic and social climate in which to nurture their talents. Key ingredients in this new environment include real opportunity for social and economic advancement, substantial investment in research and development

(R&D), guarantees for security of person and property, and provision of public goods to satisfy vital social needs in education, health and nutrition, communications and transportation, and information.

David E. O'Connor

See also: Developing Countries; Development Economics; Easterly, William; Organisation for Economic Co-operation and Development; Sustainable Economic Development; *Vol. 1: Foundations of Economics:* Factors of Production

Further Reading

Carrington, William J., and Enrica Detragiache. 1999. How extensive is the brain drain? *Finance and Development*: *Transitions Achievements and Challenges* June: 46–49.

Cervantes, Mario, and Dominique Guellec. 2002. The brain drain: Old myths, new realities. *OECD Observer* January (230): 40. http://oecdobserver.org/news/archivestory.php/aid/673/The_brain_drain:_Old_myths,_new_realities.html (accessed September 30, 2016).

International Organization for Migration. 2003. *The International Organization for Migration*. New York: United Nations Publications.

Khadria, Binod. 2000. *The migration of knowledge workers: Second generation effects on India's brain drain*. Thousand Oaks, CA: SAGE Publications.

Masey, Douglas S., and J. Edward Taylor. 2004. *International migration: Prospects and policies in a global market*. New York: Oxford Univ. Press.

United Nations. 2003. *International Migration Report 2002*. New York: United Nations Publications.

BRAZIL: GENERAL ECONOMY

Brazil is the largest country in South America. It has the largest economy and gross domestic product (GDP) of all countries in South America. In 2015 Brazil's economy is the ninth largest economy in the world. The Brazilian economy has been stagnant for much of the early 21st century. The Brazilian real has been the currency of Brazil since 1993.

Iron ore is the country's top export. However, petroleum-based products and agricultural goods are similar in their economic impact. In sports, the 2014 FIFA World Cup and the 2016 Olympic Games were held in Rio de Janeiro.

The geographic size of Brazil allows for many different resources to be found within the country. These resources are key for Brazil to be a major player in the economic world. As South America's largest economy its role is global as well as regional. Brazil's economic growth ignited an economic boom in South America. The growth of Brazil has benefited its people and has become one of the most powerful nations in the economic world.

The economy of Brazil has developed in a very short period, from approximately 2006 to 2010. Its economy is mainly based on agriculture, mining, manufacturing, and service jobs. About one-fifth of the workforce in Brazil is based in agriculture. Brazil is one of the world's largest suppliers of iron ore, its top export. Brazil is also a world leader and exporter in coffee and soybeans. These three goods account for about a quarter of all of Brazil's exports. Brazil's economy has struggled since the global recession of 2008. In 2014 Brazil's economy only grew at a minimal 0.1 percent but had a relatively high 6.4 percent inflation rate. Inflation continued to be an economic problem in 2015 with an 8.7 percent rate.

It was anticipated these events would significantly help the future Brazilian economy. The government set aside over 1 trillion US dollars to build 12 arenas and stadiums throughout the country. It was estimated these two major global events would boost the country's economy and be a showcase for private investors. The two events were expected to add thousands of jobs to the economy.

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See also: BRICS: Brazil, Russia, India, China, and South Africa; Inter-American Development Bank; International Economics; International Finance; International Trade

Further Reading

The Heritage Foundation. n.d. Brazil: Restoring economic growth through economic freedom. http://www.heritage.org/research/reports/2012/09/brazil-restoring-economic-growth-through-economic-freedom (accessed December 28, 2015).

XE. n.d. BRL—Brazilian Real. http://www.xe.com/currency/brl-brazilian-real (accessed December 28, 2015).

Zimbalist, Andrew. 2013. Brazil's long to-do list. *America's Quarterly* (Summer). http://www.americasquarterly.org/zimbalist (accessed December 28, 2015).

BRETTON WOODS AGREEMENT

The Bretton Woods Agreement was an international monetary contract for exchanging one currency for another. In 1944, representatives from 44 nations came together in Bretton Woods, New Hampshire, to establish an agreement to monitor exchange rates and lend funds to member nations with trade deficits. The agreement was followed by the creation of the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development, now known as the World Bank. In 1971, President Richard Nixon put an end to the Bretton Woods Agreement by discontinuing the link between gold and the dollar, known as the gold standard.

In 1944, as World War II was drawing to a close and after more than two years of planning and negotiation, 44 allied nations came together in Bretton Woods, a resort village in New Hampshire, to discuss postwar monetary reconstruction. Two competing plans dominated the meeting: that of Henry Dexter White, from the United States, and that of John Maynard Keynes, from England. Except for differences on issues related to future access to international liquidity, the two plans were almost identical. The final agreement, Bretton Woods Agreement however, was much closer to the one offered by the United States, which, considering the increasing power of the United States at that time, was not surprising.

The Bretton Woods Agreement was based on four fundamental factors. First, the negotiators agreed on a new par value exchange rate system, which allowed member countries to declare a par value for their national currencies and, if required, to limit exchange rate fluctuations within a certain set of margins. All participating nations agreed that the unrestricted floating exchange rates of the 1930s would not attract trade and investment in the post–World War II era. On the other hand, they knew that the fixed exchange rates of the 19th century would not be applicable either. The par value system was basically a compromise between a completely fixed and a floating exchange rate, where nation members could, based on agreed-upon procedures, change their par value for reasons such as a domestic financial crisis or reserve currency crisis.

Second, because exchange rates were not to float freely (as they had in the past), member countries needed a guarantee of enough emergency supply of monetary reserve. Negotiators did not change the international liquidity system, which was mainly based on national stocks of gold or gold exchange (currencies that could easily be converted to gold). Therefore, the Bretton Woods Agreement created a system of subscriptions and quotas, which was a fixed basket of national currencies and gold subscribed to by each member country. Accordingly, each country had to pay 25 percent in either gold or currency convertible into gold (at the time, only the dollar had this status) and 75 percent in the member country's currency. Thus, if needed, each member country was entitled to borrow foreign currency based on the size of its quota.

Third, in order to prevent the economic conflicts of the 1930s, all member countries were prohibited from getting involved in discriminatory currency or exchange regulation. The Bretton Woods Agreement removed the pre–World War II exchange control, which limited currency convertibility between the member nations. There were two exceptions to this agreement: (1) the agreement only applied to existing international transactions in goods and services, not the capital account, and (2) if the member country decided, the agreement could be put off during the post–World War II transitional period.

Fourth, all members agreed that there was a need for an institutional assembly to monitor and regulate international monetary issues. The member countries decided to set up a voting system among participant countries based on the proportion of each country's quotas. Therefore, the United States, providing 75 percent of the Institute of Monetary Fund (IMF) quotas, gained tremendous international power over all other member countries.

In summary, the Bretton Woods Agreement was an international monetary policy based on the same gold standard of the past but with a new par value exchange rate system; it created the IMF as an international institution to centralize a reserve of gold and national currencies for emergency monetary needs of the member countries. The IMF was the result of the Bretton Woods Agreement and had three important tasks: (1) administrative and regulatory responsibilities, (2) financial responsibilities, and (3) advisory responsibilities.

As it turned out, contrary to what members of the Bretton Woods Agreement expected, the transition period during the post–World War II era was long and unstable, and the IMF's initial fund was not enough to cover various funding requests. Hence, for over a decade, the IMF's lending power declined to a minimal amount. Due to its financial and economic power, the United States became the only global monetary stabilizer for decades after World War II.

Despite the fact that Bretton Woods was an international agreement, in practice, its initiation, its future developments, and finally its termination were directly under the influence of the United States. The agreement offered strong evidence of the growing international power of the United States in the post–World War II arena. The U.S. dollar enjoyed a powerful position in international trade for a long period of time after the agreement. However, it was the United States that put an end to the Bretton Woods Agreement. On August 15, 1971, President Nixon ended the convertibility of the dollar into gold by setting it free to float independently in the global currency market. Eighteen months later, all industrial countries followed suit.

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See also: Bretton Woods System; International Monetary Fund; World Bank; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; *Vol. 2: Macroeconomics:* White, Harry Dexter

Further Reading

Council on Foreign Relations. 2013. Teaching module: The battle of Bretton Woods. http://www.cfr.org/europe/teaching-module-battle-bretton-woods/p31080 (accessed December 15, 2015).

Eichengreen, Barry. 2004. Global imbalances and the lessons of Bretton Woods. *Economie Internationale* 4: 39–50.

Hammes, David, and Douglas Wills. 2003. Black gold: The end of Bretton Woods and the oil price shocks of the 1970s. *Independent Review* 9 (4): 501–11.

Helleiner, Eric. 1996. *States and the reemergence of global finance: From Bretton Woods to the 1990s*. Ithaca, NY: Cornell Univ. Press.

BRETTON WOODS SYSTEM

The Bretton Woods System refers to the institutions and operation of the international monetary system from 1946 to 1973. The Bretton Woods System takes its name from Bretton Woods, New Hampshire, which hosted the groundbreaking Bretton Woods Conference from July 1–20, 1944. At this conference representatives from 44 countries met to discuss the creation of three multilateral institutions: the International Monetary Fund (IMF), International Bank for Reconstruction and Development (World Bank), and International Trade Organization (ITO).

Conference proceedings were dominated by the United States and the United Kingdom. Harry Dexter White, U.S. Secretary of the Treasury, headed the American delegation, and John Maynard Keynes led the British team. The final Bretton Woods Agreement was successful in establishing the IMF and World Bank, but set aside ITO negotiations for a later date. The Bretton Woods Agreement also established overarching goals for the post–World War II era. These goals included the reconstruction of Allied and Axis economies, long-run economic growth and stability, and world peace. Shortly after the San Francisco Conference of 1945 established the United Nations (UN), the IMF and World Bank joined the UN system as autonomous specialized agencies.

The Bretton Woods System was based on multilateral cooperation rather than the traditional bilateral agreements that dominated the pre-war era. Multilateral cooperation through supranational institutions, such as the IMF and World Bank, was necessarily balanced with national interests, however. The IMF promoted economic stability and worked to create an orderly, predictable environment for international trade. Delegates to the conference agreed that a fixed exchange rate system would best support a stable global trading system. Under the fixed exchange regime, the value of national currencies was "pegged" to the U.S. dollar, a practice that permitted only small fluctuations in currency values. The value of the U.S. dollar, in turn, was set at $35 per ounce of gold. Soon, the noncommunist countries of the world recognized the U.S. dollar as the dominant, international currency against which all other currencies would be measured. The IMF also held reserves, partly paid in gold and partly in national currencies, which were contributed by member nations through subscriptions. Subscriptions were used to stabilize currencies and assist struggling nations with their balance of payments deficits. The IMF, with supranational authority, also reminded nations of their responsibilities to avoid protectionist trade measures and to support one another in times of financial crisis. The IMF's headquarters is located in Washington, D.C.

The second major Bretton Woods institution was the World Bank. Originally, the World Bank consisted of a single institution, the International Bank for Reconstruction and Development (IBRD). Its primary mission was to make loans to support the post-war recovery of European and Asian nations. The World Bank's initial pool of loanable funds was derived from subscriptions, which were assigned in rough proportion to each member nation's economic clout.

This meant that the United States was assigned the largest subscription quota. In 1947 the government of France received the World Bank's first loan, a tidy $250 million. During the 1950s World Bank lending gradually shifted from post-war reconstruction to economic development in the third world. In later decades four complementary institutions were added to IBRD to form the World Bank Group. These institutions were the International Finance Corporation (1956), International Development Association (1960), International Centre for Settlement of Investment Disputes (1966), and Multilateral Investment Guarantee Agency (1988). The World Bank's headquarters is located in Washington, D.C.

The Bretton Woods Conference also laid the groundwork for a third multilateral institution, the International Trade Organization (ITO). The ITO's mission was to promote free trade in the post-war global trading system. Despite being shelved at the Bretton Woods Conference, high-level negotiations continued at separate conferences in London, Geneva, and finally in Havana. In 1948 delegates from 54 countries signed the ITO Charter, also called the Havana Charter. In several leading countries enthusiasm for yet another multilateral institution had cooled, however, by the late 1940s. In the United States, Congress failed to ratify the Havana Charter, and by 1950 the idea of an ITO was abandoned. The provisional General Agreement on Tariffs and Trade (GATT), which had provided a forum for multilateral trade negotiations since 1947, now took center stage in global free trade efforts. GATT, an agreement rather than a multilateral institution, was less threatening to many nations. From 1947 to 1994, eight trade rounds were conducted under the auspices of GATT. Delegates to GATT's eighth and final trade round founded the World Trade Organization (WTO) in 1994. The WTO commenced operations in January 1995.

The Bank for International Settlements (BIS) was another multilateral organization that supported the Bretton Woods System from 1946 to 1973. The BIS headquarters is in Basel, Switzerland. The BIS was established in 1930 to promote international monetary and financial cooperation among central banks and to serve as a bank for the world's central banks. Its founding was instigated by the global depression, which began in some countries during the late 1920s and continued into the 1930s. The BIS accepts deposits from member central banks to create a reserve of funds. These reserves are loaned to central banks to meet local banking needs and to avert financial crises. Cooperation between the BIS, IMF, World Bank, and GATT advanced their mutual goals.

The Bretton Woods System collapsed in 1973, but signs of its demise were present by the 1960s. One major weakness was an over-reliance on the United States to promote economic growth and stability in the global arena. During the post-war years foreign countries relied on open U.S. markets to sell their exports, extensive U.S. aid programs such as the Marshall Plan to fund their reconstruction, and a continuous flow of U.S. loans to jump-start development.

These significant outflows of money, plus massive expenditures for the Vietnam War and Great Society Programs during the 1960s, increased American debt. In the United States these stresses showed up in the form of inflation, sluggish growth, and large federal budget deficits. In the global economy there was also an oversupply of U.S. dollars stashed in foreign central banks as foreign reserves. Complicating U.S. economic woes was its pledge to convert U.S. dollars into gold on request by foreign governments. U.S. gold supplies dwindled as foreign governments cashed in their dollars for gold. In 1971 President Richard Nixon ordered an end to the conversion of dollars into gold, a policy that weakened confidence in the U.S. dollar and in the Bretton Woods System. The economic turmoil in the U.S. economy by the early 1970s, coupled with the U.S. refusal to convert foreign-held dollar reserves into gold, doomed the fixed exchange rate system. In 1973 a flexible exchange rate system was introduced to replace the fixed exchange rate system.

Despite the collapse of the gold standard and the introduction of a flexible exchange rate system, the Bretton Woods institutions survived the traumas of the early 1970s. Institutions such as the IMF, World Bank, BIS continued their work to promote international trade, economic growth and stability, and global peace. GATT organized additional multinational trade rounds, including the Tokyo Round (1973–1979) and the Uruguay Round (1986–1994). The WTO was born in 1995, joining the IMF and World Bank as one of the Big Three global institutions to guide economic relations among nations. The spirit of a multilateralism is, in large measure, the legacy of the Bretton Woods System.

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See also: Bank for International Settlements; Exchange Rates; General Agreement on Tariffs and Trade; International Monetary Fund; World Bank; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; *Vol. 2: Macroeconomics:* White, Harry Dexter

Further Reading

Battilossi, Stefano, and Youssef Cassis. 2002. *European banks and the American challenge: Competition and cooperation in international banking under Bretton Woods.* New York: Oxford Univ. Press.

Eichengreen, Barry, and Michael D. Bordo, eds. 1993. *A retrospective on the Bretton Woods system: Lessons for international monetary reform.* Chicago, IL: Univ. of Chicago Press.

James, Harold. 1996. *International monetary cooperation since Bretton Woods.* New York: Oxford Univ. Press.

Kirshner, Orin, Edward M. Bernstein, and Institute for Agriculture and Trade Policy. 1995. *The Bretton Woods–GATT System: Retrospect and prospect after fifty years.* Armonk, NY: M. E. Sharpe.

Stevenson, Jonathon. 2000. *Preventing conflict: The role of the Bretton Woods institutions.* Washington, DC: International Institute for Strategic Studies.

BRICS: BRAZIL, RUSSIA, INDIA, CHINA, AND SOUTH AFRICA

BRICS is an abbreviation for the countries Brazil, Russia, India, China, and South Africa. These countries are expected to be the world's largest suppliers of manufactured goods and services. With their emerging markets and large population the BRICS countries are expected to have the highest GDP in the world. South Africa joined the BRIC group in 2010, making it BRICS.

Starting in the year 2001, the GDP of the then-BRIC countries (Brazil, Russia, India, and China) was set to rise 1.7 percent per year and grow from there. Economist Jim O'Neill, chief of management for Goldman Sachs, predicted that this would be the fastest growing economic market by 2050 (O'Neill, 2001). This is due to the countries' natural resources and industries. For example, Russia and Brazil are recognized by their raw materials such as fossil fuels and uranium, which they send over to China and India where they are made into products to be distributed around the world, becoming the world's top producers of goods and services. These countries will set up economic blocks so they can cooperate with each other, and begin a chain of growth that is expected to develop over the decades.

Based on the Population Reference Bureau, the population of the BRICS countries is a major reason for their growth and economy size. The BRICS countries rank in the top 10 largest populated countries in the world. However, a slowdown in population growth of the BRICS countries is anticipated. The average population of people over the age of 15 is about 78 percent. The current percentage of population under the age of 15 is about 22 percent. This will impact the labor force participation rate. Now that jobs are opening up, more people who are looking for jobs will be able to work. With this kind of large working-age population the BRICS economies should surely grow. The BRICS countries combined to account for 40 percent of the world's population and 25 percent of the world's GDP. The group has also been trying to alter the unemployment rate. The bigger the labor force and labor participation, a lower unemployment rate and increased national income can be anticipated for the BRICS.

The original four BRIC countries, with representatives from Brazil, Russia, India, and China, first gathered formally on June 16, 2009, in Yekaterinburg, Russia. BRICS summits have been held each year since, in Brasilia, Brazil (2010); Sanya, China (2011); New Delhi, India (2012); Durban, South Africa (2013); Forteleza, Brazil (2014); Ufa, Russia (2015); and Goa, India (2016). Topics discussed at the summits include terrorism, the environment, agriculture, trade, and new economic development projects. During the 2016 summit the organization's New Development Bank, created in 2015, discussed funding projects in the nations including research centers in agriculture, transportation, and sports.

Taken together the five nations are nations to be taken seriously in the future. Their increase in GDP and their emerging economies are only some of the impressive things the BRICS will accomplish throughout the decades.

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See also: Brazil: General Economy; China: General Economy; India: General Economy; Russia: General Economy

Further Reading

fin24. March 26, 2013. Get the facts on BRICs. www.fin24.com/Economy/Get-the-facts-on-Brics-20130326 (accessed September 10, 2015).

Global Sherpa. n.d. BRIC countries—Background, key facts, news and original articles. www.globalsherpa.org/bric-countries-brics/ (accessed September 10, 2015).

O'Neill, James, and Goldman Sachs Economic Research Group. 2001. Global economics paper No. 66: Building better global economic BRICs. GS Global Economics. www.goldmansachs.com/our-thinking/archive/archive-pdfs/build-better-brics.pdf (accessed September 10, 2015).

Population Reference Bureau. 2012. The BRIC countries. April. http://www.prb.org/Publications/Articles/2012/brazil-russia-india-china.aspx (accessed October 18, 2016).

BRITISH PANIC, 1825

The panic of 1825 was a British phenomenon that would affect the United States in a series of mild recessions in the later part of the 1820s. It would show the interrelationships of global finances and economies and would also highlight the dual nature of the American economy. The collapse of British banks affected the cotton and slave trade of the South more than the rest of the United States, and cotton prices declined to depression levels over the period. The divide between the economies of the North and South would lead to major political battles over tariffs. New England felt the effect of the British panic on its triangular trade with the West Indies. Generally, however, American manufacturing was affected slightly favorably.

The panic of 1825 started in Great Britain after a stock market crash fueled speculation, much of which was in South American debt. Most of the speculation centered on mining stocks in Mexico and South America. After Spain left its South American colonies, Britain looked to invest in the region's gold and silver resources. British banks lowered the margin for borrowing money to make investments in South America to a mere 5 percent, creating a mania throughout the general population. In Great Britain this mania would approach the levels of the South Sea Bubble. British speculation fueled a burst in commodity prices, which affected the United States. Coffee prices rose as much as 80 percent. Spice, silk, wool, and other goods tripled in price. In the United States, these price increases especially affected the South, which remained highly dependent on British goods. In addition, the European recession, which resulted from the collapse of British banks when this investment mania ended, created a crash in the cotton market. Until the Civil War, the South often suffered as much from British panics and recessions as those of the United States.

Years of economic expansion had made Great Britain ripe for a contraction. At the time, the Bank of London was a private bank with responsibilities to its shareholders. Furthermore, the bank's investors had formed partnerships to invest in high yielding but risky South American notes. The bank's notes became a target for speculators as a bubble grew. When the bubble burst, the Bank of London and many private banks suffered a run on deposits from members of the general public who were depositors. A true panic quickly spread through the country. With no central bank, Great Britain could not contain the panic, which spread quickly throughout the British banking system. The public demanded gold, and the British banks soon ran short. As bank after bank fell, the panic spread.

Unlike the Bank of the United States, the large Bank of London was not a central bank. Instead of acting as a lender of last resort, the Bank of London had tried to protect itself. Eventually, more than 60 banks would fail in Great Britain in 1825, and more than 200 in the next few years. The panic would spread to European banks and other countries as Latin American notes collapsed, British banks failed, and investor bankruptcies spread. By 1826, the panic had created a shortage of credit and an unsold inventory of goods built up with the country's merchants. Merchants started to dump these goods on America at huge discounts, which suppressed manufacturing in the states.

More problems soon crossed the Atlantic to North America. The South was being squeezed on many fronts. The plantation cotton system depended on the availability of credit on both sides of the Atlantic. The panic of 1825 had severely restricted British sources of credit for southern plantation owners. The recession in Great Britain had naturally reduced the amount of cotton purchased from America. American tariffs had slowed imports of British goods into the United States, which upset the South's whole system of trade. In addition, cotton was beginning to be replaced by wool in Great Britain.

Additional pressure not to buy American cotton was coming from British abolitionists, who did not want British money to support the South's slave-dependent plantation system. The price of cotton and tobacco continued to fall. The British recession caused prices of imported goods to fall and flood American markets. Again, New England and the Mid-Atlantic states called for additional tariffs in response. The tariffs were increased, only furthering the economic slide in the South. Some of the very conditions pushing the South into depression were actually causing manufacturing to expand in the North. The huge economic divide only further enlarged the country's political divide. In America, many of the results of this British panic of 1825 would lay the economic background for the Civil War.

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See also: Protectionism; Tariffs; *Vol. 1: Foundations of Economics:* Great Depression Wall Street Crash, 1929; *Vol. 2: Macroeconomics:* Great Recession, 2009; Panic and Global Depression, 1873; *Vol. 3: Microeconomics:* Subprime Mortgage Bubble and Crisis

Further Reading

Clapham, John. *The Bank of England: A history.* Cambridge, UK: Cambridge Univ. Press, 1945.

Wilentz, Sean. *The rise of American democracy: Jefferson to Lincoln.* New York: W. W. Norton & Company, 2005.

BUNDESBANK

In May 1949 the German government was required by its Basic Law to create a central bank for the issuing of a German currency. The Bundesbank was founded on July 26, 1954, as the central bank for the Federal Republic of Germany, located in Frankfurt, Hesse, Germany.

After World War II, hyperinflation had rendered the Reichsmark worthless. A currency change became necessary. The German government created the Bundesbank originally to replace the old Reichsmark. In later years, once the European System of Central Banks had emerged, however, the Bundesbank's role has been mostly one of communicating and being the German point of contact with the other central banks of the European Union.

Known as the Deutsche Bundesbank its singular charge was price stability within Germany. With the creation of the European monetary union and implementation of the euro in 1999 the European Central Bank (ECB) became the central bank responsible of price stability not only in Germany but also throughout the Eurosystem. The European Central Bank and the national central banks of the European Union (EU) member states that adopted the euro from the Eurosystem.

The Bundesbank keeps track of Germany's national accounts, calculating the economy's gross domestic product (GDP). The bank provides data needed for continual economic analysis. Most notably the Bundesbank issues quarterly and annual data on Germany's GDP along with current price stability data on inflation or deflation. Because of the rules set by the Eurosystem, the Bundesbank also offers various services to other central banks, international organizations, and monetary authorities outside the euro area. Within Germany it also conducts functions similar to other central banks including issuing banknotes for general cash circulation and checks for and removes counterfeit money from circulation.

The Bundesbank has nine regional offices and 35 branches. The regional offices organize events for people to inform the general public about issues related to money, financial markets, and monetary policy. The central bank works with the regional offices to control their region's banks.

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See also: Bank of Japan; Germany: General Economy; *Vol. 1: Foundations of Economics:* Central Bank; *Vol. 2: Macroeconomics:* Federal Reserve System

Further Reading

Central Intelligence Agency. n.d. Germany. The World Factbook. www.cia.gov/library/publications/the-world-factbook/geos/gm.html (accessed October 30, 2015).

Council of Foreign Relations. n.d. Germany's Central Bank and the eurozone. www.cfr.org/world/germanys-central-bank-eurozone/p29934 (accessed June 20, 2016).

Deutsche Bundesbank: Eurosystem. n.d. "Bundesbank." www.bundesbank.de/Navigation/EN/Bundesbank/Technical_Central_Bank_Cooperation/General_information/general_information.html (accessed June 20, 2016).

Siebert, Horst. 2005. *The German economy: Beyond the social market*. Princeton, NJ: Princeton Univ. Press. press.princeton.edu/chapters/s7948.html (accessed September 30, 2016).

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CANADA'S ECONOMY: OIL, GAS, TAR SANDS

For years, countries such as Kuwait and Saudi Arabia have been the leading exporters of crude oil, allowing them to set the global cost of oil per barrel. Many countries, including Canada, have worked on finding ways to both mine their oil and do their own refining. It is not always a good thing to have an abundance of a resource if you are the producer. Canada very well may suffer economic damage based on having too much crude oil, falling victim to the one resource trap.

Canada is the world's 11th largest economy. In 2015 it was ranked as the sixth freest and the eighth wealthiest based on per capita income. In 2016 Canada's economy was a slow growth economy at below 2 percent, with a relatively small trade deficit.

Of its many trading partners, the United States is the country that Canada both imports the most goods from and to which it exports the most goods, by far. Canada's number one export customer is the United States, exporting 77 percent of all its exports to the United States in 2015. While not quite as staggering, at 53.1 percent, the United States supplied the majority of Canadian imports in 2015.

The global economy is driven by the ability of companies to make a profit and consumers to get the goods and services they want and need. One of the resources that causes an uproar for many people is oil. Even if you do not own an automobile the price of oil is a driving force in the global economy. Canada is no different than the United States when it comes to the role that the price and availability of oil plays in its economy. Canada is using a different type of oil recovery to help meet its need for oil in order to not be dependent on other countries for this resource.

The western province of Alberta, Canada, is home to the Alberta oil sands, which is where tar sand deposits are found, mined, and refined. The projected amount of tar sand available for mining is calculated to be over 170 billion barrels. Tar sand is a combination of sand, clay, water, and bitumen. Bitumen is an organic byproduct mixture of hydrocarbons as a tar-like substance and nonmetallic byproducts. One can argue that the availability of tar sand to be mined and refined is a good thing for the consumer; however the other side of that coin has environmentalists upset due to the effects of this mining on the environment.

The question is whether the ability to provide oil to the consumers is more important than stopping or slowing down global warming. Those opposed to mining tar sand are more concerned with protecting the environment and not allowing these "carbon bombs" into the air than with the price of the oil. The critics of mining tar sand suggest it is worse for the climate than drilling for oil.

The major oil companies in Canada that are part of the tar sand mining industry are now losing money or are just breaking even. There are many factors to why this is happening. First the United States is now able to drill for oil using fracturing through shale ("fracking").

The United States was planning on building a pipeline (Keystone XL) through Nebraska to connect with the existing Keystone pipeline. In 2016 President Obama halted construction of the new pipeline. However, there is another proposed pipeline, the Dakota Access or Bakken Pipeline, which will extend from North Dakota to Illinois. It is similar in length to the Keystone XL and crosses four states, although this pipeline project has been met by protests from environmental groups in all four of the states. Also, the price of oil that the Unites States is importing from other countries has been at a very low price per barrel. With these factors, the need for tar sands from Canada has decreased.

The Canadian government has in the past supported the tar sand expansion in Calgary. Yet there is a good chance that some political leaders will be affected by the fact that these oil companies are losing money and profits are diminishing. This has been a platform for the businesses that profit from tar sand mining. However, with the decrease in demand there most likely will be an increase in unemployment of tar sand miners. This will then have a trickle-down effect through all of the businesses. Which in turn will make those political leaders who have supported the tar sand expansion vulnerable in elections.

Because of Canada's strong trade connection to the United States, the Canadian economy felt the effects when its oil sales to the United States fell 2.8 percent. This decrease affected Canada's growing trade gap in a negative way. Due to the loss of petroleum sales, several of Canada's other exports also took a significant dip, including farm, fishing, and intermediate food products, which declined by 7.3 percent. Overall the country's trade deficit is 2.3 billion U.S. dollars.

Not only did its exports decrease, but Canada's imports also took a hit during 2015. Imports sank about 0.8 percent. While this percentage isn't quite as large as the export fall, it still impacts the country's economy. The main area that took a fall in imports was its consumer goods, falling 3.3 percent.

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See also: Globalization; North American Free Trade Agreement; Trade Policy; *Vol. 1: Foundations of Economics:* Environmental Economics; Environmentalism; Resources

Further Reading

Alberta Energy. 2015. Facts and statistics. www.energy.alberta.ca/oilsands/791.asp (accessed October 29, 2015).

Central Intelligence Agency. 2016. Canada. The World Factbook. www.cia.gov/library/publications/the-world-factbook/geos/ca.html (accessed November 5, 2016).

European Commission, Press Releases. n.d. Canada-EU Summit; A new era in Canada-EU relations: Declaration by the Prime Minister of Canada and the Presidents of the European

Council and the European Commission. europa.eu/rapid/press-release_STATEMENT-14-288_en.htm (accessed December 1, 2015).
Merriam-Webster. n.d. Bitumen. http://www.merriam-webster.com/dictionary/bitumen. (accessed November 5, 2016).
Noon, Marita. 2016. The new pipeline is moving ahead. *The American Spectator*, August. http://spectator.org/the-new-keystone-pipeline-is-moving-ahead/ (accessed November 5, 2016).
The Observatory of Economic Complexity. 2015. Canada. http://atlas.media.mit.edu/en/profile/country/can/ (accessed September 30, 2016).
Oil Shale and Tar Sands Programmatic EIS. 2012. About tar sands. ostseis.anl.gov/guide/tarsands/ (accessed September 30, 2016).
Trading Economics. 2016. Canada balance of trade, 1971–2015. www.tradingeconomics.com/canada/balance-of-trade (accessed September 30, 2016).
24/7 Wall St. 2011. The ten largest oil deposits in the world. 247wallst.com/energy-business/2011/08/31/the-ten-largest-oil-deposits-in-the-world/#ixzz3pjAGjn7d.

CAPITAL ACCOUNT

The capital account is one of the three accounts used to make up a nation's balance of payments, which is used to track international transactions. The current account and the financial account are the two other accounts that round out the balance of payments for a nation. All three accounts give a summary of the net flow of both private and public investment into an economy. The capital account is often the minor of the three accounts for most countries, accounting for specialized types of relatively small capital flows.

The major transactions encompassed in the capital account are capital transfers and acquisition/disposal of nonproduced, nonfinancial assets. Capital transfers consist of transfers of ownership of fixed assets; transfers of funds connected to, or accompanying an acquisition or disposal of fixed assets; or elimination of liabilities by creditors. This does not cover land in a specific economic territory. Capital transfers include two components. First, general government, subdivided into debt forgiveness, and second, other subdivided into migrants' transfers, debt forgiveness, and other transfers.

The capital account presents the flow of assets during the year, rather than the stock of assets that have accumulated over time. Additionally all flows are "net" changes rather than "gross" changes. Net changes are informative because they measure the monetary value of the change in a country's financial stake in foreign economies. Under standard accounting procedure used to tabulate credits and debits, outflows of capital assets are debits (negative) and inflows are credits (positive).

A surplus in a nation's balance of payments capital account occurs when payments received by the country for selling domestic assets exceed payments made by the country for purchasing foreign assets. This is generally a desirable situation for a domestic economy. Conversely, looking at a capital account surplus through international economics, it is often balanced by a current account deficit, which is not generally considered a desirable situation. If, however, the current account does not balance out the capital account, then a capital account surplus contributes to a balance of payments surplus. For reference, the United States' capital account at the end of the first quarter for 2014 was $0.04 billion.

The financial account is often intertwined with the capital account because they both record international capital flows. Today's economy is seemingly growing more and more open to world trade and according to theory, will lead to a greater prosperity for all. This being said, many developing economies have "open" capital and financial account policies as a part of their economic reform program, which is often in concurrence with the International Monetary Fund.

Lauren Major

See also: Balance of Payments; Balance of Trade; Current Account; Trade, Measures of

Further Reading

Bakker, Age, and Bryan Chapple. 2002. *Advanced country experiences with capital account liberalization*. Washington, DC: International Monetary Fund.

Eichengreen, Barry J., Michael Mussa, and Giovanni Dell'Ariccia. 1998. *Capital account liberalization: Theoretical and practical aspects*. Washington, DC: International Monetary Fund.

Jeanne, Olivier, Arvind Subramanian, and John Williamson. 2012. *Who needs to open the capital account*. Washington, DC: Peterson Institute.

CENTRAL AMERICAN COMMON MARKET

The Central American Common Market (CACM) is a five-nation multilateral trade organization. The General Treaty on Central American Economic Integration established the CACM in 1960. The CACM's founding members included El Salvador, Guatemala, Honduras, and Nicaragua. Costa Rica joined in 1962. The General Treaty on Central American Economic Integration outlined an ambitious five-year plan to create a Central American free trade area (FTA), a customs union, and eventually a common market. The notion that these goals could be met within a five-year period was bolstered by the nations' success in negotiating earlier treaties, such as the Multilateral Treaty of Central American Free Trade and Economic Integration (1958), and the Central American Agreement on the Equalization of Import Duties and Charges (1959).

During the 1960s, the CACM made significant progress in reducing intra-region trade barriers, and by instituting a common external tariff (CET), a uniform tariff that is levied on imports from nonmember nations. The elimination of tariffs and other trade barriers within the CACM resulted in a tenfold increase in intraregional trade during the decade. Thus, a solid groundwork for a Central American FTA was laid by the mid-1960s. Also during the 1960s, the CACM took giant steps toward forming a customs union by successfully implementing a CET. The daunting task of creating a common market remained.

The CACM's plan to create a common market has been pitted with detours, false starts, and dead ends since the 1960s. In fact, the goal of forming a true common market never materialized. A common market is a higher form of economic integration. It is based on a functioning free trade region, the CET, and free cross-border movements of all factors of production—natural resources, human resources, and capital goods. To create a common market, the CACM solicited the support and cooperation of the larger Latin American Free Trade Association. This association consisted of Mexico and the economies of most South American countries. Negotiations stalled during the 1970s, and in 1980 the dysfunctional Latin American Free Trade Association dissolved. Its successor organization, the Latin American Integration Association, refocused its energies on creating a Latin American FTA rather than a common market.

The inability of the CACM to maintain its free trade area and customs union during the turbulent 1970s and 1980s was largely the result of intraregional tensions and conflicts during the period. For instance, open warfare between El Salvador and neighboring Honduras erupted in 1969. At the root of this war was unbalanced economic development in the region, which favored El Salvador and Guatemala over some of their Central American neighbors. The growing development gap between El Salvador and Honduras, coupled with a widening Honduran trade deficit with El Salvador, boiled over into armed conflict. This conflict was not the only violence in the region, however. Prolonged and bloody civil wars in El Salvador and Nicaragua during the 1970s and 1980s, rampant government corruption, capital flight, protectionist trade policies, and intense competition among some Central American economies for limited export markets eroded popular support for regional integration. By the early 1990s the door had been nailed shut on proposals for a Central American common market.

In 1993, however, the five original CACM economies rekindled the idea of economic integration by forging a new Central American Free Trade Zone. Under the provisions of this agreement, tariffs and other trade barriers among member nations were once again eliminated. In addition, members of the new agreement became more outward-looking, seeking new economic alliances. The most significant outward-looking initiative was the successfully negotiated U.S.–Central America Free Trade Agreement, or CAFTA, which was signed in Washington, D.C., in May 2004. Soon thereafter, the Dominican Republic (DR), the largest Central American economy, also joined CAFTA. With the entry of the Dominican Republic, the DR-CAFTA region created the second largest U.S. export market in Latin America, second only to Mexico. The Office of the U.S. Trade Representative reported that two-way trade between the United States and the DR-CAFTA nations totaled $53 billion in 2015. The U.S. Senate approved CAFTA on June 30, 2005, with the House of Representatives following suit on July 28. The agreement took effect on January 1, 2009.

David E. O'Connor

See also: Regional Trade Agreements; Trade Policy; Trade, Measures of; *Vol. 3: Microeconomics:* Markets

Further Reading

Danielson, Anders, and Geske Dijkstra, eds. 2001. *Towards sustainable development in Central America and the Caribbean.* New York: Palgrave Macmillan.

De Alonso, Irma T., ed. 1994. *Trade, industrialization, and integration in twentieth-century Central America.* Westport, CT: Praeger Publishers.

Hufbauer, Gary C. 2001. *Trade policy, standards, and development in Central America.* Washington, DC: World Bank.

International Business Publications. 2001. *Central American Common Market investment and business guide.* Cincinnati, OH: Author.

Melmed-Sanjak, Jolyne, Carlos E. Santiago, and Alvin Magid, eds. 1993. *Recovery or relapse in the global economy: Comparative perspectives on restructuring in Central America.* Westport, CT: Praeger Publishers.

CHINA AND INDIA EMERGE AS WORLD ECONOMIC POWERS, 2005

The year 2005 marked the rise of China and India as powerhouse emerging markets in the world economy. After years of economic reform, political challenges, and private enterprise growth, both countries achieved new economic heights. The International Monetary Fund (IMF) (2007) estimates that the economies of China and India grew 11.3 percent and 9.1 percent, respectively, in 2005 as measured by GDP growth. In contrast, during the same time period the GDP of the United States grew 3.5 percent. The exceptional growth drew interest from businesses around the world that wanted to enter these dynamic markets with expanding consumer and government spending. The increased number of international firms entering these markets also increased job opportunities in these two countries, which further helped to increase the size of the middle class and its buying power, thus improving its standards of living.

China

In 2005, as China completed its 10th Five-Year Economic Program, its emergence as a world economic power solidified. The economy continued to grow with its GDP increasing 11.3 percent, a rate not seen since in the previous 10 years. The reasons for China's economic growth stem from major changes in government policies, such as the valuation of China's currency and private firm regulations.

Currency Policy Change

Until 2005, the Chinese currency, the renminbi (RMB), was pegged to the dollar. The government changed its valuation of the RMB to be compiled in reference to a floating basket of currencies. At that time, the currency was revalued about 2 percent against the U.S. dollar and allowed to fluctuate. The currency valuation change gave the government more power in fiscal policy, specifically, inflation control, interest rate instabilities, and market economics.

Private Firms

Although the government was practicing more control in the financial arena, it moved to reduce its intervention in some market activities. State-owned enterprises (SOEs) were favored by the government in China across almost all industries. In

2004, the government removed multiple regulations that in effect had impeded non-SOEs from entry into industries such as infrastructure and financial services. Although the result was not uniform or perfect, the relaxation of the dominance by SOEs created opportunities for non-SOEs to diversify into upstream and downstream industries. Also, these changes facilitated the efficiency of production, which could reduce prices for consumers and increase profit margins for firms. In total, private firms contributed more to the country's GDP than SOEs for the first time.

International Relationships

China's diplomatic and trading relationships with other countries improved during the early years of the 21st century. The country was admitted to the World Trade Organization (WTO) in 2001, which opened foreign direct investment (FDI) opportunities for China by allowing firms from other countries to wholly own enterprises in many industries. At the end of 2004, China entered into the Agreement on Trade in Goods of the Framework Agreement on Comprehensive Economic Co-operation between the Association of Southeast Asian Nations and the People's Republic of China (China-ASEAN Agreement on trade in goods) with 10 member nations of the Association of Southeast Asian Nations: Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei, Cambodia, Laos, Myanmar, and Vietnam.

The agreement on trade in goods reduced tariffs on more than 500 products and took effect in July 2005. In an unprecedented move, the leader of Taiwan's National Party, Lien Chan, visited China in April 2005. This was the first time leaders from the Republic of China's Nationalists (in Taiwan) and the Communist Party of China met since the end of their civil war in 1950. In total, exports from China increased over 25 percent and imports increased almost 20 percent. China's Ministry of Commerce reported that FDI into China grew almost 20 percent from 2004 to $72.4 billion with an additional $11.8 billion FDI in banking, insurance and securities.

India

In 2005, the economy of India grew faster than ever before with the GDP increasing 9.1 percent (International Monetary Fund). The increase in India's economic growth was due to a combination of many factors including government fiscal changes, foreign direct investment reform, and infrastructure industries investment. These changes were facilitated by the 2004 election of Manmohan Singh from the Indian National Congress political party as prime minister. This election marked a substantial change in political power from the incumbent National Democratic Alliance party. In April 2005 the "Open Skies Agreement" was signed between the U.S. and India, which eliminated restrictions between the countries. This was followed by Prime Minister Singh's visit to the United States in July, which initiated the 123 Agreement, also known as the U.S.–India Civil Nuclear Agreement. Confirmation of India's economic rise was provided when U.S. Secretary of State Condoleezza Rice visited in October 2008.

Fiscal Reform

The India government passed the Fiscal Responsibility and Budgetary Management (FRBM) Act in 2003 and the FRBM Rules in 2004. The FRBM aimed to increase transparency in the Indian financial system, decrease the fiscal deficit, and balance the budget. The FRBM took effect at the beginning of 2004 and by 2005 had made an impact. The Organisation for Economic Co-operation and Development (OECD) found that the FRBM reduced the governmental prevention of national savings and substantially reduced the fiscal deficit. India replaced the sales tax with a value added tax (VAT) to simplify tax collection and improve efficiency.

FDI and Infrastructure Industries

In 2005, India enacted policy reform to improve the ability of foreign firms to invest in the country. For one, India changed its FDI policy to allow foreign firms to own up to 100 percent of ventures in some industries including textiles, construction, telecommunications, and domestic civil aviation. New regulations reduced the licensing requirements for firms and improved access to foreign technology. The federal government also lowered tariffs, which motivated the increase of market entry by foreign firms from multiple countries. As a result, those living in India enjoyed lower prices. Additionally, firms found it easier to import machinery into their new manufacturing facilities, thus supporting further economic growth. Overall, the changes in industrial policies increased the level of FDI into the country.

Employment Reform

Changes in the Indian government were also evident in the employment reform. The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was enacted in 2005 to provide jobs to semiskilled and unskilled adults in rural areas of the country for at least 100 days each year. The Act was launched in 2006.

Summary

The year 2005 was an early signal of the growth ahead. Over the next few years, the growth in the economies of China and India continued to escalate until the global economic downturn in 2009. However, according to the International Monetary Fund (2007) both countries remained strong through 2012 with annual GDP growth over 5 percent, even in the face of GDP contraction in the United States and the European Union. Likewise, the governments are seeking new ways to maintain economic growth and prosperity as the world becomes more interconnected.

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See also: Asia-Pacific Economic Cooperation; Asian Crisis, 1997–1998; Asian Development Bank; Association of Southeast Asia Nations; Asian Tigers; BRICS: Brazil, Russia, India, China, and South Africa; India: General Economy; International Monetary Fund; International Trade; Yuan/Renminbi; *Vol. 1: Foundations of Economics:* Capitalism; *Vol. 2: Macroeconomics:* Fiscal Policy; Gross Domestic Product; Gross National Product

Further Reading

Herd, Richard. 2005. Policy brief: Economic survey of China, 2005. Organisation for Economic Co-operation and Development. http://www.oecd.org/china/economicsurveyofchina2005.htm (accessed May 15, 2013).

International Monetary Fund. 2007. *World economic outlook*, 2006. http://www.imf.org/external/pubs/ft/weo/2006/02/ (accessed May 15, 2013).

Morrison, Wayne M. 2006. China's economic conditions. http://www.fas.org/sgp/crs/row/IB98014.pdf (accessed May 15, 2013).

Organisation for Economic Co-operation and Development. 2008. Policy brief: Economic survey of India, 2007. http://www.oecd.org/eco/surveys/39452196.pdf (accessed May 15, 2013).

Yuann, James K., and Jason Inch. 2008. *Supertrends of future China: Billion dollar business opportunities for China's Olympic decade.* Hackensack, NJ: World Scientific Publishing Company.

Zhang, Marina Yue. 2010. *China 2.0: The transformation of an emerging superpower and the new opportunities.* Hoboken, NJ: John Wiley & Sons.

CHINA: GENERAL ECONOMY

In 1949, after a long civil war Mao Zedong and his Communist Party took power in China. Zedong remained in power till his death in 1976. Government planners controlled every aspect of the Chinese economy by giving ownership of all land, resources, and enterprises to the government. All key decisions regarding the economy were made by government planners, with the intent of the government controlling heavy industries, but eventually the government also took over the agricultural industry.

The government tried to build small factories to produce goods to be sold within China. These goods were expensive to produce and of very poor quality. In the 1950s the government forced many peasants onto farming communes and within a few years farm production dropped sharply. Facing food shortages the government eased its control over farming decisions made by workers on the communes. It also sent many factory workers to work on farms. These actions did help resolve the food crisis but China's economy continued to fall.

The Great Leap Forward

In the mid-1950s Mao Zedong began to implement a policy of using the state monopoly on agriculture to finance industrialization of China. The policy was the gradual establishment of agricultural cooperatives comprising 5 to 15 households in the early 1950s to 100 to 300 cooperative agricultural households by the mid-1950s. Additionally, in 1954 peasants were encouraged to form and join collectives in hopes of increasing their efficiency without taking away their land ownership. Mao saw grain and steel production as the key pillars to economic development and his goal was for China's steel production to surpass that of the United Kingdom. The agricultural sector of China would feed and fund the industrial sector. The first phase of collectivization was not a great success and there was widespread famine by 1956.

In 1958 private ownership of land was completely abolished and households all over China were forced into state-operated communes. Zedong ordered that the communes must produce more grain for the cities. Millions of Chinese became state workers as a consequence of this industrial goal with 21 million Chinese workers added to the non-agricultural state payroll by 1958.

By 1960, total state employment reached a peak of 50.44 million, which placed a major strain on China's food rationing system, which led to an increased and unsustainable demand on rural food production. With so many people employed by the state and with such high demand on agriculture to feed the people and help to finance the steel industry the Great Leap Forward led to the deadliest famine in the history of China. In the Great Chinese Famine roughly 5 percent of the population died.

Effects of the Great Leap Forward

During the Great Leap Forward, the Chinese economy initially grew. Iron production increased by 45 percent in 1958 and a combined 30 percent by 1960. Unfortunately by 1961, the steel industry had plummeted and did not reach its 1958 growth rates again until 1964.

Not only did the Great Leap Forward lead to massive famine, it also led to the greatest destruction of property in human history. Approximately 30 to 40 percent of all houses were destroyed in order to make fertilizer, to build other goods, for industrialization, or to relocate villages.

Due to the massive starvation by the mid-1960s collectivism began to crumble and the Great Leap Forward became known as a serious loss to the people and country of China. China was in a state of agricultural stagnation, industrial production was low, and people's living standards had not increased in 20 years.

Reforms in China

After Mao Zedong's death in 1976, China began using the tools of the free market to increase productivity. The new leader, Deng Xiaoping, gave farmers and factory managers more freedom to make decisions about what to produce, investments, and how much to charge for their products. Farmers were able to own more land and factory managers were offered bonuses for making higher quality products. Deng also began to reward farmers, managers, and workers who increased output. With new incentives, productivity increased and the Chinese economy began to grow.

To further help the Chinese economy, Deng set up four free market centers along China's east coast. Local governments were allowed to offer tax incentives to foreign investors and foreign businesses could operate within these special economic zones. Even though the government still owns firms in major industries and government planners continue to control many key economic decisions, hundreds of special economic zones now exist in China because of the success of the first four.

China Today

The economic changes brought about by Deng Xiaoping led to significant economic growth in certain regions and cities of China. The country that once lagged behind most nations of Europe and North America now has the world's second most productive economy after the United States. Many Chinese citizens today enjoy a wide variety of consumer goods and an extensive amount of economic freedom compared to the days of Mao Zedong. Today's major challenges for the Chinese government include how to expand China's economic growth to more Chinese citizens and to do so within the context of a Communist government rule.

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See also: Asian Crisis, 1997–1998; Asian Development Bank; Association of Southeast Asia Nations; China and India Emerge as World Economic Powers, 2005; Deng Xiaoping; Yuan/Renminbi; *Vol. 1: Foundations of Economics:* Command Economy

Further Reading

Lin, Justin Yifu. 2012. *Demystifying the Chinese economy*. Cambridge, UK: Cambridge Univ. Press.

Naughton, Barry. 2007. *The Chinese economy: Transitions and growth*. Cambridge, MA: MIT Press.

O'Sullivan, Arthur, Steven M. Sheffrin, and Grant Wiggins. 2013. *Economics*. New York: Prentice Hall.

COMMERCIAL POLICY

Commercial policy is often referred to as trade policy or international trade policy. It is a set of rules or regulations that are intended to change international trade flows, in particular to restrict imports. Every nation has a form of commercial policy with public officials formulating the policy they think is the most appropriate for their country. It is one of the oldest divisions of economic thought and is debated to this day.

There are two opposing views of commercial policy. The first is mercantilism or economic nationalism. This position was the dominant view between the 16th and 18th centuries in Europe. Mercantilism supported an active government within a nation's policy. The general outlook was to keep foreign competition out to protect domestic industries, products, and services. The main goal was to increase national wealth by exporting much and importing very little, if at all. Trade was viewed as a "zero sum game" with the exporting country participating in a trade deal being the winner and the other country paying for the goods being the loser. There are many forms of protectionist measures to achieve the desired trade outcome as the exporting country. Tariffs, a tax on imports, are one of the main tactics used to keep foreign competition out.

The other view of commercial policy is a laissez-fare or free trade approach. While mercantilism ruled in the 1500s through the 1700s, enlightenment during the 1600s gave birth to this opposing view. Adam Smith, author of *Wealth of Nations* (1776), spearheaded the thought of trade being mutually beneficial to both participating nations. For Adam Smith and other free trade proponents, trade was more than a zero sum game. Smith preached of an economy based on the actions and interactions of individuals, not governments. An economy would follow the invisible hand of supply and demand.

David Ricardo built upon Adam Smith's theory tying value to labor (industrialization) with the concept of comparative advantage, an important concept in supporting the theory of free trade. Comparative advantage proposes that regardless of a country's wealth it can participate in trade by efficiently allocating its available productive resources while trading for goods it cannot produce efficiently. Applying the concept of comparative advantage to trade it is beneficial to both countries involved.

Today there are assemblies worldwide that help the policymakers make the best decisions for their country. The Bretton Woods Conference in 1944 led to the creation of the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development that would later become the World Bank. The consensus of these institutions was that high levels of protectionism were a bad idea.

The creation of the General Agreement on Tariffs and Trade (GATT) in 1948 was successful in gradually bringing down trade barriers. GATT functioned through a series of trade rounds in which countries periodically negotiated sets of incremental tariff reductions. One of the most influential trade rounds was what is known as the "Uruguay Round," which led to the creation of the World Trade Organization on January 1, 1995.

The World Trade Organization (WTO), European Union (EU), North American Free Trade Agreement (NAFTA), and Voluntary Export Restraints (VERs) are all examples of committees and/or policies that aid in the regulation of international trade and various nations' commercial trade policy. However, these groups only regulate the countries that are members. The largest and oldest of the groups is the WTO with 160 member countries as of June 2014.

Nations must decide their commercial policy on the amount of tariffs, embargos, quotas, or subsidies for domestic producers. An embargo is the complete stoppage of trade with a particular country. A quota is a limitation on the number or amount of imports a country will accept for a particular good or service, and a subsidy is when a government pays domestic producers to give them an advantage over foreign competition.

Trade barriers today are generally frowned upon due to the creation of deadweight loss. Deadweight loss is a concept that takes into account the resulting loss of competition of a protectionist policy. Less competition means domestic producers have less incentive creating less-efficient production and technology. Trade barriers of all kinds can and often do end up hurting domestic consumers.

The global economy is becoming increasingly integrated. Since the Great Depression and the end of World War II trade barriers have significantly reduced. Globalization is now directly associated with a country's economic success while failure to open up markets is viewed as a cause of economic stagnation. The growth of globalization can be attributed to the significant reduction of trade barriers over the past six years; specifically the pursuit of a liberal commercial policy by many countries, with the United States being the current front runner of the movement.

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See also: Globalization; Import Quotas; North American Free Trade Agreement; Protectionism; Tariffs; World Trade Organization; *Vol. 1: Foundations of Economics:* Mercantilism

Further Reading

Black, John, International Economics Study Group, and Brian Hindley. 1980. *Current issues in commercial policy and diplomacy: Papers of the third annual conference of the International Economics Study Group*. London: Macmillan for the Trade Policy Research Centre.

EconomicPoint. 2014. Instruments of commercial policy. http://economicpoint.com/commercial-policy (accessed September 30, 2016).

EUR-Lex, Access to European Union law. n.d. Common Commercial Policy. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV:a20000 (accessed September 30, 2016).

COMPARATIVE ADVANTAGE

A comparative advantage exists when a nation or economic region is able to produce a product at a lower opportunity cost compared with another nation or region. Key to understanding comparative advantage is that mutually beneficial trade between two nations can take place even if one country enjoys an absolute advantage in the production of both traded products.

The theory of comparative advantage has been the single most influential justification for free trade since the early 1800s. Robert Torrens introduced the theory of comparative advantage in his *Essay on the External Corn Trade* (1815). But it was David Ricardo who popularized the theory in his book, *The Principles of Political Economy and Taxation* (1817). The theory of comparative advantage is a natural complement to the earlier theory of absolute advantage, which Adam Smith defended in his famous *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776). Smith explained that trade between two nations was mutually beneficial when one nation was superior in the production of one good and a second nation was superior in the production of a different good. Smith argued that each nation should specialize in its area of superiority, and then trade its surpluses with the other nation. Torrens and Ricardo expanded on the theory of absolute advantage by arguing that specialization and trade should occur even if one nation is superior in the production of both traded products.

There are different ways to measure one country's comparative advantage over a second country. One way is to compare different rates of output generated by the two countries. The United States has an absolute advantage in the production of both flashlights and disposable cameras over Mexico. That is, using the same resources, the United States is able to produce 100 flashlights (compared to just 50 flashlights in Mexico), or 100 disposable cameras (compared to just 20 in Mexico). It is important to remember that the United States is able to produce 100 flashlights or 100 disposable cameras, but not both at the same time. Similarly, Mexico is able to produce 50 flashlights or 20 disposable cameras, but not both at the same time. This either-or situation stems from the fact that there are fixed resources. Thus, if the United States produces 100 flashlights, zero disposable cameras are produced. If Mexico produces 50 flashlights, zero disposable cameras are produced. For simplicity's sake, in most measurements of comparative advantage, it is assumed that labor is the sole cost of production.

Despite the advantage of the United States in both products, it is still mutually beneficial for each nation to specialize in the production of the product that it produces "most best." That is, each country should produce the product in which it has the greatest advantage, or at least the lesser disadvantage. From an economic perspective, the United States should specialize in the production of disposable cameras, where it enjoys the greatest advantage, and Mexico should specialize in the production of flashlights, where it has the lesser disadvantage. In reality, both countries would likely produce some flashlights and cameras, but would tend to devote more resources to products in which they enjoyed a comparative advantage.

Another way to illustrate the theory of comparative advantage is to compare the relative input costs, measured in labor hours, needed to produce two goods from different countries. This second measurement is concerned with the amount of an input (labor hours) needed to produce a good, rather than with the quantity of output generated by each nation. For example, in Ghana, one unit of cocoa can be produced using just two hours of labor, compared to four hours of labor in Sierra Leone. Similarly, Ghana produces one unit of soybeans in two hours, while Sierra Leone requires ten hours of labor to produce the same quantity. Ghana has an absolute advantage in both cocoa and soybean production

While the labor inputs required in the production of cocoa and soybeans favors Ghana, Ghana enjoys the greatest advantage over Sierra Leone in the production of soybeans. That is, measured in labor hours needed to produce soybeans, Ghana is five times as efficient as Sierra Leone. According to the theory of comparative advantage, Ghana should specialize in the production of soybeans. Sierra Leone, on the other hand, has its least disadvantage in the production of cocoa, and, thus, should specialize in cocoa.

The theory of comparative advantage supports national and regional specialization. Specialization promotes the most efficient utilization of the world's scarce resources and generates maximum global output. Yet there are certain assumptions that complicate the application of comparative advantage in the global trading system. First, the theory assumes that resources within nations are easily transferable from one industry to a second industry. For example, if Ghana specializes in the production of soybeans, it is assumed that the workers, capital goods, and land previously used in cocoa production are effortlessly transferred to soybean production. Second, transportation costs are not accounted for in the theory of comparative advantage. Production efficiency might be maximized through specialization, but the added costs of transporting raw materials, intermediate goods, or finished products may reduce or eliminate any cost advantage. Third, a variety of impediments to international trade, such as tariffs or import quotas, may upset the cross-border exchanges of goods and services. Because trade barriers restrict exports, stockpiles of surplus commodities could rot in warehouses or storage bins. Fourth, comparative advantage does not consider the terms of trade for goods exchanged between nations. If specialization creates an over-supply of certain goods, such as coffee or sugar, the value of these commodities declines relative to other goods such as computers or software. Arriving at fair terms of trade has been a contentious issue in the global economy in recent decades and has contributed to North–South tensions. Fifth, comparative advantage discourages diversification in an economy. In extreme cases, regional specialization could result in the creation of a "one-crop economy," which places the nation at the mercy of sudden global shifts in demand or catastrophic losses in supply through drought, infestation, or other blight.

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See also: Absolute Advantage; International Trade; Terms of Trade; *Vol. 1: Foundations of Economics:* Ricardo, David; Smith, Adam

Further Reading

Cline, William R. 2004. *Trade policy and global poverty.* Washington, DC: Institute for International Economics.

Hall, Peter A., and David W. Soskice. 2001. *Varieties of capitalism: The institutional foundations of comparative advantage.* New York: Oxford Univ. Press.

Johansson, B., and Charlie Karlsson. 2002. *Regional policies and comparative advantage.* Northampton, MA: Edward Elgar Publishers.

Keuschnigg, Mirela. 1999. *Comparative advantage in international trade: Theory and evidence.* New York: Springer-Verlag Telos.

Ricardo, David. 1911. *The principles of political economy and taxation.* New York: E. P. Dutton & Company.

CORN LAWS

"Corn Laws" refer to early British regulations on the importation of any grain products. Restrictions existed as early as the 12th century but they became famous during a period at the end of the Napoleonic Wars (1803–1815). The purpose of the regulation was to keep the domestic price of corn and grains high.

Despite their early origins, the Corn Laws are widely believed to have come into serious contention and scrutiny with the revisions in 1815. The historical importance of the laws, and opposition to them, was the economic debate between detractors and supporters. The high prices boosted the agricultural industry that was widely supported by landowners and producers of foodstuffs. The Corn Laws were vehemently opposed by the industrial manufacturers because the high cost of food created a need to raise wages. In the absence of this raise the growing population of Britain found itself with insufficient ability to provide food for families, or to provide other life necessities such as clothes.

To protect English farmers, Parliament passed the Corn Laws in 1815. The Corn Laws placed severe restrictions grain imports. Tariffs on imported grain, including wheat, were applied to imported grains until domestic prices reached a price of 80 shillings per quarter weight (approximately 28 pounds) (Bloy 2010). The increased prices of foodstuffs decreased the purchasing power of the population. The Corn Laws are said to have been the inspiration for David Ricardo's model of comparative advantage. Ricardo argued that by restricting trade with other nations

Britain was denying itself the opportunity to access lower prices. With the growing population and industry in Britain it was inefficient for Britain to emphasize production of wheat and corn when both could be accessed through importation.

Comparative advantage advocates that countries specialize in the product that they can produce most efficiently and thereby create a balance between markets on the basis of labor hours (Rothbard 2012). Ricardo recognized that the concept of free trade was more sustainable and economically stable through comparative advantage. It is the Ricardian model of comparative advantage that forms the basis of many economists' belief in free trade today.

The Corn Laws also led to the formation of various opposition groups such as the Anti-Corn Law League founded in 1839. This organized dissent aided in the creation of a London news and opinion magazine called *The Economist* in 1843. Eventually, public opinion and the failure of the Irish potato crop in 1845 led to the repeal of all Corn Laws in 1846 by Prime Minister Robert Peel.

Daniel S. Talwar

See also: Absolute Advantage; Comparative Advantage; *Vol. 1: Foundations of Economics:* Ricardo, David; Smith, Adam

Further Reading

Bloy, Marjie. 2010. The Corn Laws. *The Victorian Web*. http://www.victorianweb.org/history/cornlaws1.html (accessed June 16, 2015).

Encyclopedia Britannica. 2014. British history: Corn Laws. http://www.britannica.com/event/Corn-Law-British-history (accessed June 16, 2015).

Library of Economics and Liberty. 2008. David Ricardo. *The concise encyclopedia of economics*. http://www.econlib.org/library/Enc/bios/Ricardo.html (accessed June 16, 2015).

Rothbard, Murray N. 2012. The Ricardian Law of Comparative Advantage. Mises Institute. https://mises.org/library/ricardian-law-comparative-advantage (accessed June 16, 2015).

CRAWLING PEG

A *crawling peg* refers to an exchange rate system in which a country fixes its currency to another currency and is allowed to make regular periodic adjustments in the nominal exchange rate in order to offset or control movement in the real exchange rate. A crawling peg system originates from a general pegged exchange rate system.

A pegged exchange rate system allows a nation to set the value of its currency against others. The value of the nation's currency is set equal to a fixed amount of another country's currency, such as the U.S. dollar or European euro. Less often a currency may be set to a collection of several currencies usually based on the home country's major trading partners. If the exchange rate is not allowed to vary it's called a hard peg. If the fixed exchange rate is allowed to fluctuate within a set band it is called a soft peg.

Crawling pegs are soft pegs that are fixed but periodically adjusted. The idea is to offset any differences in inflation through regular adjustments in the nominal exchange rate. If correctly handled the real exchange rate remains constant and the impact of inflation differences never show up as a change in competitiveness. A crawling peg recognizes that there are likely many occasions when exchange rate movements should be constrained in the short run, but not in the long run.

A crawling peg is often put in place as a result of high inflation in one country (Country A) compared with another trading country (Country B). It appears as a faster rate of change in Country A's price level which in turn leads to appreciation, or increase in value, in its respective currency. Under these circumstances Country A's producers are less competitive and Country B's producers are more so in Country A. If this persists investors will most likely begin to sell Country A's currency in the expectation that the pegged nominal rate will be devalued to offset appreciation in the real rate. A crawling peg will prevent this from happening.

For example, in the 1990s Mexico had a pegged exchange rate system and had fixed its peso with the U.S. dollar. Due to significant inflation in Mexico compared with the U.S., it became apparent the peso would need to be severely devalued in order to stay competitive. Because a rapid devaluation of the peso would create instability in Mexico, Mexico put a crawling peg exchange rate adjustment system into place and the peso was slowly devalued toward a more appropriate exchange rate.

Maintaining the crawling peg requires a country's monetary authority to exercise self-restraint in the creation of new money. Countries frequently try to reinforce the anti-inflation tendency of a crawling peg by intentionally devaluing at a slower pace than the difference between home and foreign inflation, as evident in the U.S.–Mexico example. This creates real appreciation in the exchange rate and is intended to act as a brake on domestic inflation as foreign goods steadily become cheaper in real terms, limiting the price increases that domestic producers were able to impose.

However, the use of the crawling peg exchange rate system increases a country's vulnerability to crisis. Sometimes it is politically difficult to exit the system if it becomes overvalued. Consequently when a government announces a change in the system it runs the risk of losing its credibility. Both domestic and foreign economic agents accommodate the existing system and a sudden large devaluation leads to economic losses as well as a loss of confidence in the country's policymakers. It is common for countries to delay addressing the problem of overvaluation and when the correction occurs it has to be larger than if it was addressed initially.

Lauren Major

See also: Exchange Rates; Foreign Exchange Rate; Foreign Exchange Market

Further Reading

Forexnews.com. n.d. What is a "Crawling Peg"? News, Charts, Research & Video. http://www.forexnews.com/questions/what-is-crawling-peg/ (accessed September 30, 2016).

McKenzie, George W. 1969. International monetary reform and the "Crawling Peg" https://research.stlouisfed.org/publications/review/69/02/Reform_Feb1969.pdf (accessed September 30, 2016).

Savastano, Miguel A. 1991. *Collapse of a crawling peg regime in the presence of a government budget constraint*. Washington, DC: International Monetary Fund.

CURRENCY APPRECIATION AND DEPRECIATION

The relationship between different currencies is a dynamic one. As a result, national currencies invariably appreciate or depreciate against one another over long periods of time. This fact has remained true even as world currencies have transitioned from the gold standard that was in place during the 19th and early 20th centuries to the floating and pegged systems that are in place today. In order to fully understand how currencies change their values relative to one another, it is worthwhile to consider the variables that impact change under any of the three currency practices.

Under the gold standard, which was a customary worldwide practice until the time of the Great Depression, nations would promise to convert their currency back to gold at a fixed rate. These conversion rates represented a pledge by each sovereign nation to physically exchange gold if anyone presented currency and requested an exchange. For example, in the United States between 1834 and 1933, the government established an exchange rate of $20.67 for an ounce of gold, and the public could turn in dollars for gold or vice versa. During that same time, Great Britain had an exchange rate of £3, 17 schillings, and 10.5 pence per ounce of gold. These two relationships, because they were fixed, established a fixed exchange rate of $4.867 per £1.00.

The gold standard system created a relatively stable system of international currency exchange for almost a century due to the fact that the world's gold supply increased annually at very modest rates. However, during the 19th century, nations operating under the gold standard system occasionally were forced to rescind the convertibility of their currencies to and from gold. This usually occurred during times of war. Wars are expensive and nations are generally unable to finance them through taxation. Instead, the typical manner in which nations financed wars was to either borrow or print money. When these events happened, countries often ceased gold redemption temporarily in order to gradually contract the currency supply before restoring redemption. This was because there was too much currency in circulation relative to physical gold reserves. Otherwise, there would be a rush by currency holders to redeem their paper for gold. This situation is a classic example of Gresham's Law in practice. As a historical example, the United States did this during and after the American Civil War, and the paper money "greenbacks" issued during the war could not be redeemed until 1879.

From the 1880s to the 1910s, major economic powers worked under the gold standard. Currencies traded at fixed rates with one another. Occasionally, when a nation's money supply became permanently enlarged, that nation would be forced to devalue its currency relative to gold to prevent investors from redeeming paper money for gold.

The gold standard was severely tested in the early 20th century. World War I (1914–1918), in addition to its tragic human cost, stressed the financial resources of virtually every major combatant, forcing them to suspend gold redemption. Although some countries attempted to return to the gold standard after the war, the Great Depression of the 1930s and then World War II (1939–1945) largely prevented any return to the gold standard.

At the Bretton Woods Conference in 1944, the Allies attempted to restructure the world's currency protocol. The United States returned to the gold standard on an international basis at an exchange rate of $35 per ounce of gold, allowing foreign nations to redeem United States dollars that they held for gold. Other major nations pegged their currencies to the U.S. dollar. This arrangement was an effort to return to a fixed exchange rate relationship between major countries, as different currencies could be traded with each other based on their fixed relationship to the U.S. dollar.

The Bretton Woods era came to an abrupt end with the Smithsonian Agreement in 1971. The United States was unable to repay in gold due to a dwindling gold reserve brought on by the costs of the Vietnam War and social programs. President Richard Nixon, as a result of this agreement, rescinded the Bretton Woods arrangement and effectively took the United States off of the gold standard.

Since 1971, the majority of the world's nations have operated under a floating exchange system, where each country issues fiat money, which is not convertible to any real asset such as gold. The floating exchange system allows each nation's central bank to print as much currency as it deems appropriate. As a result, exchange rates between currencies since 1971 have been subject to a dynamic relationship where the rate is in a perpetual state of movement based on investor expectations.

Critical variables that determine floating exchange rates include, but are not limited to, the quantity of national currency in circulation, the rate of return that can be earned through an investment in that currency, and the general economic outlook for each nation. In general, an expansion in the supply of a given currency will cause it to depreciate versus others, while a contraction in the currency supply will cause appreciation. When central banks increase the rate of return on their sovereign debt, the underlying currency appreciates. The opposite applies when they lower rates.

Now, the vast majority of nations float their currencies. However, some developing nations still peg their currencies, most often to the U.S. dollar, attempting to project a level of confidence in their national currency through the promise to ultimately exchange it for U.S. dollars if demanded. However, just as was the case under the gold standard and Bretton Woods, excessive growth in circulated currency can create a crisis. A prominent example is the Mexican Peso Crisis of 1994–1995, when Mexico maintained insufficient dollar reserves while expanding its currency in circulation, necessitating its withdrawal from its peg promise.

The floating system in place today requires that currency traders actively and astutely study all of the factors that cause the value of individual currencies to appreciate or depreciate versus one another.

John Moore

See also: Currency Devaluation and Trade; Currency Wars; Exchange Rates; International Monetary Fund; *Vol. 2: Macroeconomics:* Currency Deflation and Inflation, 1781; Gold Standard

Further Reading

Connell, Carol M. 2013. *Reforming the world monetary system.* London: Pickering & Chatto.

Eichengreen, Barry. 1990. *Elusive stability: Essays in the history of international finance, 1919–1939.* New York: Cambridge Univ. Press.

Viner, Jacob. 1960. *Studies in the theory of international trade.* London: George Allen & Unwin, Ltd.

CURRENCY DEVALUATION AND TRADE

A nation is capable of stimulating its export trade by devaluing its currency in the international marketplace. The process to accomplish this, all other variables remaining constant, is to increase the supply of a domestic currency versus all other currencies. In a floating exchange rate system, this will cause the exchange rates to move.

By way of example, suppose a situation where the total supply of euros is €200 and the total supply of dollars is $225. The exchange rate of euros to dollars would be 1.125 (225/200) and the exchange rate of dollars to euros would be the inverse, where the cost of a dollar to a European source would require 0.889 euros (200/250).

If the European central bank were to increase the supply of euros to €250, the exchange rate for the euro to the dollar would become 0.875 (225/250). The inverse relationship of the dollar to the euro would move from 0.889 to 1.111 (250/225).

A movement in the exchange rate has a direct impact on the cost of goods and services exchanged between nations. Suppose that the European Union produces 200 units of various goods and services and the United States produces 225 units of goods and services. Before devaluation, a European consumer can purchase a domestic good or service for €1.00 and an American consumer can purchase a domestic good or service for $1.00. In this situation, if a European consumer wanted to purchase an American good or service it would require only €0.889 (200/225) to do so, as previously demonstrated above.

Taking the example further, consider the implications of a currency devaluation on an American consumer purchasing European goods or services. Pre-devaluation, an American consumer would need to spend $1.125 in order to buy a European good or service worth €1.00. Post-devaluation, an American consumer would need only to spend $0.875 in order to buy a European good or service worth €1.00.

Tactically, the most common way in which modern nations devalue their currency within a floating exchange rate system is to use their own currency to buy foreign currencies. In the early 21st century, China has aggressively utilized this approach in order to support its export-focused economic strategies.

However, using currency devaluation as a strategy for economic growth has potential costs and consequences. For one, any currency devaluation will eventually lead to a change in domestic pricing in order to maintain economic equilibrium. For example, within the European Union example above, the impact of added currency will eventually cause a change in domestic pricing due to inflation in order to reach equilibrium. Whereas the price of a European good or service was €1.00 prior to devaluation (€200/200) the domestic price would eventually migrate to equalize at €1.25 per good or service (€250/200), with all other factors remaining unchanged. A second consequence, as the above example demonstrates, is that while the increase in the supply of euros would cause the euro to devalue and therefore make European exports less expensive to foreign consumers, this scenario also makes foreign imports more expensive for domestic consumers.

The empirical evidence suggests that while currency devaluation can be an effective economic strategy in the short term, it is an approach that often entails possible risks, both short term and/or long term. A historical example is Great Britain's struggles during the 1960s under the Bretton Woods fixed exchange rate system. The country was experiencing a highly unfavorable balance of trade with imports far exceeding exports, which had the effect of draining British pounds (the domestic currency) out of the country. In 1967 the British government devalued the pound in order to promote exports, curb imports, and alleviate the trade imbalance. The unanticipated short-term impact was a widespread loss of confidence in international markets for the British pound. In the long term, the weakened pound and the more volatile international exchange markets in part led to the crisis that forced the United States off of the gold standard in 1971, putting an end to the Bretton Woods System.

The theoretical and empirical evidence clearly suggests that nations must carefully consider both the benefits and costs associated with a devaluation strategy. While currency devaluation will in the short term stimulate economic activity through increased exports, the longer term consequences have the potential to cause more economic damage than benefits.

John Moore

See also: Currency Appreciation and Depreciation; Currency Wars; Exchange Rates; International Debt; International Monetary Fund; International Trade; Trade Policy; Trade, Measures of; *Vol. 2: Macroeconomics:* Currency Deflation and Inflation, 1781

Further Reading

Federal Reserve Bank of New York. 2011. Currency devaluation and revaluation. www.newyorkfed.org/aboutthefed/fedpoint/fed38.html (accessed September 30, 2016).

Hollander, Barbara Gottfried. 2011. *How currency devaluation works*. New York: Rosen Publishing Group.

Oliver, Michael, and Arran Hamilton. 2007. Downhill from devaluation: The battle for sterling, 1968–1972. *Economic History Review* 60 (3): 486–512.

CURRENCY WARS

Currency wars occur when several nations simultaneously try to devalue their respective currencies at the same time. The motivation for devaluing a nation's currency relative to other currencies is that a devalued currency will promote a nation's exports for purchase abroad. This type of policy is typically enacted in order to stimulate national economic activity.

The best historical example of a currency war occurred the 1930s. The onset of the Great Depression caused tremendous stress on the economies of all of the world's great economic powers, including the United States, Great Britain, France, Germany, and Italy. In response, these nations took themselves off of the existing gold standard and attempted to devalue their currencies in order to jump-start their economies through increased exports. Economic historian Douglas Irwin notes that France in particular contributed to the currency wars through hoarding its gold reserves during this period. These policies failed for two major reasons. The first was that all of the major economic powers tried to devalue at the same time. A devaluation policy can only succeed in the short term if other nations do not do the same thing. The second reason was that most major powers also enacted protectionist tariffs to discourage foreign imports. The American example of this was the 1930 Smoot Hawley Tariff.

The currency wars of the 1930s likely helped prolong the Great Depression. The devaluation policies created distortions in the marketplace and also contributed to a sharp decline in international trade activity. It could even be argued that these policies in small part contributed to the rise of National Socialism in Germany in 1934 and, consequently, played a part in bringing about World War II.

Although there has been no period since the 1930s that can be legitimately characterized as a full-fledged currency war, many economists contend that similar devaluation policies in the early 21st century could give rise to currency wars in the future. There are a few examples to support this assertion. For instance, the Chinese government's policy in the early part of the century has been to support an export-based economic policy that has been manipulated to an extent by using China's domestic currency, the yuan, to purchase foreign currencies. This policy approach has the effect of devaluing the yuan, supporting Chinese exports, and discouraging foreign imports to China. Another example is the quantitative easing policies enacted in Japan, the United States, and the European Union in the wake of the 2008 global economic recession. The impact of quantitative easing is to increase the amount of domestic currency in circulation in order to stimulate economic activity and one of the policy consequences is that an affected domestic currency will, in theory, devalue against other world currencies.

While the above policies have not overtly been declared by respective nation-states as attempts to promote exports, the fact that so many countries are employing pro-monetary growth tactics creates a result where no nation individually accrues the full benefits of its policy goals. This is due to the fact that other nations are trying to accomplish the same goals at the same time. Just as in the 1930s, when multiple nations pursuing currency devaluation at the same time produced no benefit to any individual nation, so too the policies of the 2000s and 2010s are not fully producing intended economic results. In the 1930s, collective devaluation policies prolonged the Great Depression. The global economic recovery from the Great Recession has likewise been slow and prolonged, though not to the same degree. In part, this can be attributed to the fact that the world's leading economic powers have again tried to employ devaluation policies at the same time.

The empirical evidence strongly suggests that currency wars are bad for all nations involved. While governments may find political expediency in pursuing deflationary monetary policy in the short term, the long-term danger of instigating a currency war can produce devastating economic consequences. Political leaders need to carefully consider the potential ramifications of becoming entangled in currency wars when implementing certain domestic monetary policy.

John Moore

See also: Currency Appreciation and Depreciation; Currency Devaluation and Trade; International Trade; Trade Policy; *Vol. 2: Macroeconomics:* Currency Deflation and Inflation, 1781

Further Reading

Friedman, Milton, and Anna Jacobson Schwartz. 1993. *A monetary history of the United States*. Princeton, NJ: Princeton Univ. Press.

Gourinchas, Pierre-Olivier, and Maurice Obstfeld. 2012. Stories of the twentieth century for the twenty-first. *American Economic Journal: Macroeconomics* 4 (1): 226–65.

Rickards, James. 2011. *Currency wars: The making of the next global crisis*. New York: Penguin Group.

CURRENT ACCOUNT

When countries buy and sell goods and services an accounting balance called the balance of payments is used to keep track of the value of these goods and services. The balance of payments is composed of three subcategories: the current account, the capital account, and the financial account. These accounts detail not only the value of imported and exported goods and services, but the flow of investment dollars to finance the purchases of real property, plant, equipment, and to purchase financial assets as well.

The current account records the transactions in four distinct categories: goods, services, income, and current transfers (transfer payments). The value of these payments is noted in the accounting terms of debits (which represent a decrease) and credits (which represent an increase). When money flows into a country as a payment from the sale of an exported item a credit is recorded. Conversely when citizens of a country buy an item imported from a foreign country this transaction is recorded as a debit in the current account representing the flow of money to the country's trading partner.

The first two categories, goods and services, compose what is commonly known as the balance of trade which represents all physical goods (movable goods) traded between nations, such as cars, soybeans, and computers. Additionally, the value of services (intangible items), such as tourism dollars being spent abroad by U.S. tourists visiting Germany or Japanese tourists visiting the United States, or banking services performed by overseas banks in Grand Cayman Island or Switzerland. The import and export of goods and services represent a large component of the value of the current account

The third component of the current account is income. When citizens who work overseas send income (wages/salaries) to their home country this affects the current account. For example, when an American teacher working in an international teaching program in China sends (remits) wages back the United States this transaction is recorded as a credit in the current account. Income not only refers to wages or salaries earned by citizens supplying their labor but to investment income as well. Investments include purchases of foreign stocks (ownership) and bonds (loans). When a Canadian citizen purchases bonds in the Finnish company Nokia, the receipt of the bond interest is considered income and represents a credit in the current account of Canada. When the Brazilian airplane manufacturer Embraer pays dividends to stockholders in Portugal this represents a debit in the current account of Brazil.

The fourth and final component is current transfers. This category represents the flow of money between nations but not for goods, services, or investment income. This transaction is known as a unilateral transfer. It accounts for money given as a gift by either a foreign government as some type of "aid" or by citizens of one country to residents in a different country. These transfers are not directly tied to economic production but they increase the disposable income of foreign citizens if money is flowing abroad or increase the disposable incomes if money is flowing into the home country. When Mexicans working in the United States send money to their families in Mexico this is represented as a credit in the current account of Mexico. If the government of France provides money to the Central African Republic in the form of "aid" this is represented as a debit in France's current account.

Allan Barbee

See also: Balance of Payments; Balance of Trade; Financial Account; Trade Policy; *Vol. 2: Macroeconomics:* Bureau of Economic Analysis

Further Reading

Bureau of Economic Analysis. n.d. International economic accounts. http://www.bea.gov/international/ (accessed September 14, 2014).

Clarida, Richard H. 2007. *G7 current account imbalances: Sustainability and adjustment*. Chicago, IL: Univ. of Chicago Press.

International Monetary Fund. n.d. Balance of Payments Manual—IMF. https://www.imf.org/external/pubs/ft/bopman/bopman.pdf (accessed September 14, 2014).

CUSTOMS UNION

A customs union (CU) is a form of regional trade agreement (RTA). A CU includes the elements of a free trade agreement (FTA) that grant member countries preferential tariff-free market access to member country products. The largest customs union is the European Union. Other large custom unions include MERCOSUR (Brazil, Argentina, Uruguay, Paraguay, and Venezuela) and the Andean community (South America, Bolivia, Colombia, Ecuador, and Peru).

A customs union also contains a common set of external tariffs to imported goods from nonmember countries. More coordination is required among members of a customs union than members of a FTA. In a CU member countries must agree to the negotiated external tariff in addition to the establishment of a means to collect and distribute tariff revenues. There is a tradeoff for members of a CU. They must be willing to relinquish a degree of national sovereignty and give up the right to sign trade agreements independently. Trade negotiations must be conducted and signed by the bloc as a whole. In exchange, members secure access to a much larger market. Many times tiny nations join CU's in order to trade with a larger neighbor.

The three main advantages of a customs union are:

1. Trading among members is increased by the elimination of, or a reduction in tariffs, making domestic goods more competitive in other member country markets.
2. It gives manufacturers and traders of domestic goods protection from nonmember goods by means of tariffs or quotas on all nonmember goods.
3. All members of the CU share in the collected tariff revenues that have been generated from nonmember imports. This is especially important to small countries that might not otherwise generate the same amount of tariffs due to their lower level of trade.

The three main disadvantages of a customs union are:

1. As mentioned members give up some degree of sovereignty and the ability to control their own actions, such as reduced control of their monetary policy, reduced control of the ability to spend and tax as they choose, and members must agree on negotiated tariffs, duties, taxes and quotas on non-member goods.
2. While a customs union can protect domestic industries from nonmember producers, they do not protect domestic industries from their neighbor member producers who are able to trade uninhibited by barriers to trade.
3. The larger member countries have economies of scale advantage over the smaller member of a customs union. Smaller members will have access to lower cost goods but at the expense of their own domestic producers.

The next level of an RTA above a customs union is a common market. It has all the attributes of a customs union but also includes an agreement that allows for free movement of inputs such as labor and capital between member countries. The final level of an RTA is an economic union. An economic union has all the characteristics of a common market but also includes a common currency and a common macroeconomic policy that includes defense policy, fiscal policy, and common citizenship rights. The best example of an economic union is the United States.

Dale Johnson

See also: European Union; Regional Trade Agreements; Tariffs; Trade, Measures of

Further Reading

Andriamananjara, S. n.d. *Customs unions.* http://siteresources.worldbank.org/INTRANETTRADE/Resources/C5.pdf (accessed November 30, 2014).

D.T. 2014. Banyon Asia: Introducing the Eurasian Economic Union: Where three is a crowd. *The Economist*, Moscow, May. http://www.economist.com/blogs/banyan/2014/05/introducing-eurasian-economic-union (accessed November 30, 2014).

Michalopoulos, Constantine, and David Tarr. 2004. *Are customs unions economically sensible*. Washington, DC: The World Bank. http://siteresources.worldbank.org/INTRANETTRADE/Resources/WBI-Training/288464-1162851806581/Tarr_Michalopoulos_Customs_Unions_eng.pdf (accessed September 30, 2016).

D

DE SOTO, HERNANDO

Born: 1941 in Arequipa, Peru; Nationality: Peruvian; Professional Interests: property rights; Major Works: *The Other Path* (1987), *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else* (2000).

Hernando de Soto is a Peruvian economist who believes that property rights are key to a working capitalist society. De Soto believes that the poor in Third World countries are unable to realize their economic potential because of their inability to obtain property rights. He founded the Institute for Liberty and Democracy in 1981 to act as a platform for research and to communicate his economic findings and beliefs. De Soto has won numerous awards for his work and has been an adviser to many world leaders.

Hernando de Soto Polar was born in Arequipa, Peru, in 1941 to a Peruvian diplomat father. His father was exiled in 1948 after a military coup, and moved the family to Europe. Raised in Europe with his younger brother, Alvaro, de Soto was educated in Switzerland, where he completed his postgraduate work at the Graduate Institute of International Studies. He became a successful economist, executive, and consultant in Europe before he earned enough money to retire at the age of 38. In 1979, de Soto returned to his native Peru to devote his life to solving the issue of global economic inequality.

De Soto had long wondered why, given intellectual and skill equality, Western nations in Europe, North America, and elsewhere thrived while Third World nations remained poor. When he moved back to Peru, he set out to research what made the difference. De Soto found that in Third World countries, the legal system, in particular access to property rights, was not available to everyone. Third World citizens are subject to a legal system that will not allow them to accumulate and transfer capital. This, de Soto claims, is the key to making capitalism work as well in Third World countries as it does in other areas of the world.

In 1981, de Soto created the Institute for Liberty and Democracy (ILD) in Lima, Peru. The ILD's mission is to equip governments with knowledge, expertise, and resources to employ institutional reforms in property and business rights allowing citizens to be participants in using the market economy to elevate them out of poverty. De Soto and his fellow ILD researchers initiated an investigation into the process of obtaining property rights in countries such as Peru, Egypt, and the Philippines. They discovered that it was extremely difficult. They found that in Lima, Peru, it would take more than 200 bureaucratic steps and 21 years to obtain the title to a piece of land. In Egypt, it would take 17 years to get authorization to build on a sand dune, and in Manila, Philippines, it might take 50 years to receive a land title.

In Peru in the 1980s, many of the poor were joining the murderous terrorist group the Shining Path to combat the government. De Soto published his book *The Other Path* in 1987 to reach out to potential Shining Path members and the Peruvian government. In his book, he tries to persuade Peru's farmers that they are future entrepreneurs and should join the legal economy instead of fighting it. Because they did not have access to the capitalist system, the poor would operate extralegally in black or shadow markets. De Soto argued that if the black markets were legalized and provided the same protection that was given to legal markets, the free market could thrive. His efforts were unpopular with the terrorist group, and several attempts were made against his life before the group finally lost most of its power in 1992.

In his book *The Mystery of Capital* (2007), de Soto explains the political responsibility of implementing a legal process for making property systems work for all citizens. He finds that because the poor do not own their land and cannot access capital, they are unable to expand their businesses. If the poor were given the land that they occupy, they would have the collateral needed for a loan and therefore could enjoy business growth. He also points out that the system that works so well in the United States has been established for only 100 years and contends that now that the formula is known, it can be copied expeditiously in other countries.

De Soto was chosen one of the five leading Latin American innovators of the century in 1999, and was named in the top 100 most influential people in the world in 2004 by *Time* magazine. He was named one of the 15 innovators in *Forbes* magazine's 85th anniversary edition. He has won numerous prizes for his work including the Freedom Prize (Switzerland), the Fisher Prize (United Kingdom), the Goldwater Award (United States), the Adam Smith Award (United States), the CARE Canada Award for Outstanding Development Thinking (Canada), the Americas Award (United States), the Academy of Achievement's Golden Plate Award in 2005, and the Most Outstanding of 2004 by the Peruvian National Assembly of Rectors.

De Soto gained early support from Margaret Thatcher, Richard Nixon, and Dan Quayle. He has also been an adviser to governments in Mexico, Egypt, Peru, El Salvador, Ghana, Russia, Afghanistan, and the Philippines. His foundation, the Institute for Liberty and Democracy, has been responsible for more than 400 laws and regulations in Peru that have opened up its economic system to the majority of citizens. De Soto's plans are being adopted by the unrecognized Eurasian country of Pridnestrovie and are gaining the attention of leaders worldwide.

Aimee Register Gray

See also: Dependency Theory; Developing Countries; Easterly, William; Globalization; International Monetary Fund; Sachs, Jeffrey; Trade Policy; Trade, Measures of; World Bank; *Vol. 1: Foundations of Economics:* Capitalism; Keynes, John Maynard; Malthus, Thomas; *Vol. 2: Macroeconomics:* Property Rights

Further Reading

Barros, D. Benjamin. 2013. *Hernando de Soto and property in a market economy*. Farnham, UK: Ashgate Publishing Ltd.

Berlau, John. 2003. Providing structure to unstable places; Hernando de Soto puts destabilized countries on the right path by securing citizens' confidence in property rights and easing legal hurdles to market entrance. *Insight on the News* July 8: 42.

de Soto, Hernando. 1987. *The other path: The economic answer to terrorism.* New York: Basic Books.

de Soto, Hernando. 2007. *The mystery of capital: Why capitalism triumphs in the West and fails everywhere else.* New York: Basic Books.

Fernandez-Morera, Dario. February 1994. Outlaws and addresses: Hernando de Soto's path to property rights. *Reason Foundation* 25 (9): 28.

Wolverton, Marvin. 2003. Review of *The Mystery Capital. Appraisal Journal* LXXI (73): 272.

DELORS REPORT

The Delors Report, named after the French economist and politician Jacques Delors, outlined a three-step plan to implement a single European economic and monetary unit. Delors was the president of the European Commission from January 7, 1985, to January 24, 1995, and was the first person to serve three terms. This report recommended the European monetary unit would become the euro. The Delors report originated in June 1988 and was created with the intent of managing and controlling exchange rates. A manageable and consistent exchange rate creates greater fertility of investments and capital flows.

With that in mind, the Delors Report outlined a plan to implement a single monetary unit that would lead to a free trade approach within Europe and provide a less volatile environment for investments between European nations. The report was submitted to the European Council of central bankers in April 1989 with unanimous consent and with the intent to integrate financial markets, currency conversion, and fixing exchange rates (European Commission n.d.).

The idea was inspired by the need for a unified European monetary system (EMS). Due to the numerous currencies and monetary policies of individual central banks in the European countries, exchange rates were increasingly unpredictable. By creating a cohesive combined system, national inflation—along with interest rates—converged, leading to greater stability of exchange rates. Therefore the fluidity of goods, services, people and capital could be allowed to increase.

The watershed moment was the Maastricht Treaty, also known as Treaty on European Union (TEU), approved in December 1991 by the European Council. The Maastricht Treaty was signed February 7, 1992. The treaty is named after the city of Maastricht in the Netherlands, where the meetings took place to discuss the implementation of a single currency and the three-stage plan outlined by the Delors Report. The approval of the treaty signified the start of transitioning to the euro.

Stage one of the transition consisted of instituting complete freedom of capital transactions. This meant the liberation of trade between nations in the European

Council. Furthermore it released the requirements of localized tariffs and quotas through the removing of physical, technical, and fiscal barriers. This was achieved with an emphasis on reducing disparities through budgetary consolidations and creating a structured and stable unified system (Delors 1989). It also called for the collaboration of central banks, which to this point had operated independently with multiple currencies. It asserted the use of the European currency unit (ECU), which was the predecessor of the euro, which also promoted economic convergence of nations (European Central Bank, n.d.).

The second stage created the European Monetary Institute (EMI), banned the granting of central bank credit and started the process of creating the European System of Central Banks. The EMI would oversee the creation of the euro and eventually become the European Central Bank (ECB) once the euro was launched. It continued integration of cooperation from the various national banks and was comprised mostly of its members. Crucially, in this stage the EMI began to take over operational control and monitor macroeconomic requirements. In doing so, it placed value on the process of developing collective decision making (Delors 1989).

The final stage of implementing a single European economic and monetary unit started in January 1999 and involved fixing conversion rates, introducing the euro, and outlining the conduct of policy of the European System of Central Banks. The final stage completed the merging of monetary policy to an inclusive system of the European Community. The Stability and Growth Pact was also initiated to prevent, or at least correct, budget deficiencies and debt burdens. The Stability and Growth Pact consisted of a set of rules on stable finances and fiscal policies for the EU members in order for the members to coordinate fiscal policies. Another crucial aspect of the last stage allowed for relative autonomy in the shaping of regional fiscal goals as a supplement to the overarching strategies of the ECB (Delors 1989).

Daniel S. Talwar

See also: Draghi, Mario; Euro (European Currency Unit); European Central Bank; European (Economic) Community

Further Reading

Delors, Jacques. 1989. *Report on economic and monetary union in the European Community*. Committee for the Study of Economic and Monetary Union. http://aei.pitt.edu/1007/1/monetary_delors.pdf (accessed June 30, 2015).

European Central Bank. n.d. Economic and monetary union. http://www.ecb.europa.eu/ecb/history/emu/html/index.en.html (accessed June 30, 2015).

European Commission Economic and Financial Affairs. n.d. Phase 3: The Delors Report. http://ec.europa.eu/economy_finance/euro/emu/road/delors_report_en.htm (accessed June 30, 2015).

European Commission Economic and Financial Affairs. n.d. Stability and Growth Pact. ec.europa.eu/economy_finance/economic_governance/sgp/index_en.htm (accessed November 5, 2016).

DENG XIAOPING

Born: August 22, 1904, in Guang'an, China; Died: February 19, 1997, in Beijing, China; Nationality: Chinese; Professional Interests: China statesman; Major Work: Leader of China following Mao Zedong; incorporating market economic systems in China.

Deng Xiaoping was an important Chinese revolutionary, leader, and reformer. Deng received his early education in local schools in China, and he continued his studies in France and the Soviet Union during the 1920s. Later in the 1920s, he returned to his homeland to support the fledgling Chinese Communist Party (CCP). Deng endured the prolonged and costly civil war between the Communists and the ruling Kuomintang. In 1949, the Communists, headed by Mao Zedong, claimed victory over the Kuomintang. For the next five decades Deng helped mold China's economic future. Deng is widely viewed as the chief architect of China's gradualist economic reforms—reforms that eventually established China as a more market-oriented and globally connected powerhouse in Asia.

Deng assumed a number of key leadership roles in the newly formed People's Republic of China during the 1950s. He was often caught in the shifting tides of Maoist dogma and irrational CCP policies. In the mid-1950s, Deng sat comfortably as the secretary-general of the CCP and a member of the ruling Politburo. During the Great Proletarian Cultural Revolution of the 1960s, however, he was publicly disgraced, tossed out of the CCP, and forced to work as a manual laborer. By the early 1970s, he had regained favor within the CCP hierarchy and steadily rebuilt his power base. In 1978, two years after Mao's death, Deng emerged as China's leader.

Deng immediately set a new course for China's economic development. High on the economic agenda was the implementation of the Four Modernizations, reforms necessary to upgrade industry, agriculture, science and technology, and national defense. Deng slowly introduced policies to restore private incentives, encourage entrepreneurship, and rejoin the global economy. He established a dual-track economy to test the viability of market-oriented economic reforms. One track was the state-planned sector, a sector dominated by central planners and production quotas. The other track was a series of experiments in free-market economics. The household responsibility system was introduced on this second track. The household responsibility system enabled peasants to lease agricultural land from the government for farming. Farmers were required to sell a portion of their output to the state at a fixed price. The remainder could be sold at a market price for private profit. The success of the household responsibility system paved the way for additional market reforms, including profit-oriented township and village enterprises (TVEs), private entrepreneur-ship, joint ventures between foreign and domestic businesses, free trade zones, and numerous regional development zones. Deng often referred to his gradualist approach to economic reform as "crossing the river by feeling the stones." His gradualism created a hybrid economy which, by the 1990s, the Chinese labeled a "socialist market economy with Chinese characteristics."

Largely because of the market-oriented, outward-looking policies of Deng Xiaoping, China has a dominant position in today's global economy. Since the 1990s China has attracted more foreign direct investment (FDI) than any other country in the developing world. China was the world's second largest producer in 2011, ranked by gross domestic product (GDP) on a purchasing power parity (PPP). In 2014 China was the largest exporter and third-largest importer of goods and services in the entire global economy.

Economic problems remain, many of them connected with China's failed centrally planned economy. Weaknesses in China's economy include dysfunctional state-owned enterprises (SOEs), massive nonperforming loans in the state-run banking system, uneven regional development, pervasive corruption, and an authoritarian political system. Yet Deng's vision for a more globally connected, prosperous China has gradually taken root in the world's most populous country.

David E. O'Connor

See also: BRICS: Brazil, Russia, India, China, and South Africa; China: General Economy; China and India Emerge as World Economic Powers, 2005; *Vol. 1: Foundations of Economics:* Capitalism; Communism

Further Reading

Chi Fulin, ed. 2000. *China's economic reform at the turn of the century.* Beijing, China: Foreign Languages Press.

Deng Rong. 2005. *Deng Xiaoping and the Cultural Revolution: A daughter recalls the critical years.* New York: Doubleday.

Deng Xiaoping. 2001. *Selected works of Deng Xiaoping: 1975–1982.* Baltimore, MD: Univ. Press of the Pacific.

Marti, Michael E. 2002. *China and the legacy of Deng Xiaoping: From Communist revolution to capitalist evolution.* Dulles, VA: Brasseys, Inc.

Misra, Kalpana. 1998. *From post-Maoism to post-Marxism: The erosion of official ideology in Deng's China.* New York: Routledge.

Stewart, Whitney. 2001. *Deng Xiaoping: Leader in a changing China.* Minneapolis, MN: Lerner Publications.

DEPENDENCY THEORY

The dependency theory is a theory of how developing and developed nations interact. The theory was first developed in the 1950s; it follows a Marxian analysis of the global economy and can be viewed as a contradictory theory to the free market theory. The dependency theory is built on the assumption that a developing country's resources would flow to an internal core of wealthy countries, leaving it poorer. This results in the improvement of wealthy developed nations at the expense of poor underdeveloped nations.

The dependency theory was established under the guidance of the director of the United Nations Economic Commission for Latin America, Raul Prebisch. Prebisch and his colleagues were puzzled by the fact that the growth experienced by industrialized nations did not necessarily lead to economic growth in poorer countries. Contrary to the free market ideology theory, which assumes that economic growth was beneficial to all, Prebisch's studies found that economic activity in richer and more developed countries often leads to serious economic problems in other countries.

Initially Prebisch described the situation in a very straightforward manner. Simply put, Prebisch described how poor nations were the main exporters of primary commodities to the rich countries in which the commodities were manufactured and then sold back to the poorer countries. The additional value added by manufacturing products costs more than the primary goods used to create the product. Thus, the poorer nations would never be earning enough from exporting goods to be able to pay for their imports.

Prebisch's solution to this included poorer countries adopting programs of import substitution in order to avoid purchasing manufactured products from the more developed and richer nations. The idea was this would be accomplished while still selling primary products throughout the world market but without using foreign exchange reserves in the purchasing of manufactured goods abroad.

Although this may seem like a rather simple solution and end to a viscous cycle there are several issues which make this solution improbable. The first issue is economies of scale. The poor nations were not large enough to implement the same economies of scale processing that the rich nations did in order to keep prices low. The second issue is the political environment of poorer counties. Not all of the poor nations possess the necessary governance to transform into primary product producers. The final issue was the level of control that poorer nations had over their primary products, specifically in selling these products abroad.

The research done by Prebisch and his colleagues encouraged others to think more creatively and historically about the relationship between rich and poor nations. The dependency theory is also helpful in attempting to explain the persistent poverty in poor nations. The traditional beliefs surrounding free market ideology suggests that open markets and free trade benefit developing nations by helping them to eventually join in the global economy as equal players. Once this happens it is implied that poverty will subside. In contrast the dependency theory is built on the belief that developing nations are continually feeding the developed nations by sending their wealth to the developed nations with minimal compensation. In dependency theory the developed nations are firmly keeping poorer nations in a subservient position though economic force such as issuing sanctions, or by excluding trade policies attached to loans granted by the World Bank.

Lauren A. Drum

See also: Globalization Latin America: General Economy; Protectionism; World Bank

Further Reading

Ferraro, Vincent. 1996. Dependency theory: An introduction. BYU—Marriott School. http://marriottschool.net/emp/WPW/pdf/class/Class_6-The_Dependency_Perspective.pdf (accessed June 6, 2015).

Ghosh, B. N. 2001. *Dependency theory revisited*. Burlington, VT: Ashgate.
WiseGEEK. n.d. What is dependency theory? http://www.wisegeek.org/what-is-dependency-theory.htm (accessed June 6, 2015).

DEVELOPING COUNTRIES

Developing countries are the poorer, less industrialized countries in the global economy. In 2004 the International Monetary Fund (IMF) revised its classification of economies to include two main categories: advanced economies and other emerging market and developing countries. Prior to 2004 the IMF and other multilateral organizations had identified three categories of countries: advanced, developing, and countries in transition. The developing countries are often referred to as the global South, mainly due to the geographic concentration of poorer countries in the southern hemisphere. The global North comprises 29 advanced economies. The remaining 179 economies in the world are classified as emerging market and developing countries.

The term *least developed countries* (LDCs) is reserved for the 50 poorest developing countries. As a group, the LDCs have the lowest average gross national incomes (GNIs) in the global economy. They are also most likely to be trapped in the vicious cycle of poverty. Low savings and investment rates, sluggish or negative economic growth per capita, and a deteriorating quality of life characterize the cycle of poverty.

While unique histories and cultures dot the developing world, most developing countries share several common characteristics. One common feature is a relatively low gross national income (GNI). GNI measures the nation's total income by adding up annual spending by households, businesses, and the government. The GNI per capita is the GNI divided by the country's population. The World Bank introduced the GNI per capita in 2000 to replace a similar measurement, the gross national product (GNP) per capita. Today, the World Bank and other international institutions classify countries by their GNI per capita. The four categories of countries include low-income, lower middle-income, upper middle-income, and high-income countries.

The low-income and middle-income countries are generally called developing countries. Income status is not a definitive statement of a country's development status, however. While the GNI per capita is a useful tool for cross-border statistical comparisons, there are limitations to using this measurement of economic well-being. For instance, GNI per capita does not include unreported business activity in the informal sector, or account for unreliable data collection methods, skewed income distribution within countries, or regional differences in purchasing power.

A second common characteristic of developing countries is high population growth. World population grew dramatically during the 20th century, and according to United Nations estimates world population will reach nearly 9 billion people by 2050. The burst in world population that occurred over the past half century is often called the population explosion. The great majority of population growth since 1950 has taken place in the developing world. Demographic trends indicate that nearly all population growth between 2000 and 2050 will occur in the global South. As a result, the population of the developing world will swell by an additional 3 billion people. Population growth creates a number of development challenges for poorer countries including unemployment and underemployment; internal migrations to overcrowded urban areas; degradation of local ecosystems; intense competition for resources such as fresh water, farmland, and mineral rights; and reduced saving and investment in private and public capital goods.

A third feature of many developing countries is limited natural resources. Limited natural resources might result from exploitation during a country's colonial period, few natural endowments, or current resource mismanagement. The scarcity of natural resources, and the desire to specialize in the production of goods in which a comparative advantage exists, steer some developing countries toward one-crop economies. In a one-crop economy, producers supply one or a few primary commodities, such as foods, beverages, agricultural raw materials, or minerals. One-crop economies are inherently unstable, as volatile commodity prices in global markets lead to periods of boom and bust. The mismanagement of resources, past and present, further erodes ability of countries to break the vicious cycle of poverty. Self-serving colonial regimes in the past, and widespread government corruption in the present, have squandered precious resources and retarded the growth process. Inefficient practices such as overgrazing, overfarming, and overtimbering have also wreaked havoc with fragile ecosystems. As a result, deforestation, desertification, and other forms of environmental decay wrack many developing countries. In addition, landlocked developing countries (LLDCs) and small island developing states (SIDS) are often cut off from essential resources by political borders or their remote location.

Finally, developing countries typically face high external debt obligations. External debt, also called foreign debt, is the money owed by one country to foreign creditors including governments, commercial banks, and multilateral organizations. Developing and transition countries accumulate the lion's share of external debt. In 2005 these poorer economies owed more than $475 billion in debt service payments to foreign creditors. The World Bank identified 56 low- and middle-income countries in 2014. Severely indebted countries were saddled with unsustainable external debt, a debt that could not be serviced without crippling the domestic economy and public services.

In recent years the topic of sustainable economic development in poorer world regions has become a front-burner issue for governments, multilateral organizations, non-governmental organizations, and others. In 2000 the UN General Assembly adopted the UN Millennium Declaration, which pledged to reduce global poverty and improve people's quality of life. The accompanying Millennium Development Goals (MDGs) outlined an agenda for global development, with specific targets to achieve by 2015. Of the eight MDGs, poverty reduction became the centerpiece of the global development agenda. The fact that 1.1 billion people lived on $1 or less per day in the early 2000s, and nearly 3 billion people lived on $2 or less, underscored the need for a global response to poverty. The seven other MDGs support poverty reduction. Other goals include universal public education, gender equity, reduced child mortality, improved maternal health, disease prevention, environmental protection, and the expansion of global partnerships in the economic development process. The MDGs have become a rallying point for development efforts by the United Nations System, World Bank, International Monetary Fund, regional multilateral development banks, national governments, and others in the global economy.

Developing countries often draft development plans to plot a strategy for sustainable growth and development. Development plans can be based on a command or a market model. A development plan based on the command model relies on government decision making. A development plan based on the market model puts most decision making into the hands of individuals and businesses. All development plans establish goals and set national priorities for development. At the heart of most development plans are policies to increase long-term productivity and growth, and improve the quality of people's lives. One common priority is to nurture the transition from traditional subsistence agriculture into industry and commercial services.

A second priority is capital formation—the expansion of a nation's capital stock. A third priority is human capital development and entrepreneurship. Human resources are often viewed as the wellspring of innovation and business creation. A fourth priority is trade expansion. Failed import substitution policies have given way to more successful export promotion policies in recent decades. Export promotion encourages efficient production based on a nation's comparative advantage, and the export of surplus output ranging from basic commodities to high-tech capital goods.

David E. O'Connor

See also: African Union; Development Economics; Emerging Market Economies; Least Developed Countries; Millennium Development Goals; Sustainable Economic Development; Third World Socialism; World Bank; *Vol. 1: Foundations of Economics:* Entrepreneurship; Population; Poverty; *Vol. 2: Macroeconomics:* Gross Domestic Product; Gross National Income

Further Reading

International Monetary Fund. 2005.*World economic outlook April 2005.* Washington, DC: Author.

Miller, Margaret J. 2003. *Implementing the millennium development goals.* Washington, DC: The World Bank.

O'Connor, David E. 2002. *Demystifying the global economy.* Westport, CT: Greenwood Publishing Group.

Sachs, Jeffrey D. 2005. *The end of poverty: Economic possibilities for our time.* New York: Penguin Press.

United Nations Conference on Trade and Development. 2004. *Least developed countries report 2004.* Geneva, Switzerland: United Nations.

United Nations Economic and Social Affairs Department. 2004. *World population to 2300.* New York: United Nations Publications.

The World Bank. 2004. *2004 World development indicators*. Washington, DC: The World Bank.
World Bank Group. 2016. *International debt statistics 2016*. openknowledge.worldbank.org/bitstream/handle/10986/23328/9781464806810.pdf (accessed May 11, 2016).

DEVELOPMENT ECONOMICS

Development economics is a specialized field of study in economics that deals with sustainable economic development. Development economics investigates a broad range of economic, political, and cultural topics that pertain to the nature and causes of economic growth and the quality of people's lives. Development economics, broadly defined, applies to sustainable economic development in all countries, advanced, emerging market, and developing alike. Yet, over the past half century, most of the work of development economists has focused on the prospects for sustainable development in the world's poorer regions.

Development economics straddles traditional lines between macroeconomics, microeconomics, and international economics. On the macroeconomic level, it deals with a country's gross domestic product (GDP), unemployment and underemployment rates, price levels, gross savings, investment, and capital formation. On the microeconomic level, it probes the issues of productivity, wage rates, income distribution, access to technology and knowledge, and the uses of society's factors of production—natural resources, human resources, and capital goods. Development economics also delves into the role of government in providing public goods such as schools and infrastructure; social services such as health care and financial assistance to the needy; and honest, competent leadership that protects the rule of law.

Development economics is also vitally connected with issues of connectivity in the global economy. Relevant topics include international trade, foreign direct investment, global capital markets, and economic assistance from national governments and multilateral organizations. Finally, development economics delves into social and cultural issues, institutions, and policies, including population growth, work ethic, entrepreneurial attitudes, and a host of other social or cultural norms that affect a country's prospects for development.

Development economics gained popular acceptance as a legitimate field of study after World War II. The spread of independence movements after the war forced government leaders and economists to consider the impact of decolonization on developing countries. Some early development theories during the 1950s and 1960s stressed linear development. Linear development models outlined uniform, sequential, and predictable stages of economic development. Walt W. Rostow was the leading advocate of the linear theory of development. In his book, *The Stages of Economic Growth: A Non-Communist Manifesto* (1960), Rostow identified five developmental stages. The first stage, the "traditional society," was characterized by subsistence agriculture and primitive barter exchanges. The second, "preconditions for take-off," was a transitional period that witnessed the rise of saving and investment, entrepreneur-ship, commerce, and national governments. Public investments in education and infrastructure also emerged during this transitional period. In the third stage, the "takeoff" was marked by industrialization, technological change, and still higher rates of savings and investment. As a result, higher productivity and economic growth became the norm during the nation's take-off stage. In the fourth, the "drive to maturity" widened the circle of enterprises that employed advanced capital and technology in production. A highly educated work force, pro-growth social values, and expanded international trade also supported rapid industrialization and economic growth. The fifth stage, the "age of mass consumption," witnessed the triumph of capital-intensive production. During this stage businesses produced a wide variety of capital goods and consumer goods, and households purchased the comforts of life.

Other early development theorists stressed the primacy of saving and investment in attaining economic development without relying on a linear framework. During the 1950s and 1960s, economic development was viewed mainly through the narrow lens of national output and economic growth. William A. (Sir Arthur) Lewis, a British economist, argued that the transition from a traditional subsistence agricultural economy to a modern economy was founded on productive investments in sophisticated capital goods, the infusion of foreign capital through foreign direct investment and entrepreneurial business activity. Lewis believed that sustained capital formation, and the use of surplus labor from the bloated agricultural sector, would increase business productivity, profits, and savings for reinvestment. At about the same time, American economist Robert M. Solow argued that the main drivers of economic growth were new technologies and knowledge. Solow's widely respected views stressed the need for sustained investment in research and development, education, and the application of new technologies to production in all economic sectors—agricultural, industrial, and services.

In the 1970s and 1980s other strands of development economics emerged. The dependency theory, for example, was widely acknowledged, especially among development economists and intellectuals in the third world. According to the dependency theory, developing countries were hopelessly dependent on the more powerful advanced countries for their economic survival. As a result, the poorer countries were relegated to an inferior, and static, position in the global economy. Dependency theorists often argued that discriminatory trade practices by the rich countries, abuses by powerful transnational corporations (TNCs), limited access to international capital markets, and other barriers explained the slow pace of economic development in the Third World. To counter the power of the world's leading capitalist countries, dependency theorists supported external debt forgiveness for the poorest developing countries, greater self-reliance, government controls over foreign investment, and inclusion in global decision making—particularly in multilateral organizations such as the World Bank and International Monetary Fund (IMF). In more extreme cases, dependency theorists supported aggressive nationalization or expropriation of domestic and foreign businesses, the collectivization of agriculture, and the creation of state-owned enterprises (SOEs) to replace private sector business activity.

A new direction in development theory emerged in the mid-1980s, one based on laissez-faire principles of government noninterference in the economy. Under the banner of a neoclassical revolution, development economists argued that government intervention in economic activity usually resulted in government failures, particularly the misallocation of resources. The neoclassicals opposed state planning and SOEs, which misallocated resources and distorted prices. They also opposed restrictive trade barriers, which thwarted prospects for global connectivity. Over the past 20 years the neoclassical economists have favored policies to promote good governance and the rule of law, enforceable private property rights, privatization, liberalized trade and investment, and market-determined prices. Today, the World Bank, International Monetary Fund, World Trade Organization, and other multilateral organizations share the neoclassicals' support for free-market answers to development questions.

Over the past 50 years the field of development economics has adapted to changes in the global economy, to different political currents, to world events, and to the expanded perception of sustainable economic development. Early development economists typically measured economic development by changes in national output. Today's version of sustainable economic development is more comprehensive. It measures sustained economic growth and improvements in people's quality of life such as higher adult literacy rates, longer life expectancies, better diet and nutrition, greater access to new technologies, increased consumption, and better social services. Not surprisingly, competing theories of economic development have risen and fallen over time. The linear development model so popular in the 1950s and 1960s has been largely discarded by economists in today's fast-paced, technologically connected global environment.

As time marched on, development economists emphasized different aspects of growth and development in their prescriptions for prosperity. Early economists focused on savings, investment in capital goods, and technology. Later economists added to and refined earlier work in the field. In time, other theorists stressed investment in human capital through public education, health care, nutrition, and access to economic opportunity. In the 1990s and early 2000s the groundbreaking work of Peruvian economist Hernando de Soto sought to expand opportunities by extending property rights to the poor. He argued that the inclusion of people from the informal sector, and their productive assets, was the key to capital formation and prosperity for all people. Today, another dominant theme in development economics is the need to infuse information and communications technologies (ICTs) into developing economies. ICTs are viewed as essential to a country's ability to leapfrog into the 21st century. A technology-driven approach to economic development is possible only if the global community initiates development policies to bridge the digital divide.

David E. O'Connor

See also: De Soto, Hernando; Developing Countries; Foreign Aid; Rostow, Walt W.; Sachs, Jeffrey; Sustainable Economic Development; World Trade Organization; *Vol. 1: Foundations of Economics:* Poverty; Schumpeter, Joseph; *Vol. 2: Macroeconomics:* Economic Growth; Solow, Robert M.

Further Reading

de Soto, Hernando. 2003. *The mystery of capital: Why capitalism triumphs in the West and fails everywhere else.* Rev. ed. New York: Basic Books.

Harrison, Graham, ed. 2005. *Global encounters: The international political economy, development and globalization.* New York: Palgrave Macmillan.

Lewis, Arthur. 1955. *The theory of economic growth.* London: Unwin Hyman.

Lynn, Stuart R. 2002. *Economic development: Theory and practice for a divided world.* Paramus, NJ: Prentice-Hall.

Rostow, W. W. 1960. *The stages of economic growth: A non-Communist manifesto.* London: Cambridge Univ. Press.

Sen, Amartya K. 2000. *Development as freedom.* New York: Anchor Books.

Wilson, Ernest J., III. 2004. *The information revolution and developing countries.* Cambridge, MA: MIT Press.

DRAGHI, MARIO

Born: September 3, 1947, in Rome, Italy; Nationality: Italian; Professional Interests: deficit financing, risk management, monetary policy; Major Works: *Public Debt Management: Theory and History* (coedited with Roger Dornbusch) (1990), *Transparency, Risk Management and International Financial Fragility: Geneva Reports on the World Economy 4* (with Francesco Giavazzi and Robert C. Merton) (2004).

Mario Draghi is an Italian banker and economist who succeeded Jean-Claude Trichet as president of the European Central Bank on November 1, 2011. Draghi served as governor of the Bank of Italy from 2006. He was awarded the Knight Grand Cross of the Order of Merit of the Italian Republic in April of 2000. Draghi was named a fellow of Harvard University's Institute of Politics at the John F. Kennedy School of Government in 2001.

Mario Draghi was born on September 3, 1947, in Rome, Italy. He studied at the Massimiliano Massimo Institute, later graduating from La Sapienza University of Rome in 1970 with a degree in economics. In 1977, he received his PhD in economics from the Massachusetts Institute of Technology (MIT). He wrote his dissertation, *Essays on Economic Theory and Applications*, under the supervision of Franco Modigliani and Robert Solow.

Draghi began his career in academia with the universities in Trento, Padua, and Venice from 1975 to 1981. He accepted a professorship at the University of Florence with the Cesare Alfieri Faculty of Political Science, where he remained until 1994. Concurrently, Draghi served as the Italian executive director of the World Bank until 1990.

Draghi's public service began when he became director general of the Italian Treasury in 1991. Beginning in 1993, Draghi chaired the Italian Committee for Privatisations. By 1997 and 1998, he had drafted legislation aptly known as "Draghi Law." The law sought to reform finance and corporate governance. From 1999 to 2001, Draghi chaired the Organisation of Economic Co-operation and Development's (OECD) Working Party No. 3 while also chairing the European Economic and Financial Committee in 2000 and 2001. He was also a member of the G7 Deputies.

In 2002, Draghi moved from government to private investment banking with Goldman Sachs International, serving as vice chairman and managing director. In 2006, he was elected to oversee the Bank of Italy as governor. His duties included the governing and general councils of the European Central Bank (ECB) and the board of directors of the Bank for International Settlements. During the subsequent five years, Draghi acted as chairman of the Financial Stability Board. Draghi was poised for perhaps the role of a lifetime as head of one of the world's most important central banks. He assumed his role as president of the European Central Bank on November 1, 2011.

Mario Draghi's rise as ECB's president was not without its challenges. Draghi was touted as a prospective suitor, but his early support from the French was delayed by their desire to have a Frenchman replace Trichet. Another obstacle arose when questions surfaced concerning Draghi's prior affiliation with Goldman Sachs.

With an alarming debt crisis looming, Mario Draghi inherited a tough job. He took immediate action akin to the efforts of his U.S. counterpart, Ben Bernanke, the chairman of the Federal Reserve Bank. Under Draghi's leadership, the ECB released 490 billion euros, a massive amount, to member institutions of the European Union, intended to ease the credit crunch. Like Bernanke, Draghi authorized bond purchases to aid member nations. He also reversed the actions of his predecessor, a move some opposed given the recessive climate and doomsday forecasts.

Though his swift actions were largely favored, some critics believed Draghi's laissez-faire approach to Greece's loan defaults presented a windfall to those institutions insuring bad debts. Likewise, dissenters argued that the ECB's and other central banks' additional round of debt financing would actually spark inflationary rises in key markets such as oil. As the European Central Bank's lead monetarist, Draghi's every action is followed and documented by the global press.

While presiding over ECB affairs, Draghi also serves as chair of the European Systemic Risk Board. He has held other distinguished posts such as an honorary trustee of the Brookings Institution in Washington, D.C., and as member of the board of trustees of Princeton University's Institute for Advanced Study. Draghi has been an instrumental adviser to a number of banking institutions and corporate entities, which included Eni, Istituto per la Ricostruzione Industriale, Banca Nazionale del Lavoro, and IMI.

Draghi has authored countless articles on a range of financial subject matter, specifically international finance and monetary policy. Draghi functioned as editor of *Public Debt Management: Theory and History* with Rudiger Dornbusch, which was first published in 1990. In alliance with Francesco Giavazzi and Robert C. Merton, Draghi wrote *Transparency, Risk Management and International Financial Fragility: Geneva Reports on the World Economy 4* in 2004. This fourth installment examined government guarantees to banks and the inherent risks imposed on the respective government's financial picture.

Draghi has received a host of awards and honors. In 2000, he received the Knight Grand Cross of the Order of Merit of the Italian Republic. He was named a fellow of Harvard University's Institute of Politics at the John F. Kennedy School of Government in 2001. Draghi was awarded an honorary distinction in statistics from the University of Padua in 2009. In 2010, he was awarded an honorary MBA from the CUOA (University Center of Business Administration) Foundation in Vicenza, Italy.

Joy Dooley-Sorrells

See also: Euro (European Currency Unit); European Central Bank; Trichet, Jean-Claude

Further Reading

Draghi, Mario. 1977. *Essays on economic theory and applications*. PhD diss., Massachusetts Institute of Technology.

Draghi, Mario, and Rudiger Dornbusch, eds. 1990. *Public debt management: Theory and history.* New York: Cambridge Univ. Press.

Draghi, Mario, Francesco Giavazzi, and Robert C. Merton. 2004. *Transparency, risk management and international financial fragility: Geneva reports on the world economy 4.* London: Centre for Economic Policy Research.

European Central Bank. n.d. The President of the European Central Bank: Mario Draghi. http://www.ecb.int/ecb/orga/decisions/html/cvdraghi.en.html (accessed September 16, 2012).

James, Harold. 2012. *Making the European Monetary Union.* Foreword by Mario Draghi and Jaime Caruan. Cambridge, MA: Harvard Univ. Press.

Tamburello, Stefani. 2011. *Mario Draghi il governatore: Dalla banca d'Italia al vertice della Bce* Diegaro di Cesena, Italy: Rizzoli Etas.

DUFLO, ESTHER

Born: October 25, 1972, in Paris, France; Nationality: French; Professional Interests: development economics, social economics; Major Works: "The Experimental Approach to Development Economics" (with Abhijit V. Banerjee) (2009); *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty* (2011); *Poor Economics: Barefoot Hedge-Fund Managers, DIY Doctors and the Surprising Truth about Life on Less Than 1 Dollar a Day* (2012).

Esther Duflo is a French economist with an international reputation for her pioneering work in development economics. An economics professor at MIT, Duflo is noted for her work literally out in the field to discover and address causes of and cures for poverty. Duflo founded and was the first director of the Jameel Poverty Action Lab (J-PAL). She is credited for pioneering the study of development economics with the application of randomized control trials like those conducted in medicine. Duflo explores the causes and cures of the microeconomic issues such as education, health, and finance in developing countries.

Esther Duflo was born on October 25, 1972, in France. She studied history and economics at the Ecole ormale Superieure in Paris, receiving her BA in 1994. During her time at Ecole ormale Superieure, she studied in Moscow, Russia, working with development economist Jeffrey Sachs. A year later in 1995, she earned her master's in economics from DELTA in Paris. She came to the United States to pursue her PhD in economics. She received her doctorate in economics from MIT in 1999.

Upon graduation, MIT appointed her an assistant professor of economics. Duflo also was a one-year visiting professor at Princeton University during the 2001–2002 academic year and served a six-month leave at the Paris School of Economics in 2007. By age 29, she was a tenured associate professor. In 2005, Esther Duflo founded J-PAL at MIT and was named the Adbul Latif Jameel Professor of Poverty Alleviation and Development Economics. Through J-PAL, Duflo and her colleagues initiate research that evaluates the microeconomic issues of developing countries. J-PAL concerns itself with evaluating through randomized control trials social programs (health, education, finance) that directly impact the poverty-stricken people and families in less developed countries.

Esther Duflo's professional activities go beyond J-PAL. She serves on the board of the Bureau for Research and Economic Analysis of Development (BREAD), is a research associate for the National Bureau for Economic Research (BER), and directs the Center of Economic Policy Research's development economics program. Duflo was the founding editor of the *American Economic Journal: Applied Economics.* She is also a coeditor for the *Review of Economics and Statistics* and the *Journal of Development Economics,* and a member of the Human Capital Research Programme for the International Growth Center.

Duflo's research incorporated field experiments in developing countries on several social fronts to identify causes so they could prescribe solutions. Her J-PAL teams investigated areas including the behavior involved in household decision making, educational issues such as school uniforms and absentee teachers, access (or lack thereof) to financial resources, and financial decision making regarding health issues including immunizations. They also evaluated public policies as they applied to these microeconomic issues.

In 2011, Esther Duflo and Abhijit Banerjee (J-PAL cofounder and colleague) published *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty. Poor Economics* was awarded Business Book of the Year by both the *Financial Times* and Goldman Sachs. Duflo and Banerjee addressed the small microeconomic questions of economic development. They revealed the results on a series of 18 countries' sets of data and topics researched using their pioneering randomized control trials methodology. Many of the causes and effects they revealed were counterintuitive, which raised the debate of effective prescriptions for developing countries.

Two topics they explored were microfinance and malnutrition. They launched a debate on the effectiveness of microfinance though they were still positive on it. Their observations and trials revealed that most individuals would trade, without hesitation, their small business for a factory job. They are "reluctant entrepreneurs." Duflo and Banerjee also found discrepancy with business funding in developing countries as medium-size businesses have limited access to financial resources. They also argued that the problem with the diet of malnourished people in different countries was not the quantity of food but the quality, an issue of nutrition and not hunger.

Esther Duflo has received countless honors and awards for her work, including the John Bates Clark Medal in 2010. In 2009, Duflo was a John D. and Catherine

MacArthur Fellow and was awarded the inaugural Calvo-Armengol International Prize. In 2005, she was honored as the *LeMonde/Cercle des economistes* (*LeMonde*/The Circle of Economists) best young French economist. *Foreign Policy* magazine recognized Duflo as one of the top 100 intellectuals in 2008, and there were similar recognitions by *The Economist* and *Time* magazine. In 2009, Duflo became an American Academy of Arts and Sciences fellow. She was nominated by President Obama to serve as a member of the President's Global Development Council.

Esther Duflo has been labeled a left-of-center redistributionist in achieving global equity and prosperity. She has been criticized as an activist whose activism blurs her economics. She is unapologetic and views her role as vital to achieving a better future. Duflo has been a pioneering presence and driving force in furthering the use of field experiments as a methodology to identify solutions and advocate for the poor.

David A. Dieterle

See also: Dependency Theory; Developing Countries; Easterly, William; Globalization; International Monetary Fund; Sachs, Jeffrey; Trade Policy; Trade, Measures of; World Bank; *Vol. 1: Foundations of Economics:* Health Economics; Keynes, John Maynard; Malthus, Thomas; Marx, Karl; *Vol. 3: Microeconomics:* Household Decisions

Further Reading

Banerjee, Abhijit V., and Esther Duflo. 2009. The experimental approach to development economics. *Annual Review of Economics* 1: 151–178.

Banerjee, Abhijit V., and Esther Duflo. 2011. *Poor economics: A radical rethinking of the way to fight global poverty.* New York: Public Affairs.

Banerjee, Abhijit V., and Esther Duflo. 2012. *Poor economics: Barefoot hedge-fund managers, DIY doctors and the surprising truth about life on less than 1 dollar a day*. New York: Penguin Books.

Conley, Timothy G., and Christopher R. Udry. 2010. Learning about a new technology: Pineapple in Ghana. *The American Economic Review* 100 (1): 35–69.

Duflo, Esther. 2009. *Expérience, science et lutte contre la pauvreté*. Paris: Fayard.

Duflo, Esther. 2010. *Le développment humain (Lutter contre la pauvrete, vol. 1)*. Paris: Leseuil.

Duflo, Esther. 2010. *La polique de l'autonomie (Lutter contre la pauvrete, vol. 2)*. Paris: Leseuil.

MIT Economics. n.d. Esther Duflo papers. http://economics.mit.edu/faculty/eduflo/papers (accessed April 12, 2012).

Parker, Ian. 2010. Profiles—The poverty lab. *The New Yorker.* http://www.newyorker.com/reporting/2010/05/17/100517fa_fact_parker (accessed April 12, 2012).

DUMPING

Dumping is an illegal trade practice that occurs when a company from one nation sells its output in a second country at a price lower than its production costs, or lower than the price charged in its own domestic market. Under the World Trade Organization's (WTO's) Anti-Dumping Agreement, countries can defend domestic industries against dumping with prescribed anti-dumping measures.

Exporting companies dump products in foreign markets at artificially low prices for two main reasons. First, dumping is used to reduce or eliminate unsold inventories of certain goods. This often happens when the exporting country is in recession and domestic demand for output is low. Reluctant to fire workers or close plants, exporting companies continue to produce goods at a loss for overseas markets. Second, exporters dump products in foreign markets to undercut competitors in the second country. In this respect dumping involves predatory pricing and is designed to gain a foothold in the second country. Whichever the motive, dumping threatens the survival of some firms and jeopardizes job security for workers in the targeted country.

The WTO's Anti-Dumping Agreement established the world's most recognized guidelines for anti-dumping actions. Before a government can retaliate against an exporter for alleged dumping, the government must satisfy three requirements. First, the government must prove that dumping has taken place. Proof of dumping may involve a price comparison with prevailing market prices in the exporter's home country, or with the market price of the exported product in a third country. Second, the government must calculate the magnitude of the dumping. This calculation is normally expressed as the difference between the normal market price of the product in the exporter's home country and the market price in the second country. Third, the government must prove that the dumping has damaged domestic producers, or at least has the potential to damage domestic producers.

It may appear that existing rules and procedures to identify and deal with dumping are in place, but the application of existing regulations is subject to interpretation. There are many gray areas in determining what constitutes dumping, and in what constitutes an appropriate response to dumping. The WTO's Anti-Dumping Agreement was the culmination of a quarter century of debate and litigation, first under the General Agreement on Tariffs and Trade (GATT) and later under the WTO. Yet, even today, the issue of dumping remains a challenge to the stability of the global trading system. One celebrated anti-dumping action involved U.S. retaliatory duties on Russian and Japanese steel during the late 1990s and early 2000s. Cases of dumping that make the headlines represent just the tip of the iceberg. With more than 40 active disputes under review by the WTO, 2014 was one its most active years, with an additional 34 actions still being investigated and six actions under appeal.

Dumping, and resulting anti-dumping actions, creates instability in the global trading system. When exporters dump their wares in foreign countries, they disrupt normal pricing mechanisms, threaten domestic producers, and invite retaliation by foreign governments. Anti-dumping actions also pose a significant obstacle to international trade. By the early 2000s, anti-dumping actions were used by governments in the advanced and developing countries as a type of trade barrier, a loophole in the WTO's prohibitions against other forms of trade protectionism. Anti-dumping actions included exorbitant tariffs on disputed products. Tariffs topping 300 percent of the value of disputed items were not uncommon. Some economists see aggressive anti-dumping actions as a form of disguised protectionism, which can not only disrupt international trade but can also reward production inefficiency in domestic markets.

David E. O'Connor

See also: Exports; Imports; International Trade; Protectionism; Tariffs; World Trade Organization

Further Reading

Czako, Judith, Johann Human, and Jorge Miranda. 2003. *A handbook on antidumping investigations.* New York: Cambridge Univ. Press.

Durling, James P., and Matthew R. Nicely. 2002. *Understanding the WTO Anti-Dumping Agreement.* London: Cameron May.

Lindsey, Brink, and Danile J. Ikenson. 2003. *Antidumping exposed: The devilish details of unfair trade law.* Washington, DC: Cato Institute.

Van Bael, Bellis. 2004. *Anti-dumping and other trade protection laws of the EC.* 4th ed. Norwell, MA: Kluwer Law International.

The World Bank. 2004. *Global economic prospects 2004.* Washington, DC: The World Bank.

World Trade Organization. n.d. Dispute settlement activity in 2014. www.wto.org/english/res_e/booksp_e/anrep_e/anrep15_chap6_e.pdf (accessed September 30, 2016).

E

EAST ASIA: GENERAL ECONOMIES

The East Asia economies include those Asian nations who border the Pacific Ocean. The dominant economy in the region immediately after World War II was Japan, but by the late 20th century the success of the Asian Tiger economies also attracted significant attention. Most recently, China's early 21st-century transition to a relatively more liberalized economy has ensured its position as a major regional power.

The story of the East Asian economies during the post–World War II era has been one of dramatic economic advancement in comparison to most of the rest of the world. This process has sometimes been dubbed the Asian Miracle. In more recent years, however, these nations have experienced challenges in maintaining their rates of growth.

In the 1950s the economies of East Asia significantly lagged behind those of North America and Europe. Japan was still in the process of recovering from the destruction of the war. Other nations within the region, in addition to post-war recovery, were in the process of breaking away the bonds of colonial relations that they had lived under for several centuries.

The Japanese economy was the first to recover, initially resulting from American aid, but later almost exclusively due to the cooperative effort of the Japanese government and private sector industry. In 1950, Japanese gross domestic product (GDP) per capita (measured in 1990 Geary-Khamis/International dollars) was only $1,921, approximately 33 percent less than it had been in 1941 when the nation had declared war on the United States. Japan rapidly reindustrialized and the government relaxed antitrust laws to allow companies to expand and integrate both horizontally and vertically. Further, the government established protectionist trade policies that were intended to encourage net manufactured exports.

Japan's performance over the next several decades was impressive, as the nation regained its status as a major world economic power. The nation's automobile manufacturing industry, which produced less than 50 thousand automobiles in 1950, grew to produce 11 million units by 1980. The Japanese economy grew at an annual rate of 8.8 percent in the 1950s, 10.5 percent in the 1960s, 4.5 percent in the 1970s, and 4.0 percent in the 1980s.

In the wake of Japan's success, other regional nations also experienced economic expansion. The nations of Hong Kong, Singapore, South Korea, and Taiwan became known as the Asian Tigers as a result of their successes. Each country followed the Japanese example of a coordinated economic policy that featured significant cooperation between the government and private sector. The tiny and resource-scarce nations of Hong Kong and Singapore specialized as major financial centers while South Korea and Taiwan more closely resembled the Japanese example of promoting manufactured exports. The remarkable growth of the Asian Tigers is exemplified by Hong Kong's, Singapore's, South Korea's, and Taiwan's annual economic growth rates of 9.0 percent, 9.0 percent, 8.4 percent, and 9.8 percent, respectively, in the 1970s, as well as rates of 6.5 percent, 7.1 percent, 9.1 percent, and 7.9 percent, respectively, in the 1980s.

Subsequent to the rise of the Asian Tigers, another wave of Asian economies enjoyed takeoff during the 1980s. The nations of Indonesia, Malaysia, the Philippines and Thailand are referred to as the Asian Cubs. During the 1980s these four countries experienced healthy annual growth rates, but at far more modest levels than the Asian Tigers had.

The substantial growth rates of Japan, the Asian Tigers and the Asian Cubs over extended periods of time created an economic boom climate that ultimately could not be sustained. There were a number of causal factors, but the most important was the policy of many East Asian countries to peg their currencies against the United States dollar. A second contagion factor was the rapid increase in prices of real assets, and particularly real estate. In 1997, a financial panic gripped Thailand and eventually spread to all of the major economies in the region. The situation became so dire that the International Monetary Fund was forced to provide direct assistance to Thailand and Indonesia. All of the region's economies suffered as a result of the 1997 crisis.

Remarkably, the region's recovery was relatively fast. Thailand and Indonesia quickly repaid their International Monetary Fund loans. As of 2013, the World Bank lists Japan and the Asian Tigers among the top thirty wealthiest economies in the world base on a GDP per capita basis.

The most recent economic development within the region over the past twenty years has been the growth of the Chinese economy. China possesses the largest regional economy in terms of gross GDP. However, in terms of GDP per capita it still lags significantly behind its regional partners. In 1995, the nation's GDP per capita was US$608. Its estimated GDP per capita in 2015 is $7,594, representing an astounding 13.5 percent annual growth rate over a 20-year period. In 2015, the Chinese economy experienced an abrupt slowdown. Whether this slowdown is temporary or long-term in nature is still undetermined.

John Moore

See also: Asian Tigers; China: General Economy; Currency Appreciation and Depreciation; Currency Wars; Development Economics; Hong Kong: General Economy; International Monetary Fund; International Trade; Trade Policy; World Bank

Further Reading

Chang, Ha-Joon. 2007. *East Asian development experience: The miracle, the crisis and the future*. London: Zed Books.

The World Bank. n.d. East Asia Pacific. http://www.worldbank.org/en/region/eap (accessed November 3, 2016).

World Economics. n.d. Angus Maddison data files. www.worldeconomics.com (accessed September 30, 2016).

EASTERLY, WILLIAM

Born: September 7, 1957, in Morgantown, West Virginia; Nationality: American; Professional Interests: economic development, growth in developing countries; Major Works: *The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics* (2001), *The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done So Much Harm and So Little Good* (2006), *A Tyranny of Experts: How the Fight Against Global Poverty Suppressed Individual Rights* (2014).

William Easterly is a professor of economics at New York University (NYU) and the codirector of NYU's Development Research Institute. His main fields of interest are economic development and growth, foreign aid, and the macroeconomics of developing countries. He authored two books: *The Elusive Quest for Growth* (Massachusetts Institute of Technology, 2001) and *The White Man's Burden* (Penguin, 2006); edited three books: *What Works in Development, Reinventing Foreign* Aid, and *The Limits of Stabilization;* and published more than 60 peer-reviewed academic papers. In 2008 and 2009, *Foreign Policy* magazine named him among the top 100 global public intellectuals.

William Russell Easterly was born in West Virginia on September 7, 1957, and raised in Bowling Green, Ohio. He received his BA from Bowling Green State University in 1979 and his PhD in economics from Massachusetts Institute of Technology (MIT) in 1985. He worked for 16 years as a research economist and senior adviser at the Macroeconomics and Growth Division at the World Bank. From 2001 to 2003, he worked at the Institute for International Economics and the Center for Global Development. Since 2003, he has been a professor of economics and codirector of the Development Research Institute at NYU. His work in the developing world has been mainly focused on Africa and Latin America, and it is widely reviewed by major media outlets.

In *The Elusive Quest for Growth* (2001), Easterly discusses the main factors behind the lack of developmental growth in Third World countries since World War II. He is specifically critical of governments and institutions such as the World Bank and the International Monetary Fund who try to implement various economics policies without understanding the culture and native people's financial incentives. He argues that without the financial motivation of local people, policies toward capital accumulation, education, and population control not only are useless but also, over time, add to the corruption, high debt, and financial crisis in poor countries. The key, he discusses, is not in applying the planned theories of development economics but rather is in understanding the local economy, increasing the demand for product and services that help poor countries move forward, and enhancing poor countries' abilities to implement productive and profitable lines of market activities. In this case, the market would automatically determine the optimum level of important economic indicators, such as education and population size, that undeveloped countries are battling with.

In *The White Man's Burden* (2006), Easterly discusses two different approaches to providing aid to poor countries: a planner's approach versus a searcher's approach. According to Easterly, planners are those who think they already know the answers. Searchers acknowledge they do not know the answer. Searcher sees poverty as an intricate interdependence of social, historical, political, institutional, and technological factors. He argues that searchers offer a piecemeal problem-solving approach: collecting detailed information from the locals to first understand the culture and the problems, then applying different methods to solve the problems. Finally, searchers collect feedback from the community they are serving to analyze the method(s) used to find the optimum solution(s) to specific problems. Planners, however, measure the success of aid programs by the amount of money spent by the rich countries, not by their effectiveness in solving the locals' problems. Easterly submits that in the fight against global poverty, sometimes the best plan is to have no plan at all.

Easterly was the principal writer of the *Aid Watch* blog, a project of New York University's Development Research Institute. No longer active, the main idea behind the *Aid Watch* blog was to raise awareness of the aid programs because the authors believed that if more people watched and scrutinized the aid programs, more aid would reach the intended population.

Easterly's opponents criticize him for his rhetorical thrashing of those who he describes as ill-intended enemies of the poor. They argue that the ineffectiveness of Western-initiated developmental aid should encourage more dialogue and more scrutiny over the implementation of these programs to make them more effective, not dismiss such programs altogether as Easterly suggests.

Easterly has his detractors, who support the increase in international aid to poor countries while concurrently canceling their debt, but are critical of Easterly's pessimism and assert that Easterly disregards foreign aid even where it was successful in the past. Easterly's counterpoint, however, is that while for the past 50 years foreign aid to poor countries has increased dramatically, global poverty, especially in the areas that received the most amount of aid, has increased sharply as well. While others agree with Easterly regarding the ineffectiveness of past aid programs, they contribute this failure not to foreign aid but to an insufficient amount of foreign aid. Regardless, the majority of developmental economists agree that because of corruption among high-level officials in poor countries, most foreign aid did not reach the intended recipients.

William Easterly has written two books, coedited three others, and published more than 60 academic papers in peer-reviewed journals. His work has been addressed in many media outlets such as the *New York Times*, the *Wall Street Journal,* and the *Washington Post,* to name a few. He is one of the best-known development economists of the 21st century.

Elham Mahmoudi

See also: Dependency Theory; Developing Countries; Globalization; International Monetary Fund; Sachs, Jeffrey; Trade Policy; Trade, Measures of; World Bank; *Vol. 1: Foundations of Economics:* Capitalism; Malthus, Thomas

Further Reading

The Brookings Institution. n.d. William Easterly. http://www.brookings.edu/experts/easterlyw (accessed October 1, 2012).

Development Research Institute, New York University. n.d. About. http://www.nyudri.org/about (accessed November 3, 2016).
Easterly, William. 2001. *The elusive quest for growth: Economists' adventures and misadventures in the tropics.* Boston, MA: MIT Press.
Easterly, William. 2006. *The white man's burden: Why the West's efforts to aid the rest have done so much ill and so little good.* London: Penguin Group.
Easterly, William. 2014. *A tyranny of experts: How the fight against global poverty suppressed individual rights*. New York: Perseus Books Group.
Mishkin, Frederic S. 2006. *The next great globalization: How disadvantaged nations can harness their financial systems to get rich.* Princeton, NJ: Princeton Univ. Press.
Sen, A. 2006. The man without a plan. *Foreign Affairs* 85 (2): 171–78.

ECONOMIC COMMUNITY OF WEST AFRICAN STATES

The Economic Community of West African States (ECOWAS) is a 15-member multilateral organization designed to promote economic integration, sustainable growth and development, and regional political stability in West Africa. The Treaty of Lagos (Nigeria) established ECOWAS on May 28, 1975. The organization's original fifteen members included Benin, Burkina Faso, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo. Cape Verde joined ECOWAS in 1977, and Mauritania withdrew from the organization in 2002. The principal institutions of ECOWAS include the Authority of Heads of State and Government, the Council of Ministers, the Community Parliament, the Social and Economic Council, the Community Court of Justice, the Mediation and Security Council, and the Executive Secretariat.

ECOWAS's original mission centered on regional economic integration and shared development. During the organization's early years, there was also a drive for greater self-reliance by the newly independent West African nations, nations that were anxious to distance themselves from their colonial past. In the early 1990s, revisions in the ECOWAS agreement established specific regional economic goals, including the creation of a common market and a unified currency. In addition, a series of protocols were enacted to support conflict resolution and regional stability. In recent years ECOWAS's peacekeeping protocols have been tested repeatedly in nations such as Liberia, Guinea-Bissau, Sierra Leone, and Cote d'Ivoire. The creation of the Mechanism for Conflict Prevention, Management, Resolution, Peacekeeping and Security in 1999 formalized the organization's commitment to regional harmony.

Recent high-level ECOWAS meetings have accelerated plans for regional integration. The Bamako (Mali) Declaration of 2000, for example, pledged support for free cross-border movements of goods, investments, and people; monetary integration; human resources development; and intraregional infrastructure development. To jump-start the implementation of these goals, five member nations—Gambia, Ghana, Guinea, Nigeria, and Sierra Leone—agreed to fast-track the process. This group initiated formal discussions to create a single ECOWAS currency, the Eco, an initiative scheduled for implementation in 2005. Under the leadership of Nigeria, the region's largest country, the group also planned to create a West African free trade area (FTA) and construct intraregional infrastructure projects such as highways, telecommunications systems, railroad and shipping lines, and electricity grids.

Progress toward regional economic development and stability in ECOWAS countries has been pitted with obstacles. Over the past 30 years, ECOWAS members have dealt with extreme poverty, poor governance, civil unrest and international conflict, rapid population growth, unstable commodity prices, high external debt, and the lack of a sophisticated physical and technological infrastructure. Oil-rich Nigeria remained ECOWAS's dominant member nation, accounting for over half of the region's total population and gross domestic product in the early 2000s.

David E. O'Connor

See also: African Development Bank Group; Regional Trade Agreements; *Vol. 2: Macroeconomics:* Gross Domestic Product

Further Reading

Economic Community of West African States. 1983. *Readings and Documents on ECOWAS: Selected papers and discussions from the 1976 economic community of West African states conference*. Indianapolis, IN: Macmillan.

International Business Publications USA. 2001. *Economic community of West African states business law handbook.* 3rd ed. Cincinnati, OH: Author.

Jaye, Thomas. 2003. *Issues of sovereignty, strategy and security in the economic community of West African states (ECOWAS) intervention in the Liberian civil war.* Lewiston, NY: Edwin Mellen Press.

Schiff, Maurice, and Alan L. Winters. 2003. *Regional integration and development*. Washington, DC: World Bank Publications.

The World Bank. 2004. *Global economic prospects: Trade, regionalism, and development 2005.* Washington, DC: The World Bank.

EMBARGO

An embargo is a type of economic sanction that a government or other political entity imposes on another country. A comprehensive economic embargo halts all trade, investment, and other commercial contacts between two countries. More selective embargoes can also stop trade in a specific good or type of technology. In recent years arms embargoes have been widely used to reduce the availability of munitions to governments that sponsor terrorism, violate people's human rights, or otherwise impose their will on other peoples. Many embargoes are politically motivated, designed to pressure another government to change a domestic or international policy. During the past few decades embargoes have been initiated by individual countries, such as the United States; multilateral organizations, such as the United Nations (UN); producer cartels, such as the Organization for Petroleum Exporting Countries (OPEC); and regional trade blocs, such as the European Union (EU).

The comprehensive U.S. embargo on Cuba is among the world's most contentious economic sanctions. The embargo began in 1960 in response to Fidel Castro's successful ouster of a U.S.-backed government in Cuba. The embargo stopped virtually all trade, investment, and other business dealings between the United States and Cuba. The U.S. embargo on Cuba was strengthened in 1996 when Congress passed the Cuban Liberty and Democratic Solidarity Act, also called the Helms Burton Act. Under the Helms Burton Act, the United States pledged to extend the existing embargo to any company, foreign or domestic, caught trafficking U.S. properties that had been confiscated by the Castro regime. The Helms-Burton Act created a firestorm of protest throughout the world, and its enforcement was suspended repeatedly by President Bill Clinton during the late 1990s and by President George W. Bush in the early 2000s. The U.S. embargo crippled economic development in Cuba, but failed to weaken the resolve or authority of the Cuban dictator Fidel Castro. In 2004, the UN General Assembly approved a resolution condemning the U.S. embargo of Cuba by a 179 to 4 vote—the thirteenth official UN condemnation of the embargo. In 2016, President Barack Obama and Cuban President Raul Castro called for an end to the U.S. trade embargo as part of a broader effort to normalize relations between the two nations. Obama lifted some travel and financial restrictions, however Congress strongly opposed the presidents' calls to lift the embargo. Over the years, other U.S. embargoes were imposed on countries that sponsor terrorism, including Iran, Iraq, Libya, and Sudan.

UN embargoes support the organization's peacekeeping and humanitarian functions. For example, UN Resolution 661, which was approved in August 1990, slapped a comprehensive trade embargo on Iraq. The UN embargo was designed to end Iraq's illegal occupation of neighboring Kuwait. The failure of UN sanctions prompted a military response early in 1991. After a UN coalition force liberated Kuwait in early 1991, the embargo was resumed to help ensure Iraqi compliance with the conditions of peace. Shortly thereafter, modifications in the embargo permitted Iraq to export limited qualities of oil on the condition that oil revenues were used for humanitarian purposes, a concession referred to the oil-for-food agreement. The UN embargo on Iraq during the 1990s and early 2000s yielded uncertain benefits. Corruption in the oil-for-food program, and certain confrontational postures by Iraqi dictator Saddam Hussein, led to a U.S. invasion of Iraq in March 2003. Soon after Hussein's regime collapsed, the UN embargo was lifted. Other UN embargoes were previously placed on Rhodesia (1970s) and South Africa (1980s) to pressure white minority governments to end racist domestic policies, and on Serbia (1990s) in response to horrific human rights violations.

The sting of an economic embargo was felt by the United States and other advanced economies during the 1970s. In 1973, the Arab members of OPEC imposed an oil embargo on the United States, Japan, and several Western European countries to punish certain advanced economies for their support for Israel during the Yom Kippur War. The United States and the Netherlands, each staunch supporters of Israel, bore the brunt of the oil embargo. Shortages of gasoline, home heating oil, and other petroleum-based products caused hardships for consumers and businesses. The embargo was lifted in March 1974. The embargo provided a rallying point for OPEC. By flexing its collective muscle in 1973–1974, the OPEC cartel was able to quadruple oil prices in global markets during the period.

David E. O'Connor

See also: Organization of Petroleum Exporting Countries; Protectionism; Trade Policy; *Vol. 1: Foundations of Economics:* United Nations System; *Vol. 2: Macroeconomics:* Oil Crisis of 1979

Further Reading

Haney, Patrick J., and Walt Vanderbush. 2005. *The Cuban embargo: The domestic politics of an American foreign policy.* Pittsburgh, PA: Univ. of Pittsburgh Press.

Naylor, R. T. 2001. *Economic warfare: Sanctions, embargo busting, and their human cost.* Boston, MA: Northeastern Univ. Press.

Ratcliff, William, and Roger Fontaine. 2000. *A strategic flip-flop in the Caribbean: Lift the embargo on Cuba.* Stanford, CA: Hoover Institution Press.

United Nations Conference on Trade and Development. 1995. *Trade and development report, 1995 with overview: Embargo.* New York: United Nations.

EMERGING MARKET ECONOMIES

Emerging market economies are countries that have made significant strides toward capitalism and sustainable economic development. The term emerging market economies has been used for decades. The International Monetary Fund's (IMF's) 2004 reclassification of world economies brought new attention to the term emerging market economies. The IMF's classification of economies during much of the 1990s and early 2000s identified three main categories of economies: advanced economies, developing economies, and transition economies. The IMF's 2004 reclassification scheme eliminated the transition economy category. The two categories of economies include advanced economies, and emerging market and developing countries.

The emerging market economies (EMEs) are countries that successfully implement market-oriented economic reforms, and make steady gains in economic growth and development. There is no definitive economic, geographic, or political line that separates the EMEs from other developing countries. Yet, there are some generally recognized characteristics that help make the distinction.

First, EMEs are generally classified as lower middle-income or upper middle-income countries. Most low-income countries were classified as developing economies. Second, EMEs are growth-oriented. Economic growth, in this context, is typically measured by sustained increases in the country's real gross domestic product (GDP) per capita. Third, some EMEs are transitional countries, shifting from closed or static economies to open market-based economies.

The former communist countries of eastern and central Europe, such as Hungary, Poland, and Russia, illustrate this type of transition. Other countries not previously part of the communist world, such as India, South Africa, and Mexico, are also transitioning. Fourth, EMEs are active participants in the global economy. They liberalize trade, court foreign direct investment (FDI), develop sophisticated capital markets, and stabilize the value of their currencies. They tend to be members of, and solicit technical assistance from, multilateral organizations such as the World Bank, IMF, and regional development banks. China, Malaysia, and Thailand, for example, embrace globalization as a key element in their economic development. The May 2004 enlargement of the European Union (EU) also reflects the outward-looking mentality of nine European EMEs, including the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, the Slovak Republic, and Slovenia (the tenth accession country, Cyprus, is classified as an advanced economy). Finally, EMEs support good governance and the rule of law. EMEs institute political reforms to democratize the political system, establish and enforce business codes to protect market institutions, and guarantee transparency in public and private sector business activities. Examples include the EU accession countries, Chile, and Argentina.

EMEs exist in all world regions. Emerging Europe, for example, includes most of the former communist nations of eastern and central Europe, such as the Czech Republic, Hungary, and Poland. It also includes several countries that were "republics" within the former Soviet Union, such as Estonia, Latvia, and Lithuania. Since the early 1990s, the 28 countries of eastern and central Europe, and central Asia were commonly called the transition countries. Their economic transition was from centrally planned communist economies to market-oriented economies. Their political transition was from single-party totalitarian regimes to democracy. Emerging Asia includes several of the world's largest emerging market economies, such as China and India. Measured by purchasing power parity (PPP), China and India account for more than 19 percent of total world output, more than the 12-country European Monetary Union (EMU), and nearly triple the output of Japan. Other major emerging market economies exist in Africa, such as South Africa, and the Americas, such as Argentina, Brazil, Chile, and Mexico.

The EMEs and developing countries face similar types of economic and political challenges. The main difference between the two groups is one of degree—the EMEs recording significant gains in economic freedom and development and the developing economies victimized by extreme poverty, poor quality of life, sluggish or negative economic growth, and corrupt or repressive governments. The progress of EMEs toward sustainable economic development is sometimes pitted with obstacles. For example, extreme poverty confronts EMEs such as India and Indonesia. Financial crises in East Asia, Russia, and Brazil during the late 1990s threw many EMEs into an economic tailspin. The lethargic pace of democratic reforms in China, and questionable electoral practices in Russia, are also challenges to the process of development. Still, the economic and political progress of EMEs far outpace that of other developing countries such as Liberia, Somalia, and Sudan in Africa; Cambodia, Myanmar, and North Korea in Asia; Azerbaijan, Tajikistan, and Uzbekistan in Central Asia; and Haiti and Cuba in the Americas.

David E. O'Connor

See also: African Union; Developing Countries; Least Developed Countries; *Vol. 1: Foundations of Economics:* Economic Systems.

Further Reading

Das, Dilip K. 2004. *Financial globalization and the emerging market economies.* New York: Routledge.

Feldstein, Martin. 2003. *Economic and financial crises in emerging market economies.* Chicago, IL: Univ. of Chicago Press.

Hacker, R. Scott, with Bjorn Johansson, and Charlie Karlsson. 2005. *Emerging market economies and European economic integration.* Northampton, MA: Edward Elgar Publishing.

Kapstein, Ethan B., Branko Milanovic, and the Institute for Employment Research. 2003. *Income and influence: Social policy in emerging market economies.* Kalamazoo, MI: W.E. Upjohn Institute.

Koodko, Grzegorz W. 2003. *Emerging market economies: Globalization and development.* Brookfield, VT: Ashgate Publishing.

EURO (EUROPEAN CURRENCY UNIT)

The introduction of one currency (euro) in the European Community originated from the final point of the Maastricht Treaty. The Maastricht Treaty was composed of 12 nations (United Kingdom, France, Germany, Italy, Ireland, Belgium, Denmark, the Netherlands, Spain, Portugal, Greece, and Luxembourg) that had interest in discussing the steps towards creating a single monetary currency for the European Union. The treaty obtained its name because of where the meetings were being held, the Dutch town of Maastricht. The Maastricht Treaty was a significant step towards the implementation of the Euro currency and economic monetary union. The euro was adopted on January 1, 1999.

During the transition of the currencies from the 12 countries to the Euro, individual countries were asked to follow strict orders to make the transition to the euro a smooth one. Countries were asked to adhere to several rules: nations should not exceed more than 3 percent of gross domestic product (GDP); public debt must be kept under 60 percent of GDP; inflation rates within a 1.5 percent of the three lowest inflation rates in Europe and exchange rate stability.

Nineteen of the 28 member states of the European Union use the banknotes and coins, including the overseas departments, territories, and islands that are associated with the euro area countries. These countries form the Euro Area. The microstates of Andorra, Monaco, San Marino, and Vatican City also use the euro on a formal arrangement with the European Community. Also, the countries of Montenegro and Kosovo use the euro without a formal arrangement from the European Central Bank.

Implementation of the single currency was a three-step process. The first step consisted of eliminating controls on capital movements within the EU. The second step was the establishment of the European Monetary Institute, and finally the third step was the introduction and implementation of the euro.

During the transition to the euro there were growing concerns from a wide group of groups and individuals. Concerns regarding the change of currency included concerns about the costs and benefits of monetary union. One benefit that was well recognized was that of not having to convert currencies between neighboring countries; another benefit was to reduce the effects of exchange-rate uncertainty on investment and trade. In the wake of the capital market liberalization required under the Single European Act, the political economy of a single currency created problems of floating rates and caused Fortune 500 companies to relocate in other countries were they felt their investments were safe.

The expansion of the European Union brought its own issues, such as the process by which new members would be added and expansion of the migration of people between nations. Expansion also posed limitation problems on the EU governance structures. Expansion of the EU put pressure on the government structures, especially with the EU voting system.

Bernard P. Kanjoma

See also: European Central Bank; European (Economic) Community; Exchange Rates; Maastricht Treaty

Further Reading

European Central Bank, Eurosystem. n.d. Use of the euro. http://www.ecb.europa.eu/euro/intro/html/index.en.html (accessed September 3, 2016).

European Central Bank, Eurosystem. 2015. The €uro; Europa series of euro banknotes. http://www.ecb.europa.eu/euro/html/index.en.html (accessed September 3, 2016).

Gerber, J. 2011. *International economics*. 5th ed. San Diego, CA: Pearson Education Inc.

EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT

The European Bank for Reconstruction and Development (EBRD) is a regional development bank that serves 65 shareholder nations in five continents. EBRD operates in south-eastern Europe, central Europe and the Baltic States, eastern Europe and the Caucasus, southern and eastern Mediterranean, and central Asia, along with Russia and Turkey.

EBRD was founded in May 1990, and began its commercial operations in June 1991. It is one of four major regional development banks currently operating in the global economy. Its 60 member countries, the European Community, and the European Investment Bank, own EBRD by virtue of their purchase of shares in the bank. The largest shareholders are the United States, France, Germany, Italy, Japan, and the United Kingdom. Combined, these six countries own about one-half of all subscribed capital. Each member country has voting power in proportion to its ownership of bank shares. At the top of EBRD's power structure is its board of governors, which represents the bank's members. The board of governors delegates most of its authority to a board of directors, however. The board of directors conducts bank operations from its headquarters in London, United Kingdom.

Of EBRD's 65 member countries, 36 are eligible to borrow money from the bank. These countries are called "countries of operations." Nonregional EBRD members hail from Asia and the Pacific, Europe, the Middle East, North America, and Northern Africa. According to EBRD's Establishing Agreement, the purpose of the bank is to promote regional economic development and to "foster the transition toward open market-oriented economies and to promote private and entrepreneurial initiative in the central and eastern European countries committed to and applying the principles of multiparty democracy, pluralism and market economics." The break-up of the Soviet Union in December 1991 hastened the growth in EBRD. The 15 republics of the Former Soviet Union (FSU) became independent countries and joined EBRD. By 2005 there was some discussion about ending EBRD operations in countries that had successfully transitioned from communism to capitalism.

EBRD promotes regional economic development through its lending operations, policy advice, and technical assistance. EBRD raises most of its funds by borrowing in global capital markets. In 2015, private sector projects account for 78 percent of the EBRD's operations. Public sector projects account for the remaining 22 percent of the bank's business activity. In 2015, the EBRD provided €9.4 billion (approximately $10.5 billion) for over 381 projects in 35 emerging nations. The main categories of bank operations included lending for financial institutions accounting for one-third of EBRD loan activity. EBRD also made loans for infrastructure, municipal water and waste treatment, transportation including roads, and energy including fuel production, oil, coal, and natural gas. The EBRD is also active financial participant in the industrial sector of manufacturing, heavy industries, aircraft, steel, cement and bricks, and agricultural sector. Tourism also benefits from EBRD loans.

Like other development banks, EBRD borrows by selling bank bonds and other securities to international investors such as central banks, commercial banks, insurance companies, and pension funds. EBRD also raises funds through capital subscriptions, interest payments and other profits from its business operations, and donations from governments and organizations. Unlike other regional development banks, the EBRD does not fund commercial operations from its pool of subscribed capital. Instead, the EBRD's subscribed capital of 20 billion euros serves as a type of collateral to back the integrity of bank bonds—bonds that currently carry the highest AAA rating.

In 2015, the EBRD earned a tidy 0.9 billion euros ($1 billion) from its commercial operations. Over the years, it has also solicited billions of euros in donations from member governments and the European Community. Donations finance technical assistance to promote a sound business climate, environmental protection, hazardous waste cleanup, entrepreneurship, microenterprises, applied technology, and modern business practices in marketing, finance, and other fields. A number of special funds have been established to deal with nuclear waste treatment and disposal.

Regional and sub-regional development banks are a major source of development loans and other development assistance in the global economy. The four main regional development banks are the African Development Bank Group, Asian Development Bank, European Bank for Reconstruction and Development, and Inter-American Development Bank Group. Smaller, subregional development banks also dot the economic landscape and include the Caribbean Development Bank, Central American Bank for Regional Integration, East African Development Bank, and West African Development Bank.

David E. O'Connor

See also: African Development Bank Group; Asian Development Bank; Emerging Market Economies; Inter-American Development Bank Group

Further Reading

Bronstone, Adam. 1999. *The European bank for reconstruction and development.* Manchester, UK: Manchester Univ. Press.

European Bank for Reconstruction and Development. 2016. *Annual report 2015: Annual review and financial report.* London. www.ebrd.com/news/publications/annual-report/annual-report-2015.html (accessed June 15, 2016).

EUROPEAN CENTRAL BANK

The European Central Bank (ECB) is the central bank of the eurozone. The eurozone includes 19 members of the European Union. The European Central Bank has the single charge of maintaining price stability through monetary policy.

The European Central Bank (ECB) is part of a larger system of banks called the European System of Central Banks (ESCB). Established in January 1994, the forerunner of the ECB, the European Monetary Institute (EMI), began operation in preparation for the beginnings of the European Central Bank (ECB). The ECB officially began on June 1, 1998, replacing the EMI and their headquarters in Frankfurt, Germany. Two years later, the euro bank note was officially introduced into public circulation.

The European Central Bank is a central bank with one mandate; price stability to maintain low inflation rates. Similar to most central banks the ECB exercises the buying and selling of currencies to maintain stable exchange rates. The ECB also conducts supervisory functions of eurozone's financial markets.

The leadership of the European Central Bank includes a General Council, the Executive Board, and the Governing Council. The General Council is like an advisory and coordinating body for the ECB. It includes all of the European Union's central bank governors, the president, and the vice president of the ECB. The Executive Board includes the president, vice president, and four other members. The Governing Council is the main decision-making body of the ECB. It is made up of the Executive Board and the governors of the national central banks of the 19 countries that use the euro. The Governing Council meets twice a month to improve and make adjustments to monetary policy.

Since 2009 several eurozone countries have struggled with debt issues including Greece, Ireland, Portugal, Cyprus, and Spain. The causes of the debts vary from crisis to crisis to include joining the eurozone without financial stability, poor financial sector supervision, loss of competition, and no exit mechanisms.

One of the ECB's main priorities has been to solve the several debt crisis. To do so, they have created rescue programs like the European Stability Mechanism (ESM) and introduce the Single Supervisory Mechanism (SSM). The SSM grants the ECB a supervisory role to monitor financial stability of countries in the eurozone. The ECB is still working to help these countries recover. The European Central Bank is important, not only in Europe, but also to the global economy.

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See also: Bank of Japan; Bundesbank; Central Bank; Euro (European Currency Unit); European (Economic) Community; European Free Trade Association; European Union; *Vol. 2: Macroeconomics:* Federal Reserve System

Further Reading

Council on Foreign Relations. 2015. The role of the European Central Bank. cfr.org/europe/role-european-central-bank/p28989 (accessed October 29, 2015).

European Central Bank. 2015. About the European Central Bank. www.ecb.europa.eu/ecb/html/index.en.html (accessed October 29, 2015).

European Central Bank. 2015. The history of the European Central Bank. www.youtube.com/watch?v=Aijn_4TFF_8 (accessed October 29, 2015).

European Union. n.d. European Central Bank (ECB). www.europa.eu/about-eu/institutions-bodies/ecb/index_en.htm (accessed October 29, 2015).

Investopedia. 2015. European sovereign debt crisis. www.investopedia.com/terms/e/european-sovereign-debt-crisis.asp (accessed October 29, 2015).

EUROPEAN ECONOMIC COMMUNITY

The European Economic Community (EC), later to become the European Union, was established by the Treaty of Rome in 1957. There were six original member countries: Belgium, France, Italy, Luxembourg, the Netherlands, and West Germany. In 1993, the Economic Community was renamed the European Community.

The EC is a combination of three communities: the European Coal and Steel Community (ECSC, established in 1951); the European Atomic Energy Community (EURATOM, formed in 1957); and the European Economic Community (EEC, created by the Treaty of Rome in 1957).

The Economic Community (EC) was formed in the post–World War II era in an effort to unify and preserve Europe. The organization sought to provide both political and economic stability to the region rather than fostering competition among European nations. The original member countries sought to create a closer union among themselves as well as to rid Europe of the barriers that had once existed and divided them. This was necessary in order for the countries to become strong and powerful again, and it was believed that a union of several countries was the best way to accomplish this.

The member nations developed a treaty that outlined the main elements of the Economic Community. Those provisions included: economic cooperation and stability among member nations, including a common economic policy; the elimination of customs duties and taxes on both imports and exports among member nations; common agricultural and transport policies; the establishment of a European Investment Bank to aid developing regions; the free movement of people, services, and capital among member nations; maintaining relationships with overseas territories and allowing the goods of these countries to enter free of tariffs; and the creation of several institutions, including an assembly, a council, a commission, and a court of justice.

One of the most significant accomplishments of the EC was the abolition of all customs duties. By 1968, the six member nations did not impose tariffs or quotas on one another and established a common tariff on the rest of the world. In 1973, Great Britain, Ireland, and Denmark joined the EC. In 1993, the Treaty of Maastricht established the European Community, replacing the Treaty of Rome. Today, the European Community has evolved into the European Union (EU), and is composed of 28 member nations that share common political and economic features.

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See also: European Central Bank; European Free Trade Association; International Monetary Fund; Maastricht Treaty; Protectionism; Treaty of Rome; World Trade Organization

Further Reading

Eichengreen, Barry. n.d. European Economic Community. http://www.econlib.org/library/Enc1/EuropeanEconomicCommunity.html (accessed July 16, 2013).

Gabel, Matthew J. n.d. European Community. https://www.britannica.com/topic/European-Community-European-economic-association (accessed November 3, 2016).

Intergovernmental Conference on the Common Market and EURATOM. 1961. Treaty establishing the European Economic Community and connected documents. Brussels: Publishing Services of the European Communities (accessed November 3, 2016).

EUROPEAN FREE TRADE ASSOCIATION

The European Free Trade Association (EFTA) is an intergovernmental organization that consists of four nations, Iceland, Liechtenstein, Norway, and Switzerland. Its mission is to promote free trade among member states, economic cooperation with the European Union (EU), and economic contacts with other regions of the world.

The Stockholm Convention, also called the EFTA Convention, established the EFTA on January 4, 1960. The EFTA Convention is a statement of member states' goals and obligations. Primary goals listed in the EFTA Convention included "sustained expansion of economic activity, full employment, increased productivity and regional use of resources, financial stability, and continuous improvement in living standards." Its founding members were Austria, Denmark, Norway, Portugal, Sweden, Switzerland, and the United Kingdom. Since 1960, three nations have joined the EFTA, including Finland (1961), Iceland (1970) and Liechtenstein (1991); and six member states have left the Association, including Denmark and the U.K. (1973), Portugal (1986), and Austria, Finland, and Sweden (1995). In 2001 the Vaduz Convention updated the original Stockholm Convention.

The EFTA's organizational structure consists of several institutions, each with its own set of responsibilities. Much of the Association's decision-making authority rests with the EFTA Council, and the Standing Committee of the EFTA States. The EFTA Council deals with issues within the four-nation Association, and between the Association and non-member countries. The Standing Committee of the EFTA States deals specifically with EFTA relations with the European Union (EU). The EFTA headquarters, including the secretariat, is located in Geneva, Switzerland. The EFTA Court, the Association's highest judicial authority, interprets and clarifies legal issues. The EFTA Surveillance Authority monitors compliance with existing rules within the Association and its EU neighbors.

The Agreement on a European Economic Area was originally approved on May 2, 1992, and went into effect on January 1, 1994. The creation of the EEA set the stage for expanded regional economic cooperation between the EFTA and EU. By May 2004 the European Economic Area (EEA) consisted of the 25 EU countries and three EFTA countries—Iceland, Liechtenstein, and Norway. The fourth EFTA country, Switzerland, rejected EEA participation, favoring bilateral agreements with the EU instead. The EEA established a single market promising free cross-border flows of goods, services, capital, and persons—also called the four freedoms. The EEA Agreement also guaranteed "equal conditions of competition, and the respect of the same rules" within the region. By 2002, about 70 percent of all EFTA members' trade was with EU nations. The single or internal market created by the EEA also extended into other areas of cooperation including education, research and technological development, the environment, and social policy.

Participation in the EEA promotes regional cooperation, but does not tie the three EFTA member states into other EU commitments. For example, EU member nations subscribe to a unified foreign policy and security policy, which EFTA members are free to reject. The EU is also a customs union, which sets uniform tariffs and other trade restrictions on imports from non-member nations—restrictions that EFTA members are not bound to follow. Further, the EFTA maintains its own decision-making institutions, such as the EFTA Council and the Standing Committee of the EFTA States.

Today, the EFTA is an outward-looking association. The EFTA has 26 free trade agreements that include 37 countries. In the EFTA agreement—the Vaduz Convention (2001)—member states strengthened protections for intellectual property rights; liberalized investment and trade in services; expanded opportunities for cross-border migrations of workers and their families; and agreed to recognize professional certificates from member countries. Since the Vaduz Convention, additional amendments from 2013–2015 were enforced including air and land transport, mutual recognition, agriculture, and social security.

David E. O'Connor

See also: European Union; Regional Trade Agreements; Trade Policy; Trade, Measures of

Further Reading

Abrams, Richard K., and Peter K. Cornelius. 1990. *The impact of the European Community's internal market on the EFTA*. Washington, DC: International Monetary Fund.

Blanchet, Therese, Resto Pipponen, and Maria Westman-Clement. 1994. *The agreement on the European Economic Area*. New York: Oxford Univ. Press.

European Free Trade Association. 2003. *Annual report of the European Free Trade Association 2003*. Geneva, Switzerland: Author.

European Free Trade Association Court. 2004. *The EFTA court: Legal framework, case law, and composition, 1994–2003*. Luxembourg City, Luxembourg: EFTA Court.

Redmond, John. 1997. *The 1995 enlargement of the European Union*. Brookfield, VT: Ashgate Publishing.

EUROPEAN SOVEREIGN DEBT CRISIS, 2012

The appearance of the European sovereign debt crisis was an artifact, to some degree, of the U.S. banking crisis and highlights the interconnectivity of the world's economies. European banks had heavy exposure to the failed, subprime mortgage debt bundles of the United States. The underlying issue of the size of European sovereign debt was a much larger problem. The European debt was the result of decades of socialist policies in countries like Spain, Greece, Portugal, and Italy, in particular the high wages and benefits given to unions. In 2012, the European nations as a group generated gross national product of $12.2 trillion compared with the $15.7 trillion of the United States. The 17 eurozone nations account for 17 percent of the world's economy.

The European crisis is still not fully resolved, but estimates of the impact can be made. The eurozone is the third-largest export destination for American goods, accounting for 22 percent of export goods and 33 percent of export services. U.S. companies also had $2 trillion invested in European factories at the time of the crisis. The heart of the European debt crisis was the national debt of the sovereign European nations. Greece faced bankruptcy and required massive bailouts. Spain and Italy were also considered to be on the edge of defaulting. Major American banks faced more bailouts should the European banking system fail.

The formation of the European Union (EU) brought together a mix of sovereign countries into one economic system. Four of those countries, Greece, Spain, Portugal, and Italy, had for decades been giving generous wages and benefits to their workers. Moving into the new century, these countries borrowed heavily to cover mounting debts. The EU actually made that borrowing more feasible as Germany and the other fiscally sound countries of the EU acted as lenders of last resort to the more profligate countries within the EU. Germany, however, became frustrated about supporting the liberal spending of nations such as Greece and Spain. When the EU began discussions to create a rescue plan for its weaker members, the difficulty became demands from Germany and France for austerity programs in Greece.

The potential failure of Greece to pay its sovereign debt created the first challenge. In 2010, negotiations about a bailout package started among the EU countries. Greece's unions and parliament initially stood firm against any requirements to reduce wages and benefits in the package. People took to the streets, and unions stormed parliament, refusing any cuts in pay, hours, or benefits. As Greece struggled, credit markets tightened for other EU countries with debt problems, such as Spain, Portugal, and Italy. With the American banking crisis ongoing, money was tight for subprime nations. The EU required a $1.4 trillion rescue fund in this difficult period and had difficulty meeting requirements for such a loan. Eventually, the EU negotiated a 50 percent repayment plan for private loans to Greece. The country's debt load remained an ongoing problem. The size and interconnectivity of world economies made the Greek debt problem a major threat to the United States as it struggled to move out of its own recession.

The direct exposure of U.S. banks in 2011 included $16.7 billion at Bank of America, $14 billion at JPMorgan, and $13.5 at Citigroup. The total exposure of

U.S. banks in Europe was estimated at $700 billion. Most of this exposure was in European countries not immediately on the edge of bankruptcy. Although large, this amount was much less than that of the earlier American banking crisis. American banks continued to reduce investment in Europe through 2013. The exposure of international companies was actually more threatening to the world economy. Europe accounted for more than 20 percent of American exports, behind only Canada and Mexico. Though America did see a drop in exports to Europe during the Greece crisis, it was offset by the recovery at home.

The bigger drain on the world economy was the direct impact on multinationals with investments in Europe. The U.S. government estimated that one quarter of the earnings of America's top 25 companies came directly or indirectly from Europe. American automakers were hit hard, but again the recovery at home helped stave off major problems. Overall auto sales in Europe were at a 20-year low. Ford's losses in Europe were more than $1.4 billion in 2012, and it was predicted to lose $2 billion in 2013. The European recession, created by reductions in government spending required by the rescue fund agreement, continued to be a drag on the U.S. economy in 2013. The crisis in Europe also continued in 2013 as Germany and the other strong countries demanded austerity in the weaker countries such as Greece. The crisis still threatens the political union.

Quentin R. Skrabec Jr.

See also: European (Economic) Community; European Free Trade Association; *Vol. 2: Macroeconomics:* Colonial Hyperinflation and Currency Deflation, 1749; Currency Deflation and Inflation, 1781; *Vol. 3: Microeconomics:* Subprime Mortgage Bubble and Crisis

Further Reading

Lachman, Desmond. 2013. Lessons from Europe's debt crisis for the United States. *CATO Journal* 33 (2): 233–243.

Prinz, Aloys, and Hanno Beck. 2012. Fighting debt explosion in the European sovereign debt crisis. *Intereconomics* 47 (3): 112–15.

EUROPEAN UNION

The European Union (EU), as it is known today, developed slowly over time into what is now a union of many European nations that have the freedom to travel, work, trade, and have political support throughout the region.

History of the European Union

With two world wars behind them, and hopes of preventing a third, the formation of the European Coal and Steel Community was created in 1950 to unite European countries economically and politically in order to secure lasting peace. The six founding nations of Belgium, France, Germany, Italy, Luxembourg, and the Netherlands become the leaders of open trade throughout Europe.

In 1957 the Treaty of Rome created the Common Market to coordinate economic and trade policies after World War II. The primary goal of the Common

Market was to foster economic cooperation with the idea being that countries that trade with one another become economically interdependent and so more likely to avoid conflict.

Throughout the 1960s the European Union did not charge customs duties when trading with one another. They also agreed to joint control over food production in hopes that all cooperating nations have enough to eat.

In 1973, Denmark, Ireland, and the United Kingdom joined the European Union. In 1981, Greece became the 10th member of the EU with Spain and Portugal joining five years later.

In 1986, the Single European Act is signed which provides the basis for a vast six-year program that focused on sorting out the problems with free trade that spread across EU borders. Member nations agreed to eliminate tariffs on one another's exports, thereby creating a single market called the European Economic Community (EEC).

What was once a group of several nations coming together to focus on trade has evolved into an organization made up many European nations in both the eastern and western regions and has expanded its focus to much more than economics.

In 1993 the focus of the European Union expanded to include protecting the environment, security, and defense amongst all member nations. By 1995 three new members, Austria, Finland and Sweden, joined the EU. Millions of young people are allowed to study in other member countries with EU support.

The 2000s brought 12 new members to the European Union and many of the EU members begin using a new common currency known as the euro. By the beginning of the 2010s member nations of the EU are now free to travel without the use of passports, citizens are studying and working freely amongst nations and the euro has been adopted as the only currency in the majority of the member nations. Roughly 330 million Europeans use the euro on a daily basis.

The European Union Today

With 28 countries now a part of the European Union and the majority of them using one common currency, the euro, the EU is operating as a single market and is a major trading power.

The current structure of the European Union is very similar to the structure of the United States government. The EU has a European Parliament, which represents the EU's citizens and is directly elected by the people. They also have a Council of the European Union, which represents the governments of the individual member countries. The Presidency of the Council is shared by the member nations on a rotating basis. As a whole, the EU has a European Commission that manages the day-to-day business of implementing EU policies and spending the EU funds. They also represent and uphold the interests of the EU as a whole and draft proposals for new European laws. There is also a Court of Justice of the EU, which upholds the rule of European law. And a Court of Auditors that is in charge of checking the financing of EU activities.

The European Union acts much like the federal government of the United States. The nations are independent, much like the 50 states, but form a common union with a common governing body, court of law, ability to travel freely and a common currency. They are even regulated by a central bank known as the European Central Bank.

The European Union also has its own flag, anthem and celebrates Europe Day on May 9 each year.

Funding and Budgeting of the European Union

The European Union is funded through the combined efforts of all member nations. Each nation provides a percentage of their gross national income, usually around 0.7 percent per nation. They also received funds from import duties and a percentage of the value-added tax levied by each country. The revenue is used on efforts such as raising the standard of living in poor regions, ensuring food safety throughout the EU, rural development, environmental protection, external border protection and promotion of human rights.

The Commission, Council and Parliament of the EU all have a say in how big the budget is and how the revenue is allocated.

The Future of the European Union

The EU is focusing on sustaining economic growth by investing in transport, energy and research. Their GDP has surpassed the United States and trade with the rest of the world accounts for about 20 percent of global exports and imports. Roughly two-thirds of EU nations' total trade is conducted with other EU nations.

Tracy L. Ripley

See also: Euro (European Currency Unit); European (Economic) Community; European Central Bank; European Free Trade Association; European Sovereign Debt Crisis, 2012; Greece: Sovereign Debt and Fiscal Crisis; Spain: General Economy

Further Reading

European Union. 2014. Official Website of the European Union. https://europa.eu/european-union/abouteuropa_en (accessed November 3, 2016).

McCormick, John. 2014. *Understanding the European Union: A concise introduction*. New York: Palgrave Macmillan.

O'Sullivan, Arthur, Steven M. Sheffrin, and Grant Wiggins. 2013. *Economics*. Pearson: Prentice Hall.

EXCHANGE RATES

Exchange rates state the value of one currency compared to a second currency. Four pieces of information are included in published exchange rates: the country, the name of the currency, the U.S. equivalent, and the currency per U.S. dollar.

The "U.S. equivalent" expresses the value of a foreign currency in terms of the U.S. dollar. The "currency per U.S. dollar" states how many units of a foreign currency it would take to equal $1. The exchange rates for June 1, 2016, show it would take about 18 Mexican pesos or 109 Japanese yen to equal $1, but it would take just 90 euro cents to equal $1. Exchange rates are published daily in major newspapers such as the *Wall Street Journal* and the *New York Times.* The most popular exchange rates published daily are the exchange rates between the major reserve currencies: U.S. dollar, British pound sterling, Japanese yen, and European Union euro.

In today's *flexible exchange rate system*, also called the floating exchange rate system, the forces of supply and demand are mainly responsible for determining exchange rates. Every day, national currencies are bought and sold by thousands of financial institutions around the world. Collectively, these financial institutions are called the foreign exchange market. Investors buy or sell currencies much like they trade stocks, bonds, or other securities. Much of the currency trade on foreign exchange markets is highly speculative—short term and risky.

Investors earn profits from slight changes in exchange rates. When the demand for a currency is high, the exchange rate tends to rise. High demand for a currency might result from strong demand for a nation's exports, robust economic growth, or a positive investment climate. Positive economic performance strengthens investors' confidence in an economy and its currency, causing the currency to appreciate in value. Economists say that a currency gains strength, or becomes stronger, when it appreciates over time. When the demand for a currency is low, however, the exchange rate tends to fall. Large trade deficits, an unstable investment climate, recession, and other negative performance indicators weaken the demand for a currency. Sagging demand, in turn, causes a currency to depreciate, or weaken relative to other currencies. Periodically a national government, through its central bank, buys or sells its currency to influence the currency's value, a process called *managed float.*

A value of one country's currency might also be *pegged* or *fixed* to another country's currency or a commodity such as gold. Often, pegging is designed to stabilize the value of the second currency in global markets. China changed from a pegged exchange rate to a managed float. In July 2005 China announced its intension to end the yuan's fixed peg to the U.S. dollar. China's decision to end the fixed peg and initiate a managed float system was viewed as a positive step toward building a more globally integrated and market-based economy.

Exchange rates are used in many types of international transactions. This is because an exchange rate is the means by which one currency is converted into an equivalent amount of another. International trade relies on exchange rates to ensure that exporters receive proper payment for the goods or services they sell to importers in other countries. To facilitate currency conversions all countries hold cash reserves of foreign currencies, called foreign reserves. A country's stash of foreign reserves consists mainly of hard currencies, or currencies that are commonly accepted throughout the world. Leading hard currencies include the U.S. dollar, the euro, British pound, and the Japanese yen. Many countries in the developing world use only hard currencies in international exchanges because of the uncertain value of their local currencies in global markets. Some currencies in the world's poorer regions are considered non-convertible due to monetary instability.

Changes in exchange rates affect international trade, tourism, and other cross-border transactions in the global economy. In early 2002 the exchange rate between the Japanese yen and the American dollar was 132.4 yen to $1. Thus, in 2002 a $10 American-made razor would sell for about 1,324 yen in Japan ($10 x 132.4 = 1,324). Since 2002 the Japanese yen appreciated against the U.S. dollar. On June 1, 2016 it took just 109.21 yen to equal $1. Thus, in 2016 the same $10 American-made razor would sell for just 1,092.10 yen in Japan ($10 x 109.21 = 1,092.10 yen). The drop in the razor's price in Japan from 1,324 yen to just 1,092 yen was caused by the stronger Japanese yen, or, from a different perspective, by the weaker U.S. dollar.

As a general rule, when a currency strengthens, this movement discourages exports, which become more expensive in foreign markets. At the same time the stronger currency encourages imports, which become less expensive in domestic markets. Conversely, when a currency weakens, this movement encourages exports, which become less expensive in foreign markets, and discourages imports, which become more expensive in domestic markets.

David E. O'Connor

See also: Bretton Woods System; Foreign Exchange Market; International Trade; *Vol. 1: Foundations of Economics:* Central Bank

Further Reading

Bigman, David, and Teizo Taya, eds. 2002. *Floating exchange rates and the state of the world trade and payments.* Chevy Chase, MD: Beard Books.

Rogoff, Kenneth S. 2004. *Evolution and performance of exchange rate regimes.* Washington, DC: International Monetary Fund.

Sarno, Lucio, and Mark P. Taylor. 2003. *The economics of exchange rates.* New York: Cambridge Univ. Press.

Shamah, Shani B. 2003. *A foreign exchange primer.* New York: John Wiley & Sons.

Thirlwall, A. P. 2004. *Trade, the balance of payments and exchange rate policy in developing countries.* Northampton, MA: Edward Elgar Publishers.

EXPORT-IMPORT BANK OF THE UNITED STATES

The Export-Import Bank of the United States, Ex-Im Bank, is the official credit agency of the United States government. The mission of the Export-Import Bank of the United States is to finance U.S. exports of goods and services. It contains a reasonable assurance of repayment and does not compete with private capital businesses. The Ex-Im Bank is under the supervision of the Organisation for Economic Co-operation and Development (OECD).

The bank was established during the presidency of President Franklin D. Roosevelt in 1934. In 1945 it was an independent agency in of the executive branch of the United States government. Its was created as part of Roosevelt's New Deal programs to create jobs by promoting the exporting of U.S. products.

The key function of the bank is to step in when commercial banks will not make loans to help foreign companies buy U.S. goods. The creation of the Ex-Im

Bank was to improve the ability of U.S. businesses to participate in exporting thus creating more jobs. It guarantees both working capital loans for the U.S. exporters and the repayment of loans by foreign purchasers of the U.S. goods and services around the world. Export-Import Bank supports the sales of U.S. exports worldwide. In recent years its focus shifted to the developing nations whose economics are growing at twice the rate of other nations. The Ex-Im Bank finances many types of goods and services for export. The bank also helps promote small businesses through its various programs.

The Ex-Im Bank is known for the development of projects even though it is not a foreign aid or development agency. This bank provides a variety of services. It provides capital guarantee programs, export credit insurance policies, and commercial loans.

Many people have a negative outlook on the Ex-Im bank because loans can possibly make taxpayers vulnerable and left with the bill. Corruption has also been an issue with the Bank. Many of the U.S. political leaders are no longer in favor of maintaining the Bank. Critics have contended that the Ex-Im Bank is ripe with crony capitalism citing a high proportion of credit activity devoted to some of America's largest exporters. Even with its critics Congress continues to renew the existence of the Export-Import Bank.

In 2014, Ex-Im Bank reported authorizing about $20.5 billion for 3,746 transactions of finance and insurance to support an estimated $27.5 billion in the U.S. exports of goods and services and 164,000 U.S. jobs around the world.

David A. Dieterle

See also: International Finance; International Trade; Organisation for Economic Co-operation and Development

Further Reading

Becker, William H., and William M. McClenahan Jr. 2003. *The market, the state, and the Export-Import Bank of the United States, 1934–2000*. Cambridge, UK: Cambridge Univ. Press.

Ilias, Shayerah. 2011. *Reauthorization of the Export-Import Bank: Issues and policy options for Congress*. Darby, PA: DIANE Publishing.

Oversight of the Export-Import Bank of the United States: Joint Hearing Before the Subcommittee on Domestic and International Monetary Policy, Trade and Technology and the Subcommittee on Oversight and Investigations of the Committee on Financial Services, U.S. House of Representatives, One Hundred Ninth Congress, First Session, November 10, 2005, Volume 4. 2006. Washington DC: Government Printing Office.

EXPORTS

An export is any resource, intermediate good, or final good or service that producers in one country sell to buyers in another country. An import is any good or service that is purchased from another country. International trade involves the export and import of merchandise and commercial services. The major categories of merchandise exports include capital goods, such as heavy machinery and equipment; industrial supplies and materials; automotive vehicles and auto parts; agricultural products, including animal feeds; and petroleum. The main categories of commercial services include travel, passenger fares, the transport of goods, financial services and insurance, and business and professional services.

The World Trade Organization (WTO) reported that exports of merchandise and commercial services hit $19.13 trillion in 2014. Merchandise exports accounted for 47 percent of global gross domestic product (GDP). From 2006 to 2014, the total value of exports passing through the global trading system increased by over 50 percent from $12 trillion to $19 trillion.

In 2014 the majority of global exports were produced in three world regions. Europe and central Asia led with $6.3 trillion in exports (39.97 percent of world exports), followed by $4.0 trillion from east Asia and the Pacific (25.6 percent of world exports), and $2.4 trillion from North America (15.3 percent of world exports). The remaining $2.4 trillion, or 16 percent of world exports, was spread across developing Africa, Central and Eastern Europe, Latin America, and the Middle East. The world's six leading exporting countries are the United States, China, Germany, France, United Kingdom, and Netherlands. Combined, these six countries accounted for about 35 percent of the world's total exports in 2014.

Trade liberalization has encouraged nations to import and export products in the global trading system. Economists generally agree that international trade, an important pillar of globalization, contributes to economic growth and sustainable development. Trade expansion is particularly important in developing countries, which often lack the global connectivity to share in globalization's benefits. Export earnings are used for a number of development purposes. Export earnings can be reinvested in businesses, saved for future investments, or stored as foreign reserves.

Nearly two centuries ago economist David Ricardo popularized the theory of comparative advantage, which supported free trade. Ricardo's theory encouraged regional specialization to promote efficiency and the export of surplus output to other countries. Mainstream economists have since used Ricardo's theory of comparative advantage to support free trade—the freedom to import and export goods and services without fear of trade barriers. The WTO supports the free flow of exports in today's global economy. Regional trade blocs, such as the Asia-Pacific Economic Cooperation, European Union (EU), North American Free Trade Agreement, and the Southern Common Market have also reduced or eliminated restrictions on exports among member nations.

Over the past 50 years, "export promotion" has accelerated economic growth and development in a number of countries. Export promotion is a trade strategy designed to increase the export of goods by offering incentives, such as tax breaks and subsidies, to export industries. Japan's miraculous economic recovery during the post–World War II period was due in large measure to aggressive export promotion policies. Japan's Ministry of International Trade and Industry (MITI), a quasi-public institution, arranged low-interest loans, government subsidies and grants, and tax breaks to support export industries. Today, Japan's economy ranks second only to the United States in terms of real GDP. The meteoric rise of several other East Asian economies, including Chinese Taipei, the Hong Kong SAR, Singapore, and South Korea, also relied on export promotion. Today, these four newly industrialized economies (NIEs) of Asia are counted among the world's 29 advanced economies.

Export issues are hotly debated in today's global economy. One current issue involves restrictions on exports through anti-dumping measures. Dumping is an illegal trade practice that occurs when a firm from one country sells a product in another country at a price below production costs, or below the market price in the exporter's own economy. Governments enact anti-dumping measures, including high tariffs, to raise the price of dumped items. Since the mid-1990s, governments have initiated thousands of formal anti-dumping actions to restrict imports of products ranging from Russian steel to Vietnamese catfish.

A second export issue is instability in the global commodities trade. The commodities trade is mainly concerned with the export of primary products, such as coffee, cocoa, sugar, timber, or minerals from developing countries. The specialized production and export of commodities by developing countries is inherently unstable. Fluctuations in the global supply of or demand for a commodity affect the commodity's price, contributing to periods of feast or famine in commodity-dependent economies. A third export issue concerns voluntary quotas, a type of backdoor trade barrier. Governments negotiate voluntary quotas, often called voluntary restraint agreements (VRAs), to restrict the quantity of a good that can be exported from one country to another country. The WTO specifically forbids VRAs, but these export restrictions lingered in the global trading system until 2005. One leading example was the VRA that limited Chinese textile and clothing exports to the United States, a VRA that remained in effect until early 2005.

A fourth export issue is economic localization. Localization favors economic self-reliance, a return to small-scale community-based production, and sustainable consumption. Localization is, in large measure, a grassroots rejection of globalization. Localization rejects an over-reliance on international trade, foreign investment, and other types of global connectivity.

David E. O'Connor

See also: Absolute Advantage; Balance of Payments; Balance of Trade; Comparative Advantage; Dumping; Export-Import Bank of the United States; Import Quotas; Imports; International Trade; Protectionism; Tariffs; Terms of Trade; Voluntary Quotas; World Trade Organization; *Vol. 1: Foundations of Economics:* Mercantilism; Ricardo, David

Further Reading

Garnaut, Ross G., with Anso Grilli and James Reidel. 1995. *Sustaining export-oriented development: Ideas from East Asia.* New York: Cambridge Univ. Press.

Helleiner, Gerald K. 2002. *Non-traditional export promotion in Africa: Experience and issues.* New York: Palgrave Macmillan.

Rhee, Chase C. 2003. *Principles of international trade (import and export): The first step toward globalization.* Bloomington, IN: 1st Books Library.

United Nations Conference on Trade and Development. 2004. *Trade and development report, 2004.* New York: United Nations.

World Integrated Trade Solution. n.d. World export partner share. World Bank. wits.worldbank.org/CountryProfile/en/Country/WLD/StartYear/2010/EndYear/2014/TradeFlow/Export/Partner/by-country/Indicator/XPRT-PRTNR-SHR (accessed June 1, 2016).
World Trade Organization. 2004. *World trade report 2004*. Geneva, Switzerland: World Trade Organization Secretariat.

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FINANCIAL ACCOUNT

When countries buy and sell goods and services, an accounting balance called the balance of payments is used to keep track of the value of these goods and services. The balance of payments is composed of three subcategories: the current account, the capital account, and the financial account. These accounts detail not only the value of imported and exported goods and services, but the flow of investment dollars to finance the purchases of real property, plant, equipment, and to purchase financial assets as well.

In an effort to create better harmonization between a country's system of national accounts and the balance of payments, the capital account was renamed the capital and financial account. The financial account is divided into three subcategories: direct investment, portfolio investment, and other investments.

In addition to the purchase of goods and services, foreign citizens purchase and sell real and financial assets of other countries. The records of these transactions—such as buying a hotel, manufacturing plant, office building, or other factors of production—are recorded in the financial account. The account records the value of ownership in the exchange of these items, no goods or services change hands. When Chinese investors purchase a clothing manufacturing plant in Indonesia the only exchange is the change in ownership of which the value is recorded in the financial account. The only flow between countries is represented in currency trading to make the purchase created a credit or debit in the financial account.

The two largest components of investment are direct investment and portfolio investment. A direct investment (or foreign direct investment, FDI) is when an investor in one country buys or sells ownership in an overseas company. Ownership may take several forms. It could be buying or building a factory outright or purchasing a significant amount of a company's stock. In order to determine whether the transaction represents a debit or credit in the financial account, the flow of funds must be examined. If a Mexican investor purchases a significant ownership stake in a Brazilian airplane manufacturer, a credit would be recorded in the financial account of Brazil, and a debit would be recorded in the financial account of Mexico, representing the flow of funds from Mexico to Brazil. If a Chinese investor purchased a significant interest in a Mexican beverage company from a Mexican investor, this is represented as a credit in the financial account of Mexico as a result of investment dollars flowing from China to Mexico.

These exchanges represent a change in ownership between citizens of different countries and the flow of funds to settle the transactions are recorded in the financial account. When investors receive interest and dividend payments from their investments these are recorded in the current account under income because they do not represent a change in ownership.

A portfolio investment (or foreign portfolio investment, FPI) is when a small investor buys or sells ownership shares (stock) of a foreign company as part of an investment portfolio. The investment may also include foreign debt both public and private. The primary difference between and FPI and an FDI is FPI investors are not involved in the active management of the companies day-to-day operations. They do not have the same long-term interest as FDI investors. FPI investors may sell or exchange ownership more easily than in an FDI offering greater liquidity. To determine whether there should be a debit or credit in the financial account we must examine the flow of funds. If a French investor purchases shares in the Finnish cell phone maker Nokia, a debit would be recorded in the financial account as financial capital flows from France to Finland. However, if a German investor sells bonds to a foreign investor in South Africa, it would be represented as a credit because money is flowing into Germany from South Africa.

Other investments cover short-term and long-term loans, currency, savings, and time deposits. Domestic banks lend to foreign borrowers and domestic households save money in foreign banks. When a Canadian banks lends to a borrower in Costa Rica this represents a flow of funds from Canada to Costa Rica creating a credit in the financial account of Costa Rica and a debit for Canada. When an American borrower pays back a loan to an Irish bank it is recorded as a credit in Ireland's financial account and a debit in the United States'.

Income or interest earned in other investments, as in foreign direct investments or foreign portfolio investments, is measured in the current account, and loan balances or savings are measured in the financial account.

Alan Barbee

See also: Balance of Payments; Current Account; Foreign Direct Investment; Foreign Portfolio Investment; Foreign Trade versus Foreign Investment; *Vol. 2: Macroeconomics:* Bureau of Economic Analysis

Further Reading

Bureau of Economic Analysis. n.d. International economic accounts. http://www.bea.gov/international/ (accessed September 30, 2016).

International Monetary Fund. n.d. Balance of Payments Manual—IMF https://www.imf.org/external/pubs/ft/bopman/bopman.pdf (accessed September 30, 2016).

Lee, Sharon, and Steve Miller. 2006. *Balance of trade*. New York: Ace Books.

FINANCIAL IMBALANCES IN THE 2000s

Financial imbalances refer to the process where nations run long-term current account deficits. In the context of a global economy, since the sum total of global current account balances is by definition zero, other countries are experiencing corresponding current account surpluses at the same time. These patterns, where certain nations are perpetually generating an ongoing excess of imports over exports, cannot be sustained indefinitely. In the early 21st century there has been an acceleration of the size of the gap between current account surplus and current account deficit nations.

The primary generators of current account deficits since 2000 have included a wide array of nations. As of 2015, this group includes wealthy first world countries such as the United States, the United Kingdom, France, and Australia. It also includes rapid growth BRICS nations India, Brazil, and South Africa. The deficit list further includes a number of third world nations, including many in Africa.

The list of nations that possess large current account surplus balances is also varied. First world countries on this list include Germany and Japan. The other BRICS nations, China and Russia, maintain large current account surplus balances, highlighting some of the randomness associated with current capital account balances. A few less affluent nations such as Algeria, Iraq, and Nigeria also maintain modest surplus balances.

The fact that divergent surplus and deficit balances exist does not necessarily mean that there is a serious problem or that a global economic crisis is imminent. There are many historical examples that prove this point. The best example is the United States, which regularly produced current account deficits throughout the entire 19th century. In this instance, there was no inevitable crisis. The most important reason this situation actually benefited the global economy was that the United States economy was growing throughout the 1800s and, as a result, foreign investors were very willing to invest both equity and debt capital into the United States. Ultimately, the United States emerged as a leading global economic power and those significant current account deficits changed into surpluses during World War I and later continued a positive trend for more than a half century before turning negative again during the last quarter of the 20th century. In the American case, long-term economic growth more than offset any detrimental impact of running long-term account deficits during the nation's initial development as well as during recent times.

Economists have conducted studies that seek to determine the correlation between account imbalances and financial crises. In general the results of these studies have been inconclusive. There is some evidence to suggest that individual nations can experience an economic crisis as a result of sudden large changes in their current accounts. Less developed economies are the most vulnerable to this type of scenario. On a global scale, the evidence tends to suggest that widespread international recessions such as the panics of 1873, 1893, and 1907; the Great Depression; and the Great Recession of 2008 are more likely caused by the booms and busts of business cycles than by international capital flows.

In the current era of increased globalization, including trade and capital investment between nations, it is likely that account imbalances will become an increasingly studied issue. While the evidence over the past century suggests that account imbalances are somewhat benign, the fact that intervention by the International Monetary Fund has been required in numerous instances over recent decades confirms that individual nations, most often second- and third-world economies, can be vulnerable to financial imbalances. International policy makers and private sector investors are increasingly studying this issue in order to create prudent governmental and central bank policies and to achieve efficient and prudent private sector capital deployment.

John Moore

See also: Asian Crisis, 1997–1998; Brazil: General Economy; BRICS: Brazil, Russia, India, China, and South Africa; China: General Economy; Current Account; Globalization; International Monetary Fund; *Vol. 2: Macroeconomics:* Great Recession, 2009

Further Reading

Asenmacher-Wesche, Katrin, with Stefan Gerlach, Gianmarco I. P. Ottaviano, and Roel Beetsma. 2010. Monetary policy and financial imbalances: Facts and fiction. *Economic Policy* 25 (63): 437–82.

Caballero, Ricardo J., with Emmanuel Farhi and Pierre-Olivier Gourinchas. 2008. Financial crash, commodity prices, and global imbalances. *Brookings Papers on Economic Activity* vol. 2008: 1–55.

Jorda, Oscar, with Moritz Schularick and Alan M. Taylor. 2011. Financial crises, credit booms, and external imbalances: 140 years of lessons. *Economic Review* 59 (2): 340–78.

Mendoza, Enrique G., with Vincenzo Quadrini and Jose-Victor Rios-Rull. 2009. Financial integration, financial development, and global imbalances. *Journal of Political Economy* 117 (3): 371–416.

FOREIGN AID

Foreign aid is a grant of money, technical assistance, food, capital equipment, or other assistance from one country to another. In most cases richer countries extend foreign aid to poorer countries. The three main categories of foreign aid are development assistance, humanitarian and emergency assistance, and military assistance. Foreign aid is derived from a number of sources. Bilateral aid travels between two governments. Multilateral aid travels from international organizations to national governments or other agencies. Individuals and groups such as private foundations, corporations, private voluntary organizations, colleges and universities, and other elements of civil society also supply foreign aid to needy regions.

Foreign aid is categorized by its intended purpose. Development assistance directly supports economic growth and sustainable economic development. Development assistance targets infrastructure projects, good governance, and long-term investments in education and health care. Humanitarian and emergency assistance responds to national or regional crises such as natural disasters, civil conflict, or war. Humanitarian and emergency assistance consists of food, medical personnel and supplies, and temporary shelter. For example, in 2004–2005, billions of dollars in humanitarian and emergency assistance flowed from the global community to nations ravaged by a catastrophic tsunami in western Asia. Military assistance promotes stability in a region. Military assistance supports peacekeeping efforts, internal security, and the transport of emergency supplies to stricken regions. Military assistance does not include money, materials, or personnel that are directly involved in invasions or other military campaigns.

Foreign aid is a hot issue in the global economy. The foreign aid debate centers on the amount, uses, and effectiveness of foreign aid. Much of the world's foreign aid comes from the countries that comprise the Organisation for Economic Co-operation and Development (OECD). Within the OECD is the Development Assistance Committee (DAC), which coordinates assistance from the richer countries. The two types of DAC assistance are official development assistance (ODA) and official aid (OA). ODA includes food aid, emergency relief, capital projects, technical aid, and peacekeeping activities. ODA also includes contributions to multilateral institutions, including the specialized agencies and programs within the UN System, and the World Bank. Official aid (OA), which has many of the same functions as ODA, targets 34 other emerging market economies, especially those in central and eastern Europe and the countries of the former Soviet Union (FSU).

The OECD's Development Assistance Committee coordinates the distribution of ODA and OA. ODA and OA are dispersed among several project categories: economic infrastructure, production, education, health and population, debt relief, program assistance, emergency aid, social infrastructure, and multi-sector projects. Ranked by world region, the top recipient of bilateral ODA in 2013–2014 was sub-Saharan Africa ($28.1 billion), followed by South and Central Asia ($17.5 billion), Other Asia and Oceania ($12.5 billion), Middle East and North Africa ($10.7 billion), Latin America and the Caribbean ($7.4 billion), and Europe ($3.1 billion). About $2.9 billion was unspecified. Ranked by countries' income classification, the highest percent of bilateral ODA was allocated to least developed countries (28.3 percent), lower middle-income countries (22.8 percent), followed by upper middle-income countries (13 percent) and other low-income countries (2.5 percent). However, the largest percentage (33.4) of ODA in 2013–2014 was unallocated.

The total ODA was $131.6 billion in 2015, an almost 7 percent increase from 2014. The top three recipients of ODA in 2015 were Afghanistan, India, and Viet Nam.

In real terms the official flow of foreign aid to poorer regions has not kept pace with income growth in the rich countries. Measured as a percent of gross national income (GNI), DAC assistance has declined over the past few decades.

There are different measurements of foreign aid. The narrowest measure considers just the official flows of ODA and OA. The U.S. Agency for International Development (USAID) uses a broader measure of foreign aid, which includes other types of government and private assistance. In 2014, for example, U.S. ODA totaled $33 billion. The major components of U.S. ODA allocations include education and health (29.6 percent), humanitarian aid (21.6 percent), and other social infrastructure (19.2 percent). Other government assistance included contributions to the International Monetary Fund (IMF) and other international agencies, certain security assistance to countries, and official aid (OA) to countries in central and eastern Europe, Israel, and elsewhere.

The USAID measurement of foreign aid also includes private aid sources. Accurately accounting for private foreign aid sources can be tricky. Depending on the source the data can be quite subjective, arbitrary, or inaccurate through double counting or differences in definitions. Private sources include cross-border aid from private foundations, corporations, private and voluntary organizations (PVOs), colleges and universities, religious groups, and individual remittances.

The uses and effectiveness of foreign aid are widely debated. The debate tends to raise more questions than answers. One issue is whether foreign aid promotes sustainable economic development or a culture of dependency. A second issue concerns the applicability of foreign aid models. For instance, the massive infusion of money into Europe under the Marshall Plan during the late 1940s and early 1950s was successful in reconstructing a continent ravaged by World War II. This model has been less successful in many regions of the developing world, however. A third issue involves the dissemination of foreign aid. Today, foreign aid is dispersed to governments, multilateral organizations, private companies, nongovernmental organizations, and other elements of civil society. A fourth issue is the absence of good governance in many recipient countries. The lack of good governance, marked by a lack of transparency and a weak system of justice, invites corruption, cronyism, and other abuses of the public trust—including the misallocation of foreign aid.

Finally, coordination issues plague the effectiveness of foreign aid. The OECD's Development Assistance Committee assists in the dispersal of ODA and OA. Yet, private aid flows are sometimes disrupted by organizational redundancies and ineffective delivery systems. These types of issues raise legitimate concerns among donors about the impact of their contributions on long-term economic development and on people's quality of life.

David E. O'Connor

See also: Developing Countries; Organisation for Economic Co-operation and Development; Sustainable Economic Development; World Bank Group; *Vol. 1: Foundations of Economics:* Peace Corps of the United States; Poverty; United Nations System

Further Reading

Burnell, Peter, and Oliver Morrissey. 2004. *Foreign aid in the new global economy.* Northampton, MA: Edward Elgar Publishing.

Lancaster, Carol. 2000. *Transforming foreign aid: United States assistance in the 21st century.* Washington, DC: Institute for International Economics.

OECD. n.d. Gross bilateral ODA, 2013–2014. public.tableau.com/views/AidAtAGlance/DACmembers?:embed=y&:display_count=no?&:showVizHome=no#1 (accessed June 20, 2016).

Radelet, Steven. 2003. *Challenging foreign aid: A policymaker's guide to the millennium challenge.* Washington, DC: Center for Global Development.

Sogge, David. 2002. *Give and Take: What's the matter with foreign aid?* New York: Zed Books.

U.S. Agency for International Development (USAID). 2003. *Foreign aid in the national interest: Promoting freedom, security, and opportunity.* Washington, DC: USAID.

FOREIGN DIRECT INVESTMENT

Foreign direct investment (FDI) is a cross-border investment that results in one company gaining ownership or control of productive facilities in another country. FDI is long term in nature. The two types of FDI are mergers and acquisitions (M&As) and greenfield investments. M&As represent a legal joining of two existing companies under a single ownership. M&As are the dominant type of FDI in the advanced countries. The 1998 "merger of equals" between auto giants Daimler-Benz (Germany) and Chrysler (United States) illustrates this process. Greenfield investments occur when transnational corporations (TNCs) construct new production facilities, such as factories or retail stores, in a foreign country. The construction of Hyundai Motor's (South Korea) $1.1 billion auto manufacturing plant in Alabama—a plant that opened in May 2005—was a greenfield investment. A TNC, also called a multinational corporation, comprises a parent company and its foreign affiliates. Foreign affiliates are businesses in which a TNC has controlling interest. By the early 2000s, greenfield investments were fast becoming the preferred type of FDI in the developing world. In recent years liberalized FDI regimes in some countries have also encouraged foreign investment in real estate and other properties. FDI, international trade, and cross-border financial flows are the three pillars of globalization.

FDI grew rapidly during the 1990s, peaked in 2000, and declined during the early 2000s. FDI is measured by inflows of FDI into a country, and by outflows of FDI out of a country. In its *World Investment Report 2015,* the United National Conference on Trade and Development (UNCTAD) summarized global FDI trends. According to UNCTAD the global inflows of FDI during 2015 fell by 16 percent to $1.23 trillion in 2014. However, in the developing countries FDI increased 2 percent reaching $681billion, its highest level ever. In 2014 the advanced economies experienced a decline of 28 percent to $499 billion. The top FDI recipient was China ($129 billion), followed by the Hong Kong, China ($103 billion), United States ($92 billion), United Kingdom ($72 billion), Singapore ($68 billion), and Brazil ($62 billion). In 2014 the advanced economies accounted for two-thirds of all FDI outflows, compared with one-third for the developing countries. The largest FDI outflows in 2014 came from the United States ($337 billion), Hong Kong, China ($143 billion), China ($116 billion), Japan ($114 billion), and Germany ($112 billion).

FDI, a pillar of globalization, creates a more integrated and interdependent global economy. The liberalization of trade and investment also encouraged production sharing in recent years. Production sharing occurs when a business produces a good in stages in a number of different locations around the world. Production sharing is motivated by a firm's desire to minimize production costs. Technological advances in communications and transportation support production sharing.

The rapid expansion of FDI during the 1990s was fueled by new telecommunications technologies, changes in financial regulations, trade and investment liberalization, and the perceived financial benefits to TNCs and host countries. Advanced telecommunications allowed TNCs to tap a broader pool of financial resources in global financial markets, money that was used to fund M&As and greenfield investments. Many countries relaxed regulations governing banks and other financial institutions. These regulatory changes reduced restrictions on cross-border financial transactions; permitted mergers of banks with insurance and investment companies; and encouraged economies of scale through consolidation in the banking industry. The trend toward trade and investment liberalization stimulated FDI by increasing cross-border mobility of natural, human, and capital resources, and the output produced by these resources. In the vanguard of trade liberalization were the General Agreement on Tariffs and Trade (GATT) (1947–1994) and the World Trade Organization (1995–present). Supporting investment liberalization were bilateral investment treaties (BITS) and double taxation treaties (DTTs). BITS are formal agreements between two countries designed mainly to promote mutually beneficial investment opportunities.

A responsible FDI benefits both the TNC and the host economy. Through FDI, TNCs gain access to low-cost natural and human resources in the global economy. Lower production costs, in turn, increase the competitiveness of TNCs in the global marketplace. TNCs also gain access to foreign markets. By producing goods or services in foreign countries, TNCs' foreign affiliates circumvent import restrictions, and reduce shipping costs to these markets. Historically, many TNCs set up shop in the United States and other advanced countries to gain a foothold in profitable markets in the richer countries.

Host countries also derive benefits from FDI. Responsible FDI expands the nation's capital stock, infuses new technology into the economy, and supports human capital development by improving the skills of workers and management. FDI advances the competitiveness and connectivity of firms by expanding their access to credit, and linking them with other participants in the global economy. Many countries enact policies to attract FDI. The International Labor Organization (ILO), a specialized agency within the UN System, reported that 116 countries operated 3,000 export processing zones (EPZs) to bring FDI to their shores. Countries also establish investment promotion agencies (IPAs) to compete for FDI. Countries use tax breaks, subsidies, infrastructure improvements, and other incentives to sweeten the investment climate for TNCs.

Irresponsible FDI can also inflict heavy costs on a nation. Irresponsible FDI is exploitative. It uses a country's resources for short-term gain, but contributes little to the country's long-term development. Signs of irresponsible FDI are the wanton destruction of forests, the pollution of rivers and lakes, and other forms of environmental degradation. The abuse of labor in sweatshops, or in other substandard workplaces, is another sign of irresponsible FDI. A sweatshop is typically an industrial workplace characterized by excessive work hours, unsafe or unhealthy working conditions, abusive bosses, and the absence of worker associations.

During the 1980s and 1990s, cases of irresponsible FDI by TNCs or their subcontractors raised the ire of non-governmental organizations (NGOs), governments, and multilateral organizations. Today, most TNCs have a well-defined "corporate code of conduct" to protect overseas laborers. The International Labor Organization (ILO), Organisation for Economic Co-operation and Development (OECD), and other groups have also devised recognized "codes of conduct for multinationals." Despite these codes, cost-cutting pressures on major TNCs endanger the quality of workers' lives, especially workers at the bottom of the supply chain. Labor advocates such as the ILO, the International Confederation of Free Trade Unions (ICFTU), and Oxfam International monitor global labor conditions with an eye toward stopping exploitative, race-to-the-bottom corporate policies.

David E. O'Connor

See also: Export-Import Bank of the United States; Global Economy; Globalization; Maquiladoras; Offshoring; Organisation for Economic Co-operation and Development; Race to the Bottom; Transnational Corporations; *Vol. 3: Microeconomics:* Corporate Social Responsibility

Further Reading

Organisation for Economic Co-operation and Development. 2002. *New horizons for foreign direct investment.* Paris: Author.

Oxelheim, Lars, and Pervez Ghauri. 2003. *European Union and the race for foreign direct investment in Europe.* New York: Pergamon.

United Nations Conference on Trade and Development. 2004. *World investment report 2004.* New York: United Nations.

United Nations Conference on Trade and Development. 2015. *World investment report 2015: Reforming international governance.* www.worldinvestmentreport.org/wir2015/ (accessed June 15, 2016).

World Bank. 2004. *World Development Report 2005: A better investment climate for everyone.* Washington, DC: World Bank.

Xiaolan Fu. 2005. *Exports, foreign direct investment and economic development in China.* New York: Palgrave Macmillan.

FOREIGN EXCHANGE MARKET

The foreign exchange market, also called the forex market, is a network of commercial banks, investment banks, brokerage houses, and other financial institutions that buy and sell currencies for profit. The currencies that are traded are called foreign exchange, or, more simply, forex (fx). The process of trading foreign exchange is called forex trading. In 2016, for example, the daily turnover in the forex market was $5.1 trillion, which was a significant jump from daily trading of $1.9 trillion in 2004. This means that six days of business activity on the forex market was roughly equivalent to value of all goods and services that flowed through the global trading system for an entire year.

The forex market represents the institutions and practices of banks, brokerage firms, securities dealers, and other participants in forex trading. Commercial banks assume a central role in forex trading through "interbank" or "direct dealing" transactions. Many large commercial banks operate globally, and keep at least one forex trading station open at all times. Forex markets operate nonstop, 24 hours a day, seven days a week. A sophisticated electronic transfer system called SWIFT (Society for Worldwide Interbank Financial Telecommunications) records all financial transactions. The most authoritative accounting of forex trading is the Bank for International Settlements (BIS), located in Basel, Switzerland. Most forex trading is short term and highly speculative.

The foreign exchange market is spread across all populated continents. In 2010, however, half of all forex trading took place in just two countries, the United Kingdom and the United States. The dominant financial center in the United Kingdom was London, and the dominant financial center in the United States was New York City. Other important countries in the global forex market were Japan, Singapore, Germany, the Hong Kong SAR, and Australia.

The modern foreign exchange market has changed significantly since its inception in 1946. Under the Bretton Woods System from 1946 to 1973, the main role of the foreign exchange market was currency conversion for purposes of trade. Under Bretton Woods, the process of converting currencies was relatively simple due to the prevailing fixed exchange rate system. Under the fixed exchange rate system, the value of national currencies was "pegged" to the U.S. dollar, the world's dominant currency, or to gold. The U.S. dollar was also fixed to gold, with the value of a dollar equal to one thirty-fifth of an ounce of gold. Because national currencies were not permitted to fluctuate beyond a very narrow range, the foreign exchange market easily converted major currencies. Major currencies were often called "hard currencies" because they held their value over time. Most international trade was conducted with hard currencies. Pegging currencies to the U.S. dollar and to gold stabilized the post–World War II global financial system. Yet, over time, destabilizing cracks appeared in the fixed exchange rate system. For example, a nation could officially devalue its currency to gain a competitive edge in foreign trade. Nations could also cash in their reserves of U.S. dollars for gold, which, by the early 1970s, had put a severe strain on U.S. gold supplies.

The foreign exchange market was transformed in 1973, when a flexible exchange rate system replaced the crumbling fixed exchange rate system. Countries tinkered with different exchange rate models during the mid-1970s. In 1978 the International Monetary Fund (IMF) stepped in and mandated a full implementation of flexible exchange rates. Under the flexible exchange rate system, also called the floating exchange rate system, the forces of supply and demand determine the value of national currencies. When the demand for a country's currency rises, the currency tends to appreciate in value compared to other currencies. When a currency appreciates in value, economists say that it has gained strength in global markets. When the demand for a country's currency falls, however, the currency depreciates or weakens relative to other currencies. By adopting the flexible exchange rate system, the global community opened the door to a new foreign exchange market. In the new forex market, the buying and selling of national currencies for profit supplanted currency conversion as the market's primary business.

Over the past three decades, governments have occasionally intervened in the forex market to stabilize their currencies or the currency of another country. For example, in the mid-1990s, the U.S. government, through the Federal Reserve System (Fed), purchased billions of U.S. dollars to prop up the dollar's value in international markets. More than a dozen other governments supported the Fed's actions by purchasing dollars in the foreign exchange market. Other industrialized countries, often in cooperation with one another, have also traded in the forex market to stabilize the global financial system. Periodic government intervention in the forex market is often called “managed float.” In addition, the value of one currency might be “pegged” to a different currency. From 1995 to 2005, China’s yuan was pegged to the U.S. dollar at a rate of 8.28 yuan to $1 U.S. Pegging is often used to stabilize the value of a currency in global markets.

In recent years the IMF and other multilateral organizations have labored to reform the global financial architecture to support monetary stability. Reforms included structural changes in countries’ banking and securities industries. Global financial crises such as the East Asian Financial Crisis of 1997–1998 underscore some of the vulnerabilities in the global financial and economic system.

David E. O’Connor

See also: Bank for International Settlements; Bretton Woods System; Exchange Rates; International Monetary Fund; World Bank

Further Reading

Bank for International Settlements. 2004. *Triennial central bank survey of foreign exchange and derivatives market activity in April 2004.* Basel, Switzerland: Bank for International Settlements.

Ghosh, Dilip K., and Mohamed Ariff. 2004. *Global financial markets: Issues and strategies.* Westport, CT: Praeger Publishers.

Goldstein, Morris, and Philip Turner. 2004. *Controlling currency mismatches in emerging markets.* Washington, DC: Institute for International Economics.

Gotthelf, Philip. 2002. *Currency trading: How to access and trade the world’s biggest market.* New York: Wiley.

Ishii, Shogo. 2003. *Exchange arrangements and foreign exchange markets: Developments and issues.* Washington, DC: International Monetary Fund.

FOREIGN PORTFOLIO INVESTMENT

Through foreign portfolio investment (FPI) the investor does not have direct ownership of the financial assets and thus no direct management of the company. FPI include securities such as stocks and bonds and other financial instruments held by foreign investors.

The time horizons differ for foreign portfolio and foreign direct investment. Foreign portfolio investments are relatively liquid, compared with foreign direct investment. Stocks and bonds are typically easier to sell off compared to capital expenditures like tools and machines. Foreign direct investment typically has a longer time horizon than foreign portfolio investment. Foreign portfolio investment is similar to domestic investments. Many domestic firms have international subsidiaries.

An investor could invest in the same firm domestically and hold financial instruments in its foreign subsidiaries. Foreign portfolio investment differs from foreign direct investment. In foreign direct investment the domestic company runs the foreign firm. The domestic company assumes more liability in foreign direct investment. Foreign direct investment allows the investor to have greater control over the foreign firm. foreign direct investment and foreign portfolio investment are similar because they both give their holders a claim on the future output of the foreign economy.

In the balance of payments, foreign portfolio investment is measured as a flow, not a stock measure. When one reads a country's balance of payments statement the level of foreign portfolio investment is recorded as the total amount of investment that has occurred during a specific period of time. This is different than a stock measure that provides a measure on a specific date.

Adrian Williams

See also: Balance of Payments; Current Account; Financial Account; Foreign Direct Investment; Foreign Trade versus Foreign Investment; *Vol. 2: Macroeconomics:* Bureau of Economic Analysis

Further Reading

Fischer, Bernard. 1995. *Foreign portfolio investment in emerging markets: A panacea for economic development*. Hamburg, Germany: HWWA-Institut für Wirtschaftsforschung.
Gerber, James. 2014. *International economics.* 6th ed. New York: Pearson Prentice-Hall.
International Monetary Fund. 1985. *Foreign private investment in developing countries*. Washington, DC: Author.
Investopedia. Foreign Portfolio Investment—FPI. n.d. http://www.investopedia.com/terms/f/foreign-portfolio-investment-fpi.asp (accessed March 22, 2015).

FOREIGN TRADE VERSUS FOREIGN INVESTMENT

Foreign trade and foreign investment sound similar but are actually very different enterprises. Foreign trade is the process of the trading of goods and services between two or more countries. Foreign investment is the when there is a controlling ownership in a business in one country by an entity that is based in another country. Both foreign investment and foreign trade have become necessary for countries to have a healthy economy in today's global economy.

Foreign Investment

Foreign investment is typically done by a company establishing operations in another country that is not its home country. Foreign investment differs from portfolio foreign investment by the amount of control that is exerted. Investors that have foreign investments in their portfolio are not considered to meet the requirements of foreign investment because these investments are usually stock in companies overseas and do not typically meet the threshold of 10 percent ownership. Companies that engage in foreign investment acquire tangible assets by building a new building in another country or by acquiring an existing company to add to their company.

Foreign investment is done on a horizontal, vertical, or conglomerate basis. Horizontal foreign investment is when a company carries out the same activities in the new country as in its home country, such as car companies that have assembly plants in multiple different countries. Vertical foreign investment involves the company adding a process that is a different stage in development from the activities that the company does in their home country. An example of vertical integration that is often done is companies that ship textiles overseas to produce clothing. The last example of foreign investment is conglomerate investment. It is when a company purchases an unrelated business in another country. Because acquiring an unrelated company forces a purchasing company to tackle both the issues of a new enterprise that it does not have knowledge of and the issues relating to a new country it is not often that companies will attempt conglomerate investment. Most companies that invest in a new country face issues that they may not have faced in their home country. Attempting to start a new unrelated business in a new country it makes it more difficult and expensive for companies because they do not already have procedures on how things should be done.

Historically, foreign investment has been when developed nations have invested in developing countries as a way to increasing profitability through increased productivity combined with lower costs. There are both advantages and disadvantages to foreign investment for developing countries. For many companies investment in foreign countries is seen both as a way improve their companies' costs and to break into new markets. For the country in which a company is investing this provides jobs for its citizens and a boost to the economy. One of the disadvantages for the country that is invested in is that while the investing company can pay higher wages, many of the other companies in the country are unable to match the wages without reducing the overall number of their employees, which can increase unemployment within the country. Developing countries that have companies invest in them also find that over time the profits that the company receives are sent back over to the home country rather than remaining in the invested country.

Foreign Trade

Foreign trade allows countries to trade with each other to receive goods and services they would not have without the trade. This allows companies in other countries to expand their customer base as they provide goods and services to customers in countries that do not have comparable goods and services available. Because each country has different resources foreign trade allows countries to efficiently use their labor, technology, and capital, rather than attempting to produce everything that the customer is asking. Countries are able to specialize in certain items while trading for the other items that they would be unable to efficiently produce.

Trade can also improve the products in a country if another country's products are considered superior. In can drive companies to produce better products for their customers in their home country rather than lose customers to companies that are based in another country. Countries that have open trading policies usually have higher wages than countries that have trade restricted because the country is able to focus on the goods and services that are most efficient for it and create a reputation of a superior good or service over another country.

Foreign trade does not require that there be an even trade between two countries, however. Sometimes countries will export more items than they import or import more items than are exported. Generally wealthier countries will have excess savings and invest in capital-poor countries but not always. China is considered to have a trade surplus because it exports more than it imports. The United States is considered to have a trade deficit because it imports more than it exports. Trade surpluses and deficits are not necessarily good or bad—it depends on the state of the economy behind the trading.

Kimberly Cousino

See also: Foreign Direct Investment; Foreign Portfolio Investment; Globalization; International Economics; Trade, Measures of; *Vol. 1: Foundations of Economics:* Investing

Further Reading

EconomyWatch. 2010. Foreign direct investment (FDI). http://www.economywatch.com/foreign-direct-investment/ (accessed June 29, 2012).

EconomyWatch. 2010. Benefits of foreign direct investment. . http://www.economywatch.com/foreign-direct-investment/benefits.html (accessed June 29, 2012).

EconomyWatch. 2010. Disadvantages of foreign direct investment. June 29. http://www.economywatch.com/foreign-direct-investment/disadvantages.html (accessed June 29, 2012).

Heakal, Reem. 2015. What is international trade? Investopedia. http://www.investopedia.com/articles/03/112503.asp (accessed September 30, 2016).

Kling, Arnold. 2008. International trade. *The concise encyclopedia of economics*. Library of Economics and Liberty. http://www.econlib.org/library/Enc/InternationalTrade.html (accessed June 29, 2012).

FRANCE: GENERAL ECONOMY

France is a developed country with a stable economy and a relatively high standard of living. Since the 1940s France has made a number of large changes to its government and economy that have gotten it to where it is today.

France's economy suffered many ups and downs in the past. During the 18th century France became one of the world's wealthiest and most powerful nations. Its industrial development was comparable to England's, which was considered the most powerful. Industrialism continued to grow into the 19th century. France, however, maintained its agricultural base and began to fall behind in economic standards leading to one of its historical economic lows. France continued agriculture and small businesses as its form of economy nearly until the beginning of World War II.

After World War II France began to modernize its economy. New methods of manufacturing were developed and new trading partners were established through a series of national plans. During this period of modernization most of the businesses in France were privately owned. Economic fortunes in France have often shifted between a socialist government that promotes significant government involvement in the economy and a more conservative political front that embraces less government participation in the economy.

However, France has retained its position in the agriculture business and it has used advances in agricultural technology to increase its production. France continues to provide much of the agricultural products to its fellow European countries. France's major agricultural products include sugar beets, veal, beef, milk, cereals, and wine, for which France is among the top producers in the world markets. France has expanded its businesses to more than just agriculture but it continues to be one of the leading factors in France's economy.

While France is one of the world's largest agricultural producers it also ranks as one of the world's leading manufacturing nations. Paris is the country's main manufacturing location (tourism being another major industry in the city). France remains one of the world's top producers of automobiles, behind countries such as the United States, Germany, and Japan. France also thrives in selling military and space equipment, weapons, iron, steel, electronics, chemicals, machinery for other factories, and much more.

France is often overlooked and not considered to be a world economic power. While it may not necessarily compete with nations such as China or the United States, it is still a leading or competitive producer in many fields, especially agriculture. For a country that began its economy with small farms and homemade businesses, France has come a long way. In large part because of its successful use of fertile soil for agriculture and its advances in technology, France has gone from being a weak economic country to one of the top economies in the world.

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See also: Euro (European Currency Unit); European (Economic) Community; European Central Bank; European Free Trade Association; European Union; Germany: General Economy; United Kingdom: General Economy

Further Reading

Central Intelligence Agency. 2016. France. The World Factbook. https://www.cia.gov/library/publications/resources/the-world-factbook/geos/fr.html (accessed June 22, 2016).

France. 1994. Economy. *The World Book Encyclopedia*, 467–69.

Nations Encyclopedia. n.d. France—Agriculture. www.nationsencylcopedia.com (accessed June 22, 2016).

Nations Encyclopedia. n.d. France—Overview of economy. www.nationsencyclopedia.com (accessed June 22, 2016).

FREE TRADE AREA

A free trade area is one of five types of regional trade agreements (RTAs). A free trade agreement exists when multiple, but not necessarily all nations (as in a multilateral organization such as the World Trade Organization or United Nations), trade goods and services across international boundaries without the limitations of tariffs or quotas. Most free trade agreements however reserve some limitations on trade normally relating to health, safety, and technical standards (Gerber 2014).

This represents an expansion on the first type of RTA, called a partial trade agreement, which is where nations agree to eliminate trade barriers in a specific industry, as the United States and Canada did with automobiles before 1994 and the beginning of the North American Free Trade Agreement (NAFTA). A further step to economic integration above the free trade area is the customs union. A customs union includes a common external tariff which is an agreed upon tariff that the area imposes on imports from nonmember nations. The next level of economic integration is called a common market. In a common market the member nations agree upon free movement of labor and capital. An example of this is the early development of the European Union, particularly the Schengen Agreement. The final level is the economic union. This occurs when nations collaborate on macroeconomic policies, for example adopting a common currency and harmonization of standards and regulations (Gerber 2014). With any type of regional trade agreements there are usually provisions and restrictions relative to the given agreement. Similarly, in any agreement there are benefits and criticisms.

Free trade agreements create greater competition for goods and services. This benefits the end consumer by creating greater purchasing power from more buying options. A wider competitive scope drives prices down and increases quality of goods. Similarly, for producers free trade agreements expand markets to offer opportunity for a greater customer base. Furthermore, they open production capabilities in different countries where there may be more efficient means of labor and materials (Griffin n.d). These agreements can also be beneficial to developing countries as they allow the countries to both compete in other markets and potentially attract investment and jobs from businesses. Similarly, free trade agreements benefit developed nations because they can compete in a larger market space and utilize production factors in creating a lower cost and higher quality product to gain competitive advantage.

In general, critics of regional trade agreements have a number of different perspectives. Critics argue that regional trade agreements limit and polarize nations into regions rather than promoting a true free market global environment through multilateral agreements with the WTO. A second viewpoint of the critics is that many regional trade agreements unjustly benefit developed nations. Agreements with developing nations represent little threat to established nations and only serve to further advance the developed nation's benefits from trade (Gerber 28). Furthermore, the relaxing of barriers to trade has precipitated a "race to the bottom" in terms of businesses using these agreements to locate the lowest costs of production, often by avoiding established labor rights and environmental and safety standards in their host nations. The pursuit of lower costs within the constructs of free trade agreements has suppressed wages in the United States and lowered the bargaining power of U.S. labor unions. Businesses seek out facilities in developing nations with workers who have little experience in labor rights, work safety, and environmental regulations (Amadeo 2016).

There are a number of prominent free trade areas, including the Asian Free Trade Area-Southeast Asian Nations (AFTA-ASEAN), the Australia New Zealand Closer Economic Agreement (ANZCERTA), and the Asia-Pacific Economic Cooperation

(APEC). However, the most well-known free trade agreement is NAFTA. Before NAFTA, the United States had a partial trade agreement with Canada in the automotive industry and with Mexico in the maquiladora industry. The maquiladora represented a specialized intra-business export processing zone that allowed firms to trade between operations in a specific region of Mexico and the United States without paying tariffs on imported parts and materials (Gerber 2014). NAFTA essentially shifted the trade benefits of the maquiladora program to include more regions, industries, and productions across Mexico. NAFTA has specifically boosted agricultural, automotive, and textiles industries. However, Mexican farmers particularly suffered in the wake of NAFTA due to inability to compete. One of the specific limitations of NAFTA is the restriction of Mexican trucks to a specified commercial zone rather than free access in transportation. Furthermore, restrictions on customs, regulations, and immigrations remain. Whether NAFTA should remain or ever truly was a free trade area is debatable. NAFTA has elements of a common market with allowances for the free movement of capital, but with restrictions on labor movements. Furthermore, NAFTA does not include a common external tariff. An argument for further integration might include the adoption of the U.S. dollar as a single currency between the United States, Canada, and Mexico in a process called dollarization. This would expand the benefits of trade, but it would require considerable collaborations in terms of fiscal policies and it presents plenty of risk for each participant (Gerber 2014). Without further policies aimed at integrating economic systems, NAFTA is likely to remain an in-principle free trade area.

Daniel S. Talwar

See also: Commercial Policy; Customs Union; European Economic Community; Maquiladora; North American Free Trade Agreement; Terms of Trade; Trade Policy; Trade, Measures of; World Trade Organization

Further Reading

Amadeo, Kimberly. 2016. 6 Problems with NAFTA: NAFTA's 6 Negative Effects. The Balance. https://www.thebalance.com/disadvantages-of-nafta-3306273 (accessed February 2, 2016).

Asia-Pacific Economic Cooperation. 2016. Home. www.apec.org/ (accessed February 2, 2016).

Australian Government Department of Foreign Affairs and Trade. n.d. Australia-New Zealand Closer Economic Relations Trade Agreement. dfat.gov.au/trade/agreements/anzcerta/pages/australia-new-zealand-closer-economic-relations-trade-agreement.aspx (accessed February 2, 2016).

Gerber, James. 2014. *International economics*. Hoboken, NJ: Pearson.

Griffin, Dana. n.d. Small business: Free trade agreement benefits. *Houston Chronicle*. http://smallbusiness.chron.com/trade-agreement-benefits-3832.html (accessed February 2, 2016).

International Trade Administration. 2015. Trade agreements benefit U.S. exports. www.trade.gov/mas/ian/build/groups/public/@tg_ian/documents/webcontent/tg_ian_005310.pdf (accessed February 2, 2016).

Office of the United States Trade Representative. n.d. Free trade agreements. ustr.gov/trade-agreements/free-trade-agreements (accessed February 2, 2016).
Office of the United States Trade Representative. n.d. North American Free Trade Agreement (NAFTA). ustr.gov/trade-agreements/free-trade-agreements/north-american-free-trade-agreement-nafta (accessed February 2, 2016).

FREE TRADE AREA OF THE AMERICAS

The Free Trade Area of the Americas (FTAA) was a proposed free trade area of 34 democracies in the Western hemisphere. A free trade area reduces or eliminates trade barriers such as tariffs and import quotas among member nations. In addition, the proposed FTAA liberalized foreign direct investment (FDI), permitting transnational corporations greater cross-border investment opportunities throughout the hemisphere. If enacted, the FTAA would extend from Canada to Chile.

The proposed Free Trade Area of the Americas stirred considerable debate during the 1990s and early 2000s. FTAA supporters viewed its creation as the next logical step in the Western hemisphere's economic integration. That is, the FTAA would extend the benefits of economic interdependence beyond the borders of existing regional trade blocs such as the Andean Community, which consists of Bolivia, Colombia, Ecuador, Peru, and Venezuela; the Caribbean Community, which consists of 15 nations located in the Caribbean, Central America, and South America; the Dominican Republic-Central American Free Trade Agreement (DR-CAFTA), which consists of Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, and Nicaragua; MERCOSUR, which consists of Argentina, Brazil, Paraguay, Uruguay, and associate members Bolivia and Chile; and the North American Free Trade Agreement (NAFTA), which consists of Canada, Mexico, and the United States. The most obvious benefits of the FTAA agreement were the expansion of trade and FDI, job creation, economic growth, and global connectivity.

Initial discussions to create a single free trade area for the Western hemisphere's 34 democracies began at the Summit of the Americas in 1994. At the Summit of the Americas, held in Miami, Florida, the heads of state and government of the 34 democratic governments pledged support for the FTAA. In 1998, at the Second Summit of the Americas, held in Santiago, Chile, formal negotiations were initiated to create the free trade area. The Santiago summit also stressed the need for balanced and sustainable development throughout the 34-nation region. In 2001 the Third Summit of the Americas, held in Quebec City, Canada, brought the heads of state and government together to endorse a draft version of the FTAA agreement. The draft version of the agreement proposed a free trade region that would "generate economic growth and prosperity." The deadline for a final FTAA agreement was set for January 2005.

Government leaders also pledged to cooperate to remedy other hemispheric problems, including drug trafficking, poverty, environmental degradation, and violations of worker and human rights. In 2004 the 34 heads of state and government met in Monterrey, Mexico, to reaffirm their support for the FTAA. In Monterrey, leaders also reaffirmed their commitment to economic growth, poverty reduction, social development, and democratic governance. Despite proclamations of support for the FTAA, the final version of the FTAA agreement was not formally adopted by the January 2005 target date.

Opponents of the FTAA stressed the potential economic and social costs of an expanded free trade and investment regime. FTAA opponents argued that earlier regional free trade agreements, especially NAFTA, had opened a Pandora's box of economic woes for workers, the environment, and people's quality of life. Opponents claimed that the liberalization of international trade and FDI in the Americas had revived sweatshop production methods in some Latin America and Caribbean countries. Further, opponents argued that lax or nonexistent environmental safeguards invited environmental abuse by transnational corporations (TNCs). To FTAA opponents, the low-wage, low-skill assembly work in Mexican maquiladoras, many of which border the United States, illustrated the failure of NAFTA to improve people's quality of life. Opponents also noted that a growing competitiveness in global markets only reinforced the dreaded "race to the bottom," because TNCs cut production costs at the expense of indigenous peoples and the environment.

David E. O'Connor

See also: Maquiladoras; North American Free Trade Agreement; Race to the Bottom; Regional Trade Agreements; Transnational Corporations

Further Reading

Estevadeordal, Antoni, Dani Rodrik, Alan M. Taylor, and Andres Velasco. 2004. *Integrating the Americas: FTAA and beyond.* Cambridge, MA: Harvard Univ. Press.

Franko, Patrice M., and George A. Fauriol. 2000. *Toward a new security architecture in the Americas: The strategic implications of the FTAA.* Washington, DC: Center for Strategic and International Studies.

Lengyel, Miguel F., and Vivianne Ventura Dias. 2004. *Trade policy reforms in Latin America.* New York: Palgrave Macmillan.

Schott, Jeffrey J. 2004. *Free trade agreements: US strategies and priorities.* Washington, DC: Institute for International Economics.

Vizentini, Paulo, and Marianne Wiesebron, eds. 2004. *Free trade for the Americas? The US push for the FTAA agreement.* New York: Zed Books.

G

GENERAL AGREEMENT ON TARIFFS AND TRADE

The General Agreement on Tariffs and Trade (GATT) was a multilateral agreement that established rules for international trade from 1948 to 1994. The overriding goal of GATT was to promote free trade among nations. In 1947, 23 countries met in Geneva, Switzerland, to negotiate the first set of trade rules and tariff reductions. The result of these initial trade negotiations was the General Agreement on Tariffs and Trade. GATT, which took effect on January 1, 1948, consisted of 45,000 tariff concessions. History refers the 1947 negotiations as the first GATT trade round. From 1948 to 1994, four directors-general led GATT: Sir Eric Wyndham-White (1948–1968), Olivier Long (1968–1980), Arthur Dunkel (1980–1993), and Peter Sutherland (1993–1994).

GATT's 23 founding countries, headed by the United States and the United Kingdom, assumed that GATT would soon be absorbed into a new International Trade Organization (ITO)—an institution that was also under negotiations during the late 1940s. The ITO was intended to be the third pillar of the Bretton Woods System, joining the newly formed World Bank and International Monetary Fund (IMF) in maintaining an orderly and prosperous post–World War II global economy. Negotiations to create the ITO stalled at the Bretton Woods Conference in July 1944 but continued in a series of conferences in London, Geneva, and, finally, Havana, Cuba. In 1948 delegates from 54 countries signed the Havana Charter, also called the ITO Charter. By the late 1940s, however, interest in yet another multilateral organization had waned in some industrialized countries, most notably the United States. The U.S. Congress shelved the Havana Charter in 1950. Without U.S. participation, plans for the ITO were abandoned.

Multilateral trade negotiations continued despite the collapse of the proposed ITO. The original GATT agreement became a rallying point for non-Communist countries that supported trade expansion as a means of achieving economic growth and development. Under the auspices of GATT, a series of eight multilateral trade negotiations took place from 1947 to 1994. Multilateral trade negotiations were called trade rounds. Early trade rounds concentrated on reducing tariffs on merchandise. A tariff is a tax on an imported good. Tariffs discourage imports by raising their price. Later trade rounds, especially the Tokyo Round and the Uruguay Round, expanded trade negotiations to reduce trade barriers on merchandise and services. Later trade rounds also responded to changes in the global economy. The Uruguay Round (1986–1994) involved 123 nations. The Uruguay Round tackled issues related to tariff and non-tariff trade barriers, subsidies, dumping, trade in services, intellectual property rights, and other issues in the global trading system.

Although successive trade rounds expanded the scope of the original GATT agreement, through the years, the main GATT principles provided an anchor for an orderly evolution of the global trading system. The most fundamental GATT principle was embodied in the most-favored-nation (MFN) clause. MFN required that a trade concession granted to one country automatically applied to other GATT members. The second principle—national treatment—required that foreign and domestic output be treated in a fair and equal manner within nations. In practice this meant that imported goods, once appropriate tariffs had been paid, could not be penalized through the imposition of additional taxes or regulations. The third principle—the reporting of trade barriers—supported transparency in the global trading system. Under this principle, nations were required to justify the imposition of tariffs, import quotas, or other trade restrictions. Combined, GATT principles provided a global framework for the progressive reduction of trade barriers. The rapid expansion of GATT membership during the 1960s, 1970s, 1980s, and early 1990s indicated that many of the newly independent third-world countries saw advantages in a more open and inclusive global trading system.

Over time, the GATT agreement was viewed as one of the three primary gatekeepers of the global economy. The GATT agreement expanded global trade, the World Bank promoted global development, and the IMF stabilized the global financial system. Yet GATT, by design, was not founded as a multilateral institution. GATT lacked the organizational structures of the World Bank or IMF. Unlike the World Bank and IMF, GATT was never recognized as specialized agency within the United Nations system. GATT also lacked the authority to effectively arbitrate trade disputes and, if necessary, enforce its decisions on unwilling member nations.

During the Uruguay Round, lengthy negotiations addressed the need for a more powerful international organization to maintain the trend toward trade liberalization into the 21st century. The final GATT meeting took place in Marrakesh, Morocco, in the spring of 1994. On April 15, 1994, delegates from many of the 123 participating nations signed the Marrakesh Declaration, which established the World Trade Organization (WTO). On January 1, 1995, the WTO officially replaced GATT as the world's leading advocate for free trade—and enforcer of trade rules—in the global economy. Many existing trade rules that had been created under the GATT system were renamed GATT 1994, and absorbed into Article 1 of the WTO charter.

David E. O'Connor

See also: Bretton Woods System; Global Economy; Globalization; International Trade; Protectionism; Trade Policy; Trade, Measures of; World Trade Organization

Further Reading

Hoekman, Bernard, and Michael Kostecki. 2001. *The political economy of the world trading system: From GATTto WTO.* 2nd ed. New York: Oxford Univ. Press.

Mathis, James H. 2002. *Regional trade agreements in the GATT/WTO.* New York: Cambridge Univ. Press.

Moore, Mike. 2003. *A world without walls: Freedom, development, free trade and global governance.* New York: Cambridge Univ. Press.

Nader, Ralph, William Greidner, and Margaret Atwood. 1993. *The case against free trade: GATT, NAFTA and the Globalization of Global Power.* Berkeley, CA: North Atlantic Books.

Zeiler, Thomas W. 1999. *Free trade, free world: The advent of the GATT.* Chapel Hill, NC: Univ. of North Carolina Press.

GERMANY: GENERAL ECONOMY

Germany has the largest economy in all of Europe and, according to purchasing power parity (PPP) terms, it is the fifth largest economy in the world. Germany is a prominent exporter of vehicles, machinery, chemicals, and household equipment. Although its ability to export large quantities is supported by a highly skilled national labor force, Germany continues to face significant demographic challenges like many of its Western European neighbors. Issues such as low birth rates and declining immigration are affecting sustained long-term growth, increasing pressure on the country's social welfare system, and necessitating structural reforms.

Germany faces the task of improving its extremely high unemployment rate and its low average growth. Reforms launched by former German chancellor Gerhard Schroeder helped decrease the amount of unemployment in the nation. Due to Germany's open economy and industrial base, exports account for approximately one-third of its gross domestic product (GDP). Subsequently, Germany is extremely competitive in the world on several fronts including the product markets, and the international free movement of capital in the financial markets, and technology used in the production of goods and services.

A fundamental feature of Germany's economic system is the Bundesbank, the central bank of the Federal Republic of Germany. Founded on July 26, 1954, it is responsible for retaining close contact with the central banks of the European Union (those that form the European System of Central Banks). Also known as the Deutsche Bundesbank, it alone was responsible for ensuring price stability within Germany until the launch of the European Monetary Union. Upon the introduction of the euro in the beginning of 1999, this task was transferred to the European System of Central Banks (Eurosystem).

Currently, the Bundesbank keeps track of national accounts, calculations of domestic product, and provides data needed for ongoing economic observations and analysis. Most notably, data is analyzed quarterly and annually on the creation, use, and distribution of gross domestic product at its current price or to adjust it for inflation or deflation. Finally, because of the rules set by the Eurosystem, the Bundesbank offers a wide range of services to central banks, international organizations, or monetary authorities outside the Euro area to enable them to invest their euro-denominated monetary reserves.

To maintain its position as a leading power in the world of exports and trade, economic decisions in Germany are based on sustaining a competitive edge in the world market. Germany's competitiveness and openness in global markets instills further global competitiveness that provides consumers assurances they are buying products at low prices and high quality. Many of Germany's tactics to remain a leader in the world economy have resulted in Germany being considered to be one of the strongest countries, not only in Europe, but also around the globe.

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See also: Bundesbank; Euro (European Currency Unit); European Central Bank; European Free Trade Association; France: General Economy; United Kingdom: General Economy

Further Reading

Central Intelligence Agency. 2015. Germany. The World Factbook. www.cia.gov/library/publications/the-world-factbook/geos/gm.html (accessed July 16, 2016).

Indexmundi. 2015. Germany economy profile 2014. www.indexmundi.com/germany/economy_profile.html (accessed July 16, 2016).

Leyser, K. J. n.d. Germany: Economy. *Encyclopedia Britannica*. www.britannica.com/place/Germany/Economy (accessed July 16, 2016).

Siebert, Horst. 2005. *The German economy: Beyond the social market*. Princeton, NJ: Princeton Univ. Press.

GLASNOST

"Glasnost," or openness and transparency, was part of Mikail Gorbachev's reform policies for the Soviet Union during the late 1980s. Glasnost is often paired with the concept "perestroika"—a broader idea including the restructuring and democratization of the USSR. Past Communist Russian leaders had also used these words but it was Gorbachev's December 1984 speech before he became the general secretary in which he identified these ideas with "uskorenie" or acceleration as key themes for Russian reform. During the next five years Gorbachev's glasnost would bring profound change, and the end of the Cold War, not only for the Soviet Union but also for the satellite Eastern European Communist governments as well.

Gorbachev's philosophies introduced significant social and political reforms and changes in economic practice and foreign relations. When Gorbachev took office in 1985 he inherited a struggling economy, a second-world standard of living, and a lack of freedom. Gorbachev believed that the only way to revitalize and modernize the USSR was to allow change. Perestroika was used to restructure and overhaul the Communist party at the top levels and eliminate the centralized government planning in favor of the free market. Glasnost allowed an easing of strict government control.

These ideas encouraged the introduction of genuinely contested elections and other measures to promote democracy within the Communist party and political system. They also encouraged the legalization of cooperatives and other semi-private business ventures, the end of government price controls, and the election of enterprise managers.

Glasnost in particular was meant to allow greater freedom of expression for Soviet citizens. Religious groups, journalists, and media were now able to speak and report freely their opinions and even to criticize the government. Soviet people could listen to foreign radio programs and music without fear of arrest, Soviet newspapers could report without censure, and the Communist party could be criticized.

Through glasnost and perestroika Gorbachev oversaw reforms that allowed Eastern European countries formerly under Communist control to choose their own governments. He also significantly reduced the number of troops and tanks based within these countries.

These ideas had unintended consequences and ultimately helped to undermine public confidence in the Soviet Union. The media uncovered many unflattering even brutal truths about previous leaders such as Joseph Stalin, Leonid Brezhnev, and Konstantin Chernenko—school history exams were cancelled in 1988 as much conventional wisdom was overturned. Many stories of the failures and wrongdoings of previous Soviet regimes, as well as the shortcomings of perestroika, swayed much of the Soviet society towards Western ideas. As many Communist regimes began to dissolve, Gorbachev returned to more conservative policies and advocated to maintain the Soviet republics as one nation. Ultimately Mikhail Gorbachev resigned from the presidency when the USSR collapsed in 1991 into 15 individual republics.

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See also: Perestroika; *Vol. 1: Foundations of Economics:* Capitalism; Command Economy; Market Capitalism; *Vol. 3: Microeconomics:* Markets

Further Reading

Encyclopedia Britannica Online. n.d. Glasnost. http://www.britannica.com/EBchecked/topic/234864/glasnost (accessed August 15, 2014).

Graham, J. n.d. *Gorbachev's glasnost*. http://www.historyorb.com/russia/glasnost.php (accessed August 15, 2014).

RT Russiapedia. n.d. Russian history: Glasnost and perestroika times. http://russiapedia.rt.com/russian-history/perestroika/ (accessed August 15, 2014).

Siegelbaum, L. n.d. 1985: Perestroika and glasnost. http://soviethistory.macalester.edu/index.php?page=subject&SubjectID=1985perestroika&Year= (accessed August 15, 2014).

Staff, H. 2010. Oerestroika and glasnost. http://www.history.com/topics/cold-war/perestroika-and-glasnost (accessed August 15, 2014).

GLOBAL CONTAGION

"Contagion" means the diffusion of either economic growth or economic decline throughout a specific region. Contagions can occur within a country or be spread out through multiple geographic regions. As the economy has become increasingly global, contagions have also become more global. The world is connected more now than ever before, as are the economies of the world and the successes and downfalls of those economies.

Contagions are usually associated with a financial crisis. They can go from one crashing economy to another. Within a single country's market a contagion can occur if one large bank sells its assets quickly and people's trust in other large banks goes down. In 1997 when Thailand's market crashed, market shocks quickly spread to nearby East Asian countries, resulting in widespread economic crises in the region. This crisis spread so far that it negatively affected growing markets in Latin America and Eastern Europe.

Contagions are named for their ability to spread quickly and almost unexpectedly. The crash or success of an economy in today's world is contagious. Global investment and international trade make financial contagions more expected to occur than ever before, especially in developing countries where emerging markets are in a fragile state. These negative contagions can very quickly harm such economies on a much larger scale than that of developed countries and countries that are world powers such as the United States. Larger and more established markets are better equipped to handle contagions than emerging economies. Referring back to the Thailand crisis, China did not feel as much of an effect during and after that crisis because its market was bigger and more stable than that of most of the smaller Asian countries.

Financial crises and contagions had been affecting global economies, although on a smaller scale than now, since the 19th century. A banking crisis that began in London in 1825 spread to all of Europe and Latin America. After most of Latin America was liberated from Spain, European investors poured money into the region. The Bank of England raised its discount rates in fear. This sparked a crash of the stock market, which spread panic and economic turmoil to the rest of Europe and eventually to the place that sparked the trouble in the first place, Latin America.

The Great Depression that started with the crash of the U.S. stock market in 1929 is one of the more recent examples of the effect of contagion on global economy. Not only was the Depression of the most catastrophic economic events in U.S. history, it was catastrophic to the entire world because the U.S. economy was and is so big and the United States is a world superpower.

Global contagions also can be a positive thing, but, as history proves, they are more often negative. They are also much more likely to occur in today's world economies because of how connected the economies are. Countries such as the United States that export much of their work and investments overseas should especially expect to feel the effects of global contagions.

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See also: Asian Crisis, 1997–1998; East Asia: General Economies; Exchange Rates; Global Currencies; Globalization

Further Reading

Beirne, John, and Jana Gieck. 2012. *Interdependence and contagion in global asset markets*. Frankfurt, Germany: European Central Bank. www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1480.pdf?3a68e3f4ab22038f2b6e35c762129c64 (accessed December 2, 2015).

Ip, Greg, and Jon Hilsenrath 2015. Greek, Chinese, and Puerto Rican crises all short of going global. *Wall Street Journal*. http://www.wsj.com/articles/greek-chinese-and-puerto-rican-crises-all-fall-short-of-going-global-1436570565 (accessed September 30, 2016).

Ozkan, F. Gulcin, and D. Filiz Unsal. 2012. *Global financial crisis, financial contagion, and emerging markets*. Washington, DC: International Monetary Fund. www.imf.org/external/pubs/ft/wp/2012/wp12293.pdf (accessed December 2, 2015).

GLOBAL CURRENCIES

Currency plays an important role in the global economy. For a currency to be considered a global currency, it has to be able to be traded internationally. With the growth in international investment it is important for many countries to be able to trade currencies. These transactions are called currency internationalization or currency substitution (Cohen 2012). The need for these activities has created the global foreign exchange market. If you have ever traveled to another country you have probably exchanged money in order to making the process of making purchases in that country easier for you. Although the concept of global currency has proven to boost the global economy by allowing the exchange of participating currencies, there also have been currency wars between countries throughout history.

Having different global currencies and trading them on the foreign exchange market is a tool that can be beneficial in growing the global economy. The foreign exchange market has grown to be one of the largest markets in the world, estimated in 2010 to have traded $3,981 billion of currency per day (Gerber 2014).

When trading currency, those making a transaction have to keep in mind the amount they are exchanging is subject to the current exchange rate. Exchange rates are the price of trading one country's currency for another (Brown 2008). The exchange rate shows us what a country's currency is worth compared with other global currencies. For example, when someone takes a vacation to Mexico, they will want to exchange U.S. dollars for Mexican pesos. If the exchange rate of U.S dollars is 1.00 to 10 Mexican peso, then 100 dollars would be exchanged for 1000 pesos. Exchange rates change on a daily basis, so for investors it is very important to keep an eye on these rates in order to get the most out of a transaction. Some countries have tried to eliminate dealing with exchange rates by adopting other currencies. This is called dollarization. This practice may seem like a good idea, in an effort to simplify the act of purchasing goods and services. However, without the use of exchange rates, countries cannot use their currency as a way to grow economically.

Despite how popular the foreign exchange market has become, there also have been currency wars. Currency wars have been created by a country devaluing its currency against another currency, and they have proven to be very destructive (Rickards 2011). There are a number of factors that create an environment for a currency war to occur. Currency wars happen when a country is going through a time of insufficient economic growth. Three events led to the occurrence of Currency War I: the classical gold standard from 1870 to 1914, the creation of the Federal Reserve in 1913, and World War I (1914–1918) and its conclusion with the Treaty of Versailles (1919) (Rickards 2011, 34). The currency war lasted for more than a decade, between World War I and World War II including the Depression Era (1921–1936). Currency War II occurred between 1967 and 1987. Currency wars continue to be a threat to today's global economy. Currently, the Chinese yuan has been declining at a fast pace, and has the potential to hurt the global economy (Cui 2016). Economists fear that China is on the verge of starting another currency war.

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See also: Currency Appreciation and Depreciation; Currency Devaluation and Trade; Currency Wars; Globalization; Exchange Rates; Foreign Exchange Market; Foreign Exchange Rate; Yuan/Renminbi; *Vol. 2: Macroeconomics:* Federal Reserve System

Further Reading

Brown, Vasu. 2008. *Global currency exchange—Foreign exchange market (FX)*. Holliston, MA: Sri Lakshmi Services.

Cohen, Benjamin. 2012. *The future of global currency: The euro versus the dollar*. New York: Routledge.

Cui, Carolyn. 2016. Yuan's tumble sends tremors through world markets: Currency's decline could undermine global economic growth. *Wall Street Journal*, January 7. http://www.wsj.com/articles/yuans-tumble-sends-tremors-through-world-markets-1452213147 (accessed January 30, 2016).

Gerber, James. 2014. *International economics*. 6th ed. Upper Saddle River, NJ: Pearson Education.

Rickards, James. 2011. *Currency wars: The making of the next global crisis*. New York: Penguin.

GLOBAL ECONOMY

The global economy is the international network of individuals, businesses, governments, and multilateral organizations that collectively make decisions about the production, consumption, and distribution of goods and services. There are 208 individual "economies" within the global economy. The world's largest economy is the United States. In 2014 the gross domestic product (GDP) of the United States was $17.4 trillion. Among the world's smallest economies are Nauru ($139.7 million), and Tuvalu ($35.3 million). The GDP measures the value of all newly produced final goods and services in an economy each year.

Global capitalism has created unprecedented prosperity in some countries, especially in the world's 29 advanced economies. The remaining 179 economies are categorized as other emerging market and developing economies. The benefits of global capitalism have eluded some countries in this broad group, especially the world's 50 least developed countries (LDCs). The CIA's World Factbook reported a 2014 global gross domestic product of $110.4 trillion. Using the purchasing power parity (PPP) method, global per capita GDP stood at $16,700 in 2014.

The global economy is highly integrated and interdependent. Among the key players in the global economy are transnational corporations and other business firms with a global reach; international financial institutions (IFIs) such as the World Bank and regional multilateral development banks; multilateral organizations that monitor global economic activity such as the International Monetary Fund (IMF) and the World Trade Organization (WTO); national governments, and groups of governments such as the Organisation for Economic Co-operation and Development (OECD), G8, G20, and G77; and thousands of non-governmental organizations (NGOs) and civil society organizations (CSOs). The United Nations, through its specialized agencies and programs, also promotes sustainable economic development and economic justice in the global economy.

Technological advances stimulate cross-border business activity and global interdependence. During the 1800s, the application of steam power to railroads and ships sped the transport of resources, goods, real capital, and people to distant locations. Early communications systems, such as the telegraph and telephone, also prompted cross-border transactions. Today, innovative information and communications technologies (ICTs) create a more integrated world linked by computers, the Internet, communications satellites, cell phones, and so on. ICTs permit people to store, process, and transmit enormous quantities of information. Similarly, transportation technologies such as supersonic airplanes, supertankers, automobiles, and high-speed rail transport, have advanced the connectivity of peoples in ways unimagined just a few decades ago. Global connectivity, enabled by technological advances, is most apparent in the expansion of international trade, foreign direct investment (FDI), and cross-border financial flows.

International trade is the cross-border exchange of goods or services. International trade occurs when individuals, businesses, governments, or others import or export goods or services. An import is a product that is purchased from another country. An export is a product sold to buyers in another country. The CIA's World Factbook reported that total exports of merchandise and commercial services reached $18.5 trillion in 2014 while imports measured $18.1 trillion. International trade enables one country to specialize in the production of goods that it can produce more efficiently than another country. That is, specialization and trade encourage a country to produce goods in which it enjoys a comparative advantage. The efficient use of scarce resources increases the global supply of goods and services. International trade also expands the range of consumption choices for buyers. Imports from other countries increase the availability of goods that could not be produced efficiently by domestic producers. A number of multilateral agreements and institutions have facilitated trade expansion since World War II, including the General Agreement on Tariffs and Trade (GATT), the International Monetary Fund (IMF), and the World Trade Organization (WTO). The end of the Cold War and the rise of transition economies in eastern and central Europe during the 1990s and early 2000s opened new doors to international trade.

Transnational corporations (TNCs) are a second important feature of today's global economy. TNCs, sometimes called multinational corporations (MNCs), are businesses that own and operate production facilities in more than one country. A TNC consists of a parent company and its foreign affiliates. TNCs foster connectivity in the global economy. TNCs invest heavily in foreign countries, a process called foreign direct investment (FDI). The two types of FDI include greenfield investments and mergers and acquisitions. Greenfield investments involve the building of entirely new production facilities, such as factories or office buildings, in another country. In addition, the foreign affiliates of TNCs employed 54 million workers, exported $3 trillion in goods and services, and owned $30 trillion in productive assets.

Cross-border financial flows are a third component of the global economy. Cross-border financial flows consist of short-term investments in stocks, bonds, other securities, and national currencies. Stock trading occurs on established stock exchanges such as the NASDAQ Stock Market and New York Stock Exchange in the United States; Shanghai Stock Exchange in China; London Stock Exchange in the United Kingdom; and Sao Paolo Exchange in Brazil. Highly speculative currency trading occurs on the foreign exchange market. The foreign exchange market is a complex network of commercial banks, investment banks, brokerage firms, and other financial institutions that buy and sell national currencies for profit. The Bank for International Settlements (BIS) reported a daily turnover of $5.3 trillion in the foreign exchange market in 2013. Cross-border financial flows are enhanced by sophisticated ICTs, which speed financial transactions throughout the global economy. Financial transactions occur 24 hours a day, seven days a week.

Multilateral organizations are key institutions of the global economy. Multilateral organizations are institutions designed to deal with global issues. Most multilateral organizations are comprised of representatives selected by member governments. Multilateral organizations have grown in size and power, especially since World War II. Today, the Big Three multilateral organizations in the global economy—the IMF, the World Bank, and WTO—monitor economic relations between countries. The IMF promotes currency stability and macroeconomic stability in nations. The World Bank extends loans and grants to fund development projects in the emerging market and developing economies. The WTO oversees trade relations and supports free trade. Other important multilateral organizations include the specialized agencies and programs of the United Nations System, regional development banks, and regional trade agreements (RTAs). Grassroots organizations, including thousands of international NGOs and CSOs, coordinate global action to support a more stable global financial architecture and responsible foreign investment. NGOs and CSOs protect human and worker rights, the environment, and the cultural identity of indigenous peoples.

In recent years governments have supported global integration and interdependence by liberalizing trade and investment regimes. Trade liberalization promotes free trade. Trade liberalization policies reduce or eliminate trade barriers, such as tariffs and import quotas. Trade liberalization is enhanced by membership in the WTO, which guarantees most-favored-nation (MFN) status to member countries, and in regional trade agreements (RTAs) such as the North American Free Trade Agreement (NAFTA). Liberalized investment regimes attract FDI. Export processing zones (EPZs) attract FDI by offering investment incentives, including tax breaks, to TNCs.

Bilateral investment treaties (BITs) are formal agreements between countries that foster mutually beneficial investment opportunities. Double taxation treaties (DTTs) establish fair tax regimes for individuals and firms that profit from overseas investments. Finally, liberalized financial investments in stocks, bonds, and other investment instruments increased capital flows between nations. Advanced ICTs solidified links among brokerage firms, banks, and other institutions in global capital markets.

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See also: Bretton Woods System; Foreign Direct Investment; Foreign Exchange Market; Globalization; International Financial Institutions; International Trade; Transnational Corporations; *Vol. 1: Foundations of Economics:* Capital Markets

Further Reading

Anderson, Sarah, John Cavanagh, and Thea Lee. 2005. *Global Economy: Field Guide.* New York: New Press.

Central Intelligence Agency. n.d. The World Factbook. www.cia.gov/library/publications/resources/the-world-factbook/ (accessed June 1, 2016).

O'Connor, David E. 2002. *Demystifying the global economy: A guide for students.* Westport, CT: Greenwood Press.

Poot, Jacques. 2005. *On the edge of the global economy.* Northampton, MA: Edward Elgar Publishers.

Radice, Hugo. 2005. *Political economy of global capitalism.* New York: Routledge.

Rivoli, Pietra. 2005. *The travels of a T-shirt in the global economy: An economist examines the markets, power, and politics of world trade.* New York: John Wiley & Sons.

GLOBALIZATION

Globalization is the exchange that occurs from country to country, that spreads goods and services around the world. Globalization occurs at all times and everywhere. As well as many other things, the markets around the world depend on globalization. Globalization is not only involved in business, but also in life as we know it. The spread of technology, relationships, and politics worldwide have globalization to thank.

Imagine if technology was at a standstill. Societies would be very limited in what they could do, explore, and accomplish. There would be no such thing as the modern age because everything would stay the same for decades and decades. Luckily the globalizing of ideas and inventions are what allow societies to come up with such things like touch screens and wireless Internet. Globalization has spread technologies to third-world countries allowing them to be able to take advantage of solar power and electricity that they would not be able to live without.

Globalization creates relationships between people on opposite sides of the Earth. Countries like the United States have been able to help foreign countries in need and to form relationships with their people. The 2010 earthquake in Haiti is a good example. Without contacts with foreign nations, such as the United States, Haiti would not have received as much aid as it did following the devastating earthquake. Globalization has helped people connect all over the world, and helped developing countries far away. Globalization has circulated more money into developing countries to help those in poverty. Globalization brings the people on this earth closer and closer together as years pass.

It seems that every country has its nose in another country's politics at one time or another. A presidential election is a good example; other countries want to know who the candidates are and who wins because it could affect their country's relationship with another. They also want to know about new laws that may be passed, those especially concerning imports and exports. Globalization takes the important topic of politics in one country and shares it with the rest of the world.

Globalization has been around for quite awhile. Globalization can happen in many different ways, the biggest being trade. Globalization goes back to the time when our ancestors traded goods and services for other goods and services. Trading has been around as long as people. It is nothing new but through trade and many other things globalization improves the place we call home by making it into the modern world we know it as today.

Globalization links technology, relationships, and politics. Without globalization none of these things would exist, or would but on a smaller scale. Globalization has made today how we know it to be, and will continue to change and upgrade our world for the rest of time.

Rachel R. Anderson
David A. Dieterle

See also: Balance of Payments; Balance of Trade; Development Economics; Developing Nations; Global Currencies; Terms of Trade; Trade Policy; Trade, Measures of

Further Reading

Global Policy Forum. n.d. Globalization. www.globalpolicy.org/globalization.html (accessed February 20, 2016).

Globalization 101, A Project of SUNY Levin Institute. n.d. What is globalization? The Levin Institute. www.globalization101.org/what-is-globalization/ (accessed February 20, 2016).

Rahim, Hardy Loh with Zanariah Zainal Abidin, Selina Dang Siew Ping, Mohamed Khaidir Alias, and Azim Izzuddin Muhamad. 2014. Globalization and Its Effect on World Poverty and Inequality. *Global Journal of Management and Business*, 1 (2): 9–13, July 2014. www.academia.edu/7610949/Globalization_and_its_effect_on_world_poverty_and_inequality (accessed February 20, 2016).

GORBACHEV, MIKHAIL

Born: March 2, 1931, in Privolnoye, Stavropol Krai, Russia; Nationality: Ukrainian-Russian; Professional Interests: president of Soviet Union, 1990–1991; Nobel Peace Prize recipient (1990).

Mikhail Sergeyevich Gorbachev continues to be a very influential person in the world's economic and political scene. He was a strong reformer in the former Soviet Union and continues to work in support of his belief in democratization. Gorbachev is truly an inspiration in both the economic and political worlds.

Gorbachev was born on March 2, 1931, in the small village of Privolnoye, a rural community in Stavropol Krai, Russia. He was born into a Ukrainian-Russian family of peasants and didn't have an easy upbringing. In 1941 Nazi Germany invaded his homeland, the Soviet Union. Gorbachev's father was drafted into the war and the family soon received a telegram that he had been killed in battle. The family was informed three days later that this was a mistake.

Despite a rough upbringing Gorbachev excelled in his studies. He had a passion for knowledge and learning. He graduated from his high school with a silver medal. Gorbachev was then encouraged to attend university and chose the prestigious Moscow University where he received his law degree. It was here he developed an interest in the Communist Party. He returned home and worked his way up the political hierarchy.

During these years in Stavropol, Russia, Gorbachev worked as head of the krai's administration. While working for Stavropol he implemented a long-term program for the region's development, especially agriculturally. By 1970 Gorbachev had been elected to the Supreme Soviet, serving on commissions dealing with youth policy, foreign affairs, and conservation. After being elected to the Central Committee of Stavropol he made his way up until he was First Secretary, and eventually a full member of the Politburo, the principal policymaking committee of the Communist Party.

After the death of three Communist Party leaders in line to be the General Secretary of the Communist Party, the position was Gorbachev's for the taking. For a few years, Gorbachev was balancing his role between containing the demand for change from radical reformers both within and outside the Communist Party and forcing reforms on an uncooperative old guard. Gorbachev made changes such as a policy of glasnost, or "openness," expanding the freedoms of many. He also executed the policy of perestroika, or restructuring, an attempt to democratize the Soviet Union. Perestroika also introduced limited free-market mechanisms into the Soviet economy. But even these small economic changes were met with much resistance from party and government bureaucrats who were unwilling to hand over their control of the nation's economic life.

Gorbachev decided to sign a pact with President Ronald Reagan as part of an attempt to maintain a warm relationship between the East and the West. In 1989 Gorbachev sought to change the Soviet Union's stance on world power and withdrew nearly all USSR troops from Afghanistan. In 1990 he won the Nobel Peace Prize for his efforts.

Since leaving office with the breakup of the Soviet Union, Gorbachev has continued to advocate for the development of private ownership in a market economy. He founded the International Foundation for Socio-Economic and Political Studies, also known as the Gorbachev Foundation. Gorbachev has attempted many times to change Russia's negative feelings toward democratization. In 2008 he joined with billionaire Aleksandr Lebedev in the purchasing of half of the *Novaya Gazeta*, an independent newspaper. Gorbachev has been a strong critic of many in his paper, including Prime Minister Vladimir Putin and President Dmitri Medvedev. He has also been known to critique the United States' economic policy toward Russia and the International Monetary Fund's role in the Russian default.

Through his rags-to-riches story and his efforts in the political and economic world of the Soviet Union, Mikhail Gorbachev has earned recognition as one of the most influential political leaders of the 20th century.

Nina R. Haley
David A. Dieterle

See also: Glasnost; Perestroika; Russia: General Economy; *Vol. 1: Foundations of Economics:* Capitalism; Reagan, Ronald; Socialism

Further Reading

Academy of Achievement: A Museum of Living History. 2010. Mikhail S. Gorbachev. www.achievement.org/autodoc/page/gor0bio-1 (accessed October 29, 2015).

Encyclopedia Britannica's Guide to the Nobel Prizes. 2015. Mikhail Gorbachev. academic.eb.com/nobelprize/article-9037405 (accessed October 29, 2015).

The International Foundation for Socio-Economic and Political Studies (the Gorbachev Foundation). n.d. Biography: Mikhail Gorbachev. www.gorby.ru/en/gorbachev/biography/ (accessed October 29, 2015).

GREECE: SOVEREIGN DEBT AND FISCAL CRISIS

In 2010 the Greek economy emerged as the first casualty of a global sovereign debt crisis. Greece was unable to pay its public debt as the result of high debt levels and low economic growth. The crisis in Greece poses a large threat to the rest of the European monetary union, or eurozone, of which it is a part. Greece could destabilize the eurozone and the fragile recovery of the European economy from the recession of 2009. Some even speculate that the collapse of Greece could plunge the entire world into a financial crisis.

Greece was living beyond its means even before it adopted the euro. The roots of its crisis can be traced back to 2001, when Greece adopted the euro as its currency. After it adopted the single currency, public spending soared. Although Greece had been a member of the European Union since 1981 its annual budget deficit was never low enough to satisfy the eurozone's convergence criteria.

For several years Greece benefited from the power of the euro, including lower interest rates and an inflow of investment capital and loans. While money flowed out of the government's treasury, income suffered from widespread tax evasion. After years of overspending the budget deficit, the difference between government spending and government income per year had spiraled out of control. Much of Greece's borrowing was concealed in order to comply with the 3 percent of gross domestic product (GDP) borrowing cap that was required of eurozone members. As a result the debt in Greece continued to rise until the crisis erupted.

The Greek fiscal situation came to the center of international attention in October 2009 when the fiscal deficit worsened significantly during the financial crisis. Additionally after many years of experiencing significant economic growth, in 2009 along with other southern countries of the European Union the Greek economy entered a prolonged recession, the end of which is not yet visible.

The fundamentals of the Greek economy had improved significantly in the 20 years leading up to its entry into the eurozone. Since Greece's entry into the eurozone, its public finances and international competitiveness have remained a significant and persistent problem for Greece and the world economy. Up until the end of 2008 Greece had no problem refinancing its debt. However, amid the international financial crisis, refinancing its debt became an issue. Debt levels reached the point where the country was no longer able to repay its debt.

There are several likely reasons for this, the first being Greece's high public debt. In the early 1990s Greece's public debt had stabilized at roughly 100 percent of GDP, versus the 70 percent average for the rest of the eurozone. The start of Greece's crisis can be traced back to 2009 when it admitted its budget deficit would be 12.9 percent of GDP, far exceeding the 3 percent European Union limit. As an attempt to warn investors, Greece's credit ratings were lowered. Despite efforts this drove up the cost of future loans making it even more unlikely that Greece would be able to find the funds to repay its debt (Alderman, 2015).

In 2010 Greece announced an austerity package designed to reassure agencies it was financially responsible by planning to lower the deficit to 3 percent of GDP by 2012. However four months later Greece cautioned it might default.

The European Union and the International Monetary Fund provided two bailout payments to a total of €240 billion in emergency funding in exchange for austerity measures. Unfortunately these measures only further slowed the Greek economy and reduced the tax revenues needed to repay the debt. The funding only gave Greece enough money to pay the interest in its debt and keep banks capitalized.

Greece's 2015 debt-to-GDP ratio is estimated to be over 177 percent. This is actually a 2 percent decrease from the 175 percent debt-to-GDP ratio in 2002. Both are well over the European Union's limit of 60 percent.

Lauren A. Drum

See also: European Central Bank; European Free Trade Association; Exchange Rates; Global Currencies; International Monetary Fund; *Vol. 2: Macroeconomics:* Debt

Further Reading

Alderman, Liz. 2015. Explaining the Greek debt crisis. *New York Times*. http://www.nytimes.com/2015/04/09/business/international/explaining-the-greek-debt-crisis.html?_r=0 (accessed September 30, 2016).

Alogoskoufis, George. 2012. *Greece's sovereign debt crisis: Retrospect and prospect*. Hellenic Observatory Papers on Greece and Southeast Europe. GreeSE Paper No. 54. London: London School of Economics. http://eprints.lse.ac.uk/42848/1/GreeSE%20No54.pdf (accessed September 30, 2016).

BBC News. 2012. Eurozone Crisis Explained. *BBC News*, November. http://www.bbc.com/news/business-13798000 (accessed September 30, 2016).

Central Intelligence Agency. n.d. Greece. The World Factbook. https://www.cia.gov/library/publications/the-world-factbook/geos/gr.html (accessed November 3, 2016).

GROUP OF EIGHT

Officially formed in 1975 with the first summit in France, the group was originally known as the Group of Six (G6), which included France, Germany, Japan, the United Kingdom, Italy, and the United States. It became the Group of Seven (G7) with the addition of Canada in 1976. The G7 nations were the seven wealthiest developed nations by global net wealth on the planet. Russia joined in 1998 to expand to the Group of Eight (G8). As the G8, these nations represent more than 63 percent of net global wealth. In 1999, a group of 20 nations (Group of 20 or

G20) formed to address issues regarding the international financial system as the global economy expanded.

The G8 summits have consistently dealt with macroeconomic management, international trade, and relations with developing countries. Questions of East-to-West economic relations, energy, and terrorism have also been of recurrent concern. From its initial foundation, the agenda of the summit has broadened considerably to include microeconomic issues such as employment and the information highway, transnational issues such as the environment, crime and drugs, and a host of political-security issues ranging from human rights to regional security to arms control. The summit also provides the international community with help in prioritizing and defining new issues and providing guidance to established international organizations.

The attendees at the G8 summits include finance ministers and central bankers from the eight member nations. The G8 holds meetings three or four times a year. Presidents of the G8 countries also meet among themselves. There is no official legal status to the G8 and it does not have a permanent home like other similar organizations, for example, the World Bank, the International Monetary Fund, and the United Nations.

The G8 meetings are geared toward discussing the main issue of economic interdependence. The discussions have led to an informal, interdependent, international financial system amongst the G8 members. The discussions of the ministers and central bankers focus on such issues as national currencies, national financial systems, and global financial stability have led the G8 countries to formulate joint positions.

The members of the G8 also discuss issues of energy, terrorism, economic development, drug-related money laundering, nuclear safety, and transnational organized crime. In order for the topics to be moved forward, leaders of G8 countries have created their own study groups to help them on particular issues that require urgent response. The G8 summits give leaders of the eight nations an opportunity to discuss complex issues as well as an opportunity to interact on a personal level.

Each calendar year, the responsibility of hosting the G8 rotates through the member states in the following order: France, United States, United Kingdom, Russia, Germany, Japan, Italy, and Canada. The holder of the presidency of the host member state sets the agenda, hosts the summit for that year, and determines which ministerial meetings will take place.

The G8 also influences international communities by setting the necessary trade and energy standards to be adhered to by the membership. Compliance with the agreed-upon standards has been high.

Bernard P. Kanjoma

See also: European Economic Community (European Union); International Monetary Fund; World Bank; World Trade Organization

Further Reading

Baker, Andrew. 2006. *The group of seven: Finance ministries, central banks and global financial governance*. Abington, UK: Routledge.

G8 Information Centre, University of Toronto. 2012. What is the G8? http://www.g8.utoronto.ca/what_is_g8.html (accessed November 10, 2013).

Global Research. n.d. Deepening European banking crisis: G8 holds emergency meeting. http://www.globalresearch.ca/deepening-european-banking-crisis-G8-holds-emergency-meeting (accessed November 10, 2013).

THE GRUBEL-LLOYD INDEX

The Grubel-Lloyd index, introduced by economists Herbert Grubel and Peter Lloyd in 1971, measures the level of intra-industry trade of a country. Intra-industry trade occurs when a country imports and exports, at the same time, similar types of goods or services. Goods and services are classified in sectors and also by which level of aggregation is being used. Accordingly, there are three types of intra-industry trade.

First, there is the vertical intra-industry trade, which refers to the simultaneous exports and imports of goods or services at different stages of the production process but classified in the same sector. This can be explained by the increasing ability to carry out the production process in different stages, each of them being performed at different locations depending on their advantages.

Second, there is horizontal intra-industry trade, which refers to the simultaneous exports and imports of goods or services at the same stage of production process classified in the same sector. This can be explained by development of product differentiation.

Finally, there is homogeneous or non-differentiated goods or services trade.

Grubel, a Canadian economist and senior fellow at the Fraser Institute, and Lloyd, a New Zealand economist and professor emeritus of the University of Melbourne, developed the most commonly used method to estimate the extent of intra-industry trade. The index now known as the Grubel-Lloyd index is a simple formula to calculate the extent of this type of trade. Having the value of a country's export and import for a specific sector and period, the index is calculated as illustrated in the figure.

If the country in question either imports or exports goods or services within the same sector, that is, there is no intra-industry trade, either the import or export value would be zero making the second term on the right-hand side of the equation equal to one, which means that the Grubel-Lloyd index becomes zero. On the other hand, if the export value is exactly equal to the import value ($export_{\text{sector i}} = import_{\text{sector i}}$), the second term on the right-hand side of the equation is equal to zero, which means that the Grubel-Lloyd index becomes one. Therefore, the range of the Grubel-Lloyd index goes from zero (meaning inter-industry trade only) to one (meaning intra-industry trade only).

$$GL_{sector\ i} = 1 - \left(\frac{|\, export_{sector\ i} - import_{sector\ i} \,|}{|\, export_{sector\ i} + import_{sector\ i}} \right)$$

To some extent intra-industry trade, as measured by the Grubel-Lloyd index, can be considered a problem of classification, as different types of goods and services are grouped together in the same sector.

Hugo Eyzaguire

See also: Exports; Globalization; Imports

Further Reading

Andresen, Martin A. 2003. *Empirical intra-industry trade: What we know and what we need to know*. Vancouver, BC: Institute for Canadian Urban Research Studies.

Grubel, Herbert G., and Peter Lloyd. 1971. The empirical measurement of intra-industry trade. *Economic Record* 47 (4): 494–517.

Grubel, Herbert G., and Peter Lloyd. 1975. *Intra-industry trade: The theory and measurement of international trade in differentiated products*. London: Macmillan.

The World Bank. n.d. Export trends and trade structure indices. http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/TRADE/EXTEXPCOMNET/0,,contentMDK:21260645~menuPK:4228621~pagePK:64168445~piPK:64168309~theSitePK:2463594~isCURL:Y,00.html (accessed September 30, 2016).

H

HECKSCHER-OHLIN THEORY OF TRADE

The Heckscher-Ohlin theory of trade explains why countries trade and specialize depending on their factors of production. This model mathematically evaluates trade equilibriums and comparative advantage between countries, building on the work of David Ricardo. Countries that engage in factor specialization will experience a higher standard of living.

Bertil Ohlin, along with his teacher, economics historian Eli Heckscher, developed the Heckscher-Ohlin theory in the 1920s at the Stockholm School of Economics. Ohlin published his book, *Interregional and International Trade*, explaining his ideas in 1933. Heckscher is credited as well because of his earlier work involving international trade and his supervision of Ohlin's doctoral thesis.

The Heckscher-Ohlin theory expands the Ricardo model from one factor of production to two. It also assumes that trade will be between two countries in which the major factors of production—labor and capital—are not available in the same proportion. In addition, the ownership of capital is private and will generate income for the owner. In this model, two goods will be produced that require either more capital or more labor. For example, the steel industry might be capital intensive and the clothing industry might be labor intensive. There are no transportation costs between countries and citizens of the two countries have the same needs. In addition, each country has the same production technology with a constant return to scale. The two countries with two commodities and two factors of production lead many to call this the "2 x 2 x 2 model."

Because labor and capital are not available in the same proportion, each country must specialize either in labor-intensive goods or capital-intensive goods. The more different the countries are in this proportion, the greater their economic gain from specialization will be. As countries develop and incur greater costs for labor, they should then shift to capital-intensive goods. The international trade allows gains for all participants.

In 1977, Bertil Ohlin won the Nobel Prize for his contribution to international trade. Other notable economists also have used this theory as a foundation for further models. In his Factor Price Equalization Theorem Paul A. Samuelson showed mathematically that initial wage differences between countries disappear with trade in the Heckscher-Ohlin model. Wassily Leontief also added to the Heckscher-Ohlin theory explaining that highly skilled labor within the United States allows more exports even with its very abundant capital. The Rybczynski theorem added the idea that the greater use of a countries factor of production would cause an increase in the production of that good and decrease the output of the converse good.

It is important to note that even though countries benefit from specialization and trade, groups within the countries benefit differently. If a country produces goods with many workers and little capital, this would lead to increased wages and benefit workers. It would, however, also decrease the income of the capital owners. Economists often focus on whether the overall gain is larger than the loss to determine a positive outcome.

Kathryn Lloyd Gustafson

See also: Exports; Imports; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics; Ricardo, David; *Vol. 2: Macroeconomics:* Leontief, Wassily; Samuelson, Paul

Further Reading

Blinder, A. S. 2006. Offshoring: The next Industrial Revolution? *Foreign Affairs*, March/April. http://www.foreignaffairs.com/articles/61514/alan-s-blinder/offshoring-the-next-industrial-revolution (accessed August 15, 2014).

Investopedia. n.d. Heckscher-Ohlin Model. http://www.investopedia.com/terms/h/heckscherohlin-model.asp (accessed November 21, 2014).

Nobelprize.org. 2006. Why Trade? http://www.nobelprize.org/educational/economic-sciences/trade/ohlin.html (accessed November 21, 2014).

Ossa, R. n.d. Trade and resources: The Hecksher-Ohlin Model. The University of Chicago Booth School of Business. http://faculty.chicagobooth.edu/ralph.ossa/course%20materials/Lec%203a%203b%20-%20Heckscher%20Ohlin.pdf (accessed November 21, 2014).

Postma, Jeff, Sandeep Agarwal, and Mohit Mohal. 2013. 7 key factors driving the offshoring of services. *IndustryWeek*, December 3. http://www.industryweek.com/supplier-relationships/7-key-factors-driving-offshoring-services (accessed August 15, 2014).

Schaffausser, D. 2005. Offshoring—What is offshoring? *Sourcingmag.com*, January 2. http://www.sourcingmag.com/what-is-offshoring/ (accessed August 15, 2014).

Suranovik, S.M. 2006. "The Heckscher-Ohlin (Factor Proportions) Model Overview." International Trade Theory and Policy, July 31. http://internationalecon.com/Trade/Tch60/T60-0.php (accessed November 21, 2014).

Washington, P. 2014. Offshoring innocence abroad. *The Economist*, March 6. http://www.economist.com/blogs/freeexchange/2014/03/offshoring (accessed August 15, 2014).

HIGH PERFORMANCE ASIAN ECONOMIES

Before 1960, the economies of East Asia lagged far behind most other countries. Since 1960, however, the economies in the countries of East Asia have become some of the fastest growing economies in the world. The World Bank classified these countries, including Hong Kong (now part of China), Indonesia, Japan, Malaysia, Singapore, South Korea, Taiwan, and Thailand, as High Performance Asian Economies (HPAE) (Gerber 2014). It is well known that these relatively small countries in geography have large populations and since 1960 have had a significant impact on the global economy. Studies have found that the economic growth rates in many individual countries have been unstable over the years; but the countries of the HPAE seem to be an exception to this (Page 1994).

There are many factors that can be contributed to the HPAE's economic growth. Perhaps the most important reason the HPAE were able to take off was because of their savings and investments in education and health care (Hollingsworth 2008).

Saving and investing are interrelated. As savings increase, there is more capital to invest, which leads to more economic growth. The HPAE seem to have a good grasp of this concept. By investing capital into education countries can create a higher production level in labor. With good education, people are able to work more efficiently and be more effective. The government also put time and energy into working against income inequality because it was found that there was an inverse correlation between decreasing poverty and the rate of economic growth (Hollingsworth 2008). Meaning, as the poverty level decreased, the rate of economic growth in those countries increased. Low poverty rates had many positive effects, as one could imagine, and led to even more growth.

The promotion of exports was another factor in sustaining economic growth for the HPAE. The HPAE initially focused on import substitution industrialization (ISI) policies. Not all of the countries that are part of the HPAE switched their focus to exports at the same time. In fact, the switch took place over nearly 30 years from the late 1950s to the early 1980s (Gerber 2014). There are some who are skeptical to the suggestion that the promotion of exports creates economic growth for a country. However, growth-theory literature has shown that the two are related, primarily because the growth of exports stimulates productivity growth because of its effect on the ability to gain capital (Lee and Huang 2002). Despite this, there are still those who dispute the connection between the two concepts.

A stable macroeconomic environment has also been a key to the HPAE's successful economic growth. The HPAE did suffer an economic crisis in 1997, but they were quick to respond and were able to bounce back (Gerber 2014). They were able to successfully manage the most recent global financial crisis as well. There are many factors that contribute to maintaining a stable macroeconomic environment. Of these factors, the HPAE have been able to successfully control inflation rates and keep foreign debt and budget deficits within the boundaries set by the government (Gerber 2014). This stability has helped the HPAE continue down the path of sustainable growth over the last 50 years.

Nicole Kuehn

See also: Asian Crisis, 1997–1998; Asian Tigers; East Asia: General Economies; Hong Kong: General Economy; International Monetary Fund; Japan: General Economy; World Bank

Further Reading

Gerber, James. 2014. *International economics.* 6th ed. Upper Saddle River, NJ: Pearson Education.

Hollingsworth, David. 2008. *The rise, the fall, and the recovery of Southeast Asia's minidragons: How can their history be lessons we shall learn during the twenty-first century and beyond?* Lanham, MD: Lexington Books

Lee, Chien-Hui, and Huang, Bwo-Nung. 2002. The relationship between exports and economic growth in East Asian countries: A multivariate threshold autoregressive approach. *The Journal of Economic Development* 27: 45–68.

Page, James. 1994. The East Asian miracle: Four lessons for development policy. In *NBER Macroeconomics Annual 1994*, Vol. 9, ed. Stanley Fischer and Julio J. Rotemberg, 219–82. Cambridge, MA: MIT Press.

HONG KONG: GENERAL ECONOMY

Hong Kong is a free market economy where the prices of goods and services are not set through government intervention but determined by interactions between buyers and sellers. Hong Kong's economy is dependent on trade and finance from other countries. Mainland China is a main trading partner, accounting for about half of the country's trade. Hong Kong does not impose taxes on imported goods, resulting in a market based on open trading.

In 2008, Hong Kong's open economy resulted in economic problems. Heavily reliant on international trade and business, the country was left vulnerable and was hurt in the economic slowdown. Although Hong Kong was able to bounce back because of trade, tourism, and business with China, it was still exposed to problems of the global economy; a consequence of an economy heavily dependent on international business and trade.

Being such a small island, natural resources are very limited in Hong Kong. It has very little room for agriculture, not much fresh water, and scarce mineral or natural resources. The only natural resource of significance for Hong Kong is its building stones and sand deposits offshore. Virtually all food and raw materials are imported, mostly from China.

Tourists and travelers in Hong Kong mainly consist of people from China due to China's reduced travel restrictions. The number of tourists from China to Hong Kong has increased from 4.5 million in 2001 to 34.9 million in 2012. China's policy change and the resulting increase in Chinese tourists provided a major boost to Hong Kong's economy.

Hong Kong also attracts businesspeople because it serves as a large regional center. Many regional headquarters and representative offices are located in Hong Kong. Additionally, Hong Kong is a main telecommunication hub for the region and is home to one of the busiest international cargo airports and one of the largest container ports.

Because Hong Kong is dependent on the global economy this makes it vulnerable to bad times if its trading and investment partners have trouble. Its economy also very much depends on China because this is its main trading partner. If mainland China is doing well chances are so is Hong Kong.

The economy of Hong Kong ranks high in a couple areas. It is considered to be one of the world's freest economies. It is also considered to have the best service-oriented economy, with 90 percent of gross domestic product accounted for by service sectors. Furthermore, Hong Kong ranks high in foreign investments, second behind mainland China. Hong Kong's strong economy reflects its status as a major world trade center and world investment center. Despite its small size, it is still able to have a strong economy.

Jillian Davidson
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See also: Asian Tigers; Asia-Pacific Economic Cooperation; Association of Southeast Asia Nations; China: General Economy

Further Reading

Carroll, John Mark. 2007. *A concise history of Hong Kong*. Lanham, MD: Rowman & Littlefield Publishers, Inc.

Central Intelligence Agency. n.d. Hong Kong. The World Factbook. www.cia.gov/library/publications/the-world-factbook/geos/hk.html (accessed December 2, 2015).

Forbes.com. n.d. Hong Kong. *Forbes: Best countries for business*. http://www.forbes.com/places/hong-kong/ (accessed December 2, 2015).

HKTDC Research. 2015. Economic and trade information on Hong Kong. http://hong-kong-economy-research.hktdc.com/business-news/article/Market-Environment/Economic-and-Trade-Information-on-Hong-Kong/etihk/en/1/1X000000/1X09OVUL.htm (accessed December 2, 2015).

indexmundi. n.d. Hong Kong economy—Overview. http://www.indexmundi.com/hong_kong/economy_overview.html (accessed December 2, 2015).

I

IMPERIALISM

Imperialism is the practice of having economic and political power over a region or territory. It is often associated with control by power or force. Imperialism or control of other foreign territories was especially prevalent during the 19th and 20th centuries on the continents of Africa and Asia during the imperialistic occupation by Great Britain. In today's global economy imperialism is often seen as a negative economic policy of control of one country over another country or territory.

Imperialism stretches back to ancient times. Empires existed in Ancient China, other parts of Asia, and the Mediterranean, and from the Persians to the Romans to the ancient Greeks, most ancient peoples lived under or were influenced by imperial regimes. Alexander the Great assembled one of history's earliest and most notable empires. Alexander's empire was followed by the Roman Empire of Europe and the Middle East.

The academic definition imperialism has always been one of constant discussion and confusion. One issue in defining imperialism has been identifying the degree to which imperialism is instituted. The first of degree of imperialism is total and complete control of the territory through military or complete legislative power. A second, or lesser, degree of imperialism does not involve military power and control. Instead, a territory is controlled financially and economically, including through unfair trade practices, technology, or ownership of the territory's productive resources.

This second-degree imperialism, that of financial and economic imperialism, has emerged as a modern form of imperialism. It can be argued that the first modern era of imperialism was between the 15th and 18th centuries. The age of discovery was a time of historical empire building and imperialism. Christopher Columbus, Vasco da Gama, Ferdinand Magellan, to name a few of the period's explorers, were instrumental in expanding the empires of Portugal, Spain, France, and England. Imperialism expanded as the New World was explored and exploited by Europeans. The 13 colonies that would become the United States began as part of the imperialistic territory of England.

Prior to World War I a second era of global imperialism emerged. Imperialism in Russia, Germany, and Italy arose as they began to expand their financial and economic power and control through Europe. Europe experienced empires following World War I with several of the same nations. This time political power and control was combined with economic and financial control. These countries included most notably Nazi Germany, Fascist Italy, as well as Communist Soviet Union. Japan also emerged as a new imperialistic power prior to World War II.

The pros and cons of imperialism have been debated for as long as the definition of imperialism has been. In theory the debate has four fronts. First, there are the economic arguments. Proponents point to the vast land, labor, and capital resources available and the many different markets an empire provides for the overproduction of consumer goods and investment capital imperialism generates. The empires of Spain, England, and France were prime examples of how they viewed imperialism to be successful.

Karl Marx and his disciples, including Vladimir Lenin, considered imperialism and capitalism as one in the same. Marxists consider imperialism a final stage of capitalism when the capitalist economy is forced to conquer other nations for new markets for their productive goods and to provide new resources. Historically opponents of imperialism include the "father of modern economics" Adam Smith and David Ricardo. They believed imperialism only benefits an elite few but not the entire empire as a whole.

The second argument regarding imperialism focused on the nature and spirit of the human being both individually and as a nation-state. The proponents ranged from Machiavelli and Francis Bacon to the likes of Adolf Hitler and Benito Mussolini. While having different views on the why, their various viewpoints all led to the same conclusion. Ultimately, they viewed imperialism as a sort of survival of the fittest and the strongest shall rule the weakest. This was definitely evident in the actions of Hitler and Mussolini.

A third, related to the humanity, is the argument for or against imperialism on moral grounds. This focuses on the use of imperialism as a method to free people from tyranny and dictators. A form of informal imperialism (neoimperialism) may arise when resources such as foreign aid or other forms of assistance are given to nations in need. The final front in the discussion of the pros and cons of imperialism includes the need to provide security or protection. Again conflict may arise as the protected territory may see the action as a form of imperialism.

The fourth strategy for imperialism was the security of a nation. Empires would consist of strategic and protective defensive states within their empire. These strategic nation-states would serve the empire both as a defense against potential attacks and offensive points of attack if needed. One point against this argument is that this may also lead to resistance from the occupied nation-states causing friction between the nations. History shows us a nation may use the security argument to extend its power and influence. Again, Hitler and Mussolini are prime examples of using imperialistic overreach purely to extend their power and influence.

David A. Dieterle

See also: *Vol. 1: Foundations of Economics:* Classical Economic Thought; Marx, Karl; Mercantilism; Pre-Classical Economic Thought; Smith, Adam

Further Reading

Encyclopedia Britannica.com. 2014. Imperialism. www.britannica.com/topic/imperialism (accessed November 19, 2016).

Said, Edward W. 1994. *Culture and imperialism*. New York: First Vintage Books.

IMPORT QUOTAS

An *import quota* is a type of trade barrier that limits the quantity of a product a government will allow into a country during a specified time period. An import quota specifies a quantity limit by number of items, weight, volume, or other measurement. In the United States, an import quota can be established by congressional action or by presidential decree. Over the past several decades, the United States has used import quotas to restrict the amount of sugar imported from Caribbean countries, lamb from New Zealand and Australia, automobiles from Japan, and clothing from China. The primary motive for imposing import quotas is to protect domestic industries, and jobs, from foreign competition. An import quota on a product tends to increase the price of the item in domestic markets.

The two main types of import quotas are absolute quotas and tariff rate quotas (TRQs). An absolute quota establishes a specific quantity of a good that can be imported into a country during a period of time, typically one year. An absolute quota can be bilateral or global. A bilateral quota sets a limit on the import of a good from a single country. In 1999 the United States imposed a bilateral quota on lamb from Australia, a quota that remained in effect until 2001. A global quota sets a limit on the import of a good from all foreign producers. In the early 1980s, the United States imposed a global quota on sugar imports from the Caribbean and other low-wage nations. The second type of import quota, the TRQ, permits the import of a specific quantity of a product at a reduced tariff rate during a period of time. Imports beyond the quota limit, however, face a higher tariff. The U.S. absolute quota on sugar evolved into a TRQ by the late 1980s, largely to comply with trade rules negotiated under the General Agreement on Tariffs and Trade (GATT).

Two types of "voluntary" restrictions also influence the flow of imports in the global economy. The voluntary export restraint (VER) is a bilateral agreement that limits the quantity of a product that can be exported from one country to another country. VERs are typically negotiated at the insistence of the importing country to reduce a surge of imports from the exporting country. For example, the United States negotiated a VER with Japan in 1981 to reduce the flow of Japanese automobiles to U.S. markets. The voluntary quota, initially set at 1.68 million automobiles, was raised to 1.85 million autos in 1984 and 2.3 million autos a year later. The VER was eliminated in the early 1990s. A second type of voluntary restriction is a voluntary import expansion (VIE). A VIE is a bilateral agreement that requires one country to purchase more of a certain product from another country. Often, VIEs are negotiated to counterbalance trade barriers that prevent fair trade between two nations. During the 1980s, the United States pressured Japan to voluntarily import a greater quantity of automobiles and auto parts, semiconductors, and other goods, a move that created tensions between the two economic titans. VERs and VIEs were exempt from GATT rules and, thus, were a type of backdoor protectionism during the 1970s, 1980s, and early 1990s.

Among the most contentious import issues over the past 50 years was the use of VERs to limit textile and clothing exports from low-wage countries. In the 1950s, the United States and Japan negotiated the first textile VER to reduce the flow of Japanese cotton textiles to America. Within a decade, similar textile VERs were negotiated between the United States and other Asian nations, including South Korea and Chinese Taipei. European nations, under the umbrella of the European Economic Community (EEC), followed suit by negotiating VERs with low-wage Asian countries.

In the early 1970s the hodgepodge of textile VERs were absorbed into a global Multi-Fiber Agreement (MFA), which set specific quantity restrictions on exports from the major textile-producing countries and listed specific import quotas for major textile-importing countries. Often referred to as a system of managed trade, the MFA stabilized the global textile and clothing trade for a couple of decades. At the close of the Uruguay round of GATT negotiations in 1994, the MFA was replaced with the Agreement on Textiles and Clothing (ATC). The ATC established a 10-year phase-out period for the complex network of VERs. On January 1, 2005, under the watchful eye of the World Trade Organization (WTO), all textile and clothing VERs in the global economy were terminated. Most experts agreed that the biggest winners in the global textile and clothing industry are China and other low-wage Asian economies. The biggest losers are textile and clothing producers in high-wage industrialized countries and in less efficient low-wage African and Latin American economies.

Multilateral organizations and regional trade agreements (RTAs) have promoted free trade and the reduction of trade barriers in recent decades. The core principles of the General Agreement on Tariffs and Trade (1948–1994) and the World Trade Organization (1995–present), such as most favored nation (MFN) and national treatment, have helped level the playing field in the global trading system. Many import quotas and other trade barriers on merchandise and commercial services have been reduced or eliminated. Under the WTO, new VERs were banned. WTO members also pledged to eliminate existing bilateral VERs by the late 1990s. Regional trading blocs such as the European Union (EU), North American Free Trade Agreement (NAFTA), and Southern Common Market (MERCOSUR) have significantly reduced or eliminated import quotas among member nations.

David E. O'Connor

See also: Embargo; Exports; General Agreement on Tariffs and Trade; Imports; International Trade; Protectionism; Regional Trade Agreements; Tariffs; Voluntary Quotas; World Trade Organization; *Vol. 2: Macroeconomics:* Embargo Act of 1807

Further Reading

Cline, William R. 2004. *Trade policy and global poverty.* Washington, DC: Institute for International Economics.

Lusztig, Michael. 2004. *The limits of protectionism: Building coalitions for free trade.* Pittsburgh, PA: Univ. of Pittsburgh Press.

McCillivray, Fiona. 2004. *Privileging industry: The comparative politics of trade and industrial policy.* Princeton, NJ: Princeton Univ. Press.

Monnich, Christina. 2004. *Tariff rate quotas and their administration.* New York: Peter Lang Publishing.

IMPORTS

An import is any resource, intermediate good, or final good or service that buyers in one country purchase from sellers in another country. Exports, on the other hand, are goods or services that are sold to another country. International trade involves the import and export of merchandise and commercial services. The most important categories of merchandise imports include capital goods, such as machinery and heavy equipment; industrial supplies and materials; automotive vehicles and auto parts; agricultural products, including animal feeds; and petroleum. The most important categories of commercial services include travel, passenger fares, transportation, and a variety of financial and professional services. From 2010 to 2014 the value of imports in the global trading system grew from $14.9 trillion to $16.3 trillion.

Three world regions accounted for the great majority of global imports in 2014. The World Trade Organization (WTO) identified Europe and central Asia as the top importing regions, accounting for 39.1 percent of global imports. East Asia and the Pacific (29.3 percent) is next, followed by China (13.2 percent) and North America and the United States (11.2 percent). The remaining 8.2 percent of global imports flowed to Africa, Latin America, central and eastern Europe and the former Soviet Union, and the Middle East.

Trade liberalization promotes the import and export of goods and services in the global economy. After World War II, the International Monetary Fund (IMF), World Bank, and the General Agreement on Tariffs and Trade (GATT) supported trade liberalization. Under the auspices of GATT, eight trade rounds progressively reduced tariff and non-tariff trade barriers between 1947 and 1994. Since 1995, GATT's successor organization, the World Trade Organization (WTO), has carried the free trade torch. In addition, regional trade agreements (RTAs) have reduced trade barriers. The Asia-Pacific Economic Cooperation (APEC), European Union (EU), North American Free Trade Agreement (NAFTA), Southern Common Market (MERCOSUR), and other trade blocs have negotiated reductions in traditional barriers to trade and cross-border investments.

Countries sometimes adopt trade policies to improve their trade position in the global economy. Shortly after World War II, many newly independent developing countries adopted an import substitution policy. Import substitution challenged domestic businesses to produce substitute goods for items normally imported. The goal of import substitution was to reduce dependence on foreign exports, especially manufactured items, and achieve a trade surplus. Import substitution was a dismal failure in most cases. Developing countries lacked the resources to produce and market sophisticated industrial goods. Expensive capital goods, inadequate research capabilities, an underdeveloped infrastructure, and an inexperienced labor force created roadblocks to industrialization. Government subsidies to domestic businesses, and high protective tariffs, only rewarded production inefficiencies. Over the past couple of decades, developing countries abandoned import substitution policies, favoring instead more stable export promotion strategies.

David E. O'Connor

See also: Absolute Advantage; Balance of Payments; Balance of Trade; Comparative Advantage; Dumping; Exports; Import Quotas; International Trade; Protectionism; Tariffs; Terms of Trade; Voluntary Quotas; *Vol. 1: Foundations of Economics:* Mercantilism

Further Reading

Cline, William R. 2004. *Trade policy and global poverty.* Washington, DC: Institute for International Economics.

United Nations Conference on Trade and Development. 2004. *Trade and development report, 2004.* New York: United Nations.

The World Bank. 2005. *The Doha round and the WTO: A new agenda for development.* Washington, DC: The World Bank.

World Trade Organization. 2004. *World trade report 2004.* Geneva, Switzerland: WTO Secretariat.

IMPORT-SUBSTITUTION AND EXPORT-LED GROWTH INDUSTRIALIZATION

After World War II, industrialization became a goal of many developing countries. This process had a great deal of influence on trade between countries. Two major types of industrialization are import-substitution and export-led growth. Trade policy has always been, and will continue to be, a huge factor in the global economy. There have been many changes in these policies throughout the years. Varying degrees of imports and exports have a huge effect on the global economy. As with all factors of economic growth, there are criticisms associated with the different types of trade policy. However, these policies have the same common goal of economic growth.

Import-substitution industrialization (ISI) is a policy that promotes producing domestic goods instead of importing them (Ekeh 2010). ISI policies are used by countries to help develop their manufacturing sector. ISI trade policies were extremely popular following World War II until the 1980s (Gerber 2014). This strategy promoted tax breaks, some degree of nationalization, and low-interest loans. There also was a high degree of protectionism. Taking protective measures was thought to lead to more potential for gaining more sophisticated technology for the expanding international market, incomes, and investment (Ekeh 2010). Most countries, with the exception of Great Britain, have gone through a phase of ISI polices early on in their development (Dasgupta and Mäler 2000). An example of a country that really embraced these policies is Mexico. Mexico implemented ISI polices from the 1950s until the early 1980s, and experienced consistent growth throughout that time period (Gerber 2014).

There are a number of benefits that come with ISI trade policies. These types of policies help a country's domestic market grow. ISI policies promote people learning by doing, increase employment opportunities, help put income back into society, and protect against foreign competition (Ekeh 2010). The benefits of this kind of industrialization sound great; however there are also disadvantages. The obvious one is that ISI policies discriminate against exports by focusing more on import production. Other disadvantages are the misallocation of resources as part of production decisions, the overvaluation of exchange rates, the policies being biased by favoring urban areas, increase in income inequality, and encouraged rent seeking (Gerber 2014).

The opposite of import-substitution industrialization is export-led growth industrialization. Export-led growth policies focus on the exporting of goods as a driver for economic growth. There have been many studies that have found it to be true that most episodes of growth share a common characteristic of high export growth (Yang 2008). Mexico is an example of a country that moved toward export-led growth trade policies. It has done so successfully and is now one of the top exporting countries. Countries that have been able to make the move toward export-led growth from import-substitution are more labor intensive and have higher rates of economic growth, productivity growth, and export growth (Dasgupta and Mäler 2000). Export-led growth countries utilize the theory of comparative advantage by exporting those good that they specialize in producing.

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See also: Comparative Advantage; Dependency Theory; Developing Nations; Exports; Globalization; Imports; Mexico: General Economy; *Vol. 1: Foundations of Economics:* Resources; *Vol. 3: Microeconomics:* Productivity

Further Reading

Dasgupta, Partha, and Karl-Göran Mäler, eds. 2000. *The environment and emerging development issues, Vol. 1*. New York: Oxford Univ. Press.

Ekeh, Lawrence U. 2010. *Industrialization and national prosperity (Lessons for the developing countries)*. London: Luzek Publishers.

Gerber, James. 2014. *International economics*. 6th ed. Upper Saddle River, NJ: Pearson Education.

Yang, Jie. 2008. An analysis of so-called export-led growth. *Working Paper 08/220, International Monetary Fund*. www.imf.org/external/pubs/ft/wp/2008/wp08220.pdf (accessed February 21, 2016).

INDIA: GENERAL ECONOMY

The Indian economy is one of the fastest growing economies in the world. According to the International Monetary Fund (IMF), India is the 10th largest economy in terms of nominal gross domestic product (GDP) and the third largest by purchasing power parity (PPP) (IMF 2014). India is a member of the BRICS (Brazil, Russia, India, China, South Africa) nations and the G20 nations.

India's economic history can be classified into three phases: The precolonial period, which lasted until the 17th century; the colonial period, which marked the colonization of the Indian subcontinent by the British and lasted until 1947; and the postcolonial period, or the postindependence era, 1947 to present. During the precolonial period, India had a self-sustaining economy with agriculture as the predominant occupation. The colonial rule by the British drained India of its resources and economic development stalled.

After India gained independence from Great Britain, the country followed socialist practices characterized by large public sectors, protectionism, and extensive regulations leading to widespread corruption and a slow-growing economy. The private sector consisted only of small- and medium-scale businesses. Most of the consumer service sectors such as transportation, communication, and social services were under the control of the government. This paved way for widespread rent seeking and corruption practices.

The collapse of the Soviet Union in 1991 had a significant impact on the Indian economy, as India and Russia were major trading partners. This led to a near collapse of the Indian economy. India ran out of isolationist options for its economy to recover. India's then–prime minister Narasimha Rao and his finance minister Manmohan Singh (who later became prime minister) began the process of leading India to a market economy.

They implemented various economic liberalization measures, such as industrial deregulation, opening up the market for foreign investments, and privatization of state-owned enterprises, has accelerated the nation's economic growth. During the mid-2000s India recorded its highest growth rates, becoming one of the fastest growing economies in the world. The rapid growth was due to the increase in the size of its middle class population, expertise in information technology, higher investments, and a large labor force.

The major sectors of the country's economy are agriculture, banking, finance, industry and services, textiles and handicrafts, and energy and power. The agriculture sector employs 52.1 percent of the total workforce. Major industries include textiles, software, steel, pharmaceuticals, telecommunications, mining, cement, petroleum, food processing, and machinery. While half of India's work force still engage in agriculture, the services and manufacturing sector of the economy contributes nearly half of the country's economic growth. India has become a major exporter of business outsourcing and information technology–related services, taking advantage of its young, educated, English-speaking population.

India's international trade has improved greatly since opening up its borders to free trade and liberalizing its domestic economy in the early 1990s. According to the World Trade Organization's (WTO's) statistics for 2015, India ranks 19th in world trade for exports and 13th for imports. The country's major trading partners are Germany, United States, China, and United Arab Emirates. India is a favorite destination for foreign direct investment (FDI). The liberalized FDI policies have attracted more investments into the country. Many of the developed foreign countries are shifting their research and development departments to India. The country is a major exporter of outsourcing business and Western countries prefer India because of its expertise in the information technology and lower labor and production costs. Since 2011, India has shown a decrease in investment due to high interest rates and uncertainty by investors about the future direction of the Indian government relative to trade rules and trade tariffs.

Some of the challenges that India faces are poverty, unemployment, population explosion, corruption, poor infrastructure, discrimination, violence against women and girls, inadequate availability of quality education, high spending, ineffective power generation and distribution systems, and inefficient utilization of nation's natural resources. Another problem faced by the country is the regional variation between its 29 states and territories in terms of infrastructure, literacy rates, income, development, and poverty. India's long-term growth looks to be positive because of its young population, higher investment and savings rates, and integration into the global economy.

Lincy Thomas

See also: Imperialism; International Monetary Fund; World Bank; World Trade Organization; *Vol. 1: Foundations of Economics:* Capitalism; Colonialism; Command Economy; Socialism; *Vol. 3: Microeconomics:* Markets

Further Reading

Central Intelligence Agency. 2014. The World Factbook. https://www.cia.gov/library/publications/resources/the-world-factbook/geos/in.html (accessed September 30, 2016).

Gosai, Dushyant. 2013. History of economic growth in India. *International Policy Digest*. www.internationalpolicydigest.org/2013/04/24/history-of-economic-growth-in-india (accessed September 30, 2016).

Knoema. 2014. World GDP ranking 2014: Data and charts. knoema.com/nwnfkne/world-gdp-ranking-2014-data-and-charts (accessed September 30, 2016).

Naranpanawa, Athula, and Rashmi Arora. 2014. Does trade liberalization promote regional disparities? Evidence from a multiregional CGE model of India. *World Development* 64: 339–49.

INFANT INDUSTRY

Infant industries are new industries that are just starting out and may have a difficult time competing on the global market with already established industries.

New industries typically need time during the early stages of development to become efficient producers. One strategy used to protect infant industries is to impose trade tariffs. The tariff would cause the imported goods to have a higher price making the national good more appealing. This strategy allows infant industries a competitive edge against more developed competitors and sometimes less expensive goods. It also gives the infant industry time to produce at a more efficient level. After a period of time during which the infant industry has had a chance to become more efficient and competitive with other global industries, the tariff can be eliminated.

There are two primary difficulties associated with using tariffs to allow infant industries a chance to become more efficient and competitive. The first is that some infant industries might not develop the incentive to become more efficient if they are being protected by tariffs. Another negative effect is once the infant industry becomes reliant on the tariff to protect it from global competition it is difficult to take away the protection.

Tracy L. Ripley

See also: Protectionism

Further Reading

Mankiw, N. Gregory. 2011. *Principles of microeconomics*. Boston, MA: Cengage Learning.
O'Sullivan, Arthur, Steven M. Sheffrin, and Grant Wiggins. 2013. *Economics*. Upper Saddle River, NJ: Pearson Prentice Hall.

INTER-AMERICAN DEVELOPMENT BANK

The Inter-American Development Bank (IDB) is a regional development bank that serves Latin America and the Caribbean. It is one of four major regional development banks currently operating in the global economy. The IDB comprises three institutions: the Inter-American Development Bank (IDB), which was founded in 1959; the Inter-American Investment Corporation (IIC), which began operations in 1989; and the Multilateral Investment Fund (MIF), which was created in 1993.

The three institutions within the IDB are autonomous but have complementary roles in promoting sustainable economic development in the Western hemisphere. The organizational structures of these institutions vary. For example, the highest decision-making body in the IDB and IIC is a board of governors, while a donors committee coordinates the operations of the MIF. Member countries own and operate each of the three institutions of the Inter-American Development Bank . The headquarters for all three institutions of the IDB are located in Washington, D.C.

The IDB comprises 48 member countries—26 Latin American and the Caribbean countries, 19 nonregional countries, the United States, and Canada. The Republic of Korea, the newest member country, joined the IDB and its sister institutions in November 2004. The Organization of American States (OAS) created the IDB in 1959 to "contribute to the acceleration of the process of economic and social development of the regional developing member countries, individually and collectively." To achieve this goal, the IDB provides loans, grants, guarantees, policy advice, and technical assistance to government and private sector decision makers. The IDB's board of governors delegates most of the bank's operations to a board of executive directors.

The bank's priorities have included support for poverty reduction and social equity, sustainable economic growth, modernization of the state, improving competitiveness, social sector reforms, regional and global economic integration, environmental protection, private sector development, and good governance. In 2015, the bank committed $38.2 billion to public sectors to support 387 lending and other operations in 12 countries. Most loans granted by the bank are non-concessional and carry interest rates appropriate to prevailing market conditions. An exception to this rule are loans granted through the bank's Intermediate Financing Facility (IFF), which offers lower interest rates to some low-income countries including the Dominican Republic, Ecuador, El Salvador, Guatemala, Jamaica, Paraguay, and Suriname. The bank can also "guarantee" the repayment of development loans granted through private financial institutions, and thus encourage borrowing and productive investment in member countries. The bank's Fund for Special Operations (FSO) chipped in the final $578 million to finance 23 concessional loans. These concessional loans are designed to meet the needs of the region's poorest countries—Bolivia, Guyana, Haiti, Honduras, and Nicaragua. FSO loans typically carry an interest rate of less than 2 percent and have a repayment period of 40 years. Since 1961, the three largest recipient countries—Argentina, Brazil, and Mexico—have garnered about one-half of all bank loans and guarantees.

The Inter-American Investment Corporation (IIC) is the second institution of the IDB. It is an autonomous multilateral organization comprising 43 countries—26 borrowing countries from Latin America and the Caribbean, 13 European countries, Japan and the Republic of Korea, Israel, and the United States. The IIC was established in 1989. The IIC's board of governors delegates most of its authority to a board of executive directors to run the corporation. According to its Establishing Agreement, the purpose of the IIC is "to promote the economic development of its regional developing member countries by encouraging the establishment, expansion, and modernization of private enterprises, preferably those that are small and medium-scale, in such a way as to supplement the activities of the Inter-American Development Bank." The IIC extends development loans, makes equity investments in private enterprises, and expands credit opportunities. IIC support for private businesses was designed to strengthen firms, create jobs, expand exports and regional integration, nurture productive domestic and foreign investment, and cultivate technological advance in regional developing countries. In 2003, the IIC approved $194 million to support 26 projects in 15 countries, along with one regional project. These projects benefited nearly 3,000 small- and medium-size firms, and created nearly 10,000 jobs. The IIC also supports co-financing, joint ventures, and other collaborative projects with international and local financial institutions, business firms, and other entities.

The Multilateral Investment Fund (MIF) is the third institution of the IDB. The MIF comprises 32 member countries, including all of the 26 borrowing countries of the IDB. Each of the 32 member countries is represented on the donors committee that governs the MIF, with voting shares apportioned by the size of donors' contributions to the MIF. Because the United States and Japan have each contributed $500 million to the $1.2 billion fund, these two countries dominate the voting shares. In practice, decisions about how to use the organization's funds are often by consensus rather than a formal vote. The MIF is designed to support investment reforms to bolster private investment, including foreign direct investment (FDI); stimulate business activity and job creation; and encourage microenterprises and entrepreneurship. By supporting private investment and business creation the MIF also supports poverty reduction, economic growth, gender equity, human capital development, and responsible treatment of the natural environment.

The MIF's technical assistance also stresses project clusters, such as micro finance, environmental management, and information and communications technology. MIF financial resources are distributed through grants and investments, typically in conjunction with partners such as non-governmental organizations (NGOs), chambers of commerce, and public sector agencies.

Regional and sub-regional development banks are a major source of development loans and other development assistance in the global economy. The four main regional development banks are the African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, and the Inter-American Development Bank. Smaller, sub-regional development banks also dot the economic landscape, and include the Caribbean Development Bank, Central American Bank for Regional Integration, East African Development Bank, and West African Development Bank.

David E. O'Connor

See also: African Development Bank; Asian Development Bank; European Bank for Reconstruction and Development; International Finance; International Financial Institutions; International Trade; Regional Trade Agreements

Further Reading

Buvinic, Mayra, Jacqueline Mazza, and Ruthanne Deutsch, eds. 2004. *Social inclusion and economic development in Latin America.* Washington, DC: Inter-American Development Bank.

Devlin, Robert, Antoni Estevadordal, and Inter-American Development Bank, eds. 2004. *Bridges for development.* Washington, DC: Inter-American Development Bank.

Inter-American Development Bank. 2004. *Annual report 2003.* Washington, DC: Inter-American Development Bank.

Inter-American Development Bank. 2005. *Unlocking credit: The quest for deep and stable bank lending.* Washington, DC: Inter-American Development Bank.

INTERNATIONAL ASSOCIATION FOR ENERGY ECONOMICS

The International Association for Energy Economics (IAEE) was founded in 1977 in response to the energy crisis in the 1970s. The IAEE is an independent, worldwide, nonprofit organization based in the United States, with more than 4,157 members in over 100 nations, providing an interdisciplinary forum for the exchange of ideas among professionals interested in energy economics.

The IAEE's main objective is to bring together professionals from business, government, and academia to advance the knowledge, understanding, and application of economics across all aspects of energy. To achieve this goal, the IAEE strives to facilitate worldwide information flow and exchange of ideas on energy issues, publish high-quality research, and develop and educate students and energy professionals.

The IAEE publishes three periodicals. *The Energy Journal* is the official quarterly journal of the IAEE. It was founded in 1980 to promote the advancement and dissemination of new knowledge concerning energy and related topics. It publishes a blend of theoretical, empirical, and policy-related papers in energy economics. Each quarterly issue contains original refereed articles, short notes, and book reviews. Nontechnical articles on important policy issues are published in the Energy Perspectives section. A Research Forum section reports on the emergence of new analytical methods for economic analysis of energy.

The Economics of Energy & Environmental Policy (EEEP), established in 2011, is a semiannual energy policy publication. It focuses on all policy issues in the interface between energy and environmental economics. EEEP provides a research-based, scholarly, yet easy to read and accessible source of information on contemporary economic thinking and analysis of energy and environmental policy. EEEP publishes a blend of policy papers and notes, organized symposia on specific policy issues, feature articles, book reviews, and commentaries on current energy and environment.

The *IAEE Energy Forum* is a newsletter that delivers the latest information on the association, and contains articles that appeal to a general audience interested in the energy field.

In order to meet the association's objectives, periodic conferences are held that focus on energy economics. The IAEE sponsors annual conferences in North America, Europe, Asia, and Latin America. Past meetings have taken place in cities such as San Francisco, Stockholm, Venice, Kyoto, Santiago, Abuja, Moscow, and Taiwan. The conferences attract delegates and speakers from around the world, and from some of the most influential government, corporate, and academic circles.

The IAEE takes pride in developing and educating students in the energy field. There are student chapters in 12 countries, and many student activities are held at the annual conferences, including a Best Student Paper award and student PhD days. A student member also sits on the IAEE Council.

The IAEE operates through a 17-member council of elected and appointed international members. Council and officers serve on a voluntary basis for a term of one to two years.

The IAEE has several awards to recognize exemplary energy economics research. Since 1981, the IAEE has awarded an annual prize for outstanding contributions to the field of energy economics and its literature. Past recipients have included Morris Adelman, Dale Jorgenson, Robert Pindyck, and Jean Tirole. *The Energy Journal* Best Paper Award was created in 1989 for the paper designated as the most outstanding of the papers published in *The Energy Journal* the previous year, and the Journalism Award was created in 1983 to reward excellence in written journalism on topics relating to international energy economics.

Mine K. Yücel

See also: *Vol. 1: Foundations of Economics:* Association of Environmental and Resource Economists; United States Society for Ecological Economics; *Vol. 3: Microeconomics:* Fisheries Economics Associations; Renewable Energy

Further Reading

The Economics of Energy & Environmental Policy. n.d. Home. https://www.iaee.org/en/publications/eeepjournal.aspx (accessed September 30, 2016).

International Association for Energy Economics. n.d. About us. https://www.iaee.org/en/inside/ (accessed September 30, 2016).

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

The International Bank for Reconstruction and Development (IBRD) is a member-owned development institution that provides low-interest loans and technical assistance to middle-income developing countries. The overarching goals of the IBRD are global poverty reduction and sustainable economic development. IBRD was founded at the Bretton Woods Conference in 1944 and was operational by 1946. IBRD and the International Monetary Fund (IMF), which was also founded at the Bretton Woods Conference, are often referred as the Bretton Woods institutions. IBRD is part of the World Bank Group. In 2015, IBRD consisted of 188 member countries.

IBRD is one of five institutions that the World Bank Group comprises. The other development institutions within the World Bank Group include the International Finance Corporation (IFC), the International Development Association (IDA), the International Centre for Settlement of Investment Disputes (ICSID), and the Multilateral Investment Guarantee Agency (MIGA). IBRD and its closest partner (the IDA) are called the World Bank. The work of the World Bank Group is coordinated by a board of governors and by the bank's executive directors. The bank is headquartered in Washington, D.C. The bank also has country offices in more than 100 member nations throughout the world.

The IBRD's mission to reduce poverty and promote sustainable economic development in the global economy is consistent with United Nations' Millennium Development Goals (MDGs). During the late 1940s and early 1950s, most IBRD loans went toward the reconstruction of Europe, a continent devastated by World War II. Since the 1950s, most IBRD development loans, guarantees, and technical assistance have flowed to more creditworthy middle-income developing countries. By World Bank classifications, middle-income countries have gross per capita national incomes of $1,026 to $12,475 (in U.S. dollars). They range in diversity from the BRICS (Brazil, Russia, India, China, South Africa) nations to countries such as Guatemala, Costa Rica, Namibia, and Bulgaria. IBRD's partner institution, the IDA, extends loans and other assistance to the less creditworthy low-income developing countries.

IBRD's loans are divided into two categories: investment loans and development policy loans. Investment loans are long-term loans of five to 10 years. Investment loans target infrastructure projects such as the construction of housing, schools, health clinics, and irrigation and sanitation systems. Investment loans also promote institution building and social reforms. Investment loans represent 75 percent to 80 percent of IBRD's total loans. Development policy loans are short-term loans of one to three years. Development policy loans, previously called adjustment lending, support policy reforms conducive to sustainable economic growth and development. These loans support good governance, the rule of law, privatization, and competitive markets, by reforming nations' financial systems, legal systems, tax and investment codes, civil service, social services, and trade policies. Between 1946 and 2014, IBRD's cumulative loans to member nations totaled over $500 billion.

Most IBRD development loans are financed with World Bank Bonds. IBRD issues World Bank Bonds, which carry an AAA credit rating in global capital markets.

IBRD's secure position in the global financial system makes the bank's bonds an attractive investment. IBRD also earns limited revenues through interest payments on past loans. Unlike commercial banks and most other financial institutions, IBRD is not designed to earn profits. The bank's loans carry low interest rates compared with prevailing interest rates in global markets.

Since 1946 quota subscriptions have also generated operating capital for IBRD. Each member nation is required to ante up a subscription payment in rough proportion to the size of its economy. Each subscription quota also equated to approximately one voting share. The five largest subscription quotas (and voting power) in 2015 were assigned to the United States (16.5 percent voting power), Japan (7.8 percent), Belgium (4.7 percent), Germany (4.5 percent), United Kingdom (4.3 percent), and France (4.3 percent).

The bank's 188 member countries own IBRD and the other four institutions of the World Bank Group. The voting power of each country is determined by the size of its economy. The United States, the world's largest economy, holds 16.39 percent of the bank's voting power, or 265,219 total votes. The small island nation of Palau, on the other hand, holds just .02 percent of the voting power, or 266 total votes. Member countries are often called shareholders in the bank, and the votes of member countries are called shares. The bank's highest decision-making group is the board of governors, which consists of the finance minister or other official of comparable rank from each member country. At its annual meeting, the board of governors establishes broad policies and sets priorities for the bank. The board of governors then delegates responsibility for running the bank to the executive directors, a 24-member group. One executive director is selected by each of the largest economies including the United States, Germany, United Kingdom, France, Japan, and China. Member countries elect the remaining 19 executive directors. A staff of nearly 10,000 professionals assists in the implementation of bank policies, programs, and projects.

Over the years, non-governmental organizations (NGOs), civil society organizations (CSOs), and other stakeholders in the global economy have criticized IBRD and the other institutions of the World Bank Group. Some critics cite flaws in past structural adjustment programs (SAPs). Critics argue that SAPs, guided by the bank's heavy market-oriented hand, undermined the authority of local governments and oversimplified the complex problems of the world's poor nations. Others have criticized the bank's structure, which they view as undemocratic and self-serving for the rich nations of the global North. Many of the bank's critics view the bank as the top cheerleader of globalization. Some in the anti-globalization movement accuse the bank of being unresponsive to the abuse of workers, the environment, and indigenous peoples by powerful transnational corporations (TNCs). Anti-globalization demonstrations against the gatekeepers of the global economy—the World Bank, IMF, World Trade Organization—swelled during the early 2000s, especially after protestors successfully disrupted the WTO's ministerial meeting in Seattle, Washington in 1999.

David E. O'Connor

See also: Bretton Woods System; Global Economy; Globalization; International Economics; International Finance Institutions; World Bank; World Trade Organization

Further Reading

Buira, Ariel. 2003. *Challenges to the World Bank and IMF: Developing country perspectives.* London: Anthem.

Development Committee (Joint Ministerial Committee of the Boards of Governors of the Bank and the Fund on the Transfer of Real Resources to Developing Countries). 2015. *2015 Shareholding Review Report to Governors*. http://siteresources.worldbank.org/DEVCOMMINT/Documentation/23689867/DC2015-0007(E)Shareholding.pdf (accessed November 19, 2016).

Gill, Indermit S., and Todd Pugatch. 2005. *At the frontlines of development: Reflections from the World Bank.* Washington, DC: World Bank Publications.

International Bank for Reconstruction and Development. 2016. International Bank for Reconstruction and Development International Finance Corporation International Development Association Executive Directors and Alternates. http://siteresources.worldbank.org/BODINT/Resources/2780271215526322295/BankExecutiveDirectors.pdf (accessed November 19, 2016).

International Bank for Reconstruction and Development. 2012. *IBRD: Working with Countries to Achieve Development Results*. http://siteresources.worldbank.org/EXTABOUTUS/Resources/IBRDResults.pdf (accessed November 19, 2016).

Mallaby, Sebastian. 2004. *The world's banker: A story of failed states, financial crises, and the wealth and poverty of nations.* New York: Penguin Press HC.

McClure, Paul, ed. 2003. *A guide to the World Bank.* Washington, DC: World Bank Publications.

Ritzen, Jozef, and Joseph E. Stiglitz. 2005. *A chance for the World Bank.* London: Anthem.

INTERNATIONAL CARTELS AND MONOPOLIES

A monopoly is when a single business controls the market for a particular good or service and is able to set prices and quality levels without the pressure of competition. In order to be considered a monopoly the company must have control of the marketplace and be willfully maintaining that power by eliminating any potential competition through acquisition of competitors or barriers that prevent other businesses from competing. Governments work to eliminate monopolies due to the fact that usually monopolies are not in the best interests of the public and primarily benefit the businesses that have control over a particular product or industry. When a company has monopolistic control over a product or industry it can set unfairly high prices that the public is forced to accept because there is no other company competing to drive prices down. Monopolies can encourage companies to become lax in their production and begin producing inferior products and cease innovating.

Although it may seem that a monopoly is always a problem for customers, sometimes monopolies exist because a product is superior or because the market naturally does not allow for competition. In some cases a monopoly can be created due to the government creating a law that prevents other businesses from competing in a particular industry or granting a company the exclusive right to a particular area. The most common example of government allowing for monopolies in a particular area is cable companies that are allowed to operate without competition from another cable company. Monopolies can also help companies recoup costs of innovation through patents. This helps to drive innovation because for a set period of time other companies are unable to compete using the same methods. Because companies know they will be protected when new products are brought to market, it allows companies to compete without fear that their efforts will be immediately undermined as other companies use their methods and formulas to their own competitive advantage.

Cartels, when competing firms set an agreement to control prices or prevent the entry of a competitor into the marketplace, are another form of monopoly. These companies form an alliance that allows the companies to benefit by raising prices that the public is forced to accept because there are no competitors in the industry. Cartels have less control over a marketplace than a monopoly, however, and each member of a cartel relies on the other members to continue to operate in the best interests of the group rather than in the best interests of the company. Cartels are generally considered illegal because they are similar to a monopoly and are not usually in the best interests of the consumer. An example of a legal cartel that is protected by trade laws is the Organization of Petroleum Exporting Countries (OPEC). This cartel, which is comprises 12 countries that have oil as one of their major exports, sets production levels and prices for the oil in these countries. This allows the countries to thrive even if it causes problems for the countries that they export to since it can drive demand.

Illegal cartels can create a great deal of harm for the economy and the consumer. Cartels create barriers for companies that are looking to compete in an industry and they discourage innovation because a cartel is more concerned with preserving the status quo. There has been an increase in the number of cartels in recent years, as technology has made it easier for companies to collude with each other with less chance of being caught. These firms collude by setting prices that affect the consumers or by artificially driving prices down to eliminate a competitor that may offer better services to the customers of the companies in the cartel.

One of the issues that has arisen with increased globalization is that it can be difficult to bring charges against these companies because most companies operate on a global scale. Proving that companies are engaging in a cartel can be difficult, and with multiple laws in multiple countries protecting these companies, it can be almost impossible. Because it may be impossible to prosecute companies for a larger crime, governments are forced to accept lesser charges against these companies. Lesser charges result in lesser fines for the companies involved, which does not discourage the companies from engaging in price fixing and other such problems in the future.

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See also: Organization of Petroleum Exporting Countries; *Vol. 3: Microeconomics:* Monopoly; Oligopoly Markets

Further Reading

The Economist. 2014. Cartels: Just one more fix. March 28. http://www.economist.com/news/business/21599799-trustbusters-have-got-better-detecting-cartels-and-bolder-punishing-them-incentives (accessed September 30, 2016).

U.S. Department of Justice. 2008. Competition and monopoly: Single-firm conduct under section 2 of the Sherman Act (2008). www.usdoj.gov/atr/public/reports/236681.htm (accessed September 30, 2016).

Utton, Michael A. 2011. *Cartels and economic collusion: The persistence of corporate conspiracies*. Cheltenham, UK: Edward Elgar Publishing.

INTERNATIONAL CHARITIES

An international charity is a non-profit organization that raises money to support causes that benefit humanity. The non-profit designation indicates that any funds raised or surplus in profits must be reinvested into the organization. Charities raise funds from public giving. Public gifts to charities are generally tax deductible. Another major source of revenue for charities is philanthropic giving from government funds for the purpose of advancing socially beneficial causes. Because the purpose and size of charities vary greatly, strategies of fundraising have to be tailored to the specific fund. For example, public charitable organizations associated with museums, music venues, or historical landmarks often rely on private benefactor donations in order to cover costs. Other methods of fundraising include the sales of goods and services, canvassing, and holding events.

In most cases charitable status allows the organization to operate with exemption from income tax, corporation tax, and capital gains tax. In the United States a tax exempt organization is classified under section 501(c)(3) of the Internal Revenue Code. This section of the Code specifically states that a charity's earnings may not benefit any individual. The charity also cannot lobby to influence legislation, perform the duties of a political lobbyist, or campaign for a specific politician.

Outside of the tax status and not-for-profit structure, most charitable organizations operate like a standard business. This includes a leadership structure featuring a board of directors, management, and workers. Due to the philanthropic nature of charities, unpaid volunteer work is paramount to operations.

International charities experience many of the same challenges facing international corporations in that the political, environment, and social factors vary in different countries. Like non-profits, charities can come under criticism for their activities and causes. In the international environment what may be considered a charity cause to some may not be viewed in the same light by others. Similarly, organizational influence on international governing bodies may be seen as controversial given the cause, be it social, religious, or economic. Furthermore, charities can incur criticism and mistrust over the efficiency in the application of funds. A charitable organization may include some paid employees who work to manage and advance the cause. However, their payment may be seen as a point of contention given the nature of charitable work.

The structural effectiveness of charities is often scrutinized due to a number of factors. First, the leadership organization of a charity is normally a board of directors. The leadership and management of the board can come under criticism for representing other interests, such as those of governments, largely associated with a charity gaining government funds. An over-involved board can also become disillusioned by the cause and suffer the inability to view the organization's needs empirically. Therefore, the leadership, organizational structure, and transparency of a charitable organization are crucial. Another challenge to effectiveness of a charitable organization is competition. The number of charities is continually expanding, making it more difficult to gain funds. Although public giving has continually increased, many people find it difficult to know which charity to choose for their donations. Understanding market segmentation in marketing and fundraising strategies has become essential for organizations. Understanding the market and specific social concerns can help charities to become more effective in supporting their causes.

Daniel S. Talwar

See also: *Vol. 1: Foundations of Economics:* Environmentalism; Moral Motivation; Non-Governmental Organizations; Privatization

Further Reading

Callen, Jeffrey L., and Haim Falk. 1993. Agency and efficiency in nonprofit organizations: The case of "specific health focus" charities. *The Accounting Review* 68 (1): 48–65. www.jstor.org/stable/248365 (accessed September 30, 2016).

The Charity Commission. 2014. Charity types: How to choose a structure (CC22a). www.gov.uk/guidance/charity-types-how-to-choose-a-structure (accessed January 27, 2016).

DIY Committee Guide. n.d. FAQ's legal structures and charitable status. www.diycommitteeguide.org/resource/faqs-legal-structures-and-charitable-status (accessed January 27, 2016).

Guo, Chao. 2007. When government becomes the principal philanthropist: The effects of public funding on patterns of nonprofit governance. *Public Administration Review* 67 (3): 458–73. www.jstor.org/stable/4624589 (accessed January 27, 2016).

Internal Revenue Service. 2015. Exemption requirement—501(c)(3) organizations. www.irs.gov/Charities-&-Non-Profits/Charitable-Organizations/Exemption-Requirements-Section-501(c)(3)-Organizations (accessed January 27, 2016).

List, John A. 2011. The market for charitable giving. *The Journal of Economic Perspectives* 25 (2): 157–80. www.jstor.org/stable/23049458 (accessed January 27, 2016).

Schlegelmilch, B. B., and A. C. Tynan. 1989. The scope for market segmentation within the charity market: An empirical analysis. *Managerial and Decision Economics* 10 (2): 127–34. http://www.jstor.org/stable/2487014 (accessed January 27, 2016).

Sieg, Holger, and Jipeng Zhang. 2012. The effectiveness of private benefits in fundraising of local charities. *International Economic Review* 53 (2): 349–74. www.jstor.org/stable/23251591 (accessed January 27, 2016).

Yi, David T. 2010. Determinants of fundraising efficiency of nonprofit organizations: Evidence from US public charitable organizations. *Managerial and Decision Economics* 31 (7): 465–75. www.jstor.org/stable/40958973 (accessed January 27, 2016).

INTERNATIONAL CLIMATE AGREEMENTS

Climate change is arguably one of the greatest challenges facing the global community. Most scientists agree that our climate is changing as a result of anthropogenic greenhouse gas emissions, and while there remains great uncertainty regarding the effects on our planet, recent studies suggest that the cost of unchecked climate change may be devastating. It is no surprise then that nations have spent significant resources over the past few decades attempting to jointly manage greenhouse gas emissions.

The idea that climate change must be managed jointly is an important one. Carbon dioxide, the most significant greenhouse gas, is a stock pollutant that mixes uniformly in the atmosphere. Thus, the resulting concentration of carbon emissions in the atmosphere is independent of the source of the emissions. This reality means that every country can contribute to the climate change problem through their emissions. It also means that every country can contribute to the climate change solution through emissions abatement activities. In this way, atmospheric concentrations of carbon emissions constitute a transboundary environmental externality.

When externalities cross national borders, unilateral management of carbon emissions is not an effective option. The benefits from actions taken by one country to reduce carbon emissions will be trivial if other countries fail to reduce their emissions (or if they respond by increasing theirs). And if the benefits of emissions abatement are enjoyed by all nations, then there is an incentive for countries to attempt to free ride on the abatement activities of other countries. Moreover, sovereign nations do not answer to a global authority that can ensure all countries participate by externally imposing and enforcing greenhouse gas regulations. Rather, nations must coordinate voluntarily to negotiate international treaties.

Nations began serious efforts to manage climate change in the early 1990s through the United Nations General Assembly. An Intergovernmental Negotiating Committee was formed to conduct the negotiation process, and in less than two years the body drafted the United Nations Framework Convention on Climate Change (UNFCCC). The objective of the convention (or treaty) was to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The UNFCCC, however, did not require specific emissions abatement responsibilities for the parties. Rather, it established a framework through which nations convene to negotiate binding protocols that set mandatory emissions limits. The convention entered into force in March 1994. Today 195 countries are ratifying members to the convention.

During the third annual conference of the parties to the UNFCCC in 1997, the Kyoto Protocol was adopted. The treaty, the first of its kind, established binding emissions limits for developed (Annex 1) countries. Through negotiations, Annex 1 countries agreed to reduce their greenhouse gas emissions by an average of 5.2 percent relative to 1990 levels over a period from 2008 to 2012. Although almost all countries signed the treaty soon after its adoption, the treaty only entered into force when certain participation thresholds were met. Specifically, at least 55 of the parties to the conference had to ratify the agreement and those member countries had to account for at least 55 percent of global greenhouse gas emissions. When Russia ratified the Kyoto Protocol in late 2004, the treaty satisfied the 55 percent requirement, which triggered it entering into force in February 2005.

As of today, the Kyoto Protocol remains the only international treaty requiring binding greenhouse gas emissions limits. Unfortunately, the treaty has been largely unsuccessful. The failure of Kyoto can be largely attributed to two major shortcomings. First, the treaty failed to motivate the two biggest greenhouse gas emitters to commit to reducing, or even stabilizing, their emissions. The United States, at the time the biggest emitter (now second biggest), chose not to ratify the treaty. One of the fundamental reasons for this was that the United States felt its participation would be futile without China, then the second biggest emitter (now the biggest), also taking on emissions abatement responsibilities. While China is a signatory to the protocol, its classification as a developing country precluded it from any emissions abatement responsibilities.

The second major failure is that the treaty fails to provide the correct incentives to motivate countries to comply with their commitments. The enforcement mechanism for the protocol, established at the seventh conference of the parties in Marrakesh, Morocco, is essentially nondeterrent. It states that a member country found in violation of their commitments will be required to further limit their emissions during the next commitment period (which began in 2013) to both meet their original target plus an additional 30 percent emissions reduction. In short, the penalty for exceeding emissions limits is more stringent emissions limits. There is no reason to believe that a noncompliant country would take this punishment seriously in the second commitment period of Kyoto. Without an enforcement mechanism that can deter noncompliance, any treaty to reduce greenhouse gas emissions will fall short of its objective.

Economists, through the study of human behavior and institutions, have an important role to play in designing a more effective climate agreement. The underlying incentives that countries face when making emissions decisions are commonly illustrated as a variant of the well-known prisoners' dilemma game. In this game, the collection of countries is strictly better off by jointly limiting their emissions levels. However, individually, countries are better off not restricting their own emissions. The result, or equilibrium, of the game is that all countries choose not to restrict their emissions. They pursue their own self-interests at the expense of the collective interest.

The goal of international climate agreements is to craft a set of rules that align individual interests with the collective interest. Some provisions of the Kyoto Protocol attempted to accomplish this. The minimum participation rule (the 55 percent rule) served as a commitment device in which countries would not take on emissions responsibilities until a critical number of other countries agreed to do the same. However, the 55 percent rule made it possible for the treaty to enter into force without the United States or China taking on any emissions responsibilities. Regardless of whether this was purposeful or coincidental, it is a poor design feature.

Looking beyond Kyoto, an effective international climate agreement must simultaneously address two problems. First, it must address the problem of participation, that is, motivating critical countries to join the agreement (like the United States and China) and take on meaningful emissions abatement responsibilities. Second, it must address the problem of maintaining compliance with the agreement. Economists typically encourage using a combination of carrots (e.g., technology transfers) and sticks (e.g., trade sanctions) as mechanisms to nudge countries in the direction of achieving these goals. Although these problems are challenging, there is reason to be hopeful. Nations are increasingly engaged on the topic of managing climate change. If nations can collectively benefit from mitigating climate change, then it must be possible to design a set of rules that can make it individually worthwhile to participate. The hope is that such a treaty will be created in time to thwart the most costly effects of a changing climate.

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See also: International Environmental Agreements; Kyoto Protocol; *Vol. 2: Macroeconomics:* Externality

Further Reading

Barrett, Scott. 1994. Self-enforcing international environmental agreements. *Oxford Economic Papers* 46: 878–94.

UN General Assembly. 1992. *United Nations framework convention on climate change*. FCCC/INFORMAL/84. http://unfccc.int/resource/docs/convkp/conveng.pdf (accessed September 30, 2016).

Weitzman, Martin. 2011. Fat-tailed uncertainty in the economics of climate change. *Review of Environmental Economic Policy* 5 (2): 275–92.

INTERNATIONAL DEBT

Debt is a part of everyday life for just about everyone. Government organizations, commercial banks, and other financial institutions are no exception. Being in debt is a situation where money is owed and must be paid back, most of the time with interest. International debt is money that is owed to a foreign country. This is also known as external debt. The external debt of a country grows as it receives loans from other countries. Just like an individual's credit card debt, a country's external debt results in debt service obligations that require the borrower to pay interest payments along with repaying the principle amount (Gerber 2014). International debt is not a new concept, even though it has been given more attention in recent years due to the financial crisis of 2008. As long as there is debt the global economy will be at risk for international debt crises. Having the ability to manage international debt is very important in the overall health of the global economy. International debt continues to be a problem, especially for developing countries.

A debt crisis occurs when a country is unable to repay its debt. A number of international debt crises have occurred in recent years. There was the debt crisis of the 1980s, which centered on Latin America, and the Asian Crisis of 1997 and 1998. The most recent example of an international debt crisis happened during the global financial crisis of 2008, which began in the United States. This debt crisis on an international scale started getting attention in 2010 and is considered to be the second phase of the global financial crisis following the 2008 subprime housing crisis in the United States (Hieronymi and Stephanou 2013). The debt crisis in the United States stemmed from homeowners being unable to repay their mortgages. At the time, there was a large market for issuing subprime loans. This had a global effect because loans were being grouped together and financial institutions were selling shares to foreign institutions that were willing to buy them (Gerber 2014). When homeowners started to default on those loans, the effects were felt at the global level because of foreign investment in the subprime market.

Managing international debt is an evolving concept. As long as debt crises continue to emerge, managing of international debt is a concern for the global economy. Not all debt is harmful, however. As long as debt is managed properly, and debt obligations are honored, debt can be beneficial. The purpose of debt management policy is to allow countries to benefit from external financing without causing issues globally (Klein 1994). There are several ways to manage international debt. The standard way is by looking at some measures of external debt. This can be done by looking at specific ratios such as, debt service to export ratios, debt service to government revenue, debt to export and debt to gross national product (Klein 1994). These values will vary depending on the country because of the wide range of economies.

Nicole Kuehn

See also: Asian Crisis, 1997–1998; Globalization; International Finance; International Financial Institutions; International Monetary Fund; Mexican Peso Crisis of 1994–1995; *Vol. 2: Macroeconomics:* Debt; Debt Crisis of the 1980s

Further Reading

Gerber, James. 2014. *International economics.* 6th ed. Upper Saddle River, NJ: Pearson Education.

Hieronymi, Otto, and Constantine Stephanou. 2013. *International debt: Economic, financial, monetary, political and regulatory aspects*. London: Palgrave Macmillan.

Klein, Thomas. 1994. *External debt management: An introduction*. Washington, DC: The International Bank for Reconstruction and Development.

INTERNATIONAL ECONOMICS

The origins of international economics can be traced to the adventures of the ancient Greeks and Romans who set sail in the interest of furthering their quality of life through trade or conquest. The Kush and Mali Kingdoms of ancient Africa in the first millennium CE also engaged in trade over vast expanses of territory on that continent, and European explorers of the 15th and 16th centuries clearly had economic gain in mind among other incentives as they undertook their global ventures. A significant event occurred in 1793 when Lord Earl Macartney of Britain was sent to China to secure terms for trade between the British Empire and the Qing dynasty. Rejected, Britain developed its opium interests in colonial India and endeavored to foist this commodity as a currency of trade on China again in the

1830s. China preferred silver instead, and these tensions led to the Opium Wars that followed.

In the 1850s, America made an overture to establish trade with Japan, and this relationship led to Japan modernizing faster than its Asian neighbors, owing to the introduction of Western technology, a development that had military consequences in mid-20th century.

In the closing months of World War II, Western nations gathered in New Hampshire to draw up guidelines for a post-war global economy. The Bretton Woods system, named for the location of the meeting, established a basis for international currency exchange as well as the International Monetary Fund and what is now known as the World Bank.

In an effort to promote postwar trade and development, at Bretton Woods the 44 nations agreed to tie their exchange rates to the U.S. dollar, which the U.S. government linked to gold, one U.S. dollar equaling 35 ounces of gold bullion at the time. Three years later, one incentive for the U.S. Congress to approve the $13 billion Marshall Plan for post–World War II Europe was that American aid was needed to get the war-ravaged economies on their feet so that they could then proceed to engage in trade with the United States.

Global trade agreements have continued to evolve, from the General Agreement on Tariffs and Trade (GATT) and the World Trade Organization (WTO) to the G7, G8, and G20 conferences, the "G" representing the number of major world economies participating in these conferences. The North American Free Trade Agreement (NAFTA), which came into effect in 1994, stirred political as well as economic tensions, raising issues such as globalization, outsourcing, and sweatshops, which have since become standard terms in the lexicon of international economics.

What must underscore any understanding of this global system is that, with some exceptions, nations do not actually trade with each other, but rather firms in different nations sell their goods and services to individuals and interests in other nations. The United States government, for example, does not buy automobiles from Toyota, but rather Toyota has dealerships in United States to sell Japanese-made cars to American consumers. Automobile manufacturers within the United States obviously prefer to have as large a share of the American market as they can get, and would prefer to pursue that market without competition from abroad. Domestic interests in many nations often appeal to their governments for certain measures, such as higher tariffs—taxes imposed on goods produced in another nation—on imported vehicles or strict safety or product performance measures that could make it difficult for a foreign producer to compete in terms of price and standards.

Similarly, agricultural interests in Japan and microchip firms in Taiwan lobby their governments for political support and pressure their governments to make imports of U.S.-grown rice or U.S.-manufactured technology more expensive and harder to sell in their nations. The concept of goods and services flowing unfettered between peoples in different nations is known as free trade, and steps to impede free trade, which are usually promoted by commercial interests within a nation hoping to protect their share of their domestic markets, are called *protectionist measures*. Proponents of free trade often contend that wide-open international trade benefits consumers as well as manufacturers everywhere, while some producers maintain that their financial interests are endangered when items from abroad enter their markets.

The economies of the world's nations are currently classified two ways: developed and developing. Developed nations throughout history have consistently generated a larger share of the cumulative gross domestic products (GDP) in the world, and British economist Angus Maddison has shown how the nations in this club and their shares of total global productivity have changed over time.

Not only do developing nations have lower GDP and literacy rates than developed ones, but commonly upwards of 50 percent or more of their populations work in agriculture. Developed nations are also referred to as industrial economies, where technology and strong communication and transportation infrastructures are in place. The 2013 GDP of agrarian Bolivia was just under $30 billion, while the 2013 GDP of Germany, a nation with a strong manufacturing sector, was $3.593 trillion (CIA 2014).

Because of their unique economic paths the past three decades, Russia and China must be considered independently of these categories. The transition of Russia following the collapse of the Soviet Union to a free-market economy has not yet been accomplished in Russia assuming a new leadership role in a free-market international economy. News stories regarding governmental corruption and cronyism that have made some people very rich still persist. China, on the other hand, began its turn toward state-sponsored capitalism in 1984, and by the second decade of the 21st century has become the second largest economy in the world. The unsettled issues regarding the currencies of these nations and state of the environment, particularly in the case of China's increasing consumption of fossil fuels to foster its growth, makes these two nations new economic paradigms unto themselves.

A variety of factors allow certain nations to develop manufacturing sectors, including access to natural resources, either by location, or trade; the ability to educate the workforce in the technological age; and societal respect for the rule of law, which is usually instituted by a government, which allows for and supports a free-market economy.

Such supports can take the form of an open immigration policy, which allows the labor force to grow as needed, as well as through reciprocal trade agreements with other nations. The first of these can impede growth in developing economies, however, if educated citizens emigrate to developed nations in the interests of their own careers. This is known as "brain drain." Conversely, economic activity that requires fewer skills and less education might be exported from a developed country by the owners of firms, who might also decide to relocate in a developing nation where a lesser trained workforce can be employed for less, reducing the firm's costs. This outsourcing can result in lower costs to producers and ultimately lower prices to consumers. There are negative consequences for labor forces in the nations that jobs have left and can involve dangerous working conditions and low wages in the developing nations, conditions characterized as sweatshop conditions generating political and societal tensions as well.

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See also: Dependency Theory; Export-Import Bank of the United States; Group of Eight; North American Free Trade Agreement; Tariff; World Trade Organization; *Vol. 2: Macroeconomics:* Gross Domestic Product; Gross National Product

Further Reading

Central Intelligence Agency. 2014. The World Factbook. www.cia.gov/library/publications/the-world-factbook/ (accessed March 15, 2014).

Groningen Growth and Development Centre. 2010. Maddison, Angus Groningen (1926–2010). www.ggdc.net/maddison/oriindex.htm (accessed March 15, 2014).

Krugman, Paul R., and Maurice Obstfield. 2009. *International economics: Theory and policy*. New York: Pearson Addison-Wesley.

INTERNATIONAL ENVIRONMENTAL AGREEMENTS

There are thousands of international environmental agreements, ranging from relatively straightforward bilateral accords that manage borders to global agreements on toxics, endangered species protection, and global climate change. Some agreements that manage global commons that do not exclusively belong to any nation, such as deep-sea fisheries, Antarctic research and preservation, and others, attempt to internalize externalities that cross borders. From an efficiency perspective, it is ideal to have the scale of the agreement equal to the scale of the externality, such that the agreement can cover everyone contributing to and affected by choices in regard to an environmental amenity or problem. This allows for agreements to be improved so that those harmed by collectively agreed environmental management choices can be compensated by those who gain (called a Pareto improvement).

There are political complications to reaching economically efficient solutions to international environmental issues. Some nations may see opportunities to catch a free ride on the costly environmental management efforts of others, and participating nations may have incentives to cheat on agreements that can be difficult to monitor and enforce; typically the specifics of implementing agreements are left to the signatories to manage within their own borders, and they report their own compliance to the treaty organization. Selecting relatively easily observed outcomes, even if they do not directly correspond to the environmental benefit the treaty aims to secure, can improve transparency and compliance as well as trust among member countries. If income and development disparities are large within the group of member countries and collective efforts are economically significant, mechanisms to share the costs of compliance and management for poorer countries may be agreed to and implemented. Many such transfer programs are administered by the Global Environment Facility (GEF), initially established by the World Bank but now operating independently.

The GEF coordinates some administrative work; however, no global environmental management organization exists, so interactions between the environmental and health outcomes of treaties with differing memberships, rules, and procedures present challenges. Climate and ozone, for instance, interact physically—many regulated ozone-depleting chemicals and substitutes are also powerful greenhouse gasses—and decisions made under one agreement can have large effects on outcomes monitored by the other. Rules on toxics and invasive species can come into conflict, and global fisheries rules and Antarctic preservation efforts are not harmonized. These conflicts can sometimes be managed on a case-by-case basis, as in the decision of the Stockholm Convention on Persistent Organic Pollutants to allow dichlorodiphenyltrichloroethane (DDT, an insecticide) use that would otherwise be impermissible under the treaty in settings where the danger of malaria outweighs the danger of continued persistent organic pollutant (POP) exposure. More complete integration may be needed for more complex or pervasive interactions.

There are key issues that stand out for environmental agreements in contrast to other international treaties. Typically ecosystems do not have a set and fixed ideal state; they consist of overlapping and interacting dynamic processes, and simple metrics for ecosystem health are not always conveniently available. Success is more likely for agreements that have processes and expertise in place to incorporate new information and scientific assessments over time. The efforts of the Intergovernmental Panel on Climate Change (IPCC) to update climate science in support of ongoing efforts to reach agreement on global climate policy are a highly visible example, but many major agreements, including the Stockholm Convention on Persistent Organic Pollutants and the Montreal Protocol on Substances that Deplete the Ozone Layer, have relied on ongoing scientific assessments of environmental risks and policy progress to manage global public goods.

Efforts of the IPCC go hand in hand with information and technology dissemination and facilitating burden sharing across member countries. Because many environmental amenities are nonmarket goods, valuation is important in developing and administering international environmental agreements. Valuation agreements including signatories at different development levels can be complicated for both technical and political reasons. Many methods of valuing environmental goods and services, including contingent valuation based on willingness to pay and hedonic estimation based on wage rates, are tied to the income and life expectancy of exposed populations. Where some member states are poor or have large populations who do not work in the market economy, the effects on their populations may be assessed as less valuable using these methods. Alternatives include measuring and reporting outcomes like cases of illness or decrease in life expectancy or acres protected, but not aggregating the various categories up into monetized values, which limits the use of benefit-cost analysis but may be more politically palatable.

Many environmental problems are long-term problems, and thus decision makers confront the difficulty of evaluating the wisdom of intergenerational transfers; discounted benefit-cost analysis implicitly assumes that borrowing and saving are possible across the life of the project, but for amenities like global climate those impacted by the choice to invest now or wait for the future are not able to participate in the negotiation of agreements today, and this presents a political and ethical problem without a clear economic solution. Some environmental economists argue for the application of the precautionary principle in such settings. Others argue that this in effect commits societies to the existing system by default even when it is not working to solve the environmental problems at hand.

Catherine S. Norman

See also: Globalization; International Climate Agreements; International Trade; World Bank; *Vol. 1: Foundations of Economics:* Cost-Benefit Analysis; Environmental Economics; *Vol. 2: Macroeconomics:* Externality; *Vol. 3: Microeconomics:* Air Pollution; Fisheries Management

Further Reading

Barrett, S. 2005. *Environment and statecraft: The strategy of environmental treaty-making*. New York: Oxford Univ. Press.

University of Oregon. n.d. University of Oregon International Environmental Agreements Database Project. http://iea.uoregon.edu (accessed September 30, 2016).

INTERNATIONAL FINANCE

As broad a term as "international finance" is for economists, it has customarily meant the study of exchange rates. For policymakers and lawyers, it means much more. It commonly involves the study of international financial transactions, transactions that have some cross-border element with respect to payment, credit or investment, or a financial contract. International finance as a whole can be broken down into the trade and balance of payments, exchange rates and exchange rate systems, open economy macroeconomics, and international financial crisis.

Every nation's transactions with the rest of the world are summarized in its balance of payments. The balance of payments has three components: the current account, the capital account, and the financial account, the two most important of these being the current and financial accounts. There is a fundamental economic identity that total private and public saving in an economy must be equal to domestic investment plus net foreign investment. The current account balance is equivalent to net foreign investment, and a negative balance is equivalent to disinvestment abroad. Foreign investment has costs and benefits for the host country. While it may lead to technology transfer and higher investment levels it can also become a mechanism for spreading a crisis and giving foreigners a voice in the nation's internal political affairs.

The exchange rate system as it relates to the topic of international finance has become an important and critical feature as globalization becomes more evident. People hold on to foreign currency to buy goods and services to take advantage of interest rate differentials and to speculate. Exchange rates can be analyzed with supply and demand analysis, as if they are just another commodity in the economy. Investors watch the real appreciation and depreciation of currencies and future predictions, yet exchange rates consistently are seemingly unpredictable. Exchange rates are simultaneously influenced by long-run, medium-run, and short-run factors—long-run factors being purchasing power, medium-run being general business cycles, and short-run being interest-rate differentials and speculation.

Open economy macroeconomics begin with households. Households supply all the factors of production that businesses need to produce the nation's output. In return, they receive all the factor payments, payments for the use of their land, labor, and capital. The income received by households is equivalent to the value of the output produced by businesses. Businesses in turn use financial institutions to borrow household savings that they use to invest. Businesses also produce the nation's output. Governments spend on goods and services using tax revenues from the income flow going to households. The government manages fiscal and monetary policies for the nation and in turn it directly affects the economy. Fiscal policies are government tax and expenditure policies and monetary policies are for interest rates and the money supply. Within both fiscal and monetary policies, expansionary policies raise gross domestic product (GDP) and national income while contractionary policies do the opposite. Both fiscal and monetary policy influence exchange rates and the current account balance. In each case the effect is through a change in interest rates brought on by fiscal or monetary policy. Neither policy is likely to have long-run effects on income.

A significant concern with international finance is the occurrence of international financial crises, which are generally characterized by financial disintermediation in the crisis country, a collapsing currency value, and a steep recession. One type of crisis is caused by severe macroeconomic imbalances such as large budget deficits, hyperinflation, overvalued real exchange rates, and large current account deficits. Another type of crisis results from speculative attack on a currency that prompts large outflows of financial capital and a run on the country's international reserves. This can actually be self-fulfilling because economic agents who believe an attack on a currency is imminent will abandon the currency, which is the same as an actual attack on the currency. The optimal response to a crisis depends on its causes. If it is caused by macroeconomic imbalances then changes in macroeconomic policies are essential. If it is caused by sudden unexplained capital flight then the optimal response is less certain. Some economists believe that stabilizing the currency with high interest rates will lead to a quicker recovery even though it intensifies the contractionary elements of the crisis in the short run. Others favor expansionary fiscal and monetary policies to minimize the short-run effects of a recession.

There is pressure to harmonize the rules of international finance and to delegate more power to international organizations to formulate and enforce such rules. Due to concerns with international stability, economic efficiency, and the drawbacks of alternative approaches, harmonization and multinational authority have greatly increased since the end of World War II. Sovereign debt has been the leading edge of this trend, with the central role that of the International Monetary Fund (IMF). Banking has followed, with the work of the Basel Committee and the supplementary role of the IMF and World Bank in monitoring and enforcing banking standards in the developing world.

Lauren Major

See also: Exchange Rates; International Financial Organizations; International Monetary Fund; Open Economy; World Bank; *Vol. 2: Macroeconomics:* Macroeconomics

Further Reading

Institute for International Finance. n.d. Research & Analysis. https://www.iif.com/analysis (accessed November 20, 2016).

International Monetary Fund. 2014. *Yearbook 2014—International Financial Statistics*. Washington DC: International Monetary Fund.

Steil, Benn, ed. n.d. International finance. Council on Foreign Relations. http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1468-2362 (accessed November 20, 2016).

INTERNATIONAL FINANCIAL INSTITUTIONS

International financial institutions (IFIs) are multilateral organizations and national agencies that use public funds to finance foreign investment, trade, and economic development. The three main categories of IFIs are the Bretton Woods institutions, regional development banks, and export credit agencies. The Bretton Woods institutions include the World Bank Group and the International Monetary Fund (IMF). The main regional development banks include the African Development Bank Group, Asian Development Bank, European Bank for Reconstruction and Development, and Inter-American Development Bank Group. All advanced economies, as well as some emerging market and developing economies, have at least one government-controlled export credit agency (ECA) to promote foreign investment and trade. IFIs provide over $100 billion in loans, loan guarantees, grants, investment insurance, and other financing to governments and businesses each year.

The Bretton Woods institutions were established at the Bretton Woods Conference in New Hampshire in 1944 to promote global economic growth and stability in the post–World War II period. The World Bank extends loans to support sustainable economic development. At its inception, the World Bank was a single institution called the International Bank for Reconstruction and Development (IBRD). The World Bank initially channeled development loans to war-ravaged Europe.

The IBRD's mission changed course during the 1950s to accommodate the rising development needs of newly independent countries in Africa and Asia and other developing regions. Over time, IBRD spawned four affiliated institutions, collectively called the World Bank Group. Today, the five institutions of the World Bank Group make loans and grants and provide technical assistance and investment insurance to support the United Nations' Millennium Development Goals (MDGs). The overarching aim of the MDGs is global poverty reduction. IBRD loans money to creditworthy middle-income developing countries. IBRD's closest partner, the International Development Association (IDA), extends zero-interest, long-term loans to less creditworthy low-income and lower middle-income developing countries. The IBRD and IDA, which today compose the World Bank, make development loans to governments. The World Bank's three affiliates also support the MDGs. The International Finance Corporation (IFC) makes loans to private businesses in the world's poorer regions. The International Centre for Settlement of Investment Disputes (ICSID) provides a mechanism for resolution of conflicts between foreign investors and host governments. The Multilateral Investment Guarantee Agency (MIGA) insures foreign investors from noncommercial losses that might be incurred in developing countries. The IFC, ICSID, and MIGA encourage private sector development, including foreign direct investment (FDI).

The IMF works to promote economic growth and stability in the global economy. The IMF's responsibilities are divided into three categories: financial assistance, technical assistance, and surveillance. Financial assistance includes IMF loans, known as credits, made to countries in need. IMF credits are used to help countries pay for imports, stabilize currencies, or service external debt. Technical assistance consists of policy advice the IMF offers to governments. Technical assistance promotes macroeconomic stability. IMF policy advice stresses good governance, institution building, banking regulation and supervision, and responsible monetary and fiscal policies. Surveillance deals with IMF consultations and oversight of nations' financial and economic policies. Surveillance seeks to identify weaknesses in public policies or institutions before serious problems arise. Surveillance assists the IMF in allocating its financial and technical assistance.

The second type of IFI is the regional development bank. A regional development bank extends development loans to poorer member countries within its region. Regional development banks are owned and operated by regional member countries and nonregional member countries. For example, the Asian Development Bank consists of 63 member countries—45 regional member countries from Asia and the Pacific and 18 nonregional countries from outside of Asia. The major regional development banks service the development needs of Africa, Asia, eastern and central Europe, and Latin American and the Caribbean.

A third type of IFI is the export credit agency (ECA). ECAs are typically government agencies that assist private companies finance trade or investment opportunities in other countries, especially the poorer countries. ECAs are bilateral agencies. That is, they deal one-on-one with foreign governments to encourage profitable export and investment venues for private firms. ECAs support export firms and transnational corporations (TNCs) through direct loans, loan guarantees, and investment insurance. All advanced economies, and some developing and emerging market economies, have ECAs to help domestic firms gain an upper hand in matters of trade or foreign investment. The amount of financial support that flows from nations' ECAs each year dwarfs the combined financial flows from the World Bank, IMF, and regional multilateral development banks. The Export-Import Bank of the United States, or Ex-Im Bank, is America's ECA. Over the past 70 years, the Em-Im Bank has financed export firms to the tune of $400 billion, $65 billion between 1999 and 2003 alone. Several other ECAs in the global economy include the Export Finance Insurance Corporation (Australia), Export Development Corporation (Canada), Hungarian Export-Import Bank (Hungary), Japan Bank for International Cooperation (Japan), Export Risk Guarantee (Switzerland), and the Export Credits Guarantee Department (United Kingdom). ECAs, like other IFIs, are highly controversial. Governments view ECAs as a way to stimulate foreign trade and investment and to protect domestic jobs. Opponents view ECAs, which often lack standards or stipulations for responsible corporate behaviors, as an invitation for business abuse of the environment, workers, and indigenous peoples.

David E. O'Connor

See also: African Development Bank Group; Asian Development Bank; Export-Import Bank of the United States; European Bank for Reconstruction and Development; Globalization; Inter-American Development Bank Group; International Monetary Fund; Millennium Development Goals; World Bank

Further Reading

Delphos, William A. 2003. *Inside the world's export credit agencies.* Cincinnati, OH: South-Western Educational Pub.

International Business Publications USA. 2005. *US Export-Import Bank handbook.* Washington, DC: Author.

McClure, Paul, ed. 2003. *A guide to the World Bank.* Washington, DC: World Bank Publications.

Upton, Barbara. 2000. *The multilateral development banks: Improving U.S. leadership.* Westport, CT: Praeger.

Vreeland, James R. 2003. *The IMF and economic development.* New York: Cambridge University Press.

INTERNATIONAL LABOR ORGANIZATION

The International Labor Organization (ILO) is an international organization that promotes worker rights and decent work in the global economy. The ILO is not an international labor union. Instead, the ILO is a specialized agency of the United Nations system. It brings workers, employers, and governments together to discuss ways to improve workers' quality of life. Collaboration among the three groups—workers, employers, and governments—is often called the ILO's tripartite partnership.

The ILO is the world's oldest and most recognized international authority on labor issues, and the most powerful voice for global justice for working men and women. The ILO was established in 1919 under the Treaty of Versailles, largely to support decent work for millions of workers in the post–World War I world. In 1946, the ILO became the first specialized agency within the new United Nations system. Since then, the ILO has initiated numerous conventions and recommendations to set global standards for workers' rights, and to influence labor laws and practices by companies and governments. From 1919 to 2005 ILO membership more than quadrupled, from 42 to 178 countries. The ILO headquarters is located in Geneva, Switzerland. The ILO also maintains 33 field offices around the world.

The Governing Body and the International Labor Conference are the ILO's two main decision-making groups. The Governing Body coordinates ILO programs and activities, assists countries develop labor laws, monitors compliance with labor standards, and disseminates the results of labor research to the global community. The Governing Body also advises the director-general, the ILO's chief executive. The Governing Body consists of 46 members: 14 representing workers, 14 representing businesses, and 28 representing governments. Some advanced economies hold permanent seats on the Governing Body. The annual International Labor Conference, or Conference, is a global decision-making forum. The Conference passes all conventions and recommendations. A convention is a formal, binding labor standard, right, or protection. Signatory nations are expected to uphold ILO conventions by passing legislation or imposing regulations to support labor standards. A recommendation is a less formal ILO statement. Recommendations set guidelines for desirable labor practices or conditions. Each of the 178 member nations has four delegates in the Conference—one worker representative, one employer representative, and two government representatives. Since 1919, the ILO has passed 184 conventions and numerous recommendations. In the early 2000s, the Governing Body was actively promoting just 71 conventions. Of the remaining 113 conventions, 5 were discarded and 108 were under review.

In the early 2000s, the ILO identified eight "fundamental conventions" as pivotal to workers' well-being in the global economy. These key conventions are listed in the ILO's *Promoting Better Working Conditions: A Guide to the International Labor Standards System* (2003). Conventions No. 87 and No. 98 protect workers' freedom of association and right to bargain collectively with employers. Conventions No. 29 and No. 105 prohibit forced labor as a form of punishment for workers' political views or labor activities, or as an expression of any form of discrimination. Conventions No. 100 and No. 111 ban discrimination in wages, employment, training, and working conditions based on race, gender, religion, or political views. Conventions No. 138 and No. 182 prohibit child labor, especially the more vile forms of child exploitation such as child prostitution. Four additional conventions were selected as "priority conventions" to strengthen key policy protocols. Priority conventions promote decent employment, global oversight of labor standards, and cooperative tripartite consultations among workers, employers, and governments.

The ILO's Declaration on Fundamental Principles and Rights at Work (1998) is the centerpiece for global labor reform. The principles outlined in the declaration are gleaned from earlier conventions, and include the right to free association and collective bargaining, and prohibitions against forced labor, child labor, and discrimination. Many corporate "codes of conduct" are rooted in the declaration's principles. Government labor laws and regulations are often based on ILO conventions.

Consultations with the United Nations Development Program, UNESCO, the World Bank, International Monetary Fund, and Organisation for Economic Cooperation and Development have spread the gospel of decent work throughout the global economy. The goal of decent work for the global labor force is challenged by economic globalization, and by the unique political and economic environments in some countries. For example, globalization encourages trade and investment liberalization. Some of the world's poorest nations have relaxed labor and environmental standards to court foreign direct investment (FDI). Lower standards weaken worker rights and protections, particularly at the bottom of the supply chain where workers are most vulnerable. The ILO continues to monitor gross violations of labor rights in countries such as China, Colombia, Venezuela, and

Myanmar (formerly Burma). The ILO, labor organizations, and others, fear that substandard labor conditions in some countries could snowball into a more generalized global race to the bottom in the highly competitive global economy.

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See also: Foreign Direct Investment; International Monetary Fund; Race to the Bottom; Transnational Corporations; *Vol. 1: Foundations of Economics:* United Nations System; *Vol. 3: Microeconomics:* Corporate Social Responsibility

Further Reading

Basu, Kaushik, Henrik Horn, Lisa Roman, and Judith Shapiro. 2003. *International labor standards: History, theory, and policy decisions.* Malden, MA: Blackwell Publishers.

International Labor Organization. 2002. *A future without child labor: ILO global report under the follow-up to the Declaration on Fundamental Principles and Rights at Work.* Geneva, Switzerland: International Labor Organization.

International Labor Organization. 2003. *Promoting better working conditions: A guide to the International Labor Standards System.* Washington, DC: International Labor Organization.

International Labor Organization. 2004. *Fair globalization: The role of the ILO.* Geneva, Switzerland: International Labor Organization.

La Cruz, Hector B., et al. 1996. *The International Labor Organization: The international standards system and basic human rights.* Boulder, CO: Westview Press.

INTERNATIONAL MONETARY FUND

The International Monetary Fund (IMF) was part of the Bretton Woods Agreement following World War II. The IMF was officially founded in July 1944 in the city of Bretton Woods, New Hampshire. The architects of the IMF were John Maynard Keynes (1883–1946), a British economist, and Harry Dexter White (1892–1948), an American delegate. Their goal was to build a framework for multilateral international economic cooperation that would avoid a repetition of the disastrous economic policies that had contributed to the Great Depression of the 1930s and the global conflict that followed.

The agreement led to the formation of the IMF and the International Bank for Reconstruction and Development (IBRD). The IMF began operations on March 1, 1947, with the goal to "foster global growth and economic stability." Each member of the IMF is charged a fee or quota as the price of membership. By December 1945, the International Monetary Fund had 29 member countries, and by the end of 1946, it had 39 members. France was the first country to borrow from the International Monetary Fund.

The IMF provides policy advice and financing to member nations in economic difficulties, and also works with developing nations to help them achieve macroeconomic stability and reduce poverty. The IMF promotes international monetary cooperation and exchange rate stability, facilitates the balanced growth of international trade, and provides loans to help member nations that are having balance of payments difficulties. A nation has balance of payments problems when it does not have enough money to pay for the goods and services imported into the country, or the value of the nation's currency has dropped so low that other nations refuse to accept it as payment for those imports. The IMF also tracks global economic trends and performance, and alerts member countries when it sees a potential for balance of payments problems on the horizon. The IMF can also provide a forum for policy dialogue, and advise governments on how to tackle economic difficulties.

The International Monetary Fund provides loans to its members under different programs for the short, medium, and long term. The size of the quota varies with the size of the nation's economy and the importance of its currency in world trade and payments. Decisions made by the IMF are determined by vote, with the weight of each nation's vote proportional to its quota. This gives the high-income countries of the world a voting advantage that is disproportionate to their population. For example, the United States alone controls 17 percent of the total votes, and the six other largest industrial economies (Canada, Italy, France, Germany, Japan, and the United Kingdom) control almost 45 percent. Various votes on IMF policy require a "super majority" of 85 percent.

The IMF has its own currency, called a special drawing right (SDR). SDRs are based on a country's quota and are part of a nation's international reserves. If a country lacks reserves, it cannot pay for its imports, nor can it pay the interest and principal it owes on its international borrowings. Some of the IMF requirements for lending money require the borrower to make fundamental changes in the relationship between government and markets in order to quality for IMF funds. These requirements are known as IMF conditionality. Currently, the IMF comprises 188 countries and is headed by Christine Lagarde, a French labor lawyer and politician.

Bernard P. Kanjoma

See also: Bretton Woods Agreement; World Bank; *Vol. 1: Foundations of Economics:* Keynes, John Maynard

Further Reading

Gerber, James. 2011. *International economics*. San Diego, CA: Pearson Education.

International Monetary Fund. n.d. International Monetary Fund. http://www.imf.org/external/ (accessed July 16, 2015).

International Monetary Fund. n.d. EconEd online—lesson plans. https://www.imf.org/external/np/exr/center/econed/#lessonplans (accessed July 16, 2015).

INTERNATIONAL NON-GOVERNMENTAL ORGANIZATIONS

In 1945 the United Nations needed to differentiate between intergovernmental specialization agencies and international private organizations to determine participation rights and the "non-governmental organization" (NGO) label was created. For the United Nations, an NGO is a non-profit voluntary organization. The organization can be organized at any governmental level (local, national, and international) but not part of a government. The term is generally reserved for social, cultural, environmental, or legal advocacy.

NGOs, especially international NGOs (INGOs) frequently work with intergovernmental organizations (IGOs) such as the United Nations or the World Trade Organization to advance myriad social issues. NGOs operate as social movements within civil societies and are often seen as a counter balance to IGOs by representing social and ethical causes, rather than capitalist or business-driven policies. As such, they have representation and lobbyist abilities with IGOs. To become an official NGO as classified by the United Nations an organization must apply and meet the following criteria: support and respect the Charter of the United Nations, be a reputable NGO with national, regional or international standing, be a tax-exempt not-for-profit, have been operating for at least two years, and have a history with the United Nations Information Centre. Being accepted as an official NGO can allow an organization to gain association with a relevant agency of the United Nations. It can allow for networking with other like-minded NGOs and become an interconnected resource of information sharing through the United Nations Department of Public Information (UNDPI). The UNDPI estimates there are approximately 1,300 associated NGOs.

There are many different types of NGOs. An NGO might operate in an advocacy role where a specific cause can be brought to the attention of policy makers. An NGO might be religious, with the motive of spreading goodwill through the vessel of religion. There are environmental NGOs that specifically represent concerns regarding sustainability, recycling, and pollution. The myriad purposes and forms of NGOs demonstrate the versatility and use of these organizations in their connectivity with governments and intergovernmental organizations. The structure and operations of NGOs also vary dramatically. One organization may be funded through community fundraising and grassroots organizations, where another may be privately funded. NGOs can be small or large in structure For example, the NGO Human Rights Watch received and spent $21.7 million in 2003.

Due to their influence on global politics, NGOs can also be controversial. Because they represent advocacy and ideals of their members, the purpose and legitimacy of an NGO is debatable. Generally these organizations are accepted as being representative of the concerns of people and are generally geared towards globally beneficial policies. However, because NGOs can represent such a variety of viewpoints there can some conflict of interest. NGOs can influence WTO decision-making processes. Non-developed nations are against this influence because most NGOs are established in developed nations and come from a developed perspective. This may lead to a skewed perception on how to offer foreign aid and how to aid in social issues in other nations. There is also a general argument that an advocacy or lobbyist group may not best represent the desires of the populous.

Another example of the potential pitfalls of NGOs can be seen in international sports governing bodies such as Fédération Internationale de Football Association (FIFA) or more recently, the Association of Tennis Professionals (ATP). Both organizations are international NGOs and operate to provide sports entertainment. Recently the ATP has come under fire for a match-fixing scandal. While it is not a legal body, it does govern certain aspects of tennis and its associated events. In the case of FIFA, allegations of payoffs with relation to the selection of future World

Cup hosts are a serious indication of corruption. These organizations operate in an international environment and on the fringes of legal systems. Combined with the economic power of a global event such as the World Cup or the Olympics, they have tremendous influence on economies and policymakers. As such, allegations of corruption demonstrate perversion of power and organizational problems at the world's largest NGOs.

International NGOs can experience difficulties in management due to their global nature and differences in culture. In many cases, organizations that are looking to provide aid or build structures in underdeveloped nations experience difficulties because they do not have experience or members who work and understand the socioeconomic conditions in the countries they are working. Diversity management represents a managerial tactic where cultural considerations help guide strategy, training, and staffing. Another trend in management of international NGOs is participatory management, which tries to embody a learning organization mentality that allows for greater flow of innovations and ownership in the organization.

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See also: International Charities; International Environmental Agreements; *Vol. 1: Foundations of Economics:* Moral Motivation

Further Reading

Lanoszka, Anna. 2009. *The World Trade Organization: Changing dynamics in the global political economy*. Boulder, CO: Lynne Rienner Publishers.

Mostashari, Ali. 2005. An introduction to non-governmental organizations (NGO) management. MIT. web.mit.edu/isg/NGOManagement.pdf (accessed January 20, 2016).

NGO.org. 2015. Starting an NGO. ngos.org (accessed January 20, 2016).

Non Profit Expert. n.d. NGOs—Non-governmental organizations. www.nonprofitexpert.com/ngos-non-govermental-organizations/ (accessed January 20, 2016).

United Nations Department of Public Information. n.d. About us. outreach.un.org/ngorelations/about-us/ (accessed January 20, 2016).

United Nations Department of Public Information. n.d. Membership. outreach.un.org/ngorelations/membership/ (accessed January 20, 2016).

INTERNATIONAL TRADE

International trade is the cross-border exchange of goods or services. International trade occurs when an individual, business, government, or other entity imports or exports products. An *import* is a product that is purchased from another country, while an *export* is a product that is sold to another country. The benefits of international trade are built on the principle of mutual benefit and the theory of comparative advantage. The principle of mutual benefit emphasizes the benefits received by both parties in a voluntary exchange. Trade expands the range of consumer choice, and also sparks technological advance, innovation, and entrepreneurship in competitive global markets. The theory of comparative advantage, which was popularized by David Ricardo nearly two centuries ago, stresses regional specialization to promote production efficiency. International trade is viewed as a major pillar of globalization in today's global economy. The United Nations Conference on Trade and Development (UNCTAD) reports total global trade, measured by global exports, in 2015 was $21.1 trillion.

Since World War II, trade liberalization has encouraged international trade. Trade liberalization refers to the reduction or elimination of trade barriers such as import quotas, tariffs, and a variety of non-tariff trade barriers. Since the mid-1940s, the International Monetary Fund (IMF) and the World Bank, often called the Bretton Woods institutions, have supported free trade to stimulate global economic growth and stability. In addition, the General Agreement on Tariffs and Trade (GATT) worked to liberalize trade from 1948 to 1994. Eight GATT trade rounds dismantled many trade barriers during the period. The World Trade Organization (WTO), GATT's successor organization, has strengthened the institutional framework for free trade since 1995. The WTO's core principles include most favored nation (MFN), which extends a trade concession granted to one WTO member to all member nations; national treatment, which guarantees equal treatment of foreign and domestic goods in markets; and transparency, which requires the timely reporting of new or existing trade barriers.

Regional trade agreements have also encouraged free trade in the post-war global economy. A regional trade agreement (RTA) creates a trade bloc. Member countries within a trade bloc reduce or eliminate trade barriers. The WTO identified nearly 300 bilateral and multilateral RTAs in the global economy in 2005. The four types of RTAs include the free trade area (FTA), customs union, common market, and economic and monetary union. An FTA is a trade bloc that eliminates trade barriers among member nations, but allows members to determine their own trade policies with non-member countries. The North American Free Trade Agreement (NAFTA) is the world's leading FTA. A customs union establishes an FTA and common trade policies, such as the common external tariff (CET), with non-member countries. The Andean Community is an example of a customs union. A common market combines the qualities of a customs union with deeper economic integration among member nations, including free cross-border flows of resources and investments. An economic and monetary union is the highest form of economic integration. The European Union (EU) is an example of an economic and monetary union with a common currency—the euro—and common policies on dealing with banking, labor, energy, foreign aid, foreign policy and security, and so on.

The balance of trade measures the difference between the value of a country's imports and exports. A country's balance of trade rarely settles at a break-even point, a position in which the value of its imports and exports is equal. Instead, most countries experience a trade deficit or a trade surplus. A trade deficit occurs when the value of a country's imports is greater than its exports. A trade surplus occurs when the value of a country's exports is greater than its imports. The United States has incurred trade deficits since the mid-1970s.

Trade liberalization promotes sustainable growth and development in some countries. There are challenges to an equitable, universally accessible global trading system. First, the expanded use of antidumping measures restricts fair and free trade. Anti-dumping measures are often a form of backdoor protectionism designed to sidestep existing WTO prohibitions against tariffs and non-tariff trade barriers. Second, rising global competitiveness threatens decent work for low-skilled labor. Competitiveness depresses some wages, especially wages in the poorest countries, and contributes to the dreaded "race to the bottom." Third, offshoring and production sharing shift production facilities and jobs from high-wage countries to low-wage countries. Liberalized trade and investment regimes contribute to the export of capital and jobs and lower the standard of living for some households. Fourth, the terms of trade turn against producers of primary commodities such as sugar, natural rubber, cocoa, and coffee. Depressed commodity prices contribute to trade deficits, and balance of payments problems, in some poorer nations. Fifth, the lack of global connectivity in poorer world regions excludes the least developed countries (LDCs) from sharing in the benefits of globalization. To advance global prosperity for all countries, international trade must be fair and inclusive.

David E. O'Connor

See also: Absolute Advantage; Balance of Payments; Balance of Trade; Bhagwati, Jagdish; Comparative Advantage; Dumping; European Union; Exports; General Agreement on Tariffs and Trade; Global Economy; Globalization; Imports; North American Free Trade Agreement; Offshoring; Protectionism; Race to the Bottom; Regional Trade Agreements; Terms of Trade; World Trade Organization; *Vol. 1: Foundations of Economics:* Ricardo, David

Further Reading

Das, Dilip K. 2004. *Regionalism in global trade.* Northampton, MA: Edward Elgar Publishing.
Irwin, Douglas, A. 2005. *Free trade under fire.* 2nd ed. Princeton, NJ: Princeton Univ. Press.
Landau, Alice. 2005. *The international trade system.* New York: Routledge.
Shafaeddin, Mehdi. 2005. *Trade policy at the crossroads: The recent experience of developing countries.* New York: Palgrave Macmillan.
UNCTADStat. n.d. United Nations Conference on Trade and Development. unctad.org/en/Pages/Statistics.aspx (accessed June 1, 2016).
World Trade Organization. 2004. *International trade statistics 2004.* Geneva, Switzerland: Author.

INTERNATIONAL TRADE AND THE ENVIRONMENT

The complex relationship between trade and the environment can be divided along three broad dimensions: (1) the impact of environmental policy on trade, (2) the effect of trade on the environment, and (3) the impact of trade policy on the environment.

The first dimension relates to the effect of environmental policy on international trade patterns. There exist two primary mechanisms by which this may occur. First, domestic environmental regulation affects the production costs of firms located in the country. Facing higher production costs due to stricter regulation, firms are at a competitive disadvantage relative to firms located in countries with relatively lax regulation. Consequently, net imports may rise as consumers at home and abroad substitute toward products produced more cheaply in environmentally lax countries. The magnitude of this effect depends on the difference in environmental stringency across countries, and the importance of environmental costs in total production costs.

Second, environmental policy may impact trade patterns through foreign direct investment (FDI). FDI occurs when a multinational firm in one country, known as the source, shifts some or all production activities to another country, known as the host. One motivation for FDI is to take advantage of lower production costs in the host. As environmental regulation is one component of a firm's production cost, greater stringency in the source may cause a firm to shift production to a host with relatively lax regulation. Known as the pollution haven hypothesis (PHH), its practical importance again depends on the difference in environmental stringency across countries, and the importance of environmental costs in total production costs. If the PHH holds, environmental policy will affect international trade. For example, if the shift of production activities to the host is limited to the intermediate stage of production and accompanied by shipments of intermediate goods back to the source, then regulation increases the volume of trade.

The second dimension along which trade and the environment intersect relates to the effect of trade on the environment. Such an effect may arise through scale, technique, and composition effects. The scale effect refers to the overall volume of production that occurs. Since production invariably produces some pollution and waste, trade tends to degrade the environment by increasing the volume of production. Production volume may increase, among other reasons, due to the more efficient use of resources when countries specialize in goods for which they have a comparative advantage.

The technique effect concerns the amount of environmental degradation inflicted per unit of production. While trade raises the overall scale of production, the resulting economic growth raises demand for a clean environment. Consequently, stricter regulation is likely to be implemented, resulting in cleaner production processes. In essence, trade raises a country's wealth, and wealthier countries demand a cleaner environment via less damaging production techniques.

The composition effect refers to trade's impact on environmental degradation due to changes in a country's output mix. With trade, countries specialize in the production of certain goods, perhaps those in which they have a comparative advantage, and then trade these goods for products produced elsewhere. If a country specializes in goods that are harmful to the environment (e.g., paper or chemical goods) then the composition effect of trade will result in greater environmental damage. The converse is true if a country specializes in goods that are relatively cleaner to produce (e.g., textiles).

The net effect of trade on a country's environmental quality depends on the relative magnitudes of the scale, technique, and composition effects. Empirical studies indicate that greater trade generally has a modest beneficial impact on environmental quality.

Before continuing, three subtle issues also bear consideration. First, trade entails the transport of goods; this also generates pollution. Empirical evidence highlights the importance of transportation-related pollution. Second, trade may impact the environment through the introduction of so-called invasive species, which may threaten biodiversity, agricultural productivity, marine resources, and other ecosystem services. Third, the interaction between trade and the environment is not limited to international trade. Trade between regions within a country also generates scale, technique, and composition effects. However, one salient difference does arise. With international trade, domestic firms with market power will pass some of the higher production costs due to environmental regulation on to consumers (through higher prices) in foreign countries. For subnational trade, however, higher prices harm consumers located in the same country. Consequently, the technique effect is likely to be weaker, yielding a less beneficial effect of trade on the environment, when trade is across regions within the same country rather than across countries.

The final dimension along which trade and the environment intersect relates to the effect of trade policy, rather than trade *per se*, on the environment. Trade policies, such as regional trade agreements (e.g., the North American Free Trade Agreement) or membership in the World Trade Organization (WTO), affect the environment via two mechanisms. First, they limit protectionist measures designed to stunt free trade, most notably tariffs or quotas. Consequently, countries may turn to so-called secondary trade barriers, such as environmental regulation, to protect domestic firms from foreign competitors. For example, a country may attempt to circumvent a trade agreement and limit imports of, say, foreign agricultural goods by banning imports of goods using a certain pesticide. Even if this policy has legitimate benefits to the environment, it may be disallowed under existing trade policy as it affects trade. In essence, concern over the unfair usage of secondary trade barriers may prevent countries from implementing desirable pro-environment regulations.

Second, trade agreements may impede environmental protection by prohibiting a crucial enforcement mechanism available to international environmental agreements (IEAs): trade sanctions. IEAs addressing global environmental problems, such as ozone depletion or global warming or protection of the oceans, have few sticks available to punish violators. Imposing trade sanctions on countries in violation of an IEA is one of the few enforcement mechanisms available. However, the fear is that trade agreements in general, and the WTO in particular, will preclude the use of such sanctions. This, in turn, threatens the ability of IEAs to achieve their desired effect.

Daniel L. Millimet
Jayjit Roy

See also: Arctic Circle Natural Resources; Foreign Direct Investment; Foreign Portfolio Investment; International Climate Agreements; International Environmental Agreements; Protectionism; North American Free Trade Agreement; Import Quotas; Tariffs; Trade Policy; World Trade Organization; *Vol. 1: Foundations of Economics:* Environmental Economics

Further Reading

Antweiler, W., B. R. Copeland, and M. S. Taylor. 2001. Is free trade good for the environment? *American Economic Review* 91 (4): 877–908.

Eckersley, R. 2004. The big chill: The WTO and multilateral environmental agreements. *Global Environmental Politics* 4 (4): 24–50.

Levinson, A., and M. S. Taylor. 2008. Unmasking the pollution haven effect. *International Economic Review* 49 (1): 223–54.

ISOLATIONISM

The idea that a nation should not involve itself politically or economically with another nation is known as isolationism. This foreign policy is used by those that believe by limiting international involvement it will keep their nation from being drawn into dangerous conflicts or unfavorable situations for their own nation. This concept was strongly supported by citizens of the United States at the beginning of World War II.

Many Americans were not in favor of entering World War II, the primary reason being the vivid memories of World War I, little more than 20 years earlier. The United States was also struggling with the Great Depression and didn't want to use its limited resources to support another nation's war and participating in another possible global conflict would drain the nation of more lives, resources, and finances.

Extreme isolationists believe that their country is best served by not entering into international trade agreements or other mutual pacts. This extreme action was taken by the Ming dynasty of China in the 15th century in order to preserve China's culture. China was an extremely strong and successful nation and believed it could be self-sufficient, cutting itself off from all trade and interaction with the outside world. China then began to fall behind those nations that were trading and interacting with one another.

Some nations believe in isolationism in order to protect their infant industries, resources, and labor forces/wages. Countries such as North Korea and Cuba used isolationism to protect themselves from Western imperialism. Many of the young African nations of the 1960s practiced isolationism to protect themselves from their European colonizers. Isolationism has shown short-run success for some nations; in a global economy, however, isolationism has shown to produce economic stagnation in the long run.

Tracy L. Ripley

See also: Dependency Theory; Protectionism

Further Reading

Nash, Gary. 1997. *American odyssey.* New York: Glencoe McGraw-Hill.

United States History. n.d. Isolationism. http://www.u-s-history.com/pages/h1601.html (accessed May 11, 2015).

U.S. Department of State Office of the Historian. n.d. MILESTONES: 1937–1945: American Isolationism in the 1930s. https://history.state.gov/milestones/1937-1945/american-isolationism (accessed May 11, 2015).

J

JAPAN: GENERAL ECONOMY

Despite its relatively small geographic size, Japan is a major economic power in the modern world. As of 2013 Japan had the third-largest economy in the world by nominal gross domestic product; only the United States and China are larger. Japan also has the fourth-largest economy by purchasing power parity.

Japan has had three main effective economic and political periods in its very long history. The first of these periods, called Edo (ancient name for Japan), began in 1603 and ended in 1867. The Edo Period was the last period of the Tokugawa shoguns. The second period then began with the Meiji Restoration in1868. This was the first era of modern government. The third effective economic and political period commenced after World War II. One of Japan's third period main focuses is the manufacturing industry. It is recognized for being at the forefront in technological industries such as consumer electronics, optical fibers, semiconductor manufacturing, and optoelectronics.

Global trade of imports and exports contribute to the success of the Japanese economy. Since Japanese land is not suitable for most agriculture, importing raw materials is very important. Japan uses these materials for the production of machinery and vehicles. Japan also imports key foods such as meat and wheat. The United States and the People's Republic of China are Japan's largest import partners. Japan also has a large volume of exports. The two leading exports from Japan are consumer electronics and automobiles. Once again, Japan's largest export partners are the United States and China. Because Japan is not able to have a high rate of agricultural production it focuses on the production of high technology goods such as hybrid vehicles, optical instruments, and robotics. Finance is one of Japan's largest service sectors.

Japan faced a difficult time after World War II, due to the fact that millions of its people had dies in the war and one-third of its wealth was lost. All large cities, industries, and transportation networks were severely damaged. Surprisingly Japan still managed to become the second largest economy in the world by the 1980s. To help Japan get back on its feet the occupation of Japan was established by the Allied powers and led by the supreme commander of the army forces in the Pacific theater, General Douglas MacArthur. Although much of Japan's infrastructure had been brutally destroyed by the bombings of World War II, important industries and facilities were identified for postwar growth. For example, industries and engineers that made machinery, war tools, and optical sights during the war were converted to the manufacturing and production of sewing machines, vehicles, and cameras, which helped fuel economic growth in Japan after the war.

Japan suffered economic losses in the 1990s due to the collapse of stock and real estate prices. To compensate for its losses Japan began a system of massive budget spending on large public works programs. Unfortunately, this system proved inefficient to stimulate the economy. Japan then began a new approach, called quantitative easing, meaning Japan increased its money supply to raise expectations for inflation.

Since the inception of quantitative easing monetary policies by the Bank of Japan, Japan has experienced economic growth beyond expectations. Japan's growth rate has exceeded the projections of most economists. Economists now project Japan's growth rate in the 3-4 percent range from the 1 percent range projected earlier.

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See also: Asia-Pacific Economic Cooperation; Bank of Japan; Hong Kong: General Economy; *Vol. 2: Macroeconomics:* Deflation

Further Reading

Economy Watch News Desk Team. 2015. Japan maintains rosy assessment of economy, ongoing stimulus. EconomyWatch.com. www.economywatch.com/news/Japan-Maintains-Rosy-Assessment-of-Economy-Ongoing-Stimulus.06-19-15.html (accessed October 29, 2015).

History.com. 2009. Tokugawa Period and Meiji Restoration. http://www.history.com/topics/meiji-restoration (accessed December 9, 2016).

Japanese economic takeoff after 1945. n.d. Indiana University Northwest. www.iun.edu/~hisdcl/h207_2002/jecontakeoff.htm (October 29, 2015).

Klingner, Bruce. n.d. Japan. The Heritage Foundation. www.heritage.org/index/country/japan (accessed October 29, 2015).

McClain, James L. 2002. *Japan, a modern history*. New York: W.W. Norton & Company.

K

KRUGMAN, PAUL

Born: February 28, 1953, in Albany, New York; Nationality: American; Professional Interests: neo-Keynesian, trade theory, economic geography, economies of scale, author, columnist, Nobel Prize in Economic Sciences (2008); Major Works: *Rethinking International Trade* (1990), "Does the New Trade Theory Require a New Trade Policy?" (1992).

Paul Krugman is one of the most admired and influential economists of modern times. Krugman is known for his work on international trade theory. Among his many notable contributions, Krugman showed that international trade flourishes where trading partners can take advantage of economies of scale and consumers' preference for diversity. His theory explained the persistence of international trade in the absence of distinct comparative advantage. His theory has been influential on research related to issues surrounding free trade, globalization, and worldwide urbanization. In 2008, Krugman won the Nobel Prize in Economic Sciences.

Paul Robin Krugman was born on February 28, 1953, in Albany, New York. He was born into a Jewish family and grew up on Long Island in New York, graduating from John F. Kennedy High School in Bellmore. He received his BA in economics from Yale University in 1974 and PhD from the Massachusetts Institute of Technology (MIT) in 1977. During 1982 and 1983, Krugman was the senior international economist for the President's Council of Economic Advisers under Ronald Reagan.

Prior to his appointment at Princeton in 2000, Krugman taught at Yale University, MIT, the London School of Economics, Stanford University, and the University of California, Berkeley. Krugman also served as a consultant to the Federal Reserve Bank of New York, the World Bank, the International Monetary Fund, and the United Nations, as well as to a number of countries, including Portugal and the Philippines.

In contrast to traditional Ricardian trade theories, which assume that trade occurs mainly between economically unequal countries so some countries export agricultural products (e.g., Mexico) whereas others export industrial goods (e.g., the United States), Krugman's approach is based on the premise that trade occurs between relative equals as consumers demand a varied supply of goods that can lead to efficient economies of scale in industrial production.

Consequently, a few countries that not only have similar conditions but also trade in similar products dominate the worldwide trade. Krugman first published his new trade theory, which deals with the analysis of trade patterns and location of economic activity, in 1979 in the *Journal of International Economics*. His trade theory has become the model of most international trade today, and in 2008 he was honored for his work with the Nobel Prize.

A proponent of globalized free trade in his theories for modern trade, Krugman formulated a model explaining how economies of scale plays a critical role in developing a comparative advantage for countries such as Sweden, which both exports and imports cars (like the domestically produced Volvo). For example, with a large domestic market for Volvos, Sweden also becomes a leading exporter of Volvos to countries such as the United States. Thereby, Sweden gains more profits and even more production. This theory further helps explain why production is concentrated in just a few large countries and why cities within those countries become densely populated, attracting workers and consumers.

Before the Enron scandal happened in 2001, Krugman had served as one of the many economists on a panel that advised Enron on economic and political issues. He ended his affiliation with Enron when he accepted the offer to become a columnist at the *New York Times* in 1999. When news of the Enron scandal broke out, he disclosed his Enron affiliation to his readers and he emphatically denied all the charges of conflict of interest.

In addition to Krugman being a distinguished economist and nationally known columnist for the *New York Times,* he has written 20 books, including *The Return of Depression Economics and the Crisis of 2008* (2009), and *The Conscience of a Liberal* (2007), and has published more than 200 scholarly articles. In 2003, he published his book *The Great Unraveling,* a collection of his columns, which became a best seller.

In recognition of his work, Krugman received the John Bates Clark Medal from the American Economic Association in 1991, an award given every two years to the top economist under the age of 40.

Apart from his prominence in academia, Krugman is also an outspoken and vocal critic on issues of politics and the economy through his *New York Times* column and his related blog, *The Conscience of a Liberal,* one of the most quoted and widely referred to blogs in the econoblogosphere.

Ninee Shoua Yang

See also: Exports; Globalization; Imports; Stiglitz, Joseph; Trade Policy; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; Nobel Prize in Economics; *Vol. 2: Macroeconomics:* Macroeconomics; *Vol. 3: Microeconomics:* Fiscal Policy; Stigler, George; Veblen, Thorstein.

Further Reading

Jumo, K. S., and Rudiger von Arnim. 2008. Trade theory status quo despite Krugman. *Economic & Political Weekly*, December 6, 43 (49).

Krugman, Paul. 1979. Increasing returns, monopolistic competition, and international trade. *Journal of International Economics* 9: 469–79.

Krugman, Paul. 1990. *Rethinking international trade.* Cambridge, MA: MIT Press.

Krugman, Paul. 1992. Does the new trade theory require a new trade policy? *The World Economy* 15: 423–42.

Krugman, Paul. 1999. *The return of Depression economics and the crisis of 2008.* New York: W. W. Norton & Company Inc.

Krugman, Paul. 2003. *The great unraveling.* New York: W. W. Norton & Company Inc.

Krugman, Paul. 2007. *The conscience of a liberal.* New York: W. W. Norton & Company Inc.
Krugman, Paul. 2008. Prize lecture: The increasing returns revolution in trade and geography. Nobelprize.org. http://www.nobelprize.org/nobel_prizes/economics/laureates/2008/krugman_lecture.pdf (accessed August 5, 2012).
Krugmanonline.com 2012. About Paul Krugman. http://www.krugmanonline.com/about.php (accessed October 29, 2012).
Neary, J. Peter. 2009. Putting the 'new' into new trade theory: Paul Krugman's Nobel Memorial Prize in Economics. *The Scandinavian Journal of Economics* 111: 217–50.
The Royal Swedish Academy of Sciences. 2008. The Prize in Economic Sciences 2008. http://www.nobelprize.org/nobel_prizes/economics/laureates/2008/popular-economicsciences2008.pdf (accessed August 5, 2012).

KYOTO PROTOCOL

The Kyoto Protocol is an agreement between members of the United Nations to comply with uniform emission standards. The aim of this treaty is to limit the emission of harmful substances into the atmosphere and thus prevent climate conflict. Adopted in Kyoto, Japan, in 1997, the agreement took effect in February 2005. Under the Kyoto Protocol, country members are limited in their emissions of greenhouse gases, which trap radiation in the atmosphere and can lead to conditions such as global warming. The gases under the most consideration are carbon dioxide, nitrous oxide, methane, perfluorocarbons, hydrofluorocarbons, and sulfur hexafluoride. These gases come primarily from industrial activities and are created, for example, through the production of electricity and chemical reactions involved in production.

The Kyoto Protocol defined an emissions target. This target is divided into units called AAUs, which are individual allowances for each United Nations member country. The protocol tends to be stricter toward developed countries because of their prolonged history of harmful industrial emissions. Each country's allowance is made up of a granted number of units, in which one unit is equal to one ton of carbon dioxide. Because carbon dioxide is the principal greenhouse gas, it is used as a common measurement in the allowance market. However, these allowances were redefined in 2012 when the protocol was amended in Doha, Qatar. This amendment set new standards for its defined second period, 2013 through 2020, and increased the targeted emissions reduction rate from 5 to 18 percent.

Use of such emission restrictions was intended to motivate countries to reduce their individual emissions, and thus reduce overall emissions globally. The primary measures that member countries can take to reduce the production of greenhouse gases include the implementation of technology and fossil fuels that are greater in efficiency and environmental safety. Although use of these methods can help make significant leaps towards the reduction of fossil fuel emissions, it cannot always be enough to help countries meet the Kyoto Protocol's standards, which is why market-based improvements were implemented into the agreement,

Market-based improvements are ways in which United Nation member countries can supplement their emission allowances or work towards meeting their targets. There are three types of market-based improvements that received approval by the United Nations. These include international emissions trading, a mechanism for clean development, and joint implementation. International emissions trading is the practice of buying unused emissions allowances from other countries. This action is economically driven, and only available to countries that can negotiate toward this. The clean development mechanism is a method in which countries can earn a greater emissions allowance through implementing emission reduction projects in developing countries. Aid in these countries may use technology such as solar panels or more energy efficient devices. Similarly, joint implementation also allows countries to earn a larger emissions allowance. However, this is achieved through emission reduction or removal projects within the country. All three of these transactions are logged and tracked by both the United Nations and member countries to ensure that emission standards are met and that the Kyoto Protocol's purpose is being enacted.

Katelyn Arrowsmith
David A. Dieterle

See also: *Vol. 1: Foundations of Economics:* Environmental Economics; Environmentalism; United Nations System

Further Reading

Environmental Protection Agency. 2015. Climate change indicators in the United States. www3.epa.gov/climatechange/science/indicators/ghg/ (accessed January 10, 2016).

Environmental Protection Agency. 2015. Sources of greenhouse gas emissions. http://www3.epa.gov/climatechange/ghgemissions/sources.html (accessed January 10, 2016).

United Nations. 2014. Kyoto Protocol. unfccc.int/kyoto_protocol/items/2830.php (accessed January 10, 2016).

L

LAGARDE, CHRISTINE

Born: January 1, 1956, in Paris, France; Nationality: French; Professional Interests: international finance; Major Works: *Ármales d'Economie Politique, N° 56/2008-2009* (2009), "Of Rules and Role Models" (2012).

Christine Lagarde, French lawyer and politician, was the first female minister of finance in France from 2007 to 2011. On July 5, 2011, she became the first woman leader of the International Monetary Fund (IMF) as managing director. She has been heralded as an influential leader, powerful businesswoman, and prominent figure in international finance.

Christine Madeleine Odette Lagarde was born on January 1, 1956, in Paris, France. Her father, Robert Lallouette, was an English professor and her mother taught Latin. She completed her early years of study in Le Havre at the Lycée François 1er and Lycée Claude Monet. In 1973, at the age of 17, Lagarde moved to Washington, D.C., to study for a year at the esteemed Holton-Arms, an all-girls college preparatory school in Bethesda, Maryland. During this time Lagarde interned for Representative William Cohen (R-Maine) at the Capitol. She assisted his office during the beleaguered Watergate hearings, an experience that piqued her interest in politics. Lagarde earned a law degree in 1980 from the University Paris X Nanterre (now called Paris West University Nanterre La Défense), specializing in antitrust and labor law. She went on to earn a master's degree in political science at the Institute of Political Studies at Aix-en-Provence in southern France.

Upon completion of her law degree, Christine Lagarde stayed on as a law lecturer at the University Paris X Nanterre. In 1981, Lagarde joined Baker & McKenzie, a Chicago-based international law firm with major operations in Asia and Europe. Lagarde's proven record in the legal specialties of antitrust and labor law and mergers and acquisitions helped elevate her to partner by 1987. In 1999 Lagarde was made chairman of the Global Executive Committee (reelected in 2002) and moved to Chicago. In 2004, Lagarde was named chairman of the Global Strategic Committee.

Lagarde returned to France in June 2005 when she joined the French government as minister of foreign trade in President Jacques Chirac's cabinet. She maintained this position into Nicolas Sarkozy's presidency. Sarkozy later named her minister of agriculture a month before designating her the new minister of finance. Known for her robust work ethic, Lagarde advocated for a workweek lengthier than customary 35 hours. In her ministerial role, Lagarde was instrumental in much-needed pension reforms. She was chair of the Economic and Financial Affairs Council (ECOFIN) for six months in 2008. As a member and later chair of the G20, she gained recognition on the world stage for her part in managing the financial crisis, addressing weaknesses in international monetary policies, and instituting stronger financial regulation, supervision, and global economic governance.

Because Lagarde's background is in law rather than economics, she was an unlikely choice to lead the International Monetary Fund. Her nomination was further complicated by developing countries seeking the post for one of their own. Lagarde campaigned for support in emerging nations such as India, Brazil, and China, to whom she promised an enhanced role in IMF relations and actions under her leadership. Agustín Carstens, the governor of Mexico's central bank, was her primary adversary, but he did not gain the backing of these nations. Eventually, Lagarde's expertise in European affairs, coupled with her ministerial experience, earned her the position. She is the 11th consecutive European to hold the position.

Lagarde serves as the chairman of the board of governors for the European Bank for Reconstruction and Development. She is a member of the board of governors at the European Investment Bank Group. She also works as a member of the board of governors at the European Investment Bank and the Inter-American Development Bank. Even with an impressive history and a cautious demeanor, the IMF chief has been challenged by the European Union debt crisis, the precarious financial situation around the world, and the growing needs of developing nations.

With a number of "firsts" in holding top-ranked positions typically held by men, Lagarde lends her voice and power as an ally to women. Lagarde has been recognized for her contributions to the world of international finance and law. In July 2000, Lagarde was named chevalier in the French Legion of Honor and was named commander for the National Order of Agricultural Merit. In 2009, Christine Lagarde was ranked as the 17th most influential woman in the world by *Forbes* magazine, the fifth best European executive woman by the *Wall Street Journal Europe*, and one of *Time* magazine's top 100 world leaders. In 2016, Lagarde was listed by *Forbes* magazine as the sixth most powerful woman in the world.

In 2016, the IMF Executive Board re-elected Lagarde as IMF Managing Director to a second five-year term.

Joy Dooley-Sorrells

See also: Global Economy; Globalization; International Monetary Fund; Trichet, Jean-Claude

Further Reading

CBS News. 2012. IMF's Lagarde: Rescuing Europe will take years. *CBS Evening News with Scott Pelley*, October 2. http://www.cbsnews.com/8301-18563_162-57524856/imfs-lagarde-rescuing-europe-will-take-years/ (accessed October 25, 2012).

Council on Foreign Relations. 2011. Challenges and opportunities for the world economy and the IMF. C. Peter McColough Series on International Economics. July 26. http://www.cfr.org/international-finance/challenges-opportunities-world-economy-imf/p25546 (accessed October 25, 2012).

International Monetary Fund. n.d. Christine Lagarde: Biographical information. http://www.imf.org/external/np/omd/bios/cl.htm (accessed September 12, 2012).

Lagarde, Christine. 2009. *Annales d'economie politique, N°* 56/2008-2009. Paris: Economica.

Martel, Ned. 2012. The economy of Christine Lagarde. *Washington Post*, September 24. http://www.washingtonpost.com/politics/the-economy-of-christine-lagarde/2012/09/24/8d5c2b84-cd01-11e1-b7dd-ef7ef87186df_story.html (accessed September 12, 2012).

LATIN AMERICA: GENERAL ECONOMY

After many of its countries gained independence in the early 19th century, Latin America was on a quest for economic growth and stability. Latin America consists of the 10 countries in South America, the six countries in Central America, and the Caribbean countries (Bulmer-Thomas 2014). Just like other developing areas, countries in Latin America struggled for centuries to grow economically. There have been many different policies implemented throughout their economic histories to help facilitate growth; however, these countries continue to be plagued with slow growth. Not only has the economic growth in Latin America been a slow process, these countries also suffered a financial crisis in the 1980s, which was a major setback. In the last 12 years, there have been a lot of economic reforms that increased faith in the governments to support the economies (Gerber 2014, 358).

Overall, Latin America's economic growth has taken quite a bit of time, but there was a period of time when taken together the countries of Latin America had one of the fastest growing economies in the world. From 1900 until 1960, Latin America's combined real gross domestic product (GDP) per capita grew faster than the economies of the United States', or Europe's, or and Asia's (Gerber 2014, 358). Latin America's economy seemed to be on the right track for this time period.

The countries of Latin America contain a diverse combination of major industries. One economic constant among the nations is tourism. Mexico is a major world tourist destination, along with Brazil, Dominican Republic, Peru, Chile, and Argentina. Other key products produced by Latin America nations include tobacco, cacao, vanilla, maize, and rubber. These products are also their major trading exports.

Trade is an important component of the Latin America economy. The nations have created several trade blocs including the Southern Common Market (MERCOSUR). Although most of the nations are not friendly trading partners with the United States, Mexico is through the North American Free Trade Agreement (NAFTA), and the U.S. has trade agreements with Peru, Colombia, and Chile.

Unfortunately, the rate of growth Latin American countries experienced 1900–1960 did not last. After the 1960s, economic growth slowed at a global level and then disaster struck. Several Latin American countries including Mexico, Bolivia, and Chile found themselves unable to repay their debts and the debt crisis of 1982 was upon them (Devlin 2014, 2).

Economists have labeled this time period of the debt crisis of 1982 the Lost Decade because they estimated that by 1990 Latin America's per capita income would barely exceed the level it was at in 1980 (Devlin 2014, 1).

Many economists have examined causes of the debt crisis of 1982. There was an apparent lack of borrowing discipline by the countries on the macroeconomic environment. The misguided macroeconomic environment has taken most of the blame, over import substitution industrialization (ISI), for being the number one cause of the debt crisis. This is because unstable macroeconomic environments have the potential to lead to hyperinflation, depression, and balance of payments crises (Gerber 2014, 367). There has also been an argument that the debt crisis happened in response to Latin American countries being unable to overcome their external financing dependence on countries like the United States or the International Monetary Fund (IMF) and their income inequality (Stiglitz and Heymann 2014, 91). The mix of a poor macroeconomic environment and external economic factors set the stage for the debt crisis of 1982 to take place.

In response to the debt crisis, Latin America countries set out to implement multiple changes to their policies. The United States also tried to help Latin America get back on its feet. The Baker Plan, named for the then U.S. treasury secretary, James Baker, was proposed in 1985 (Gerber 2014, 371). The Baker Plan was an attempt to increase investments from Latin American banks. Despite efforts of the Baker Plan, it was not successful. Four years later, the Brady Plan, again named after the treasury secretary, then Nicholas Brady, switched the focus from investments to debt relief (Gerber 2014, 372). The Brady Plan was much more successful than the Baker Plan and was able to help the economies of Latin America get moving in the right direction. Policy reforms in Latin America did not stop there. The IMF applied the Washington Consensus reforms to many of the Latin American countries as conditions for receiving loans. The Washington Consensus was a set of reform policies that focused on the stability of the macroeconomic environment (Miller 2006, 32). These policies included open trade policies, inflation control and protecting special interests groups.

Nicole Kuehn

See also: Balance of Payments; Dependency Theory; Lost Decade, 1980s; MERCOSUR; Mexican Peso Crisis of 1994–1995; Mexico: General Economy; North American Free Trade Agreement; Washington Consensus

Further Reading

Bulmer-Thomas, Victor. 2014. *The economic history of Latin America since independence*. New York: Cambridge Univ. Press.

Devlin, Robert. 2014. *Debt and crisis in Latin America: The supply side of the story*. Princeton, NJ: Princeton Univ. Press.

Gerber, James. 2014. *International economics.* 6th ed. Upper Saddle River, NJ: Pearson Education.

Miller, Carina. 2006. *Latin America after the Washington Consensus: Re-assessing policies and priorities*. Lincoln, NE: Pacific Council on International Policy.

Stiglitz, Joseph, and Heymann, Daniel. 2014. *Life after debt: The origins and resolutions of debt crisis*. London: Palgrave Macmillan.

LEAST DEVELOPED COUNTRIES

The least developed countries (LDCs) are among the world's poorest developing countries. Most LDCs are low-income developing countries. A few LDCs, mainly small island nations in the South Pacific, are categorized as lower middle income.

Of the world's 30 landlocked developing countries (LLDCs), 16 are classified as LDCs. Of the world's 37 small island developing states (SIDS), 12 are also LDCs. In 2016 the United Nations Committee for Development Policy classified 48 countries in the global economy as LDCs.

The Economic and Social Council of the United Nations uses three criteria to distinguish the least developed countries from other developing countries. First, to qualify as an LDC a country's gross national income (GNI) per capita must be less than $750. Second, LDCs share certain weaknesses in their human resources base. These weaknesses stem mainly from inadequate nutrition, health care, and education. Third, LDCs routinely experience many types of economic instability. Unstable commodity export prices, a reliance on subsistence agriculture, underdeveloped manufacturing and services sectors, susceptibility to natural disasters, and other weaknesses are considered. In addition, the UN standard excludes large economies and countries with a population of 75 million or more.

By the early 2000s, 700 million people, or 11 percent of the world's population, lived in LDCs. In 2015 the population growth rate of LDCs exceeded the world at 2.2 percent growth per year.

In 2014 the average gross domestic product (GDP) per capita growth rate in LDCs was 3.3 percent, compared with an average GDP per capita growth rate in all developing countries of only .8 percent and world per capita growth rate of 2.1 percent.

LDCs are trapped in a vicious cycle of poverty. This vicious cycle stymies economic growth and sustainable economic development. The root causes of the vicious cycle of poverty are complex and intertwined. First, LDCs are unable to save sufficient money for investment in private physical capital, such as farm equipment, factories, or business computers. The lack of physical capital limits worker productivity and economic growth. In *The Least Developed Countries Report 2015,* the United Nations Conference on Trade and Development (UNCTAD) reported that LDCs, as a group, continued to experience negative growth in 2012 with 5.5 percent annual growth rate. This was below the 2013 growth rate of 6.3 percent. However, the 2012 growth rate is still higher than the 4.4 percent rate of growth experienced by the developed countries.

The vicious cycle of poverty in LDCs also stems from poor governance and scant public resources. Extreme poverty, inefficient or corrupt tax regimes, and weak institutions reduce the government's support for long-term investments in education, a necessary component in human capital development.

UNCTAD reported that less than two-thirds of primary school age children were enrolled in school in LDCs. Only about one-quarter of secondary age students were enrolled. In addition, LDCs suffer from an inadequate infrastructure, which disconnects the world's poorest citizens from the national and global economy. In the early 2000s, more than 70 percent of all people in LDCs lived in rural areas, only 5 percent of people had a television set, and just 1 percent of people had a mainline telephone, cell phone, or access to the Internet. Other roadblocks to development include human rights abuses and horrific civil conflicts, which discourage foreign investment, foreign trade, and foreign aid.

Sustainable economic development pertains not only to economic growth but also to people's quality of life. Indicators of a poor quality of life in LDCs abound. LDCs are plagued by extreme poverty, underdeveloped health and sanitation facilities, and low calorie intake. As a result, life expectancy is just 50 years. One out of every six children will die by age five. Over 13 million people in the LDCs were living with HIV/AIDS at the end of the 20th century, and more than one-third of all children were not immunized against measles, diphtheria, and other preventable diseases. One positive trend is that 76 percent of the adult young adults age 15–25 are literate, up from 69 percent in 2000. The literacy of women has grown even more, from 58 percent in 2000 to 68 percent in 2010.

Effective strategies to reverse the vicious cycle of poverty in LDCs have been elusive. Multilateral organizations have shouldered much of the responsibility for helping LDCs break the vicious cycle. The World Bank and regional development banks extend loans to support good governance, public and private capital formation, and human capital development. These international financial institutions (IFIs) also provide technical assistance to support institution building.

Most of the loans and grants earmarked for LDCs are made on concessional terms, often long-term and interest-free. The International Monetary Fund (IMF) extends loans to support financial and economic stability. IMF loans, like some World Bank loans, are contingent on a nation's ability to show measurable progress in instituting governance and financial reforms. The joint World Bank–IMF Heavily Indebted Poor Countries (HIPC) Initiative supplies billions of dollars in external debt relief to some of the world's poorest nations. The United Nations Millennium Development Goals (MDGs), which were established in 2000, provide direction to most multilateral development aid. The Development Assistance Committee (DAC), a group within the larger Organisation for Economic Co-operation and Development (OECD), also funnels billions of dollars in official development assistance (ODA) from rich countries to poorer countries each year. In 2014, LDCs received over $137 billion in ODA.

David E. O'Connor

See also: Developing Countries; Foreign Aid; Heavily Indebted Poor Countries Initiative; Millennium Development Goals; Organisation for Economic Co-operation and Development; Sustainable Economic Development; *Vol. 1: Foundations of Economics:* Poverty; *Vol. 2: Macroeconomics:* Gross Domestic Product; Gross National Income

Further Reading

Cuffaro, Nadia. 2002. *Population, economic growth, and agriculture in less developed countries.* New York: Routledge.

OECD. March 2016. Net ODA. http://www.oecd.org/dac/financing-sustainable-development/development-finance-data/aid-at-a-glance.htm (accessed December 8, 2016).

United Nations. 2005. *Export diversification and economic growth: The experience of selected least developed countries.* New York: United Nations.

United Nations Committee for Development Policy Development Policy and Analysis Division Department of Economic and Social Affairs. 2016. List of least developed

countries (as of May 2016). www.un.org/en/development/desa/policy/cdp/ldc/ldc_list.pdf (accessed June 16, 2016).
United Nations Conference on Trade and Development. 2004. *The least developed countries report 2004.* New York: United Nations.
United Nations Conference on Trade and Development. 2013. Least Developed Countries Report 2013. http://unctad.org/en/PublicationsLibrary/ldc2013_en.pdf (accessed September 30, 2016).
United Nations Conference on Trade and Development. 2015. Least Developed Countries Report 2015." http://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=1140&Sitemap_x0020_Taxonomy=UNCTAD%20Home;#1389;#Least%20Developed%20Countries;#1392;#Africa,%20LDCs,%20LLDCs%20and%20Special%20Programmes (accessed September 30, 2016).
The World Bank. 2004. *Global economic prospects 2004.* Washington, DC: The World Bank.
World Intellectual Property Organization. 2002. *Intellectual property profile of the least developed countries.* Geneva, Switzerland: World Intellectual Property Organization.

LOST DECADE, 1980s

The "Lost Decade" of the 1980s refers to the economic crises that happened in many Latin American nations during the time period roughly defined by the 1980s. The crises were a consequence of regional politics and the economic policies made by regimes that had been in power throughout most of the 1970s and 1980s. The damage done by the crises went beyond just politics and economics. The economic hardships that followed were largely borne by the citizen populations, causing social unrest.

Latin American politics throughout the 20th century were unstable, including during the years leading up to the Lost Decade. Most regimes were authoritarian to some degree, including those under military control, long-standing political oligarchies, and even some socialist examples. More specifically, in 1970, the most significant Latin American economies, Brazil and Argentina, were controlled by military strongmen; Mexico had been dominated by the Institutional Revolutionary Party for the previous four decades; and Chile and Cuba were controlled by socialist and communist regimes, respectively.

The economies of most Latin American countries in the years before the Lost Decade were dominated by raw material exports. In turn, most imports were finished goods purchased from first-world trading partners. In a sense, this trading pattern resembled the patterns that had characterized European imperialism in Africa, Asia, and the Americas throughout the 19th and 20th centuries. The region's political leaders, despite varying national political structures, embraced economic policies that emphasized national economic independence. Specifically many Latin American nations embraced the policies of import substitution industrialization (ISI). In short, ISI involved policies designed to make a sovereign nation as self-sufficient as possible. One of the key objectives in achieving economic self-reliance was to significantly increase a nation's levels of industrialization in order to process raw materials and products instead of exporting them. Another objective was to improve domestic infrastructure to support industrialization.

In order to achieve ISI objectives many large Latin American governments began to borrow on a large scale. Aggregate Latin American debt increased from $29 billion in 1970 to $159 billion in 1978 and further to $327 billion in 1982. During this time period there also was a sharp increase in worldwide oil prices. Western banks, flush with deposits, were very willing to provide debt capital under the assumption that sovereign national debt represented very modest levels of risk.

Unfortunately, the 1970s proved to be an economically volatile decade. In addition to the sharp increase in oil prices, the post-war Bretton Woods system collapsed when President Richard Nixon took the United States off of the gold standard. Many nations, including the United States, experienced significant inflation. Latin American countries were particularly impacted, and a number of them experienced hyperinflation. These combined events negatively impacted many of the Latin American nations, causing economic contraction and recession.

The combination of increased debt and poorly performing economies in the 1970s set the stage for a full-blown economic crisis in the 1980s. The first major shock occurred in 1982, when Mexico defaulted on $80 billion of its debt. Many Latin American countries were now unable to repay their loans as scheduled. These defaults sent shock waves through global markets. Ultimately the problem required intervention by the International Monetary Fund (IMF) and leading Western nations such as the United States to refinance and/or replace outstanding balances owed to private banks. Loans were typically renegotiated to provide longer payback periods.

The loans were made under the condition that Latin American borrower nations implement significant policy reforms. These reforms included a number of austerity measures designed to improve the ability of the impacted countries to repay their outstanding loans. Unfortunately the associated terms caused many impacted Latin American nations to reduce infrastructure and development projects, leading to increased unemployment.

The resulting economic contraction was felt almost universally throughout the region. Four of the five largest economies in the region experienced significant productivity losses during the Lost Decade running roughly from the early 1980s through the early 1990s. Between 1980 and 1990 Venezuela's real gross domestic product per capita (measured in 1990 international GKs) fell from $10,139 to $8,313 (–18 percent); Argentina's from $8,206 to $6,433 (–22 percent); Mexico's from $6,320 to $6,085 (–4 percent); and Brazil's from $5,195 to $4,920 (–5 percent). Only Chile's economy grew, increasing from $5,680 to $6,401 (+13 percent) during the same time period. It should be noted that Chile, influenced by the influential Chicago Boys economists who had previously studied under Milton Friedman at the University of Chicago, employed far different neo-liberal economic policies during this time period in comparison with its Latin American peers.

Despite the efforts to reset Latin American debts and implement austerity, most Latin countries continued to encounter difficulties in repaying their debt obligations as they struggled with stagnant economies. By the mid-1990s, lenders were forced to write off approximately $61 billion in loans. Despite these steps Latin American countries continued to recover at a very slow pace.

Ultimately, recovery did take place. By 2000 all five of the above countries were producing real GDP per capita in excess of 1980 levels. In retrospect the Lost Decade was the result of serious economic miscalculations by both governments and private sector capital markets and should serve as a reminder to avoid excess optimism in international capital markets.

John Moore

See also: Brazil: General Economy; Friedman, Milton; Import-Substitution and Export-Led Growth Industrialization; International Monetary Fund; Latin America: General Economy; Mexican Peso Crisis of 1994–1995; Mexico: General Economy

Further Reading

Chang, Ha-Joon. 2007. *East Asian development experience: The miracle, the crisis and the future*. London: Zed Books.

Sims, Jocelyn, and Jessie Romero. 2013. Latin American debt crisis of the 1980s. Federal Reserve History. www.federalreservehistory.org/Events/DetailView/46 (accessed September 30, 2016).

The World Bank. 2002. Mexico. www.wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2004/10/28/000090341_20041028103645/Rendered/PDF/303060CDF0Mexico.pdf (accessed September 30, 2016).

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MAASTRICHT TREATY

The Maastricht Treaty, formally known as the Treaty on European Union, created a more economically integrated Europe in the late 20th century. On December 9–10, 1991, the European Council debated and drafted what would become the Maastricht Treaty. The treaty was signed on February 7, 1992. This treaty created the singular universal currency of Europe, the euro.

The creation of the euro was a big step toward a much more continental way of managing the European economies. There were qualifications for nations to be a member of the Maastricht Treaty and gain access to this new currency, the euro. Members had to maintain sound fiscal policies, a debt limited to a maximum of 50 percent of its gross domestic product (GDP), and an annual deficit not greater than 3 percent of GDP.

The significance of the Maastricht Treaty earned it the nickname of being the "Pillar Structure" of the European Union. The nickname came from the three pillars the treaty represented of the European Union. The most relevant pillar was the continuation of the European Economic Community, which included several different economic groups in Europe. The two pillars this superior pillar rested on were the Common Foreign and Security pillar and the Justice and Home Affairs pillar. The creation of this system of pillars resulted from the desire of many of the member states for an extension of the European Economic Community to the areas of focus in foreign policy, military, criminal justice, and judicial cooperation.

The process of ratifying the Maastricht Treaty had complications, particularly in Denmark, which held its first Maastricht Treaty referendum on June 2, 1992. After ratification of the treaty fell short by 50,000 votes, amendments were added to the treaty through the addition of the Edinburgh Agreement (which contained four Danish exceptions). The treaty was ratified by Denmark the following year, on May 18, 1993.

In September 1992, a vote in France chose to support the ratification of the treaty, but with only 51.05 percent in favor. A result of the uncertainly surrounding the Danish and French votes were the upheavals in the currency markets in September 1992. This led to the expulsion of the British pound sterling from the Exchange Rate Mechanism. While Parliament narrowly approved the Treaty and the U.K. was still a member of the European Union, the United Kingdom opted out from the Maastricht Treaty's single currency provision (the euro) retaining the British pound sterling as its official currency.

David A. Dieterle

See also: Euro (European Currency Unit); European (Economic) Community; European Free Trade Association; European Union; France: General Economy; Germany: General Economy; Spain: General Economy; United Kingdom: General Economy

Further Reading

Civitas. n.d. Treaty of Maastricht. http://www.civitas.org.uk/eu-facts/eu-overview/treaty-of-maastricht/ (accessed December 12, 2015).

EUR-Lex. 2010. Treaty of Maastricht on European Union. eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:xy0026 (accessed December 12, 2015).

European Union. 2015. The history of the European Union: 1990–1999. About the EU. europa.eu/about-eu/eu-history/1990-1999/index_en.htm (accessed December 12, 2015).

MAQUILADORA

In 1965 the Mexican government introduced the Border Industrialization Program (BIP), or “maquiladora” program, as a response to growing unemployment and global need for low-cost labor. The objective was to stimulate employment in Northern Mexico following the termination of the bracero program. The bracero program, which ran from 1942 through 1964, had allowed Mexicans to legally work seasonally in the United States without citizenship or green card. The Border Industrialization Program intended to create employment for former braceros by introducing the concept of maquiladoras. Maquiladoras, or “twin plants,” would allow for a parent company outside of Mexico (e.g., in the United States) to have a corresponding plant in Northern Mexico to which it could send raw materials, equipment, machinery, and other production materials without incurring import tariffs or duties. These production facilities could use these items and then export the finished products to a third party or back to the raw materials’ nation of origin.

Originally the Border Industrialization Program was seen as mutually beneficial as it would create jobs in Northern Mexico and also help to curtail illegal immigration to the United States. For immigration, maquiladoras had mixed consequences. Although availability of employment in these border regions should theoretically create less need for immigration, the impact of maquiladoras on the Mexican economy also shifted industrial hubs to border cities such as Juarez and Tijuana and away from domestic and political centers like Mexico City and Guadalajara. Furthermore, initially maquiladoras did not necessarily fill the employment void for braceros, who were mainly males. Maquiladoras instead tended to hire more young women.

The maquiladora industry represents an export processing zone (EPZ). Until 1980 Mexico’s government focused on the implications of advancing its economy through job creation and domestic products. This meant increasing domestic products and services and limiting foreign competition through tariffs. In a shift in ideology, the government then eased tariffs, creating greater foreign competition domestically and incentivizing domestic firms to compete globally through exports. This shift in ideology directly correlated to the growth and potential of the maquiladora industry and represented a shift towards free-trade thinking.

The North American Free Trade Agreement (NAFTA) has also highlighted the importance of maquiladoras. The North American Free Trade Agreement enacted in 1994 signified a further reduction of trade barriers between the United States, Canada, and Mexico. This agreement encouraged the growth of the maquila program. As a result, initial production from maquiladoras increased as trade became even more fluid and less costly. However, NAFTA also paved the way for expansion of trade with other sectors of the Mexican economy. Other non-maquiladora plants became more attractive to multinational operations because they could operate at even lower costs and environmental regulations.

Maquiladoras represent an evolution in the application of free trade theory, specifically within multilateral trade agreements. However, a number of criticisms arose from this dynamic. The ability to produce at low costs in other nations draws attention to ethical dilemmas in global business. Specifically, critics claim that these policies have embodied a "race to the bottom" mentality where multinational firms continually search for the cheapest labor and the lowest safety and environment regulations in order to become more profitable. Poor working conditions and long hours are hotly debated topics of universal human rights within Mexico–U.S. trade dynamics.

Daniel S. Talwar

See also: Free Trade Agreement; Globalization; Mexico: General Economy; North American Free Trade Agreement; Race to the Bottom; Special Economic Zone; Tariffs; Trade Policy; *Vol. 3: Microeconomics:* Industrial Policy

Further Reading

Carrillo, Jorge, and Robert Zárate. 2009. The evolution of maquiladora best practices: 1965–2008. *Journal of Business Ethics* 88: 335–48. www.jstor.org/stable/27749708 (accessed January 10, 2016).

The City of San Diego. 2015. Maquiladoras/twin plants. Economic Development. www.sandiego.gov/economic-development/sandiego/trade/mexico/maquiladoras.shtml (accessed January 10, 2016).

Davila, Alberto, and Rogelio Saenz. 1990. The effect of maquiladora employment on the monthly flow of Mexican undocumented immigration to the U.S., 1978–1982. *The International Migration Review* 24 (1): 96–107. doi:10.2307/2546673.

Gerber, James. 2014. *International economics*. Uppers Saddle River, NJ: Pearson.

Gruben, William C., and Sherry L. Kiser. 2001. NAFTA and maquiladoras: Is the growth connected? *The Border Economy*, Federal Reserve Bank of Dallas, June 22–24. www.dallasfed.org/assets/documents/research/border/tbe_gruben.pdf (accessed January 10, 2016).

Hanson, Gordon H. 2002. The role of maquiladoras in Mexico's export boom. *National Bureau of Economic Research*. migration.ucdavis.edu/rs/more.php?id=8_0_2_0 (accessed January 1, 2016).

Young, Gay, and Lucía Fort. 1994. Household responses to economic change: Migration and maquiladora work in Ciudad Juárez, Mexico. *Social Science Quarterly* 75 (3): 656–70. www.jstor.org/stable/42863376 (accessed January 1, 2016).

MEADE, JAMES

Born: June 23, 1907, in Bath, England; Died: December 22, 1995, in Cambridge, England; Nationality: English; Professional Interests: Keynesian, international economic policy, Nobel Prize (1977); Major Works: *The Theory of International Economic Policy* (two volumes, 1951, 1955).

James Meade is best known for being awarded the Nobel Prize in Economics in 1977 for his work on a theory of international trade. He shared the prize with Bertil Ohlin. He is credited with applying Keynesian economics to international trade and the flow of capital in the mid-20th century. Most of his working career was dedicated to teaching economics at Oxford and Cambridge Universities, and writing economics textbooks. Meade died in 1995.

James Edward Meade was born in Bath, England, on June 23, 1907. He enjoyed a classical education at Lambrook School and Malvern College between 1917 and 1926. He began studying at the School of Philosophy, Politics, and Economics at Oxford University in 1926. He chose to study economics because of his disgust at the high unemployment in Great Britain following World War I, and because of his belief that he knew how to fix it. In 1931, he began a one-year fellowship at Cambridge University, where he became acquainted with John Maynard Keynes and other accomplished economists in the group known as the "Circus."

Meade returned to Oxford University in 1931 as a lecturer in economics and would continue to develop his interpretation of Keynesian economics. In 1936, he wrote one of the first textbooks to systematically explain Keynes's ideas in the *General Theory* (1936), a textbook called *An Introduction to Economic Analysis and Policy.* In 1933, he married Margaret Wilson, and in 1937 he took his young family to Geneva to work as editor of the *World Economic Survey* with the Economic Section of the League of Nations. Meade edited the seventh and eighth editions, which originally began in 1930 as *The Course and Phases of the World Depression,* put together by Bertil Ohlin.

Meade and his family left Geneva in 1940, fleeing the advancing German army, and returned to England where Meade went to work in the Economic Section of the War Cabinet. His role during the war was to deal with any number of economic questions facing England. Along with Richard Stone in 1940–1941, he was the first to create an account of the United Kingdom's national income and expenditures, which would be important for creating a workable economic policy. In 1944, he was a major contributor to the white paper titled *Economic Policy,* which led to the United Kingdom's commitment to low unemployment levels after the war as a matter of governmental obligation. At the end of the war he was influential in discussions to establish an aborted International Trade Organization that was supposed to work with International Monetary Fund (IMF) and the World Bank. However, the treaty to create the organization was not ratified, though the principles of the organization would be used to create the General Agreement on Tariffs and Trade (GATT) and the original intentions would be very similar to the current World Trade Organization (WTO). He became director in 1946 but resigned in 1947 over differences with other ministers who wanted to stick with wartime controls and rationing.

In 1947 James Meade began a 10-year tenure as professor of commerce at the London School of Economics (LSE). During this time he wrote his two-volume set *The Theory of International Economic Policy*, which began as a rewriting of his earlier *An Introduction to Economic Analysis and Policy.* Meade's Nobel Prize was awarded due to his work in this series. The first volume, *The Balance of Payments* (1951), focused on the relationships of countries using the Keynesian economic model. In it he stated the need for countries to focus on using fiscal policy to maintain full employment (what he called internal balance) and using monetary policy to maintain a balance of payments equilibrium (external balance). Out of this work came *A Geometry of International Trade* (1952), which provided diagrams to solve problems associated with international economics.

The second volume, *Trade and Welfare* (1955), focused on international transactions and the general welfare of nations where perfectly competitive trade was not present. It stated that the nation's best welfare may result from allowing some trade barriers and not moving toward totally free trade. This was developed in the "theory of second best," which promoted trade barriers to result in higher economic welfare in general, although some individuals might be hurt. One point from these two volumes that would eventually lead to arguments for such devices as the European Union is the need for countries to be able to work together in some way to achieve balance. In order to avoid the problem of overdetermination between countries attempting their own ability to balance, some kind of cooperation is necessary.

In 1957, Meade left the London School of Economics to take the chair of political economy at Cambridge and continue his writing career. His major work during this time was a four-volume set called *Principles of Political Economy,* which focused on domestic economic issues. At Cambridge, he often failed to see eye-to-eye with other faculty members on Keynesian interpretation. His emphasis was on trying to create stable prices and full employment in a fair and efficient national system through the means of moderate reforms. His opponents in his department did not believe that the market could create these conditions, so they supported the use of sweeping government-led planning. This issue led to his resignation in 1968 to begin a senior research fellowship at Cambridge's Christ's College, which he held until 1974.

Meade worked in the 1970s studying the effects of direct taxation in the United Kingdom and maintained an influential role regarding U.K. economic policy for many years afterward. In 1978, he chaired a report known as "The Meade Report on Taxation," which identified the "poverty trap" that contributed to unemployment and also advocated a progressive tax on expenditures instead of income. He continued to write until the year of his death, with his final work being *Full Employment Regained?* (1995), which continued his emphasis on promoting full employment.

In one of his final works, the fictional tale of *Agathotopia* (1989), he describes a society that employs economics to create a society that is not perfect but still a "good place to live." This book emphasizes Meade's outlook on life that economics should be used to improve the conditions of all and not just to further the careers of economists.

James E. Meade died on December 22, 1995, in Cambridge, England.

Joseph Lee Hauser

See also: Balance of Payments; International Trade; Ohlin, Bertil; *Vol. 1 Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; *Vol. 2: Macroeconomics:* Taxes

Further Reading

Corden, W. Max. 1996. James Meade 1907–1995. *Economic Record* 217: 172–74.
Johnson, Harry. 1978. James Meade's contribution to economics. *The Scandinavian Journal of Economics* 1: 64–85.
Meade, James. 1936. *An introduction to economic analysis and policy.* Oxford, UK: Clarendon Press.
Meade, James. 1951. *Balance of payments. Theory of international economic policy*. Vol. 1. New York: Oxford Univ. Press.
Meade, James. 1952. *A geometry of international trade.* London: Allen & Unwin.
Meade, James. 1955. *Trade and welfare: Theory of international economic policy.* Vol. 2. New York: Oxford Univ. Press.
Meade, James. 1961. *A neo-classical theory of economic growth.* New York: Oxford Univ. Press.
Meade, James. 1965. *The stationary economy: Principles of political economy.* Vol. 1. London: Allen & Unwin.
Meade, James. 1968. *The growing economy: Principles of political economy*. Vol. 2. Chicago, IL: Aldine.
Meade, James. 1972. *The controlled economy: Principles of political economy.* Vol. 3. Albany, NY: State Univ. of New York Press.
Meade, James. 1976. *The just economy: Principles of political economy.* Vol. 4. Albany, NY: State Univ. of New York Press.
Meade, James. 1989. *Agathotopia: The economics of partnership*. Hume Paper No. 16. Aberdeen, TX: Aberdeen Univ. Press.
Meade, James. 1995. *Full employment regained?: An agathotopian dream.* New York: Cambridge Univ. Press.
Snowdon, Brian, and Howard R. Vane, eds. 2002. Meade, James E. (1907–95). In *An Encyclopedia of Macroeconomics.* London: Edward Elgar.
Vane, Howard R., and Christ Mulhearn, eds. 2010. *Bertil G. Ohlin, James E. Meade and Robert A. Mundell: Pioneering papers of the Nobel Memorial Laureates in Economics*. Vol. 10. Northampton, MA: Edward Elgar.

MERCOSUR

MERCOSUR, or *Mercado Comun del Sur,* is a four-nation regional trade association. The Mercado Comun del Sur, or Southern Common Market, consists of Argentina, Brazil, Paraguay, and Uruguay. Chile and Bolivia are associate members. The Treaty of Asuncion established MERCOSUR in 1991. The treaty began a formal phase-in of policies to integrate the four-nation economic region. By the early 2000s, MERCOSUR had evolved from a free trade area to a customs union.

As a customs union, MERCOSUR eliminated most trade barriers among member nations, and established a common trade policy with non-member nations.

MERCOSUR's common external tariff (CET) is its most visible sign of regional unity. Its common trade policy also synchronizes member nations' policies on import quotas, licensing requirements, and responses to unfair trade practices such as dumping. The Treaty of Ouro Preto in 1994 strengthened MERCOSUR's institutional framework and its resolve to create a comprehensive common market modeled on the European Union (EU) by 2006. The Committee on Permanent Representatives and the Dispute Settlement Court were both established in 2003. The creation of these institutions was hailed as a positive step toward further economic integration.

MERCOSUR's organizational structure rests on two main institutions, the Common Market Council and the Common Market Group. The Common Market Council is MERCOSUR's highest authority. It is responsible for maintaining the momentum toward full economic integration among member countries. The council consists of member nations' top ministers of economic and foreign affairs. It meets at least once every year, and its decisions are made by consensus. The second tier in MERCOSUR's organizational structure is the Common Market Group. The Common Market Group implements the policy directives of the Common Market Council. The group also has the authority to devise and implement its own policies to further the goal of economic integration. The group consists of representatives of member nations' central banks and economic and foreign affairs ministries. The group meets regularly, but at least once every three months. Decision making by the group is also based on consensus. The administrative office, and numerous advisory and working groups, handle MERCOSUR's day-to-day operations.

Trade liberalization within MERCOSUR, and between MERCOSUR and other regional trade agreements (RTAs), has increased members' international trade since the early 1990s. In its *International Trade Statistics 2014* the World Trade Organization (WTO) reports from 1995 to 2014, trade between MERCOSUR nations and other world regions rose to 1.7 percent from 1.4 percent.

MERCOSUR remains a work in progress. Challenges include promoting greater intraregional cooperation, expanding trade relationships with the EU and other partners, and pondering the implications of the proposed Free Trade Area of the Americas (FTAA).

David E. O'Connor

See also: European Union; Free Trade Area of the Americas; North American Free Trade Agreement; Regional Trade Agreements; World Trade Organization

Further Reading

Behar, Jaime. 2000. *Cooperation and competition in a common market: Studies on the formation of MERCOSUR.* Heidelberg, Germany: Physica-Verlag.

Dominguez, Francisco, and Marcos Guedes de Oliveira. 2003. *Mercosur: Between integration and democracy.* New York: Peter Lang Publishing.

World Trade Organization. 2015. International trade statistics: World trade and the WTO: 1995–2014. www.wto.org/english/res_e/statis_e/its2015_e/its15_highlights_e.pdf (accessed June 16, 2016).

Porrata-Doria, Rafael. 2005. *Mercosur: The common market of the southern cone*. Durham, NC: Carolina Academic Press.
Roetti, Riordan, ed. 1999. *Mercosur: Regional integration, world markets*. Boulder, CO: Lynne Rienner Publishers.

MEXICAN PESO CRISIS OF 1994–1995

The North American Free Trade Agreement (NAFTA) took effect in 1994 and seemingly ended the difficult times of the Mexican economy in the 1980s. Shortly thereafter the Mexican government devalued the peso, which sent inflation soaring and began a severe recession. This series of events is commonly referred to as the Mexican Peso Crisis or Tequila Crisis.

The North American Free Trade Agreement lowered trade barriers between Canada, the United States, and Mexico, and encouraged foreign investors to take advantage of Mexico's U.S. market. In addition, the U.S. Federal Reserve set a low policy rate encouraging investors to search for higher yields in places like Mexico. The Mexican government had also recently restructured foreign debt with the Brady Plan, reduced its budget deficit and inflation rate, cut protectionist trade barriers, and privatized various government-owned enterprises. Unfortunately, Mexico's current account deficit continued to grow causing some to worry about the overvaluation of the peso.

The peso was tied to a crawling peg exchange rate system at this time. The government kept the exchange rate to the U.S. dollar within a narrow target band, but raised the upper limit of the band slightly each day. In real terms however, the peso was appreciating and the real exchange rate was rising relative to U.S. goods. This discouraged exports and encouraged Mexicans to buy imports.

To stop the currency outflow Mexico issued short-term dollar denominated debt called tesobonos. These were protected for a potential devaluation of the peso. This stopped the outflow of foreign currency and stabilized the foreign exchange rate. Later the finance minister denied that Mexico would devalue the peso, which unfortunately caused money to continue to leave Mexico—even with an increase in the upper band of the exchange rate. This decreased the foreign exchange reserves. Finally, on December 22, 1994, the peso was allowed to float freely.

In addition, Mexico suffered a series of political shocks during this same time period. There was a rebellion in the south province of Chiapas raising doubts about political stability. The ruling party's presidential candidate, Luis Donaldo Colosio, was assassinated on March 23, 1994, creating more fear about political instability. This resulted in a sharp rise in interest rates and depreciation of the peso. Later, Minister of the Interior Jorge Carpizo resigned and a prominent Mexican businessman, Alfredo Harb, was kidnapped—all of which caused shocks within the economy. After the August 1995 presidential election another political official—Jose Francisco Ruiz Massieu—was assassinated and Deputy Attorney General Mario Ruiz Massieu (Jose's brother) made political accusations and then resigned.

In the financial sector many fraudulent loans from the recently privatized banks were exposed. Thousands of Mexicans defaulted on loans as interest rates increased. The gross domestic product (GDP) decreased by 6.2 percent in 1995. Real wages fell by about 20 percent.

After these events Mexico continued to lose value in its reserves and the government decided to devalue the peso. The country found itself in a financial crisis and sought aid from the international community and specifically the United States. The International Monetary Fund offered a rescue package of 7.8 billion U.S. dollars.

NAFTA, with the weight of the United States behind it, proved to be a welcome help for the Mexican government. President Bill Clinton stated that as Mexico was the third-largest trading partner its well-being greatly influenced the security of American jobs and investment. The United States loaned Mexico $40 billion. This allowed Mexico to roll over its short-term dollar denominated debt.

The Mexican government announced a stringent austerity package popular with investors. The Mexican economy ultimately grew by 5 to 6 percent in each of the three years after the crisis. In the years following the crisis the current account deficit declined and unemployment rose and then declined. Inflation remained a problem for many years.

Kathryn Lloyd Gustafson

See also: International Monetary Fund; Mexico: General Economy; North American Free Trade Agreement; Protectionism

Further Reading

The Economist Staff. 2004. The peso crisis, ten years on: Tequila slammer. *The Economist*, December 29. http://www.economist.com/node/3524948 (accessed November 21, 2014).

Molen, Maarten van der. 2013. The tequila crisis in 1994. RaboResearch—Economic Research, September 19. https://economics.rabobank.com/publications/2013/september/the-tequila-crisis-in-1994/ (accessed November 21, 2014).

Whitt, Joseph A., Jr. 1996. The Mexican peso crisis. *Economic Review*, Federal Reserve Bank of Atlanta, 81 (1): 1–20.

MEXICO: GENERAL ECONOMY

The Mexican economy has not always been on the growth trajectory it is today. It has had struggles along the way and there will continue to be struggles as there are with any country. Among these hardships were a debt crisis and a currency crisis. As a result of these crises, Mexico has gone through multiple economic policy changes (Gerber 2014). Mexico has moved from an import substitution industrialization (ISI) trade policy to an export-led growth substitution trade policy. The global financial crisis has also taken its toll on Mexico. Mexico is a part of the North American Free Trade Agreement (NAFTA) along with the United States and Canada. The main objective of NAFTA was to promote trade between the North American countries and promote economic growth. Currently, despite being affected by the recent global financial crisis, Mexico has continued its economic growth, even if it has been slower than its potential.

There was a long period of time when Mexico was experiencing economic growth under ISI polices, which focused on imports rather than exports. The debt crisis it experienced was a global crisis that started in Mexico in 1982 as a result of over borrowing and not being able to service its debt (Gerber 2014). By not earning any revenue from exports, Mexico was unable to make payments to lenders. It was clear that many policy changes were needed to get out of the debt crisis. Most of the changes that were made at that time were in an effort to privatize firms and move towards trade liberalization (Villarreal 2011). Economic reform in Mexico definitely helped, but soon after Mexico would face another setback. In late 1994, Mexico was faced with a currency crisis (Villarreal 2011). The peso had lost much of its value. Yet again, the government was faced with the need for economic restructuring. During this time, negotiations for NAFTA were happening. The implementation of NAFTA and Mexico's move toward an export-based economy lessened the effects of the currency crisis (Villarreal 2011). The implementation of NAFTA increased trade flows by a significant amount. NAFTA had many good effects on Mexico. In addition to promoting free trade between the United States and Canada, there were also fewer restrictions on foreign investment. This resembled an insurance policy for Mexico because it relied heavily on foreign investment capital from the United States as a source of revenue (Folsom 2014).

Today, Mexico has become more oriented toward the manufacturing sector as a result of NAFTA. Despite the recent global financial crisis, which began in the United States, Mexico has become the second-largest export market and the third-largest source imports for the Unites States (CIA 2016). Mexico has strong ties with the United States because of NAFTA, so there is no question that Mexico felt some of the effects of the global financial crisis. There was a decline in Mexico's gross domestic product and there were fluctuations in the export market (Villarreal 2010). In the last few years, Mexico has continued its slow growth. This growth can be attributed to a high demand for exports and increasing investments (CIA 2016). At this time, Mexico's slow economic growth is expected to continue.

Nicole Kuehn

See also: Exchange Rates; Free Trade Area; Global Currencies; Import-Substitution and Export-Led Growth Industrialization; International Economics; Lost Decade, 1980s; MERCOSUR; Mexican Peso Crisis of 1994–1995; North American Free Trade Agreement

Further Reading

Central Intelligence Agency. 2016. Mexico. The World Factbook. https://www.cia.gov/library/publications/resources/the-world-factbook/geos/mx.html (accessed February 1, 2016).

Folsom, Ralph. 2014. *NAFTA and free trade in the Americas in a nutshell.* 5th ed. St. Paul MN: West Academic Publishing.

Gerber, James. 2014. *International Economics.* 6th ed. Upper Saddle River, NJ: Pearson Education.

Villarreal, M. Angeles. 2010. *The Mexican economy after the global financial crisis*. Congressional Research Service. Darby, PA: Diane Publishing.

Villarreal, M. Angeles. 2011. *U.S.-Mexico economic relations: Trends, issues, and implications*. Congressional Research Service. Darby, PA: Diane Publishing.

MICROFINANCE INSTITUTIONS

Microfinance institutions (MFIs) are organizations that provide a range of financial services to the poor, mainly in the developing world. MFIs accept savers' deposits, extend loans, transfer money, and sell insurance to clients. An MFI's most important financial service is to make microcredit loans. Microcredit loans, or microloans, are small loans, perhaps $50 to $100, made to small businesses called microenterprises. Microenterprises use microloans to finance business start-ups or to grow existing businesses. Common microenterprises include repair shops, bakeries, farms, and handicraft shops. MFIs are sometimes formal financial institutions such as rural banks, credit unions, or even commercial banks. Most MFIs are less formal organizations, including nongovernmental organizations (NGOs) and private voluntary organizations (PVOs). Thousands of MFIs provide financial services to millions of low-income entrepreneurs in the global economy.

MFIs generally share certain common characteristics. Most MFIs are nonprofit organizations, mainly NGOs and PVOs. Many MFIs provide microloans and a variety of microfinance services. MFIs require repayment of microloans, plus interest. The high interest rates charged by MFIs, sometimes an annual rate of more than 50 percent, are necessary to cover the high costs of processing large numbers of small loans. MFI interest rates are considerably lower than rates charged by moneylenders in the informal economy, however. Microloans are short term, usually less than one year. Microloan repayments of principal and interest are often made in weekly installments. Collateral is not required to obtain microloans. Instead, peer supervision by assigned peer groups of five to eight people monitor compliance. In some cases, peer groups are collectively responsible for the repayment of microloans should the borrower default. Most borrowers are women entrepreneurs. MFIs obtain initial start-up funds from a variety of sources, including governments; multilateral donors, such as regional development banks; or bilateral donors, such as the United States Agency for International Development (USAID).

The Grameen Bank in Bangladesh is the world's largest MFI. Nobel laureate Muhammad Yunus experimented with microloans in the mid-1970s. In 1983, special legislation was passed to formally establish the Grameen Bank. Yunus's goal was to supply financial resources to the poor on reasonable terms. He reasoned that microloans could bring millions of marginalized people, who had had been shunned by commercial lenders, into the economic mainstream. In 1976, Yunus dispersed just $498 in microloans. In 2003, the Grameen Bank made $369 million in microloans. Since its founding, the Grameen Bank has extended $8.7 billion in microloans to 7.9 million borrowers. Ninety-seven percent of all microloan recipients were women. By 2009, the Grameen Bank provided services to 83,458 villages through the bank's 2,562 branches.

MFI resources and visibility have increased since the 1990s. The success of the Grameen Bank in Bangladesh, and greater financial inflows from multilateral institutions and other donors, established microfinance as a priority development strategy. The Inter-American Development Bank's (IDB) Small Project Program pioneered microfinance lending as early as the 1970s. By the mid-1990s, the Small Project Program had assisted hundreds of thousands of microenterprises, which accounted for more than a million new jobs. In 1997, the IDB introduced its MICRO 2001 initiative, a $500 million microenterprise development program. The African Development Bank Group and the Asian Development Bank also initiated microfinance support programs. The UNCDF Microfinance program, which is administered by the United Nations Capital Development Fund, is another recent microenterprise development initiative. The UNCDF Microfinance program funds MFIs and related support services in the least developed countries (LDCs). Since 1997, the UNCDF has also teamed with the United Nations Development Program (UNDP) in the MicroStart program. The MicroStart program provides funding and technical assistance MFIs in twenty additional developing countries. MFIs are an important component in a larger global poverty-reduction strategy. The mission of MFIs is supportive to the UN Millennium Development Goals (MDGs), which put poverty reduction at the center of the global development agenda.

David E. O'Connor

See also: Inter-American Development Bank Group; Sustainable Economic Development; U.S. Aid for International Development; Yunus, Muhammad; *Vol. 1 Foundations of Economics:* Entrepreneurship; Non-Governmental Organizations; Poverty

Further Reading

Grameen Bank. 2014. Historical data series in USD. www.grameen.com/index.php?option=com_content&task=view&id=177&Itemid=432 (accessed June 20, 2016).

Klobuchar, Jim, and Susan C. Wilkes. 2003. *The miracles of barefoot capitalism: A compelling case for microcredit.* Minneapolis, MN: Kirk House Publishers.

Morduch, Jonathon, and Beatriz Armendriz de Aghion. 2005. *The economics of microfinance.* Cambridge, MA: MIT Press.

Robinson, Marguerite. 2001. *The microfinance revolution: Sustainable finance for the poor.* Washington, DC: World Bank Publications.

Weber, Heloise, and Caroline Thomas. 2004. *The politics of microcredit: Global governance and poverty reduction.* London: Pluto Press.

Yunus, Muhammad. 2003. *Banker to the poor: Micro-lending and the battle against world poverty.* Washington, DC: Public Affairs.

MILLENNIUM DEVELOPMENT GOALS

The United Nations Millennium Development Goals (MDGs) consist of eight specific objectives for human and economic development in the global economy. The MDGs were a key component in the Millennium Declaration, a more inclusive document that received unanimous approval from the United Nations' 189 member states in 2000. The Millennium Declaration established a series of broad commitments to guide the planet toward a more prosperous and secure future.

UN member nations pledged to promote peace, security, and disarmament; economic development and poverty reduction (the Millennium Development Goals); responsible environmental standards; human rights, democracy, and good governance; respect for vulnerable groups; constructive assistance to Africa; and a stronger United Nations system. The MDGs are the world's most recognized roadmap toward sustainable economic development.

The MDGs roadmap consists of eight mutually supporting goals. Accompanying each development goal is at least one target. The target establishes a standard by which success or failure is measured. For example, the first MDG is to "eradicate extreme poverty and hunger" by 2015. To achieve success, two targets must be met. First, the proportion of people living on less than $1 per day must be cut in half. Second, the proportion of people who suffer from hunger must be cut in half. Similar targets are set for the other seven MDGs, as shown in "Millennium Development Goals: Goals, Targets and Indicators."

The MDGs sharpened the development strategies of nations and focused economic assistance from the World Bank and the regional development banks. Progress toward achieving the MDGs has been mixed. For example, the World Bank reported there were 100 million fewer people living in extreme poverty in 2000 than in 1990 and that rapid progress was being made to reduce extreme poverty in East Asia and the Pacific, Europe, and Central Asia. Extreme poverty in South Asia and sub-Saharan Africa was still rampant, however. Uneven global progress in the prevalence of extreme poverty and hunger dimmed global prospects for meeting the 2015 MDG number one goal. According to World Bank projections, a similar story unfolds for the other MDGs. Global progress has been uneven in achieving educational goals, gender equity, health care improvements, disease prevention, and environmental sustainability. Particularly vulnerable were the least developed countries (LDCs), where the crushing burden of poverty weakened nations' prospects for sustainable development.

David E. O'Connor

See also: Developing Countries; Foreign Aid; Least Developed Countries; Sustainable Economic Development; World Bank; *Vol. 1: Foundations of Economics:* Poverty; United Nations System

Further Reading

Miller, Margaret J., ed. 2005. *Implementing the Millennium Development Goals*. Washington, DC: World Bank.

Sachs, Jeffrey D., ed. 2005. *Investing in development: A practical guide to achieve the Millennium Development Goals*. New York: United Nations Development Project.

United Nations Development Group. 2006. Millennium Development Goals: Goals, targets and indicators. http://www.unmillenniumproject.org/goals/gti.htm (accessed December 1, 2016).

United Nations Development Program. 2003. *Human development report 2003: Millennium Development Goals, a compact among nations to end human poverty*. New York: Oxford Univ. Press.

Wolfensohn, James D. 2004. *Global monitoring report 2004: Policies and actions for achieving the Millennium Development Goals and related outcomes*. Washington, DC: World Bank Publications.

MONETARY UNIONS

Monetary unions are groups of countries that share a common currency and turn over control of monetary policy to a common authority. Generally countries in a monetary union share geographical borders, but it is not necessary. The countries involved often have close trade and other financial relationships. The conventional practice of monetary unions is to limit the term to agreements among units recognized as fully sovereign states under international law.

In the strictest sense monetary union means complete abandonment of separate national currencies and full centralization of monetary authority in a single joint institution. Several variations exist of this strict definition. There are institutional provisions for issuing currency and the management of decisions. Currencies may continue to be issued by individual governments but tied together in an exchange-rate union. Currencies may also continue to be replaced by the money of a larger partner such as the U.S. dollar. This is called dollarization. Similarly monetary authority may continue to be exercised to some degree by individual governments or delegated by a joint institution.

A monetary union in many ways resembles a fixed-exchange rate regime. Countries retain their distinct national currencies but agree to adjust the relative supply to maintain a desired rate of exchange. As a form of a fixed-exchange rate system, monetary unions have at least two distinctions. First, because the countries switch to a new currency, the cost of abandoning the new system would be much higher than the typical fixed-exchange rate system. This gives people more confidence that the system will last. Second, a monetary union eliminates the transaction costs incurred when people exchange currencies in international transactions. This is especially helpful for countries with common borders and trade.

The most dramatic display in the history of monetary unions is the European Monetary Union (EMU). The EMU is a unique display of a monetary union because it is composed of fully independent states that have all voluntarily agreed to replace existing national currencies with one newly created currency, the euro. The euro was first introduced in 1999 in electronic form, with notes and coins following in 2002. Despite maintaining political sovereignty, member governments formally delegated all monetary sovereignty to a single joint authority. For the European Monetary Union this authority is in the European Central Bank. The EMU comprises established long-standing nations consisting of some of the largest national economies in the world, including Germany and France. The European Monetary Union is engaging in a gigantic experiment in monetary policy. The success of the EMU to date has encouraged other groups of nations to explore the costs and benefits of a monetary union in other corners of the world.

Lauren A. Drum

See also: Euro (European Currency Unit); European Central Bank; European Economic Community; Exchange Rates; *Vol. 1: Foundations of Economics:* Central Bank; *Vol. 2: Macroeconomics:* Monetary Economics; Monetary Policy

Further Reading

Bergin, Paul. n.d. Monetary union. *The concise encyclopedia of economics*. www.econlib.org/library/Enc/MonetaryUnion.html (accessed March 1, 2016).

Cohen, Benjamin. Monetary unions. EHnet. eh.net/encyclopedia/monetary-unions/ (accessed March 15, 2016).

European Commission. 2015. Economic and monetary union. Economic and Financial Affairs, October. ec.europa.eu/economy_finance/euro/emu/index_en.htm (accessed March 15, 2016).

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NATIONALIZATION

Nationalization has been a controversial topic in economics for many years. Opposing viewpoints on the subject are very common. These opposing viewpoints are associated with different types of governments. *Nationalization* is defined as the government takeover of a firm or industry (Gottheil 2013). Though the topic of nationalization has been debated consistently throughout history, the most recent financial crisis sparked even more conversation about it. Nationalization makes it possible for governments to control prices and employment (O'Connor 2006), which some view as being for the common good, while others look at government control as a risk for corruption and unfair competition.

Democratic socialists are said to be in favor of nationalization (O'Connor 2006). They believe that nationalization will protect the economy and ensure the quality of goods and services. Another reason for favoring nationalization is that government-owned firms are able to absorb continuing losses without the threat of closure (Gottheil 2013). An example of a country that believed nationalization would be beneficial is Mexico. In the early 1900s Mexico was making moves towards nationalization, which was welcomed by companies and workers. Twelve countries had nationalized by 1930 (Cavendish 2002). That was only the beginning. Nationalization of companies in Mexico grew at a rapid pace after that and continued into the late 20th century. Mexico also saw economic growth for a good portion of time. Things were looking up for a while. However, things began to change in the 1970s. Faith was lost in nationalization. In response, Mexico's president pushed for more government intervention in hopes to strengthen Mexico's economy even more (Cavendish 2002). Unfortunately, there was much resistance from companies and Mexico began to move towards privatization.

In contrast to democratic socialists, capitalist are opposed to nationalization. The United States is a capitalist country. Another country that has opposed nationalization is Germany. Germany believes that nationalization is a push toward communism, and would rather have government "guidance" instead of government control (Stathakis and Vaggi 2006). Germany was aware that too much government regulation could carry major consequences, including corruption, inefficiency in production, and the creation of oligopolies (Gottheil 2013). For those reasons, a policy of laissez-faire, without government regulation, is more desirable.

Nationalization was not very popular from the late 20th century until the recent global financial crisis. Before the crisis there was no talk of nationalization of major banks like Citigroup and Bank of America. Even if it were proposed, it would have been brushed off for being naïve, not feasible, or lacking of theoretical basis

(Cahill 2014). However, these perceptions have changed a great deal since then. After the global financial crisis, it is not uncommon to hear talk of instilling more government regulation of huge banks. In fact, some banks have actually become nationalized; however, to assume these conditions are permanent would be foolish. Nationalization has had an impact in many countries but that does not mean it is there to stay. Political and economic views are constantly changing from year to year, and from country to country, so there is no surprise that views on nationalization have changed throughout the years, too.

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See also: Mexico: General Economy; *Vol. 1: Foundations of Economics:* Capitalism; Democratic Socialism; Market Capitalism

Further Reading

Cahill, Damien. 2014. *The end of laissez-faire?: On the durability of embedded neoliberalism*. Northampton, MA: Edward Elgar Publishing.

Cavendish, Marshall. 2002. *Mexico and the United States*. New York: Marshall Cavendish Corporation.

Gottheil, Fred. 2013. *Principles of economics*. Mason, OH: Cengage Learning.

O'Connor, David. 2006. *Encyclopedia of the global economy A guide for students and researchers, Volume 1*. New Delhi, India: Academic Foundation.

Stathakis, Yiorgos, and Vaggi, Gianni. 2006. *Economic development and social change*. New York: Routledge.

NEW TRADE THEORY

The new trade theory starts with the observation that while traditional trade theories explain some of world trade they also miss much. The new trade theory was developed in part by Paul Krugman, who won a Nobel Prize for his work on "new trade theory" and "new economic geography." While his Nobel Prize was awarded in 2008, his work on new trade theory (NTT) was done more than three decades earlier.

New trade theory suggests that there are critical factors in determining international patterns of trade that up until now have been left out, such as economies of scale and network effects. Economies of scale and network effects can be so significant that they can outweigh the more traditional theory of comparative advantage. For example if two countries have no discernible differences in comparative advantage opportunity costs in a specific industry, there will be no trade between the two in that sector. But if one country specializes in this particular industry and gains economies of scale it will benefit from its specialization. As a result of these economies of scale advantages, one country will now have an advantage and can become dominant in the market, which will likely limit competition and could eventually lead to a form of monopolistic competition. NTT further suggests that government intervention has a role to play in promoting new industries or to protect existing industries in order to offset this unfair advantage, especially in cases where countries wish to support growth of key industries. It is further argued that if an industry receives support for a few years it may be able to exploit economies of scale and then be competitive without government support.

In order to understand NTT it may be helpful to briefly discuss traditional trade theories. Early trade theory began with the Ricardian model by David Ricardo (1817), which identifies gains from trade between two countries based on comparative advantage. The Heckscher-Ohlin Trade model (HO model, 1919) builds on comparative advantage by adding factors of endowment, stating that each country has various levels of inputs (factors), some abundant and some scarce, and trade will be most beneficial when using abundant factors.

The Stolper-Samuelson theorem (1941) builds on the HO model, stating that increases in the price of goods will raise income earned by factors that are used intensively in its production. Classical Trade Theories also included International Product Life Cycles (Ray Vernon 1966) that explain the evolution of manufactured goods and technology and how production and consumption of inputs change over time.

Traditional trade theory argues that countries gain from exporting those goods and services that they are relatively good at producing while importing goods and services that other countries are relatively good at producing, but actual trade patterns do not match the theory. NTT explains why intra-industry trade has grown between developed nations that do not fit in traditional theories. While NTT suggests the importance of government intervention, the idea of government supporting new industries is controversial. Many economists believe governments are likely to have poor information about which industry to support and how to go about it, in addition to potentially creating powerful private businesses that rely on state support to remain competitive in the world market, which may encourage inefficient allocation of resources in the long run.

In the early 21st century a "new new trade policy" (NNT) emerged. This new new trade policy was based on the earlier works of Krugman and Melitz exploring a shift in international trade. NNT goes beyond the new trade policy and looks at individual firms and links trade opportunities with the firm's productivity. Firms must commit significant resources to compete in foreign markets, and there are many risks that are not present in domestic trade, such as lack of information in foreign markets, exchange rate risk, and foreign market regulatory uncertainty. NNT recognizes the resistance in some developed nations to let traditional trade models operate as expected. This new approach to trade offers new insights by analyzing public attitudes toward protectionism for specific industries instead of looking at sentiment toward traditional free trade principles.

Dale Johnson

See also: Heckscher-Ohlin Theory of Trade; Krugman, Paul; Product Cycle Theory; Stolper-Samuelson Theorem; Trade Policy; *Vol. 1: Foundations of Economics:* Ricardo, David

Further Reading

Ciuriak, Dan, Beverly Lapham, Robert Wolfe, Terry Collins-Williams, and John M. Curtis. 2011. New-new trade policy. Queen's Economics Department Working Paper No. 1263. qed.econ.queensu.ca/working_papers/papers/qed_wp_1263.pdf (accessed December 1, 2014).

Deraniyagala, S., and B. Fine. 2000. New trade theory versus old trade policy: A continuing enigma. Department of Economics Working Papers. SOAS University of London. www.soas.ac.uk/economics/research/workingpapers/file28872.pdf (accessed December 1, 2014).

Hardford, T. 2008. Krugman wins Nobel for trade theory. *Financial Times*, October. www.ft.com/cms/s/0/ff502a74-9989-11dd-9d48-000077b07658.html#axzz3Ktu75xVk (accessed December 1, 2014).

Kehoe, R. B. 2003. *Trade theory and trade facts*. Federal Reserve Bank of Minneapolis. www.econ.umn.edu/~tkehoe/papers/raphael.pdf (accessed December 1, 2014).

Krugman, P. October 2008. Conscience of a liberal. *New York Times*. krugman.blogs.nytimes.com/2008/10/15/about-the-work/?_r=0 (accessed December 1, 2014).

NORTH AMERICAN DEVELOPMENT BANK

The North American Development Bank (NADB) was created by the governments of the United States and Mexico in a joint effort to preserve and enhance environmental conditions and the quality of life of the people living along the U.S.–Mexico border. NADB was created alongside a sister organization, the Border Environment Cooperation Commission (BECC). The NADB concentrates on project financing and oversight for putting projects into place. In short the NADB is in charge of the money.

The NADB was created interdependent, but it works as a team with BECC. The NADB was created in San Antonio, Texas, and started its operations on November 10, 1994. The NADB's mission is to serve as a bi-national partner and catalyst with the goal of enhancing the operation and financing of border infrastructure to promote a cleaner and healthier border environment.

The NADB is made up of nine sections with the board of directors being the very top of the other eight sections. The NADB helps local governments and other projects sponsors put in place sound financial and business practices in hopes of creating well-managed debt financing. There are limits imposed on NADB projects, such as they must be within an area 62 miles north of the U.S. border and 186 miles south of the Mexican border. The NADB plays a role in improving many aspects of life along the U.S.–Mexico border, these aspects include water, waste management, cleaner and renewable energy, air quality, industrial/hazardous waste, and energy efficiency.

Originally the NADB was focused on wastewater treatment. Since treated wastewater amounts have increased, NADB has changed its focus to the development of renewable energy and transportation infrastructure to improve air quality. These new projects have led the NADB to the edge of its lending capacity. To accomplish these projects the NADB needs funding and capital, which it gets from both the U.S. and Mexican governments. Together the two countries pay the NADB $3 billion a year—both countries pay $225,000 in capital and they each give $1,275,000,000 in callable capital. Callable capital is a guaranty for any bonds issued by the bank to raise funds in the capital markets for its lending program. Recently, to raise investments, the NADB created a plan to merge with its sister organization, the BECC; it believes this merger will give it more resources to work with, as well as more support, but this plan still has to be agreed upon by both the U.S. and Mexican governments. Recently the NADB and BECC have been forced to rapidly expand due their own success and the changing nature of the challenges facing the border regions.

The NADB is an organization that has been trying to improve the U.S.–Mexico border region, environmentally and economically, since 1994. The NADB plays a role in both the U.S. and Mexican governments, and by helping both their border regions it is improving the well-being and happiness of their citizens, as well as improving the economies of local governments.

Kenneth Maly
David A. Dieterle

See also: International Trade and the Environment; Mexico: General Economy; *Vol. 1: Foundations of Economics:* Environmental Economics; Environmentalism; *Vol. 2: Macroeconomics:* Externalities; Water Pollution; *Vol. 3: Microeconomics:* Air Pollution

Further Reading

North American Development Bank. n.d. Capitalization. www.nadbank.org/about/capitalization.asp (accessed December 12, 2015).
North American Development Bank. n.d. Mission. www.nadbank.org/about/mission.asp (accessed December 12, 2015).
North American Development Bank. n.d. Organization. www.nadbank.org/about/organization.asp (accessed December 12, 2015).
North American Development Bank. n.d. Origins. www.nadbank.org/about/origins.asp (accessed December 12, 2015).
North American Development Bank. n.d. Scope. www.nadbank.org/about/eligibility.asp (accessed December 12, 2015).

NORTH AMERICAN FREE TRADE AGREEMENT

On January 1, 1994, trade in North America took a significant step toward more open trade and globalization. The North American Free Trade Agreement (NAFTA) created a trilateral trade bloc between the United States, Canada, and Mexico. NAFTA is the second-largest trade bloc in the world behind the United States–European trade bloc. NAFTA impacts more than 460 million people and is the largest trade bloc in land size. NAFTA's combined GDP is calculated at $21.81 trillion GDP (based on purchasing power equity). The Council of Foreign Relations reports NAFTA's regional trade in 2016 at $1.1 trillion, up from $290 billion when NAFTA began in 1993. NAFTA has three headquarters: Washington, D.C.; Ottawa, Canada; and Mexico City, Mexico.

The roots of NAFTA are grounded in the Canada–United States Free Trade Agreement (CUSTA). In 1988 CUSTA was ratified and initiated in 1989. Following CUSTA lengthy negotiations began on creating a trilateral trade agreement. U.S. President George H. W. Bush, Mexican President Carlos Salina de Gortari, and Canadian Prime Minister Brian Mulroney ceremonially signed the North American

Free Trade Agreement in San Antonio, Texas, on December 17, 1992. However, NAFTA would not become an official trade bloc until each nation's legislature or parliament had approved the agreement.

Approval by the three governments was not a foregone conclusion, especially in Canada and the United States. Canadians were never very pleased with NAFTA's predecessor, the Canada–United States Free Trade Agreement. In the 1993 Canadian election, more people voted against free trade than for it. But the two separate parties opposing free trade split the votes, leaving the party of free trade proponents with the ability to pass NAFTA. However, the Canadian story was not quite finished.

In the United States, although NAFTA had many supporters, there was a very vocal anti-NAFTA contingent led by labor unions and environmental groups. When President George H. W. Bush lost his reelection bid to Bill Clinton in 1992, the future of NAFTA in the United States became doubtful. Bill Clinton's major support during his candidacy had come from labor unions and groups opposed to NAFTA. His election made it a real possibility that NAFTA might lose support.

Back in Canada, the political landscape had also changed regarding NAFTA approval. Prime Minister Brian Mulroney had been replaced by the more conservative Kim Campbell. But in the 1993 election, Canadians chose Liberal Jean Chrétien as their new prime minister. Between the new U.S. president and the newly elected Canadian prime minister, NAFTA's survival was in serious doubt. However, President Clinton and Prime Minister Chrétien negotiated two new addenda to NAFTA. One was the North American Agreement on Environmental Cooperation, to protect the environment and force companies doing business in Mexico to adhere to environmental standards as if they were in the United States. The second addendum was the North American Agreement on Labor Cooperation, aimed at protecting U.S. labor, especially union labor, with the right to join a union and the right to collective bargaining. With these two addenda added, both Canada and the United States approved NAFTA, and on January 1, 1994, the economic landscape of North America took on a whole new, globalized look.

The aim of NAFTA as the trade law of North America was to break down the trade and investment barriers between Canada, the United States, and Mexico. Since virtually all trade between the United States and Canada was already free of barriers, when NAFTA took effect on January 1, 1994, the first noticeable effect was the elimination of U.S. tariffs on approximately one-half of the United States' imports from Mexico, and the removal of Mexican tariffs from approximately one-third of Mexico's imports from the United States. The window for total elimination of U.S. and Mexican tariffs was 10 years, or 2004, with the exception of some U.S. agricultural products, for which the timeframe was set at 15 years. NAFTA also addressed the sensitive issue of protecting intellectual property and removing all nontariff barriers to trade.

With the elimination of many, if not all, of the tariffs between the United States, Canada, and Mexico, trade between the nations definitely increased for many products, from durable goods such as automobiles and televisions to agricultural products such as corn and meats. Imports and exports increased across all the borders.

Has the North American Free Trade Agreement been a positive or negative for the U.S. economy? Judging by the pure amount of trade between the three nations, NAFTA has been very successful. Regarding environmental or labor issues, judging the success or failure of NAFTA depends on which side of the issue one is speaking. Some jobs have been lost in the U.S. labor market, but others have been created. Environmental groups would argue environmental standards have not been upheld and the United States has exported its environmental issues to Mexico. Certainly, NAFTA has changed the way business is conducted in the three nations. The age of globalization makes it very likely that NAFTA will continue to set the rules of trade and investment between the United States, Canada, and Mexico.

David A. Dieterle

See also: Protectionism; Trade Policy; Trade, Measures of; *Vol. 1 Foundations of Economics:* Market Capitalism; *Vol. 2: Macroeconomics:* Labor Force

Further Reading

Central Intelligence Agency. 2013. The World Factbook 2013–14. https://www.cia.gov/library/publications/the-world-factbook/index.html (accessed December 9, 2016).

Gerber, James. 2014. *International Economics*. Upper Saddle River, NJ: Pearson.

MacArthur, John R. 2000. *The selling of "free trade": NAFTA, Washington, and the subversion of American democracy*. Berkeley, CA: University of California Press.

NAFTA Secretariat. n.d. Welcome. https://www.nafta-sec alena.org/Default.aspx?tabid=85&language=en-US (accessed April 12, 2015).

U.S. Customs and Border Protection. n.d. NAFTA: A guide to Customs procedures. http://www.cbp.gov/trade/nafta/a-guide-to-customs-procedures/ (accessed April 12, 2015).

Villarreal, M. Angeles with Ian F. Fergusson. April 2015. The North American Free Trade Agreement (NAFTA). Congressional Research Service. https://fas.org/sgp/crs/row/R42965.pdf (accessed December 9, 2016).

O

ODIOUS DEBT

The concept of *odious debt* refers to determining who is responsible for illegitimate uses of capital. When the dictator of a regime uses state funded money to finance inhumane activities, wars or a personal gain considered illegitimate, the question becomes who must pay for this debt in the subsequent governments. Commonly, odious debt is defined as, "contracted against the interests of the population of a State, without their consent, and with awareness of the creditor" (Jubilee 2008). There are numerous challenges with the practical application of odious debts in law and the topic is still debated on the international level.

The concept of odious debts has taken form throughout history surrounding the issue of debt responsibility as a political regime changes. In 1898 it was said that after the Spanish-American War, Spain took responsibility of the debts under the American claims that neither the United States nor Cuba should be responsible because the debt was incurred by the colonial rulers without the permission of the Cuban people. In the 1920s, Soviet Union debt incurred by a previous regime without the benefit of the people that it was meant to serve was refused (Kremer 2003). Today odious debt tends to occur after a coup of a previous dictatorship where the prior regime financed war or inhumane activities.

The controversy surrounding this type of debt is the difficulty to enforce, especially across multinational laws. International courts of law have limited power in ruling against nations who have their own autonomous systems. The other problem is that many of these nations receive funds from third-party creditors and while odious debt may be claimed on a prior regime it may also be a condition those same third-party lenders are the ones who could finance the restructuring and rebuilding of the succeeding government. So while poor decision-making can be at the center of the debt, the actual financing may have existed from a creditor who also assists in the rebuilding of countries.

This paradox specifically has a restrictive impact on third-world nations and the foreign aid they receive. This occurs when the foreign aid of a new regime in a third-world country then has to be used in the repayment of the previous debt.

Due to the financial abilities of Western nations there are many criticisms of foreign aid policies. The criticism exists that foreign aid boosts creditors and keeps the money with first world industries rather than actually being used to create positive change in the third-world nations that use them, thereby creating a larger dependence on foreign goods and aid.

These theories represent the third aspect of what creates odious debt. It requires creditors to be aware of the misappropriation of the funds but proceed with the loan anyway (Gulati 2010). By knowingly supplying funds for malicious purposes creditors are thereby partially responsible for the debt. This distinguishing factor helps bridge the gap between odious debt and illegitimate debt (which is more actionable through law). The difficulty of lawful action is first in the ability to prove fraudulent knowledge from lenders. Second, where will the money to pay back this debt ultimately come from? Last, because these inequities occur on the international level, legal action is difficult and government actions such as sanctions are also often ineffectual because funds and frequently weaponry are consistently supplied in spite of the sanctions. Movements to create actionable results with the intention to punish these debts and aid in rebuilding nations have been weak because of these challenges.

Daniel S. Talwar

See also: Developing Nations; Development Economics; *Vol. 2: Macroeconomics:* Debt; International Debt

Further Reading

Gulati, Mitu, Sarah Ludington, and Alfred L. Brophy. 2010. Applied legal history: Demystifying the doctrine of odious debt. *Theoretical Inquiries in Law* 11: 247–81. http://scholarship.law.duke.edu/faculty_scholarship/2840/ (accessed June 20, 2015).

Howse, Robert. 2007. The concept of odious debt in public international law. United Nations Conference on Trade and Development Discussion Papers No. 185. http://unctad.org/en/docs/osgdp20074_en.pdf (accessed June 20, 2015).

Jubilee USA Network. 2008. Recent developments on odious & illegitimate debt. Briefing Note 5. http://www.jubileeusa.org/fileadmin/user_upload/Resources/Policy_Archive/408briefnoteodiousilldebt.pdf (accessed June 20, 2015).

Kremer, Michael, and Seema Jayachandran. 2003. Odious debt: When dictators borrow, who repays the loan? The Brookings Institution. http://www.brookings.edu/research/articles/2003/03/spring-development-kremer (accessed June 20, 2015).

Kremer, Michael, and Seema Jayachandran. 2002. Odious debt. *Finance Development* 39 (2). http://www.imf.org/external/pubs/ft/fandd/2002/06/kremer.htm (accessed June 20, 2015).

Nehru, Vikram, and Mark Thomas. 2008. The concept of odious debt: Some considerations. World Bank Economic Policy and Debt Department Discussion Paper. http://siteresources.worldbank.org/INTDEBTDEPT/Resources/468980-1184253591417/OdiousDebtPaper.pdf (accessed June 20, 2015).

OFFSHORING

Offshoring is the practice of moving a business practice within a company to another country or to another business in a different country. Oftentimes, the term offshoring is paired with the term outsourcing—the practice of moving an internal process to an external business. Outsourcing can occur within a country's borders; offshoring implies a change in country. It is possible to both outsource and offshore. For example, a company in the United States could subcontract IT work to a company in India.

David Ricardo's idea of comparative advantage is often cited when businesses choose to offshore or outsource. Companies specialize in the good or service they can produce at the lowest opportunity cost and trade for everything else. The increased amount of trade brings greater satisfaction to all participants.

Advocates of offshoring cite the promotion of free trade and therefore positive global political relations, an increased number of jobs within the destination country, lower costs and increased choices for consumers in the host country, and an increase in both countries' gross domestic product (GDP). Offshoring also helps to alleviate shortages for specific highly skilled jobs. For example, several U.S. companies have complained that they are unable to hire workers from the global talent pool because they have limited access to working visas. It is possible that offshoring allows a firm to decrease its costs and thereby increase the demand for its products. This increased demand may then increase the demand for skilled workers in tasks that have not been outsourced. As long as labor remains cheaper abroad, offshoring remains a smart cost-cutting choice and the new normal.

When least cost production occurs within a country's borders it does not draw much attention. Offshoring, however, draws controversy as it goes beyond a country's borders. Critics state that offshoring promotes job losses and a downward wage trend in developed countries and the low wages of jobs created in foreign countries. In addition there are concerns of foreign government manipulation of currency to only create an illusion of comparative advantage gains. Offshoring raises concerns for displaced unemployed workers and their cost on the social safety net. In addition, there are many ethical questions when the health and safety or environmental standards differ greatly between the two countries.

There is an impression that large numbers of Americans have lost their jobs to outsourcing. Research, however, points that this is true for some highly visible large manufacturers but not for jobs in services, health care, public agencies, and small firms that are domestically oriented. Much of the offshoring activity of businesses in the United States is to Canada and Western Europe, which are the largest and oldest trading partners that have investments themselves within the United States.

Other factors also influence the success of offshoring. The large communication infrastructure led to growth of IT offshoring within English-speaking India for U.S. companies. Companies with strong patent systems, culture connections, collaborative relationships with universities abroad, and the advantage of trade associations like NAFTA or CAFTA, are more likely to offshore.

Kathryn Lloyd Gustafson

See also: Absolute Advantage; Canada's Economy: Oil, Gas, and Tar Sands; Comparative Advantage; India: General Economy; North American Free Trade Agreement; Outsourcing; Protectionism; Trade Policy; *Vol. 1: Foundations of Economics:* Ricardo, David

Further Reading

Blinder, A. S. 2006. Offshoring: The next industrial revolution? *Foreign Affairs* March/April. http://www.foreignaffairs.com/articles/61514/alan-s-blinder/offshoring-the-next-industrial-revolution (accessed August 15, 2014).

Gurwitz, A. H. 2014. Offshoring work is taking a toll on the U.S. economy. Center for American Progress, July 30. http://www.americanprogress.org/issues/economy/news/2014/07/30/94864/offshoring-work-is-taking-a-toll-on-the-u-s-economy/ (accessed August 15, 2014).

Postma, Jeff, Sandeep Agarwal, and Mohit Mohal. 2013. 7 key factors driving the offshoring of services. *Industry Week*. http://www.industryweek.com/supplier-relationships/7-key-factors-driving-offshoring-services (accessed August 15, 2014).

Schaffausser, D. 2005. Offshoring—What is offshoring? *Sourcingmag.com*. http://www.sourcingmag.com/what-is-offshoring/ (accessed August 15, 2014).

Washington, P. 2014. Offshoring innocence abroad. *The Economist*. http://www.economist.com/blogs/freeexchange/2014/03/offshoring (accessed August 15, 2014).

OHLIN, BERTIL

Born: April 23, 1899, in Klippan, Sweden; Died: August 3, 1979, in Are, Sweden; Nationality: Swedish; Professional Interests: economist, politician, international trade, monetary policy, political economy, Nobel Prize (1977); Major Work: *Interregional and International Trade* (1933).

Bertil Ohlin was a well-known early 20th-century economics professor, lecturer, and well-known politician in Sweden during the period of World War II. Awarded the Nobel Prize in 1977, Ohlin is famous for his work in international trade and monetary policy. He was professor at University of Copenhagen and Stockholm Business School. Ohlin became a member of the Swedish Parliament in 1938 and served as leader of the Liberal Party in Sweden. Ohlin died in 1979.

Bertil Gotthard Ohlin was born on April 23, 1899, in Klippan, a village in southern Sweden in an upper-middle-class family of seven children. He attended the University of Lund to study mathematics, statistics, and economics, the latter of which became his expertise. He obtained the degree *fil kand*, the equivalent of a bachelor of arts, after two years of study in 1917 under Smil Sommarin. Intrigued by the writing of Eli Heckscher about the economics of the world war, Ohlin decided to take up studies at the Stockholm Business School. He studied there for two years before moving to the philosophy department at Stockholm University under the teaching of Gustav Cassel and Gosta Bagge.

Ohlin became a member of the Political Economy Club, formed in 1918, a group of trained economists that met to discuss theories and opinions about scientific work in economics. In 1922, he visited Cambridge, England, with a stipend from the Swedish-American Foundation. The following year, Ohlin attended Harvard University, where he received his master's degree in 1923. He returned to Sweden and received his doctorate degree under Cassel as adviser in 1924 from Stockholm University. Later that year he accepted the position of assistant professor at the University of Copenhagen with the aid of his teacher at Stockholm, Heckscher, in 1925. He taught there until 1930 when he moved back to Sweden to succeed Heckscher at the Stockholm School of Business where he would remain until 1965.

Ohlin's expertise led him to prepare a report titled *The Course and Phases of the World Economic Depression* for Geneva in late 1931. He also gave a lecture at the

Nordic Economic Conference in 1931 about combining deficit financial and monetary policies to help remedy the world depression.

In 1933, Ohlin published his most well-known work, *Interregional and International Trade*. In this work, Ohlin discussed the international trade problem, expanding on the work of Heckscher about foreign trade and distribution of income. Ohlin asserted that trade between economies works based on the price systems relative to the labor and capital resources of nations and its comparative advantages. According to Ohlin's work, nations will export goods that use relatively cheap and abundant resources, while importing goods in which capital and labor resources are relatively more scarce. Some economists believed Ohlin was exaggerating Heckscher's work, a claim that Ohlin disputed. Together their ideas became known as the Heckscher-Ohlin model, widely used by economists to analyze international trade.

By invitation, Ohlin delivered the Marshall Lectures at Cambridge in 1936. He encapsulated the Swedish theory of economics, making considerable connections to the work of John Maynard Keynes. Parts of his lectures were published in 1937 in the *Economic Journal* in an article titled "The Stockholm Theory of Saving and Investment." By 1938, Ohlin's political involvement accelerated by his membership into the Riksdag, the Swedish parliament. As World War II was erupting, his scope turned from scientific to political.

In 1944, Ohlin became leader of the Liberal Party, the opposition to the Social Democratic Party in Sweden. During his tenure as leader, he was a regular contributor of articles to leading Swedish newspapers. Ohlin served as the minister of trade from 1944 to 1945. His conviction with the Liberal Party did come into conflict with the more classical liberal views of his former teacher Heckscher. Ohlin asserted in his writings to Heckscher that among his motivations for loyalty to the Liberal Party were to help the poorest. Ohlin remained with the Liberal Party, which leaned toward social reform measures, the opposite of free-market economics, but he was not favorable toward the nationalization of industry in Sweden. He remained a member of the Riksdag until 1970, afterward returning lecturing and scientific work in monetary theory and international economic problems.

Ohlin published nearly 1,200 articles during his career. He was awarded the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel in 1977 jointly with James E. Meade for their contributions to international trade and monetary policy.

Bertil Ohlin died on August 3, 1979, in Are, Sweden.

Sara Standen

See also: International Trade; Meade, James; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Nobel Prize in Economics; *Vol. 2: Macroeconomics:* Monetary Policy

Further Reading

Bertil Ohlin—facts. *NobelPrize.org*. http://www.nobelprize.org/nobel_prizes/economics/laureates/1977/ohlin.html (accessed July 16, 2012).

Caplanova, Anetta. 2004. Profiles of world economists: Bertil Gotthard Ohlin. *BIATEC Journal* 12 (July): 20–23.
Carlson, Benny, and Lars Jonung. 2006. Knut Wicksell, Gustav Cassel, Eli Heckscher, Bertil Ohlin, and Gunnar Myrdal on the role of the economist in public debate. *Econ Journal Watch* 3 (3): 511–50.
Findlay, Ronald, Lars Jonung, and Mats Lundahl. 2002. *Bertil Ohlin: A centennial celebration, 1899–1999.* Cambridge, MA: MIT Press.
Ohlin, Bertil. 1933. *Interregional and international trade.* Cambridge, MA: Harvard Univ. Press.
Ohlin, Bertil. 1951. Some notes on the Stockholm theory of saving and investment (two parts). *Economic Journal* 47 (March): 53–69; (June): 221–40. Reprinted in *Readings in Business Cycle Theory*, ed. G. Haberler. Philadelphia, PA: Blakiston.

OPEN ECONOMY

In the 1930s, during the Great Depression, it was common for countries to close their borders and eliminate the movement of goods, capital, and labor. Countries were trying to protect themselves from risk. The effort to isolate themselves proved to be catastrophic, and ultimately worsened the global economy, and contributed to World War II (Gerber 2014, 244). Open economies, as opposed to closed economies, have a history of providing more desirable outcomes.

One of the goals that most countries have in common is to achieve economic growth. A way to move toward that goal is to have an open economy. An open economy is defined as an economy that participates in the trading of good and services with other countries (Rodseth 2000). Open economies interact freely with other countries. International trade has proven to be a driver for economic growth. By using the theory of comparative advantage, countries with open economies are able to successfully trade and grow. The idea that open economies are more beneficial is not a new concept. Adam Smith, an economist in the 18th century, was a huge advocate for free trade and open economies. Smith spoke out against the common practice of mercantilism and opposed the belief that trade resulted in a zero-sum game (Magnusson 2015). A zero-sum game simply means that one country gains from trading and the other suffers a loss. Smith explained that this concept was not true, and in fact, both countries involved can benefit from free trade.

No country has a completely open economy. Most countries have monetary policies in place in an effort to strengthen their economies; and no country gives completely free access to all of its markets. Besides the obvious implementation of tariffs, there have been a number of organizations that have affected open economies and international trade. After World War II, there was a proposal to create an organization to set rules for international trade, business practices, and foreign investment. The organization proposed would have been called the International Trade Organization (ITO), but the idea of the ITO was shot down by the United States (Gerber 2014, 20). Despite being rejected, many countries liked the idea and proceeded to find ways to reduce tariffs that were restricting free trade. Reducing these tariffs was a move toward open economies. The General Agreement on Tariffs and Trade (GATT) has been a successful force in reducing tariffs and promoting free trade since

1950 (Gerber 2014, 21). After the idea of the ITO was abandoned, the GATT was implemented as a way for countries to negotiate and eliminate trade barriers in an effort to increase support for free trade. These sessions of negotiations are called trade rounds. A particular trade round worth noting is the Uruguay Round, which began in 1986. The Uruguay Round is significant because it led to the establishment of the World Trade Organization (WTO) in 1995; which has played a continuing role in international trade since its founding (Martin and Winters 1995, 2).

Even though there is evidence that suggests open economies are more efficient and beneficial for a country, there is still some opposition. It is difficult to transition from a closed economy to an open economy because the transition not only affects a country as a whole, it affects individuals too. There is a risk of harm to some domestic industries and unemployment. It is important for a country to have a stable economy before making the change from a closed economy to an open economy. Those countries with stable economies will have a higher chance of success when converting to an open economy.

Nicole Kuehn

See also: General Agreement on Tariffs and Trade; Globalization; Washington Consensus; World Trade Organization; *Vol. 1: Foundations of Economics:* The Great Depression and Wall Street Crash, 1929; Smith, Adam

Further Reading

Gerber, James. 2014. *International economics*. 6th ed. Upper Saddle River, NJ: Pearson Education.

Magnusson, Lars. 2015. *The political economy of mercantilism*. New York: Routledge.

Martin, Will, and Winters, Alan. 1995. *The Uruguay round: Widening and deepening the world trading system*. Washington, DC: The International Bank of Reconstruction and Development.

Rodseth, Asbjorn. 2000. *Open economy macroeconomics*. Cambridge, UK: Cambridge Univ. Press.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The Organisation for Economic Co-operation and Development (OECD) is a 34-member intergovernmental organization that collects and analyzes statistical data, discusses global trends and issues, and forms binding and non-binding economic and social policies. The OECD, originally called the Organisation of European Economic Co-operation (OEEC), was established in 1947. The OEEC's primary mission was to administer the Marshall Plan, a massive U.S. and Canadian aid package designed to rebuild Europe after World War II. In 1961 the Organisation for Economic Co-operation and Development (OECD) replaced the OEEC. The original OECD consisted of 20 signatory nations. The OECD charter identified key goals for member nations, including sustainable economic growth and employment, international trade, rising living standards, financial stability, and economic development. The OECD charter also pledged support for policies to promote the process of economic development in non-member countries. The OECD headquarters, and secretariat, are located in Paris, France.

OECD membership consists of 34 countries. OECD member countries are required to maintain a functioning market economy and democratic political institutions. Originally, the OECD was composed exclusively of advanced economies. Membership has expanded to include a number of emerging market and developing economies from Asia, Latin America, and Eastern and Central Europe. OECD member states hold a dominant position in the global economy. OECD per capita gross domestic product (GDP) is $40150 compared to $750 per capita of least developed countries (LDCs).

The OECD is a global forum for discussion and policymaking on issues or problems broadly related to sustainable economic development. The OECD, often in consultation with non-member countries, devises binding agreements and nonbinding agreements. OECD members are required to comply with binding agreements. Examples of binding agreements include the OECD Anti-Bribery Convention, the OECD Code of Liberalization of Capital Movements, and the agreement on National Treatment for Foreign Controlled Enterprises. OECD members are expected, but not required, to adhere to the organization's nonbinding agreements. One important nonbinding agreement is the OECD Guidelines for Multinational Enterprises. This document outlines certain expectations for transnational corporations in the areas of business ethics, human and labor rights, transparency, fair competition, respect for the environment, and other areas of corporate social responsibility. Nonbinding agreements are sometimes called "soft" agreements because compliance is voluntary. Multilateral surveillance and peer pressure are the most significant enforcement mechanisms for member and non-member countries that sign OECD agreements. The OECD's binding and nonbinding agreements help define "best practice" in today's rules-based global economy.

The OECD also promotes sustainable economic development through its 23-member Development Assistance Committee (DAC). The DAC coordinates foreign aid from 22 major donor countries and the Commission of the European Communities. Neither the OECD nor the DAC collects money or extends loans or grants to recipient nations. Most of the DAC foreign aid is distributed in the developing world to support pro-growth programs and projects, which ranged from peacekeeping activities to infrastructure construction. Underpinning DAC aid is the understanding that recipient nations, ultimately, must accept responsibility for their own development.

David E. O'Connor

See also: Developing Countries; Foreign Aid; Group of Eight; Sustainable Economic Development; *Vol. 2: Macroeconomics:* Gross Domestic Product; Gross National Income; *Vol. 3: Microeconomics:* Corporate Social Responsibility

Further Reading

Armingeon, Klaus, and Michelle Beyeler, eds. 2004. *The OECD and European welfare states.* Northampton, MA: Edward Elgar Publishing.

Henry, Miriam, with Bob Lingard, Fazal Rizvi, and Sandra Taylor. 2001. *The OECD: Globalization and education policy.* Oxford, UK: Pergamon Press.

OECD Data. n.d. Domestic product. data.oecd.org/gdp/gross-domestic-product-gdp.htm#indicator-chart (accessed June 20, 2016).

Organisation for Economic Co-operation and Development. 2003. *The sources of economic growth in OECD countries.* Paris: Organisation for Economic Co-operation and Development.

Organisation for Economic Co-operation and Development. 2004. *OECD in figures.* Paris: International Energy Agency.

Organisation for Economic Co-operation and Development. 2005. *OECD principles of corporate governance 2004.* Paris: Organisation for Economic Co-operation and Development.

ORGANIZATION OF PETROLEUM EXPORTING COUNTRIES

The Organization of Petroleum Exporting Countries (OPEC) is an 11-member producer cartel comprising major petroleum-producing countries. A producer cartel is a formal agreement between or organization of producers, in this case oil producers, which coordinates and harmonizes production decisions by member states. OPEC was founded in 1960. Since 1982, the OPEC cartel has increased or decreased the supply of petroleum by assigning each member country a production quota, or production ceiling. OPEC's collusive behavior increased its power to influence the price of petroleum in global petroleum markets.

In March 2000 the OPEC oil ministers established a price range of $22 to $28 per barrel as the official target price for a "basket" of seven crude oils. The announced OPEC basket price range, and the assignment of subsequent production quotas, attempted to stabilize the volatile oil market. The OPEC basket price range was abandoned in January 2005 as prices soared, topping $70 per barrel in August 2005. According to the U.S. Energy Information Agency, OPEC controls about two-thirds of the world's proven petroleum reserves.

The composition of OPEC has changed over the past several decades. OPEC was formed on September 24, 1960, in Baghdad, Iraq. OPEC's five Founding Members were Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela. OPEC was established mainly to present a united front against giant oil companies, which, up to 1960, dictated oil prices to the oil-producing nations. In the mid-1970s, OPEC membership peaked at 13 nations, with Qatar (1961), Indonesia and Libya (1962), the United Arab Emirates (1967), Algeria (1969), Nigeria (1971), Ecuador (1973), and Gabon (1975). Ecuador and Gabon withdrew from OPEC in 1992 and 1995, respectively, leaving the cartel with 11 full members. Membership is open to countries that are capable of exporting petroleum in quantity and that share certain core values and interests with existing member nations.

OPEC's organizational structure consists of the OPEC Conference, a board of governors, a secretariat, and a number of committees and commissions. The conference is OPEC's highest authority. At its semi-annual meetings, the conference forms the cartel's policies and acts on other recommendations made by the board of governors. The conference consists of delegations from member nations, each headed by the nation's oil minister, or minister of oil, mines, and energy of member countries. The board of governors is the second tier in OPEC's structure. The board of governors attends to the day-to-day operation of OPEC and implements the policies and resolutions of the conference. The board of governors also proposes the annual budget and makes recommendations to the conference on matters of concern to the cartel. The board of governors consists of representatives from each member nation. The secretariat is OPEC's administrative and research hub. The secretariat serves as the cartel's headquarters, and is located in Vienna, Austria. The secretary-general heads the secretariat. The secretariat is funded by mandatory contributions from each member nation.

The OPEC cartel has been a dominant player in global petroleum markets for decades. Over the years, the use of production quotas has successfully bolstered oil prices, especially when members complied with agreed upon production ceilings. OPEC has also used oil as a political weapon. For example, OPEC slapped an oil embargo on the United States in 1973–1974 in protest over U.S. support for Israel during the Yom Kippur War. The power of OPEC has wavered over the years, however. Cracks in the cartel's armor appeared regularly. Most breakdowns in OPEC's unity have stemmed from faltering oil prices and subsequent cheating on assigned production quotas. Over time, volatile oil prices have created periods of boom and bust, which aggravate underlying tensions among member nations. Disputes over production quotas, for example, contributed to the withdrawal of Gabon and Ecuador from OPEC during the 1990s. Rumblings of dissatisfaction were also heard in Indonesia and Nigeria in the early 2000s. Cheating by member nations in the late 1990s contributed to oil's free fall in 1999 when the price dipped to just $11 per barrel. In contrast, greater OPEC unity and rising demand for petroleum increased the price of oil to more than $70 per barrel in the summer of 2005.

Despite the oil-price spike in 2005, long-term projections indicated a moderating in oil prices. Checks on OPEC's power include the availability of substitute primary energy sources, such as natural gas and coal; new, less expensive extractive technologies; increased production capacities among OPEC members; and the rise of additional non-OPEC oil production in West Africa, Russia, the Caspian Sea, deep-water areas in the Atlantic Ocean, and elsewhere. According to OPEC, as of 2014 it still controlled 81 percent of the world's crude oil reserves at 1.2 billion barrels.

David E. O'Connor

See also: International Cartels and Monopolies; *Vol. 2: Macroeconomics:* Energy Policy; Oil Crisis of 1979

Further Reading

Amuzegar, Jahangir. 2001. *Managing the oil wealth: OPEC's windfalls and pitfalls.* Rev. ed. New York: I. B. Tauris.

Citino, Nathan J. 2002. *From Arab nationalism to OPEC: Eisenhower, King Sa'ud, and the making of U.S.-Saudi Relations.* Bloomington, IL: Indiana Univ. Press.

Organization of Petroleum Exporting Countries. 2004. *OPEC annual statistical bulletin 2003.* Vienna, Austria: Organization of Petroleum Exporting Countries.

Organization of Petroleum Exporting Countries. n.d. OPEC share of crude oil reserves, 2014. www.opec.org/opec_web/en/data_graphs/330.htm (accessed June 1, 2016).
Simmons, Matthew R. 2005. *Twilight in the desert: The coming Saudi oil shock and the world economy.* New York: John Wiley & Sons.

OSTER, EMILY

Born: February 14, 1980, in New Haven, Connecticut; Nationality: American; Professional Interests: development economics, econometrics, health economics; Major Works: "Hepatitis B and the Case of the Missing Women" (2005), "Sexually Transmitted Infections, Sexual Behavior, and the HIV/AIDS Epidemic" (2005), "Hepatitis B Does Not Explain Male-Biased Sex Ratios in China" (with Gang Chen, Xinsen Yu, and Wenyao Lin) (2010), *Expecting Better: Why the Conventional Pregnancy Wisdom Is Wrong—And What You Really Need to Know* (2013).

Emily Oster is an American economist best known for her unorthodox analysis of data and her innovative use of economic tools. In 2002, she published her groundbreaking PhD dissertation, "Hepatitis B and the Case of the Missing Women," earning a great deal of publicity and notoriety. After later analysis, she retracted her initial thesis in the publication "Hepatitis B Does Not Explain Male-Biased Sex Ratios in China" (2008), and her peers praised her response. Oster has also researched, published, and lectured extensively about HIV in Africa as well as other health and social issues. She is an associate professor at the University of Chicago Booth School of Business and remains a respected authority with great promise and potential within the profession.

Emily Fair Oster was born on February 14, 1980, in New Haven, Connecticut. Her parents, Sharon M. Oster and Ray C. Fair, are both Yale economists specializing in the regulation of business and business strategy and econometric models that show how the economy helps to determine elections. At a young age, Oster's parents noticed that she continued talking after they tucked her into bed. Young Oster became the subject of the book *Narratives of the Crib* (2006), wherein researcher Katherine Nelson analyzed the taped monologues of the two-year-old Oster. Nelson's analysis offered insight into the psychology of early childhood. Oster went on to graduate magna cum laude with a BA in economics from Harvard in 2002. She continued on to earn her PhD in economics in 2006. She earned a Harvard graduate fellowship (2003–2005) and then an International Security Program fellowship from the Belfer Center Kennedy School of Government (2005–2006). In 2006, she was a Becker fellow as part of the Initiative on Chicago Price Theory at the University of Chicago. She began as an assistant economics professor at the University of Chicago in 2007, and then became an assistant professor in the Business School in 2009, before becoming associate professor in 2011.

Oster believes economics provides a powerful set of tools for understanding how the world works. In her dissertation "Hepatitis B and the Case of the Missing Women" (2005), Oster offered an explanation for why 100 million women were statistically missing from the developing world. Well-known economist Amartya Sen had previously claimed that this occurred due to poor medical care and sex-selected abortions. Oster's work analyzing medical data indicated that countries with higher hepatitis B infections produced more boys and accounted for 50 percent of the missing females. Later research from Avraham Ebenstein concluded that sex-selective abortion accounts for most of the male-heavy data for nonfirstborn children. Oster retracted her initial thesis in "Hepatitis B Does Not Explain Male-Biased Sex Ratios in China" (2010), which has been praised for demonstrating integrity within the profession.

Oster's continued work centered on HIV infections in Africa. She questioned the known facts about AIDS to determine a more effective use of public policy. Oster compares health and mortality as an economic investment with costs and benefits. In places where mortality is high due to problems such as malaria and high maternal mortality, public policy campaigns to change personal behavior to prevent AIDS are unsuccessful. Rather than focusing singularly on pet projects such as the abstinence-oriented plan used in Uganda, she advocates a more effective and multitargeted use of policy resources. In addition, she outlines the connection between exports and economic activity with increased new HIV infections, again suggesting that this knowledge can help policy makers make better use of their limited resources. Oster continues to investigate minority social issues such as the role of menstruation and school attendance for African females.

Oster is also noted for her innovative thinking and analysis of other atypical topics for economists such as Powerball lotteries, witchcraft, weather, and economic growth in Renaissance Europe. She has appeared in Ted Talks and worked since 2006 as a faculty research fellow for the National Bureau of Economic Research. Oster continues to write about numerous public policy issues with an emphasis on health and women's issues.

Kathryn Lloyd Gustafson

See also: Dependency Theory; Developing Countries; Easterly, William; Global Economy; Globalization; International Monetary Fund; Sachs, Jeffrey; Trade Policy; Trade, Measures of; World Bank; World Health Organization; *Vol. 1: Foundations of Economics:* Health Economics; Malthus, Thomas

Further Reading

Leonhardt, David. 2007. Recipe for relevance in economics: Add sound science—Business—International Herald Tribune. *New York Times*. January 9. http://www.nytimes.com/2007/01/09/business/worldbusiness/09iht-leonhardt.4151017.html (accessed August 6, 2012).

Nelson, Katherine. 2006. *Narratives from the crib*. Cambridge, MA: Harvard Univ. Press.

Oster, Emily. 2005. Hepatitis B and the case of the missing women. *Journal of Political Economy* 113 (6): 1163–1216.

Oster, Emily. 2005. Sexually transmitted infections, sexual behavior, and the HIV/AIDS epidemic. *Quarterly Journal of Economics* 120 (2): 467–515.

Oster, Emily. 2013. *Expecting better: Why the conventional pregnancy wisdom is wrong—and what you really need to know*. New York: Penguin.

Oster, Emily, Gang Chen, Xinsen Yu, and Wenyao Lin. 2010. Hepatitis B does not explain male-biased sex ratios in China. *Economics Letters* 107 (2): 142–44.

TED.com. n.d. TED speaker: Emily Oster. http://www.ted.com/speakers/emily_oster.html (accessed August 6, 2012).

OUTSOURCING

Outsourcing is the practice of moving an internal business process to an external business. Oftentimes the term outsourcing is paired with the term *offshoring*, the practice of moving a business practice within a company to another country or another business in a different country. Outsourcing can occur within a country's borders. Offshoring implies a change in country. It is possible to both outsource and offshore. For example, a United States company could subcontract IT work to another company in India.

David Ricardo's idea of comparative advantage is often cited when businesses choose to offshore or outsource. Companies specialize in the good or service they can produce at the least opportunity cost and trade for everything else. The increased amount of trade brings greater satisfaction to all participants.

Outsourcing is a cost savings strategy. Businesses may choose to outsource when an outside company or vendor can provide the same good or service at a lower cost. It allows businesses budget flexibility and control using labor or specialized staff only when needed.

Outsourcing also comes with some costs. Firms who outsource report concerns of loss of security or exposure of confidential data. Employees no longer have a long-term financial interest in the well-being of the company. Workers themselves face a loss of job security. They are employed for only the length of the contract or particular job they agreed to. Outsourcing can also potentially contribute to the loss of taxes and domestic jobs within a country. It is also cited as a reason for loss of bargaining power for outsourced workers.

The informational technology (IT) industry has seen much outsourcing as foreign workers from India or China are able to perform the job tasks at significantly lower labor costs than workers within countries like the United States. Outsourcing is also possible because of technology gains from the Internet and the flexibility of working hours for the labor force.

Kathryn Lloyd Gustafson

See also: Absolute Advantage; Comparative Advantage; Developing Countries; Offshoring; Trade Policy

Further Reading

Diffen. n.d. Offshoring vs. outsourcing. http://www.diffen.com/difference/Offshoring_vs_Outsourcing (accessed November 21, 2014).

The Economist. 2009. Outsourcing's third wave. May 1. http://www.economist.com/node/13692889 (accessed November 21, 2014).

Flatworld Solutions. n.d. The advantages and disadvantages of outsourcing. http://www.flatworldsolutions.com/articles/advantages-disadvantages-outsourcing.php (accessed November 21, 2014).

Investopedia. 2014. Outsourcing. http://www.investopedia.com/terms/o/outsourcing.asp (accessed November 21, 2014).

McConnell, Campbell R., and Stanley L. Brue. 2008. *Economics*. New York: McGraw-Hill Irwin.

Rampell, Catherine. 2013. Outsource your way to success. *New York Times Magazine*. November 5. http://www.nytimes.com/2013/11/10/magazine/outsource-your-way-to-success.html?pagewanted=all&_r=0 (accessed November 21, 2014).

OWNERSHIP-LOCATION-INTERNALIZATION THEORY

The Ownership-Location-Internalization (OLI) theory, also known as the eclectic paradigm, provides a framework to analyze a company's decision to undertake foreign direct investment (FDI). The basic assumption is that firms will avoid transactions in the open market when internal transactions carry lower costs. OLI is a further development of the internalization theory by John H. Dunning, based on the transaction cost theory.

The OLI model combines different theories of international economics into one. Based on three factors or advantages (the ownership, locational, and internalization advantages) three distinct forms of international undertakings can be determined: licensing, exporting, and FDI.

Ownership-specific advantages (OSA) refer to the competitive advantages, such as trademarks, production methods, returns to scale, and entrepreneurial skills, of the enterprises seeking to engage in foreign direct investment (FDI). A multinational enterprise (MNE) operating a plant in a foreign country faces additional costs in comparison with local competitors. The additional costs could be explained by cultural, legal, institutional, and language differences and also by the lack of knowledge about local market conditions or the increased costs of operating at a distance. Therefore, to be successful in another country, a foreign firm must have competitive advantages that can overcome those additional costs. Either the MNE is able to earn a higher level of revenue for the same level of costs, or have a lower level of costs for the same level of revenue, than competing domestic firms.

Location advantages refer to the existence of raw materials, cheap labor, and favorable taxes or tariffs in specific countries or regions. The less mobile, either natural or created, resources that firms need to use, combined with their competitive advantages, the more foreign firms will choose to increase or exploit their OSA through FDI. The country-specific advantages (CSA) that influence where an MNE will invest can be divided in three categories: economic, social, and political. Economic advantages include the quantities and qualities of the productive factors, market size and scope, costs of transportation and telecommunications, among others. Socio-cultural advantages include "perceived distance" between the home and host country, language and cultural differences, and the general attitude towards foreigners and free enterprise. Political advantages include general and specific government policies related to incoming FDI, international production, and intra-firm trade. An MNE would be more attracted to a country that has a large, growing, high-income market; low costs of production; a large endowment of factors not available or scarce in the home country; political stability; favorable policies toward FDI; and cultural and geographical closeness to the home country.

Internalization advantages refer to the advantages of producing internally versus producing through a partnership agreement (licensing, joint venture). When the benefits of internalizing cross-border intermediate product markets are larger, it would be more likely that a firm will prefer to produce in the foreign country itself instead of providing a license to a local firm. Internalization within an MNE occurs to overcome market failures by replacing missing or imperfect external markets within the hierarchy of the multinational firm.

The OLI paradigm attempts to explain the existence of multinationals. The "O" factor answers why the firm goes abroad. That is, to exploit its firm specific advantages in other markets and countries; these FSAs make it possible to overcome higher costs of transacting and producing in a foreign country. The "L" factor answers where to operate. International production requires foreign factors in conjunction with the firm's specific advantages. An MNE decides where to operate by comparing different countries' locational advantages. Finally, the "I" factor answers what approach the firm uses to enter into a foreign location. There are different contractual arrangements available to an MNE, ranging from simple international trade to a 100-percent-owned foreign subsidiary, and their relative costs and benefits are compared to decide which one will be used, which certainly can change as the conditions (or advantages) vary over time. A successful MNE combines the OLI advantages to determine its network of operations, subsidiaries, and partners in a way that maximizes its market shares and growth.

Hugo Eyzaguire

See also: Foreign Direct Investment; International Economics; International Trade; *Vol. 3: Microeconomics:* Markets

Further Reading

Dunning, John H. 1977. Trade, location of economic activity and the MNE: A search for an eclectic approach. In *The international allocation of economic activity*, ed. Bertil Ohlin, Per-Ove Hesselborn, and Per Magnus Wijkman, 395–418. London: Macmillan Press Ltd.

Dunning, John H. 1995. Reappraising the eclectic paradigm in an age of alliance capitalism, *Journal of International Business Studies* 26 (3): 461–91.

Dunning, John H. 2008. The eclectic (OLI) paradigm of international production: Past, present and future." *International Journal of the Economics of Business* 8 (2): 173–90.

P

PERESTROIKA

As the economy of the Soviet Union began to stagnate in the 1980s President Mikhail Gorbachev introduced a series of policies known as *perestroika* (restructuring). The policies introduced both political and economic changes to Soviet life. As Soviet life changed the new policies spread throughout Eastern Europe. Perestroika's changes have been credited for being the key component of ending the Cold War.

Through perestroika the Soviet Union began to change from within. Persecutions of churches ended and different religions began to appear. Travel to other countries was more available. Freedom of speech, press, and academics expanded throughout the Soviet Union as strict Marxist ideas disappeared. Elections were held in which the candidates had differing views, so that for the first time voting could make a difference.

The economy began to reform under perestroika. Governmental restrictions such as price controls that had been in place for generations were ended. A free market economy began to develop. Private businesses and markets became more the norm than the exception. Market interactions began to define the economic landscape.

Gorbachev's actions were an attempt to develop the economy of the Soviet Union like the economies of the United States, Japan, and Germany. The Soviet Union's transition did not develop as planned, however. The transition was too long in developing for many Soviet citizens and Gorbachev had to deal with uprisings of civil unrest.

While he was dealing with the changes within the Soviet borders, Gorbachev also worked to build relations with Western nations such as the United States. Perestroika spread to the Eastern European nations of the Soviet bloc such as Poland and Romania. To the dismay of his fellow Communist Party leaders, Gorbachev let the results of the free elections within these countries stand. There were attempts to have him removed from office.

In time, countries such as Poland and Romania voted the Communists out of office, ultimately toppling the Communist regimes. The dissolution of the Soviet Union was not far behind.

Perestroika contributed to the dissolution of the Soviet Union and is a major part of Russia's modern history. The social and economic reforms known as perestroika changed not only the Soviet Union but the global landscape as well. It was the beginning of the end of the Cold War.

David A. Dieterle

See also: Glasnost; Gorbachev, Mikhail; Russia: General Economy; *Vol. 1: Foundations of Economics:* Capitalism; Market Economy; Socialism

Further Reading

Brown, Archie. 2015. Perestroika: Reform that changed the world. BBC News. www.bbc.com/news/world-europe-31733045 (accessed December 28, 2015).

History. 2009. The Cold War. www.history.com/topics/cold-war/cold-war-history (accessed December 28, 2015).

History. 2010. Perestroika and glasnost. www.history.com/topics/cold-war/perestroika-and-glasnost (accessed December 28, 2015).

Library of Congress. 2010. Perestroika. Revelations from the Russian Archives. www.loc.gov/exhibits/archives/pere.html (accessed December 28, 2015).

POLO, MARCO

Born: September 15, 1254, in Venice, Italy; Died: January 8, 1324, in Venice, Italy; Nationality: Italian; Professional Interests: merchant, explorer, journalist; Major Work: *The Description of the World or the Travels of Marco Polo* (1300).

Marco Polo was born September 15, 1254, in Venice, Italy to Niccolo Polo and Nicole Anna Defuseh. While still a young boy, Marco's mother passed away and young Marco lived with his uncle, Maffeo Polo. Marco Polo's impact on economic history stemmed from his extensive reporting and records of his travels throughout Asia and China during the 14th century. Polo was the most famous early European who travelled the Silk Road.

Marco's father Niccolo and uncle Maffeo operated a successful family trading business located in Venice, Italy. The two brothers decided to go on a long trading journey to the East in 1253. Travel was very difficult and uncomfortable. They were traveling to Constantinople (now Istanbul) by ship and had to endure crowded conditions with cockroaches, lice, and rats. After a month of living in these deplorable conditions they finally arrived safely. During their stay they found Constantinople was not what they thought it would be. The economy was very poor. The two brothers wanted to return home to Venice but travel in those times was too unsafe to return home.

Sixteen years passed before the two brothers would return home. In 1271 Marco Polo left Venice with his father Niccolo and uncle Maffeo on another trading journey throughout Asia. They continued to travel throughout Asia, visiting the Indian subcontinent and Sri Lanka, among other areas.

In 1287 it is documented that the Polos traveled to Beijing, China. While in China Marco Polo became a close friend and confidant of Kublai Khan. It was during his time in China that he was first introduced to paper currency. Mercantile European economies were based on currencies made out of precious metals such as gold or silver. The idea of a paper currency backed only by the faith and credit of the government (Kublai Khan) was a new concept to a European.

Marco Polo also saw coal and asbestos being used as fuel for the first time, even though coal was not new to Europe. China's porcelain bowls and silk garments exhibited a wealth in China that Europe at the time did not equal.

Marco Polo was the first European to report on the vast wealth and power in 13th-century China. Polo recorded that China produced 125,000 tons of iron a year during the Yuan dynasty. He also marveled that the advanced transportation system in China, with its extensive canals linking China's cities. In 1277 Kublai Khan appointed Polo a tax inspector in the Chinese city of Yanzhou, a position he held for three years.

Kublai Khan was aging and the Polos believed that if they did not leave Beijing soon they may never be allowed to leave by future Chinese leaders. Eventually the Polos returned home to Italy.

In the war against Genoa in 1298, Marco Polo, who commanded a galley ship for Venice, was captured and imprisoned. While in prison he met a writer named Rustichello. Marco was able to have Rustichello write down his descriptions of his travels throughout Asia, describing his experiences and the vast economic wealth and customs of China and India. The book was published as *The Description of the World or the Travels of Marco Polo*. The book became popular in Medieval Europe, known as *II Milione* (Italian for *The Million*). Most Europeans did not believe his stories were based on facts but fictional tales.

Released from prison after the war, Marco Polo returned to Venice. He had three daughters and continued to work as a merchant for the rest of his life. Marco did not leave much wealth for his family when he died at the age of 70.

Through the centuries there have been both academic supporters of his accounts and critics who have suggested either he never travelled to China or his travels only took him to what we now call the Middle East. Many 18th- and 19th-century travelers, however, were able to confirm many of his accounts and his contributions to economic history continue to be confirmed by today's scholars.

Angelo Moretti
David A. Dieterle

See also: Ancient Trade Routes; China: General Economy; *Vol. 1: Foundations of Economics:* Economic History; Mercantilism; Pre-Classical Economic Thought

Further Reading

Bergreen, Laurence. 2007. *Marco Polo: From Venice to Xanadu*. New York: Alfred A. Knopf.

History.com. 2012. Marco Polo. www.history.com/topics/exploration/marco-polo (accessed February 1, 2016).

Polo, Marco. 1350. *The travels of Marco Polo*. Venice: World Digital Library. https://www.wdl.org/en/item/14300/ (accessed December 9, 2016).

Silk Foundation. n.d. Marco Polo and his travels. www.silk-road.com/artl/marcopolo.shtml (accessed December 9, 2016).

POST-WASHINGTON CONSENSUS

The term *Washington Consensus* comes from neoliberal economic ideas that have characterized development policy since the early 1980s. The ideas of the Washington Consensus were shared by power circles in Washington, D.C., including the

U.S. Congress and president. The ideas were also shared by the International Monetary Fund (IMF) and the World Bank, both headquartered in Washington, D.C.

The organizing principle was the notion of a minimal state whose primary functions were to secure law and order, ensure macroeconomic stability, and provide the necessary physical infrastructure. The Washington Consensus has given way to what appears to be a new paradigm of development. This new line of thinking became known as the *Post-Washington Consensus* (PWC). It is a return to Keynesian economics aimed at integrating social and economic dimensions of development while paying attention to broader goals such as sustainability and challenging reliance on free market economics.

In 1989 economist John Williamson identified a set of 10 objectives of the Washington Consensus:

1. fiscal discipline;
2. redirecting public expenditure;
3. tax reform;
4. financial liberalization;
5. adoption of a single, competitive exchange rate;
6. trade liberalization;
7. elimination of barriers to foreign direct investment;
8. privatization of state owned enterprises;
9. deregulation of market entry and competition; and
10. secure property rights.

The basis of these ideas was rooted in neoclassical economics of Adam Smith's "invisible hand," the rationality of economic actors' choice, and a minimalistic vision of the states' regulation of economies.

Washington Consensus policies have been criticized since the 1990s by a significant number of leading economists. Joseph Stiglitz, the chief economist at the World Bank from 1997 to 2000, criticized the policies prescribed by the IMF in response to the financial crises in Russia and Asia. Many of the ideas associated with the so-called Washington Consensus have been discredited and a new respect for the political and social benefits of a sensible social policy has arisen. Before, the crisis policymakers tended to downplay social insurance and safety net programs in favor of strategies that emphasized economic efficiency. One outcome of this changing view has been a move away from the heavy reliance on foreign capital, and by 2008 most emerging-market countries had reduced their exposure to the foreign financial markets by accumulating large foreign currency reserves and maintaining regulatory control of their banking systems.

Another aspect of the Post-Washington Consensus has been a renewed Keynesian focus on industrial policy and strategies to develop specific industrial sectors within a country. Industrial policy traditionally has been sponsored through cheap credit, subsidies, or direct state management. This strategy addresses coordination problems and other barriers that discourage private investment in new industries and technologies. Some believe that industrial policy addresses difficulties that market forces alone are unlikely to overcome.

The success and spread of free market approach in developed countries has had a self-perpetuating effect reinforcing the view that there was no alternative. Criticism from the emerging Post-Washington Consensus represents a crack in the neoliberal thought and has led to fresh thinking and accelerated the search for viable alternatives. The question remains as to whether the Post-Washington Consensus will bring about such a change, and how quickly.

Dale Johnson

See also: International Monetary Fund; Stiglitz, Joseph; Washington Consensus; World Bank; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics

Further Reading

Birdsall, Nancy, and Francis Fukuyama. 2011. The Post-Washington Consensus. *Foreign Affairs*. March/April. https://www.foreignaffairs.com/articles/2011-02-16/post-washington-consensus (accessed November 30, 2016).

Lopes, Carlos. 2011. Economic growth and inequality: The new Post-Washington Consensus. United Nations Economic Commission for Africa. http://www.uneca.org/sites/default/files/LopesWritings/post_washington_consensus_rccs_version.pdf (accessed November 30, 2016).

Önis¸ Ziya, and Fikret Senses. n.d. *Rethinking the emerging Post-Washington Consensus*. http://portal.ku.edu.tr/~dyukseker/onis-senses.pdf (accessed November 30, 2016).

Stiglitz, J. E. n.d. The Post Washington Consensus consensus. The Inititive for Policy Dialogue. http://policydialogue.org/files/events/Stiglitz_Post_Washington_Consensus_Paper.pdf (accessed November 30, 2016).

Williamson, J. 1990. What washington means by policy reform. Peterson Institute for International Economics. http://www.iie.com/publications/papers/paper.cfm?researchid=486 (accessed November 30, 2016).

PRODUCT CYCLE THEORY

Product cycle theory was developed by Raymond Vernon in the 1950s to help explain international trade from the Heckscher-Ohlin model and the process of a product from concept of undesirability. The product cycle theory is based on a period of time divided into the phases of product introduction, product growth, maturity, and decline. There is no set amount of time for each stage, every product is different and may take more or less time in each stage than another.

The product cycle theory states that a firm will begin to establish itself locally then eventually extend to foreign countries. The goal of managing a product's life cycle is to maximize its value and profitability at each stage. At the start of a product's life firms will experiment with their products creating a higher demand. As goods are being invented and tested in markets, more time, costs, and labor are needed to design the process.

The process creates comparative advantage for those who can adapt the process quickly. As the demand grows the process enters the middle of its life cycle and it becomes more standardized, unskilled labor and lower costs can begin to take over the build, where the process can be exported and competitors can gain market shares from their process. Once the product begins to mature, sales growth begins to slow down.

The business will then have to put more and more money into marketing to further entice consumers to buy the product. Late in the cycle the product can be built or performed at minimum cost, opening up the process for the most consumption. This begins the decline and revenues will drop to the point where it is no longer economically feasible to continue making the product. The product may simply be discontinued, or it can be sold to another company.

Adam Vallus

See also: Comparative Advantage; Developing Countries; Heckscher-Ohlin Theory of Trade

Further Reading

Higgins, Benjamin Howard, with Donald J. Savoie. *Regional development theories and their application*. Piscataway, NJ: Transaction Publishers.

The Imitation Lag Hypothesis, Product Cycle Theory. n.d. http://www.wright.edu/~tdung/product_cycle.htm (accessed September 30, 2016).

Markgraf, Bert. n.d. The three stages of the international product life cycle theory. *Houston Chronicle*. http://smallbusiness.chron.com/three-stages-international-product-life-cycle-theory-19364.html (accessed September 30, 2016).

PROTECTIONISM

Protectionism is a government acting to discourage the importing of a good or service by a company in another country. Protectionist measures can also be applied to encourage domestic production to favor a domestic industry and create a market that discourages foreign competition. Protectionism by a country can be either transparent or nontransparent. The three main forms of protectionism are tariffs, quotas, and subsidies. These are transparent types of protectionism. All three are overt means of a government to protect an industry.

Tariffs are a tax on a country's imports. Because tariffs generate revenue, they can have several uses, depending on the country imposing the tariff. Developed nations use tariffs for protective purposes. Tariffs are not as much of a protectionist measure for less developed countries (LDCs). For an LDC a tariff is usually the main source of tax revenue. Because income, consumption levels, and property values are small relative to the size of the economy, imports remain the main source of generating tax revenue.

Quotas are another form of protection limiting the number of imports. Quotas are not a tax and therefore do not generate tax revenue. As a result, they are almost exclusively instituted by developed countries to protect a domestic industry. The United States used quotas in the 1970s to protect the U.S. automobile industry from the early introduction of Japanese imports. Another form of quota is the voluntary export restraint (VER). This type of quota, as the name suggests, is the exporting nation voluntarily limiting an export to an importing nation. President

Ronald Reagan used this type of protection for the automobile industry by persuading Japan to voluntarily restrict its exporting of automobiles to the United States.

Tariffs and quotas are considered transparent protective barriers. Transparent protective measures are an overt act of the domestic government and clearly visible to everyone. Less visible types of barriers such as patents, copyrights, certain manufacturing rules, licenses, or fees are nontransparent.

Governments institute protectionism measures for several reasons. An industry might be protected because it is considered important to a nation's national defense. In addition, if an industry is young and developing, it may lobby government to be protected from the competition of more mature foreign industries or companies. A government may institute a tariff or quota to protect a specific labor group.

The politics of protectionism can be quite sensitive. A government may institute a tariff or quota in retaliation for the imposition of a similar protected measure by another country. Retaliation is a downside to protectionism. This was evident in the United States in the 1930s, with the response of the rest of the world to the passage of the Smoot-Hawley Tariff Act. When a government decides to impose a tariff, quota, or some other form of protectionism, it must take into consideration the possibility of retaliations.

The benefits of tariffs and quotas can be identified by the reason for the protective measure or the specific industry or labor group being protected, but the costs are more expansive as they are spread out among a wide number of people. This idea of narrowly focused beneficiaries against the very broad base of those paying the costs is the theory behind Mancur Olson's *The Logic of Collective Action*. Market costs of protectionism include an inefficiency of production, additional costs to domestic businesses, and increased prices to consumers. While import substitution policies of developing nations have the intent to promote domestic production, they cut off developing nations from outside trade and new technologies.

The enactment of subsidies is also a form of protectionism. Direct subsidies to producers often lead to overproduction or restricting imports from a market. These types of subsidies are implemented especially in the agricultural industry. In a global economy, the benefits and costs of subsidies are often hard to identify. While some subsidies may benefit consumers with lower prices, the lower prices hurt producers in developing countries. Yet in some developing countries, the lower world prices raise their standard of living. Economists usually measure the benefits and costs of subsidies based on a nation-by-nation study.

David A. Dieterle

See also: Import Quotas; Tariffs; Trade Policy; *Vol. 2: Macroeconomics:* Tariff Act of 1930 (Smoot-Hawley Tariff Act); *Vol. 3: Microeconomics:* Olson, Mancur

Further Reading

Bhagwati, Jagdish. 1988. *Protectionism*. Cambridge, MA: MIT Press.

Olson, Mancur. 1971. *The logic of collective action: Public goods and the theory of groups*. Cambridge, MA: Harvard Univ. Press.

R

RACE TO THE BOTTOM

Race to the bottom is a concept that suggests a downward spiral of socio-economic conditions as businesses search for the lowest wages, taxes, and environmental and social regulations. Without these regulations companies move from country to country in search of the cheapest resources until they devastate all worldwide economies. The phrase was first attributed to United States Supreme Court Justice Louis Brandeis in the 1933 *Liggett Co. v. Lee* case.

One fear in regard to globalization and free trade is that governments will allow deregulation of business or taxes to keep economic activity within their borders, resulting in low wages, depraved working conditions, and little environmental protection. In the early stages, a race to the bottom can be invisible, as trade appears beneficial with low costs and increased foreign investment. As competition continues, a developing country might find it difficult to pass improved labor laws and enforce them as companies have the financial prowess to move to another country with lower standards. As a result countries are forced to enact downward leveling whereby they reduce costs through lower environmental standards, worker wages and salaries, health care, and education.

Opponents of race-to-the-bottom conditions cite the power of federal governments to enforce and enact legislation. They may also enlist the aid of international organizations that can create environmental and labor rules. Governments may enact purchasing policies on moral grounds. This involves forbidding or applying heavy taxes, tariffs, and trade sanctions to nations that permit the export of offensive goods. They may also use standard based tariffs designed to protect national standards. A product imported from a country with low labor and environmental standards faces a higher tariff upon entry.

Current research suggests that labor rights for workers fell during the 1980s and 1990s. Nations compete with one another by not enforcing labor laws. Competition between countries occurs in the lack of application of rather than compliance with what is law.

Race to the bottom theory suggests strong competition for foreign investment would encourage developing nations to lower their domestic environmental standards. Developing countries would then become regions of pollution and corruption. Interestingly nations such as the United States with the highest environmental standards seem to attract the most investment. The cost of compliance with environmental standards still remains low compared with the total cost of doing business.

Race to the bottom is not yet occurring on a large global scale that would destroy a domestic economy. The use of fair trade standards with strong regulations and controls set in place meant to protect the economy and encourage the world market can eliminate or at least cap a potential race to the bottom.

Kathryn Lloyd Gustafson

See also: Developing Countries; Globalization; International Trade and the Environment; *Vol. 1: Foundations of Economics:* Environmental Economics; Environmentalism; Supreme Court; *Vol. 2: Macroeconomics:* Energy Policy

Further Reading

C.W. 2013. Labour standards: Racing to the bottom. *The Economist*, November. http://www.economist.com/blogs/freeexchange/2013/11/labour-standards (accessed August 15, 2014).

Geddes, P. 2003. *Trade and the environment: A race to the bottom?* Foundation for Research on Economics and the Environment. http://www.free-eco.org/insights/article/trade-and-environment-race-bottom (accessed August 15, 2014).

Madison, M. 2016. Free trade vs. fair trade and the race to the bottom theory—all you need to know! Politics and Social Issues. July 24. http://madelinemadison.hubpages.com/hub/Free-Trade-Vs-Fair-Trade-and-the-Race-to-the-Bottom-Theory (accessed August 15, 2014).

Rapoza, K. 2014. Globalization's old 'race to the bottom' finds unlikely winners. *Forbes*, August. http://www.forbes.com/sites/kenrapoza/2014/08/19/globalizations-old-race-to-the-bottom-finds-unlikely-winners/ (accessed August 19, 2014).

REAL EXCHANGE RATES

The real exchange rate measures the relationship of exchanging goods and services between nations. It differs from a simple nominal currency exchange rate between countries. The technical formula for determining the real exchange rate involves the currency exchange rate, as well as the domestic prices for the good or service in each nation.

As an example, assume that the existing nominal exchange rate between the United States and the European Union is $1.15 U.S. dollars to €1.00 European euros. Further assume that Belgian beer can be purchased for €2.50 and American beer for $2.65. In a simple example the real exchange rate would be calculated by using the following formula:

$$(\text{nominal exchange rate} \times \text{domestic price}) \,/\, \text{foreign price}$$

Or, put into numerical form, the real exchange rate would be:

$$[(\$1.15 \,/\, €1.00) \times €2.50] \,/\, \$2.65 = 1.085$$

As a result, while the nominal exchange rate above is 1.15 the real exchange rate is 1.085. While the above example provides uncomplicated calculations, and therefore a relatively clear demonstration of how to calculate a real exchange rate as well as how it differs from a nominal exchange rate, in real world application calculating the real exchange rate is far more challenging.

The first issue is that the real exchange rate does not apply to a sole good as demonstrated in the above example. Instead, it should use a basket of goods that, in theory, should relate to the total goods and services that an individual consumer is likely to consume in the ordinary course of life. The challenge with this is that individuals do not all buy the same goods and services. Each of us has different tastes and goals impacted by a number of variables, which include, but are not limited to, socio-economic background, education, age, and health status. As a result, the creation of a basket is to some degree subjective.

A second consideration deserving attention is added transaction costs. Examples of these would include transportation costs, trade barriers such as tariffs, and local taxes such as sales tax. These added costs would need to be added to the cost of a good in the above calculation.

In theory the real exchange rate and the nominal exchange rate should be in relative equilibrium to one another. If that were not the case, an arbitrage situation would exist and informed investors would apply Gresham's Law by purchasing the overvalued currency and using it to acquire goods in other countries. Such a strategy would be short lived, however, as market forces in a floating exchange rate world would quickly react and nominal exchange rates would move towards reestablishing equilibrium.

Real exchange rates are of increasing interest to economists and private sector participants as the modern world continues toward deeper global economic integration. Thanks to technology, increasingly sophisticated methodologies are being used to create and measure baskets of goods and services. The result of these efforts has been to identify purchasing power parity (PPP) among various nations. PPP is an offshoot of real exchange rate theory, and it attempts to measure the true purchasing power of various currencies.

The real rate of exchange is, and will continue to be, an important area of interest and research in today's globalized world. It has important ramifications for international policy by such organizations as the World Trade Organization and the International Monetary Fund, domestic governmental policies, and also for multinational private sector businesses. It is also an area where, because of new possibilities in the areas of data collection and processing now available through technology, new research and insights are likely to be discovered and developed well into the future.

John Moore

See also: Exchange Rates; Globalization; International Monetary Fund; World Trade Organization; *Vol. 2: Macroeconomics:* Gresham's Law

Further Reading

Catão, Luis A. V. 2007. Why real exchange rates? *Finance & Development*, September. www.imf.org/external/pubs/ft/fandd/2007/09/pdf/basics.pdf (accessed September 30, 2016).

Organisation for Economic Co-operation and Development. 2015. Prices and purchasing power parities (PPP). Statistics Directorate. http://www.oecd.org/std/prices-ppp/ (accessed September 30, 2016).
The World Bank. 2016. Real effective exchange rate index (2010 = 100). data.worldbank.org/indicator/PX.REX.REER (accessed September 30, 2016).

REGIONAL TRADE AGREEMENTS

A regional trade agreement (RTA) is an agreement that creates preferential trade concessions among member countries. The most common form of trade preference is the reduction or elimination of tariffs. RTAs promote regional economic integration by dropping trade barriers. Many RTAs also promote regional integration by establishing common standards or protocols governing labor rights, environmental protection, foreign investment, and fair competition. RTAs include multilateral and bilateral trade agreements. In many cases, RTAs establish a trade bloc, which cements preferential trade and investment concessions among members. Membership in a trade bloc is often limited to countries located in a certain geographic region, such as Europe, North America, South America, or Southeast Asia. The World Trade Organization (WTO) identified about 416 RTAs in the world economy as of February 2016.

RTAs are categorized by level of economic integration. The World Bank identifies four RTA categories, including the free trade area, customs union, common market, and economic and monetary union.

A free trade area is a trade bloc that eliminates trade barriers among members but permits individual members to devise their own restrictions on imports from non-member nations. Many regional trade blocs are organized as free trade areas. Examples of free trade areas include the North American Free Trade Agreement (NAFTA), ASEAN Free Trade Area (AFTA), and Economic Community of West African States (ECOWAS). Steps toward creating a U.S.-Central American Free Trade Agreement (CAFTA), and an even more expansive Free Trade Area of the Americas (FTAA) among the 34 democracies of the Western Hemisphere, were also underway during the early 2000s. Ranked by combined gross domestic product, NAFTA, which comprises Canada, Mexico, and the United States, is the world's largest free trade area.

A customs union creates a free trade zone for members and a common external trade policy with non-member countries. The common external tariff (CET) is a custom union’s most visible external trade policy. A CET requires RTA members to levy the same import tariffs on goods entering the customs union. Examples of a customs union include the Southern Common Market (MERCOSUR) and the Andean Community, each of which evolved from a free trade area to a customs union in the early 2000s. MERCOSUR comprises Argentina, Brazil, Paraguay, and Uruguay. The Andean Community comprises Bolivia, Colombia, Ecuador, Peru, and Venezuela. All Andean Community member nations, except Peru, implemented a CET in 2004.

The final two categories of RTA require progressively larger degrees of economic integration. A common market expands on the common internal and external trade policies of the custom union by opening national borders to other resource flows—especially labor and capital. An economic and monetary union completes the process of regional economic integration by establishing a common currency and a variety of common policies related to banking and finance, investment, labor standards and mobility, agriculture, energy, tourism, foreign aid, and other economic activity. Over time, the European Union (EU) evolved from a free trade area, to a customs union, to a common market, and finally to an economic and monetary union. Today, the EU is the most highly integrated RTA in the global economy. In 2002 the euro replaced the national currencies of 12 of 15 EU countries. On May 1, 2004, an EU enlargement brought 10 more countries into the EU family, expanding the EU from 15 to 25. Nineteen of the 25 EU countries use the euro as their national currency.

The causes of the growth of RTAs are varied. One factor is the reintegration of former Soviet republics and Eastern bloc countries into the global economy. Another is the explosion of RTAs among different classifications of countries, such as North-North agreements, North-South, and South-South. Nearly every country in the global economy belongs to at least one RTA. Developing countries, on average, belong to five RTAs. The web of RTAs is complex, even cumbersome, for some countries.

RTAs have also stirred some controversy because trade and investment preferences in RTAs are inherently discriminatory against non-member countries. Yet, the WTO, the global guardian of free and fair trade, tolerates certain trade and investment preferences. The WTO's Article 24 permits preferential trade arrangements among members as long as RTAs do not impose additional trade restrictions on non-member nations.

David E. O'Connor

See also: Asia-Pacific Economic Cooperation; Economic Community of West African States; European Free Trade Association; European Union; Free Trade Area of the Americas; MERCOSUR; North American Free Trade Agreement; World Trade Organization

Further Reading

Dinan, Desmond. 2005. *Ever closer union: An introduction to European integration.* Boulder, CO: Lynne Rienner Publishers.

Mathis, James H., and Jagdish Bhagwati. 2002. *Regional trade arrangements in the GATT/WTO: Article XXIV and the Internal Trade Requirement.* New York: Cambridge Univ. Press.

Schiff, Maurice, and Alan L. Winters. 2003. *Regional integration and development.* Washington, DC: World Bank Publications.

Schott, Jeffrey J. 2004. *Free trade agreements: US strategies and priorities.* Washington, DC: Institute for International Economics.

The World Bank. 2005. *Global economic prospects 2005: Trade, regionalism, and development.* Washington, DC: World Bank Publications.

ROSTOW, WALT W.

Born: October 7, 1916, in New York City; Died: February 13, 2003, in Austin, Texas; Nationality: American; Professional Interests: National Security Advisor, 1966–1969; Major Work: *Rich Countries and Poor Countries: Reflections on the Past, Lessons for the Future* (1987).

Walt W. Rostow was a prominent American development economist and economic historian. He pioneered the linear stages theory of economic development and staunchly supported free enterprise solutions to development problems. Rostow was born in New York City, the son of Russian immigrants.

After earning his doctorate from Yale University (1940), Rostow began a distinguished career in teaching and public service. Rostow taught economics at Columbia University, the Massachusetts Institute of Technology, and the University of Texas. He also served as a top advisor to former U.S. presidents Kennedy and Johnson. Rostow's most influential book, *The Stages of Growth: A Non-Communist Manifesto* (1960) was written during his tenure at MIT.

In *The Stages of Economic Growth* Rostow identified five development stages. As an economic historian, Rostow generalized about countries' linear progression from one stage of economic development to the next. He recognized, however, that unique features within countries could disrupt an orderly progression toward economic development. Underpinning Rostow's linear model was a premise that free markets, self-interest, and profit incentives would set developing countries on the right path toward modernization. Rostow offered his linear development model as an alternative to Marxist theory, which stressed class struggle as the impetus for economic change.

Rostow's five stages of development included the traditional society, preconditions for take-off, take-off, drive to maturity, and age of high mass consumption. The first stage, traditional society, is dominated by small-scale subsistence agriculture. Limited technology and capital goods, and parochial attitudes, block substantive gains in productivity and economic growth. The second stage, preconditions for take-off, features advances in technology, capital formation, entrepreneurship, institution building, and commerce. Business activity during this transitional stage grows parallel to, but does not replace, society's dominant agricultural base.

The third stage, take-off, is defined by industrialization, technological advances, aggressive entrepreneurship, and expanded commercial opportunities. Modernization and economic growth dominate the take-off stage. In the fourth stage, the drive to maturity, scientific and technological advances are widened to all realms of economic activity. Entrepreneurs, motivated by profit incentives, expand production to meet society's rising wants and needs. The fifth stage, the age of mass consumption, is marked by capital-intensive enterprise, rising productivity, and higher real incomes. Higher incomes and expanded social programs improve people's standard of living. This journey toward economic development could take hundreds of years to complete.

Interest in linear development theories has faded over time. Later development economists dismissed the linear model as being too rigid. Instead, they searched for underlying obstacles to economic development and strategized about how to speed progress toward economic growth and human development. However, Rostow's pioneering work in the field of development economics jumpstarted a wider, ongoing development debate.

David E. O'Connor

See also: Developing Countries; Development Economics; Easterly, William; *Vol. 1: Foundations of Economics:* Capitalism

Further Reading

Mookherjee, Dilip, and Debraj Ray, eds. 2000. *Readings in the theory of economic development.* Malden, MA: Blackwell Publishers.

Rihani, Samir. 2002. *Complex systems theory and development practice: Understanding nonlinear realities.* New York: Zed Books.

Rostow, Walt. W. 1971. *The stages of growth: A non-communist manifesto.* Rev. ed. New York: Cambridge Univ. Press.

Rostow, Walt. W. 1987. *Rich countries and poor countries: Reflections on the past, lessons for the future.* Boulder, CO: Westview Press.

RUSSIA: GENERAL ECONOMY

Russia's economy has changed and transformed dramatically over the past few decades. The Soviet Union government took Russia from an agriculturally-based economy to an industrial giant. However, since the collapse of the Soviet Union in the early 1990s the Russian economy has experienced some severe setbacks as well as successes. Russia's economy is largely dependent on exporting oil. When oil prices fall significantly the Russian economy falls proportionately.

Before it became part of the Soviet Union, the Russian economy was largely dependent upon farming. When Soviet leadership took over it set Russia in motion to produce chemicals, construction materials, machine tools, and steel. It set quotas for workers to meet and told them where their goods were to be sold. Although this pushed the economy to a more modern, better level, the oppression of the Soviet government discouraged new ideas and creativity.

After the collapse of the Soviet Union, Russia's economy was in complete disarray. The new government set up a better banking system and allowed the Russian currency, the ruble, to be exchanged internationally for the first time. When the government lifted the price controls in 1992 prices rose sharply while incomes remained unchanged, putting many goods out of the reach of the Russian people reach. Russia's economy is largely fueled by its abundance of natural resources. It has some of the world's largest forests, massive mineral deposits, extensive farmland, and many sources of energy. Manufacturing is mainly in the eastern, more developed part of Russia and plays an important role in the stability of the economy. The nation's capital, Moscow, is the central location of manufacturing. The oil refining industry is an extremely important one in Russia. It is largely set in the Volga River–Ural Mountains region. The paper industry is on the southern edge of the forests in Russia, obviously playing another important role in the economy.

Russia's economy began to flourish in the early 2000s. An increase in the income tax of 13 percent gave the economy a siginificant boost. Between 2000 and 2008 Russia's gross domestic product (GDP) grew 7 percent annually. The number of people living in poverty dropped from 30 percent to 14 percent. Although inflation remained a rising concern, the World Bank, in a rare decision, declared Russia stable in 2007.

After 16 years of negotiation Russia was accepted into the World Trade Organization in 2011. The World Bank also declared Russia a high-income economy. In 2012 Russia continued to realize the need to diversify its economy because of its dependence on oil and gas. It wanted to expand its technology sector. In 2013 the Russian GDP in United States dollars was over $2.1 billion.

After the annexation of Crimea in 2014 the Russian economy began to experience a downturn. In response to the annexation, the United States, the European Union, Japan, and Canada put restrictions on Russia's financial, energy, and defense sectors. The restrictions on the financial sector led to the decline of the ruble. In 2014 although the Russian GDP grew by only 0.6 percent, but growth was higher than expected. However, the economy decreased by 4.6 percent through the first two quarters of 2015. The value of oil had also dropped making it cheap in countries such as the United States. Oil went from $104 a barrel to below $50 a barrel, severely hurting the Russian economy. The Russian economy continues to fluctuate depending largely on the price of oil.

Amelia Gavulic
David A. Dieterle

See also: Glasnost; Gorbachev, Mikhail; Perestroika; *Vol. 1: Foundations of Economics:* Command Economy; Resources; Socialism; *Vol. 3: Microeconomics:* Commodities

Further Reading

Cookson, John Richard. 2015. Russia's financial system: How vulnerable? *The National Interest*, October. www.nationalinterest.org/feature/russias-financial-system-how-vulnerable-13822 (accessed October 29, 2015).

Economy. 1994. *The world book encyclopedia.* New York City: World Book, Inc.

International Monetary Fund. 2015. Russian Federation and the IMF. www.imf.org/external/country/RUS/index.htm (accessed October 29, 2015).

The World Bank. 2015. Russian Federation: Overview. September. www.worldbank.org/en/country/russia/overview (accessed October 29, 2015).

S

SACHS, JEFFREY

Born: November 5, 1954, in Detroit, Michigan; Nationality: American; Professional Interests: environmental sustainability, economic development, globalization; Major Works: *The End of Poverty: Economic Possibilities for Our Time* (2005), *Escaping the Resource Curse* (with Macartan Humphreys and Joseph E. Stiglitz) (2007), *Common Wealth: Economics for a Crowded Planet* (2008), *The Price of Civilization: Reawakening American Virtue and Prosperity* (2011), *To Move the World: JFK's Quest for Peace* (2013).

Jeffrey Sachs is an American academic in the field of political economics. He is best known for his work on developing international economies and alleviating poverty while promoting sustainability with respect to the environment. He has worked to affect change in economic policy and well-being in developing countries across the world. His work transforms the theoretical into the practical, and his writing is recognized by both scholars and the general public. He writes a monthly newspaper column appearing in over 80 countries. Sachs is widely considered the leading international economic adviser of his generation.

Jeffrey D. Sachs was born on November 5, 1954, in the Detroit, Michigan, suburb of Oak Park. He completed his undergraduate degree at Harvard College in 1976 and earned both an MA and a PhD in economics at Harvard University by age 28. He spent the next 22 years as a professor of economics at Harvard, most recently as the Galen L. Stone Professor of International Trade. He also served as Harvard's director of the Center for International Development. During his early years as a student and then professor at Harvard, he concentrated mostly on the problems of the developing world.

A turning point in Sachs's career came after he attended a lecture on Bolivia's problem of hyperinflation. Sachs was invited to visit Bolivia to explore the problem further. From the moment he arrived in the South American country, his worldview was altered and his priorities shifted. His experience in Bolivia prompted him to help the Bolivian government tighten its budget to avoid taking on less new debt while simultaneously negotiating debt forgiveness. Sachs determined that countries cannot be coerced to repay debts without political and civil consequences. He also advised the Bolivian government to implement shock therapy fiscal and monetary policies to quickly eliminate the burgeoning monetary chaos.

Economic shock therapy, first championed by Milton Friedman, is a process of using fiscal and monetary policies to combat the government's over-involvement in the economy. While Friedman's model promoted rapid privatization of all public industries, Sachs's model did not see government programs as the villains. Sachs's model claimed that a quick shock to a nation's monetary system could jump-start development in a very short period of time.

After his work in Bolivia, Sachs was invited to nations and organizations around the world as a special adviser. He worked with Poland to transition from a command economy to a capitalist economy after the fall of communism. Using the same method of shock therapy, the nation was able to achieve great success. When he worked with other Eastern European nations to achieve the same goal, success was not always clearly achieved; for example, Russia saw devastating effects when he helped them take the same course of action. In Asia, he helped rapidly developing nations such as India and China design economically and environmentally sustainable development solutions. In Africa, he has focused his attention on eradicating communicable diseases, which prevent citizens from contributing as productive members of society.

Some of the most important work of Sachs's career has been in conjunction with the United Nations where he has served as special adviser under UN secretaries General Ban Ki-Moon and Kofi Annan. From 2002 to 2006, he was director of the UN Millennium Project. The Millennium Declaration, signed in 2002, asserts that every individual has the right to dignity, freedom, equality, and a basic standard of living that includes freedom from hunger and violence while encouraging tolerance and solidarity. The purpose of Millennium Goals is to create practical ideas to improve infrastructure and increase social, economic, and political rights, improving quality of life. The project dedicates the resources of the UN to eight goals, with 21 targets to be met by the year 2015. In this role, Sachs has been able to implement his theories focused on debt reduction and the link to poverty elimination. By convincing the G8 governmental political forum to provide funds to the World Bank and International Monetary Fund, the UN has been able to help the poorest countries channel their money into health and education initiatives rather than paying off debt. Funding for the project has come in the form of aid from the many developed UN member nations. While the goals are considerable and the obstacles are numerous, Sachs maintains the optimistic conviction that extreme poverty can be eliminated worldwide.

Sachs left Harvard in 2002 to become the director of the Earth Institute at Columbia University and to serve as their distinguished Quetelet Professor of Sustainable Development. In this role, he creates and promotes large-scale efforts to mitigate human-induced climate change. Through the Earth Institute he works with developing nations to simultaneously develop their economy while protecting their environment. He also founded a not-for-profit group—the Millennium Promise Alliance—aimed at ending extreme poverty.

He has twice been named as one of *Time* magazine's 100 most influential leaders. He has been called the most important economist in the world by the *New York Times*. Currently, he continues to serve at Columbia University as the director of the Earth Institute and the distinguished Quetelet Professor of Sustainable Development.

Rebecca Kraft

See also: Dependency Theory; Developing Countries; Easterly, William; Financial Imbalances in the 2000s; Globalization; International Monetary Fund; Trade Policy; Trade, Measures of; World Bank; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; *Vol. 2: Macroeconomics:* Debt

Further Reading

The Earth Institute Columbia University. n.d. State of the Earth. http://blogs.ei.columbia.edu/tag/jeff-sachs/ (accessed October 29, 2012).

Humphreys, Macartan, Jeffrey Sachs, and Joseph E. Stiglitz. 2013. *Escaping the resource curse*. New York: Columbia Univ. Press.

PBS. n.d. Commanding heights. http://www.pbs.org/wgbh/commandingheights/lo/story/index.html (accessed September 30, 2016).

Sachs, Jeffrey. 2005. *The end of poverty: Economic possibilities for our time*. New York: Penguin Press.

Sachs, Jeffrey. 2008. *Common wealth: Economics for a crowded planet.* New York: Penguin Press.

Sachs, Jeffrey. 2011. *The price of civilization: Economics and ethics after the fall.* New York: Random House.

Sachs, Jeffrey. 2011. *The price of civilization: Reawakening American virtue and prosperity*. New York: Random House.

Sachs, Jeffrey. 2013. *To move the world: JFK's quest for peace*. New York: Random House.

Saporito, Bill. 2005. Jeffrey Sachs. *Time* Magazine, March 6. http://content.time.com/time/magazine/article/0,9171,1034734,00.html?iid=sr-link1 (accessed September 30, 2016).

SCHENGEN AGREEMENT

The Schengen Agreement is an accord put in place originally by five member states of the European Economic Community to eliminate customs and passport control at shared borders. It was signed in the town of Schengen, Luxembourg, in 1985. The five countries that originally signed the agreement were Belgium, France, Germany, Luxembourg, and the Netherlands. The agreement serves to create more efficient movement of labor, goods, services, and capital across borders. It has also demonstrated a level of trust between member nations. The burden of customs and immigration control is shifted to the outside area—in this case, the outside border of the European Union territory. This agreement was instrumental in creating the foundations set out by the Delors Report, which came to be accepted in 1987 as the Single European Act.

These foundations set the stage for the European Union and its members' unified market approach. In 1999, the Schengen Agreement was incorporated into European Union Law. The Schengen Agreement was an example of changes that would help complete the internal market as set out by the Delors Report. This sort of international cooperation, trust, and communication eventually led to the Maastricht Treaty, the inception of the European Central Bank, the implementation of a single currency (the euro), and the European Union as we understand it today.

The Schengen Area is made up of 26 countries. Liechtenstein, Iceland, Norway, and Switzerland are non-European Union members that are a part of the Agreement.

Further, there are 6 EU members that are not a part of the Schengen Agreement: Bulgaria, Croatia, Cyprus, Ireland, Romania, and the United Kingdom.

The challenges of the Schengen Area are mainly the control and organization of such a large area. Within that, there are security concerns. For this reason, the United Kingdom and Ireland chose to abstain from the agreement. As members of the European Union, countries must extend the rights of all other EU citizens to travel freely and reside inside their borders, even as they maintain passport checks at the border. Another challenge of the agreement is creating a strong, cohesive data system that can be accessed across the large region. The Schengen Information System enables enforcement organizations to share data on missing persons, stolen items, and court proceedings. The United Kingdom and Ireland participate in this aspect of the Schengen Agreement.

The elimination of passport control and customs reduces time and restrictions on movement of labor, goods, services, and capital. These freedoms of the Single European Act aimed to combine Europe's many markets into one unified Free Trade Area. The potential gains from market unification should be experienced through expanded trade. In particular, the Schengen Agreement reduces transportation costs and inefficiencies. The increase in production capabilities and the free flow of labor forces should lead to greater competition and should therefore strengthen the consumer economy. Concurrently, the harmonization of regulations and standards allows for lower risk and greater versatility in international trade, which should strengthen the overall economy of the area.

The Schengen Agreement has come under pressure due to emerging terrorist threats. Concurrently, the security of the area has been challenged by issues of how to respond ethically to refugee crises. Under the Schengen Agreement, the entry of migrants to the European Union is largely the responsibility of the external borders of the zone. The recent expanse of illegal immigrations has called for greater cohesion from the European Union to strengthen the external borders against illegal migration. As a condition of the European Union and Schengen Agreement, there are commonalities on the treatment of asylum-seeking refugees from conflict zones. As such, this has been a difficult issue to control. The agreement does allow a signatory reimplementation of border and passport controls for 10 days initially and then a renewal of 20 days for public policy or national security reasons. However, it is clear that the impetus is to keep open borders within the area and that these measures should be used only as a last resort.

Daniel S. Talwar

See also: Delors Report; Euro (European Currency Unit); European Economic Community; European Community Bank; European Union; Maastricht Treaty; Single Currency Area

Further Reading

BBC News Staff. 2016. Schengen: Controversial EU free movement deal explained. *BBC News*, April 24. www.bbc.com/news/world-europe-13194723 (accessed December 16, 2015).

EUR-Lex Staff. 2009. The Schengen area and cooperation. EUR-Lex: Access to European Union law. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3Al33020 (accessed December 16, 2015).
European Commission. 2011. Factsheet: What is Schengen? European Commission Press Release Database. europa.eu/rapid/press-release_MEMO-11-608_en.htm (accessed December 16, 2015).
Gerber, James. 2014. *International economics*. 6th ed. New York: Pearson Education, Inc.
Hill, Charles W. L. 2014. *Global business today*. 8th ed. New York: McGraw-Hill/Irwin.

SILK ROAD

The Silk Road, or Silk Routes, was one of the first and most influential trade routes in history. It represented some of the first interaction and exchange of cultures, technologies, art, languages, goods, and ideologies between the West and the East. The passages transcended empires and dynasties and reflected the mutually beneficial components of international trade—for example, it brought to the West the invention of paper as an effective mode of transcribing history. Similarly, glass manufacturing spread east into China from the Islamic world. The Silk Routes traversed an incredible amount of geographical space: traveling through China around both the northern and southern borders of the Taklimakan Desert, diverting south into India and further west across modern day Kyrgyzstan into Northern Iran and across the Middle East to the Mediterranean Sea and across Turkey into Europe.

The Silk Road is formally described as existing between 130 BCE, when the Han Dynasty opened trade to the West, to 1453 CE, when the Ottoman Empire closed trade to the West. However, the Silk Road's conception and practices can be traced back to earlier accounts. During the Achaemenid Empire, from 500 to 330 BCE, a postal and communications route called the Persian Royal Road stretched from the Mediterranean Sea to modern-day northern Iran, which would later become an integral part of the Silk Road. The conquests of Alexander the Great spread to this region and left behind a legacy of a hybridized Greco-Bactrian culture. Meanwhile, in the East the Qin Dynasty had brought the Chinese states together, unifying the language and the system of governing. The Qin Dynasty had frequent conflicts with the Xiongnu tribe (who became the Huns) of the northern Taklimakan Desert, and the Qin Dynasty started construction of the Great Wall to deter its adversaries. Upon collapse of the Qin Dynasty, the Han Dynasty continued efforts against the Xiongnu tribe. Similarly, the regions of modern-day Pakistan and Afghanistan had come under the control of the Yuezhi people, who had been forced out of their homelands by the Xiongnu tribe. Under the leadership of Zhang Qian, the Han Dynasty decided to try to collaborate with the Yuezhi in order to defeat the Xiongnu. While the intended purpose of these missions was largely unsuccessful, the acquired knowledge and discoveries to the West inspired the Han Dynasty to pursue further missions and signal the formal beginning of the Silk Road.

The name "Silk Road" comes from later research on these early trade routes. It is largely due to the popularity of silk cloth in the Roman Empire that succeeded Ancient Greece. Chinese silk became extremely popular and even controversial for its extravagance in Roman culture. However, the true value of the Silk Road was the spread and hybridization of early cultures and technologies. Trade itself was not extensive, despite its legacy; the real exchanges that took place along the Silk Road were those of people. Refugees, artists, craftsmen, missionaries, bandits, and many others traveled the Silk Road, all sharing the reach of technologies and ideologies. Along the route, many smaller kingdoms welcomed these displaced peoples with tolerance. This dynamic led to collaborative and highly educated people coexisting and spreading Buddhism, Manicheism, Zoroastrianism, and later Islam and Christianity. The Silk Road reached its heights during the Tang Dynasty. However, its influence withered as new sea routes were developed and Chinese Ming and Qing Dynasties adopted more isolationist policies.

More recently, the Silk Road has experience a revival. Discovery of oil beneath the Taklimakan Desert and trade partnerships between Russia and former Soviet states have led to the redevelopment of Silk Road routes. In addition, technological advances in road building, rail systems, and infrastructure have allowed China to revisit the traditional routes. In 2015, China proposed to create a high-speed rail line to Iran through Kazakhstan, Kyrgyzstan, Uzbekistan, and Turkmenistan. This comes as a part of the One Belt, One Road initiative, which aims to increase China's economic connectivity. Along with the 21st Century Maritime Silk Road initiative, One Belt, One Road appears to connect with Iran as a major trade partner for the Chinese economy and open up a mutually beneficial trade between the two nations, centered on the transference of energy, oil, goods, and people. However, the traditional Silk Road was not heavily traveled for the purpose of commerce. The Silk Road legacy came about because the people who travelled it brought their cultures and way of life to the new land. Whether the modern-day Silk Route succeeds in restoring trade in Asia remains to be seen.

Daniel S. Talwar

See also: China: General Economy; *Vol. 1: Foundations of Economics:* Mercantilism; *Vol. 3: Microeconomics:* Black Market Economy

Further Reading

Christian, David. 2000. Silk roads or steppe roads? The silk roads in world history. *Journal of World History* 11 (1): 1–26. www.jstor.org/stable/20078816.

Dominguez. Gabriel. 2015. China seeking to link Iran to its new silk road. *Deutsche Welle* (DW), December 15. www.dw.com/en/china-seeking-to-link-iran-to-its-new-silk-road/a-18917586 (accessed January 10, 2016).

Frank, Andre Gunder. 1990. On the silk road: An "academic" travelogue. *Economic and Political Weekly* 25 (46): 2536–39. www.jstor.org/stable/4396990.

Hansen, Valerie. 2012. *The silk road: A new history.* Oxford, UK: Oxford Univ. Press.

Hansen, Valerie. 2013. The legacy of the silk road. yaleglobal.yale.edu/content/legacy-silk-road (accessed January 10, 2016).

Lewis, Mark Edward. 2007. *The early Chinese empires: Qin and Han*. Cambridge, MA: Belknap Press.

Mark, Joshua J. 2014. Silk road. In *Ancient history encyclopedia*. www.ancient.eu/Silk_Road (accessed January 10, 2016).

Wild, Oliver. 1992. The silk road. www.ess.uci.edu/~oliver/silk.html (accessed January 10, 2016).

SINGLE CURRENCY AREA

Single currency areas form when a group of countries share the same currency. A good example of this is the European Union's (EU) euro zone. The euro zone consists of a group of countries that are a part of the EU and have adopted the euro as a common currency; however, not every country in the EU has met the criteria to be a part of this monetary union. Currently, 19 countries have adopted the euro as their official currency (Adam and Douglas 2016).

There are several reasons why a country may desire to share a common currency with other countries. Being a part of a single-currency area can help do away with transaction costs. For example, having a single currency reduces deadweight loss caused by currency transactions and exchanges (Ricci 1997, 9). Out-of-country transactions are easier, and they do not have an additional cost when both countries use the same currency. In addition to a reduction in transaction costs, single-currency areas benefit from efficiency gains because there is no threat of changing exchange rates and price changes due to transaction costs (Ricci 1997, 9). Adopting a single currency helps build trust between countries because of the reduced threat of exchange rates. Without exchange rates, the process of buying and selling between countries in a single currency area is very simple and easy. For example, a resident of France can travel to Germany and make a purchase without exchanging any currency.

Developing countries can benefit from being a part of a single-currency area because doing so can increase their credibility (Gerber 2014, 237). Developing countries are not viewed as stable; so by adopting a common currency, like the euro, the country will have a better chance of becoming developed and more stable. Despite the benefits that come with single-currency areas, there is a downside. Countries that adopt a common currency give up the ability to have their own money supply and they can no long influence economic growth (Gerber 2014, 237). Those countries will grow only as fast as the other countries that share that common currency.

How do countries determine whether sharing a common currency is beneficial? Certain conditions have been determined by Robert Mundell, who developed the theory of optimal currency areas in the 1960s (Blejer et al. 1997, 7). According to Mundell, there are four conditions that should be met when determining if a country will benefit from adopting a common currency.

1. The country that is considering adopting another country's currency should have an aligned business cycle; that is, the economies should be entering recessions and expansions around the same time (Gerber 2014, 238). This is important because if all countries are on the same timeline there is more potential for the countries to grow. One country in the single-currency union going through a recession may be detrimental to other countries.
2. There should be a high degree of capital and labor movement (Gerber 2014, 238). This is so these two elements can leave and be used in other countries.
3. The country entering into the monetary union must be open to regional polices that may develop (Gerber 2014, 238). These policies exist to help with imbalances of the movement of labor and capital.
4. The country adopting the currency must be willing to harmonize more than just free trade (Gerber 2014, 238). The adopting country needs to be open to harmonizing and integrating economic and political goals, in addition to the free movement of goods and services.

Nicole Kuehn

See also: Developing Nations; European (Economic) Community; Euro (European Currency Unit); European Free Trade Association

Further Reading

Adam, Nina, and Jason Douglas. 2016. Eurozone economy grows steadily but outlook darkens: Gross domestic product grows at annualized rate of 1.1% in fourth quarter. *Wall Street Journal*, February 12. www.wsj.com/articles/german-economy-steady-as-robust-domestic-consumption-offsets-weaker-exports-1455261558 (accessed February 13, 2016).

Bléjer, Mario I., David W. Cheney, and David M. Cheney. 1997. *Optimum currency areas: New analytical and policy developments*. Washington, DC: International Monetary Fund.

Gerber, James. 2014. *International economics*. 6th ed. Upper Saddle River, NJ: Pearson Education.

Ricci, Luca. 1997. A model of an optimum currency area. IMF Working Paper. www.imf.org/external/pubs/ft/wp/wp9776.pdf (accessed February 13, 2016).

SOVEREIGN WEALTH FUNDS

In times of financial crisis, most countries would like to have their own highly liquid financial assets. These government savings are called sovereign wealth funds (SWF). A more formal definition of a sovereign wealth fund is a government-owned fund that is invested outside the home country (Truman 2014). As a result of the Asian crisis of 1997–1998, many countries started to increase their SWFs as a way to remain as stable as possible, because countries lacking in these financial assets seemed to suffer the most (Gerber 2014). The increasing number of SWFs can be looked at as a government's effort to cope with severe financial hardships. A good example of this is Singapore's position during the 1997–1998 Asian crisis: Singapore had large quantities of liquid financial assets on hand, and that proved to be very helpful during that time (Clark, Dixon, and Monk 2013).

There are different types of SWFs, and they come from different sources. It is important to keep in mind the effect that SWFs have on a country's economy, and how these funds are regulated. The idea of government savings seems like a good one, but in order for a country to have these savings, the assets have to come from somewhere. A number of sources can contribute to SWFs. These sources include capital inflows, fiscal budget and revenue surpluses, and privatization receipts (Das, Mazarei, and Van Der Hoorn 2010). All of these sources are means to increase government reserves. Having these reserves helps in reducing the impact of financial crises. Being in the position to use financial assets in the event of a crisis can be very beneficial for a country. Since there has been much growth of SWFs, they are now more diverse than in previous years. There are four different categories, including stabilization funds, pension reserve funds, reserve investment corporations, and development funds (Das, Mazarei, and Van Der Hoorn 2010). Stabilization funds are a means of stabilizing the economy in the event of a financial crisis. The purpose for the pension reserve funds are for pension liabilities. Reserve investment corporations help with the cost of foreign reserves. Finally, development funds are investments in the domestic economy.

Due to the great influence that SWFs have on the economy, they are regulated in the same way as hedge funds and private equity funds. One example of SWF regulation is the Securities Exchange Act of 1934 (Epstein and Rose 2009, 117). They also must abide by antitrust laws and other securities laws. In addition, SWFs are highly regulated and always reviewed by the Committee of Foreign Investment in the United States (CFIUS) and the Foreign Investment and National Security Act of 2007 to ensure that national security is not threatened (Epstein and Rose 2009). If it is found that an SWF could impact national security in a negative way, the CFIUS can make the SWF address their concerns before going forward. There has been some skepticism toward SWFs, and some public figures have called for more regulation of them. Some fear they are a danger to the capitalist economic system (Epstein and Rose 2009, 119). In recent years, the International Monetary Fund and the U.S. Treasury have been looking more closely at the SWFs, and it would be no surprise to see more regulation in the future.

Nicole Kuehn

See also: Asian Crisis, 1997–1998; International Monetary Fund; *Vol. 2: Macroeconomics:* Securities Exchange Act of 1934; United States Treasury; *Vol. 3: Microeconomics:* Pension Plans; *Primary Document*: Securities Exchange Act of 1934

Further Reading

Clark, Gordon L., Adam D. Dixon, and Ashby H. B. Monk. 2013. *Sovereign wealth funds: Legitimacy, governance, and global power*. Princeton, NJ: Princeton Univ. Press.

Das, Udaibir S., Adnan Mazarei, and Han Van Der Hoorn. 2010. *Economics of sovereign wealth funds: Issues for policymakers*. Washington, DC: International Monetary Fund.

Epstein, Richard A., and Rose, Amanda M. 2009. The regulation of sovereign wealth funds: The virtues of going slow. *University of Chicago Law Review* 76 (1): 111–34 (accessed February 13, 2016).

Gerber, James. 2014. *International economics*. 6th ed. Upper Saddle River, NJ: Pearson Education.

Truman, Edwin. 2014. *Sovereign wealth funds: Threat or salvation?* Washington, DC: Peterson Institute for International Economics.

SPAIN: GENERAL ECONOMY

Spain's current economy has overly emphasized the services sector in an effort to spur economic growth. In 2015 it was estimated that almost three-quarters of Spain's economy relied on the services sector, with only one-quarter relying on agriculture or industry. Additionally, Spain has had very liberal pension, national health, and tax policies. Spain's eventual economic contraction would not have been hard to predict. In 2009 the economy contracted almost 4 percent, and continued to do so—until it recorded positive growth in 2014.

During the 16 years prior to 2015, Spain had a consistent annual growth trend. Spain's major industrial production included textiles and apparel, metals and metal manufacturers, chemicals, shipbuilding, tourism, machine tools, and automobiles—along with food and beverages. Spain's agricultural production is just as diverse, with grain, olives, wine grapes, sugar beets, beef, pork, poultry, fish, and dairy products. Approximately one-third of Spain's goods are exported. Exports maintained their levels during the financial crisis, even creating a trade surplus in 2013,—the first trade surplus since 1986.

From approximately 2000 to 2007, Spain experienced widespread growth, credit, and expansion. Immigration accounted for about 80 percent of Spain's population growth. Attracted by a housing and construction boom and large tourist sectors, immigrants came from around the European area. Spain's economic growth continued for 14 years, and the fiscal position improved approximately 3.7 percent.

The number of real estate transactions increased to almost 1 million in 2006 and 2007. House construction increased at a rate of 2.7 percent per year—an increase in housing units from 18.3 million to 25.1 million.

Beginning in 2008, the global housing bubble had reached Spain. Construction and real estate contraction were the two main reasons for Spain's debt accumulation. By 2009, the Spanish banks had accumulated significant amounts of bad debt, and socialist government policies made the recession worse.

Investors stopped buying financial products related to mortgages. To improve the situation created by this financial crisis, the Spanish government needed to cut its spending by 60 percent to address a growing budget deficit and an accumulated government debt problem. In 2011, after a change in government leaders, significant debt reduction and bank regulation reforms were instituted. Spanish banks were also helped by a significant loan from the European Union. In 2014, Spain achieved its biggest increase in GDP since the recession began in 2008.

To restabilize the economy, Spain's government implemented a number of reforms. First, the pension system gradually increased the retirement age from 65 to 67. Spain's government approved the age increase by a two-thirds vote. Second, the government established labor reforms to improve labor contracts, working hours, and wages. Third, collective bargaining reform helped increase the development of firms' level of collective bargaining and permitted firms to opt out of collective bargaining agreement under certain circumstances. This policy was aimed at decreasing the unemployment rate by reallocating 4 percent of the total labor force that had become unemployed as a result of the housing market crash. Product market policies were aimed at increasing corporate tax rates to 20–30 percent.

Spain has been able to lower its borrowing costs since 2012, and its government has been able to reduce inflation in 2013 too far into deflationary territory in 2015 (–0.6%).

Saving the nation's banks has also helped the economy. Most banks, private and government, had suffered harsh casualties as a result of the housing market collapse. Government banks, known as *cajas*, historically had stuck to areas where they knew their clients, making their loan ratios very low and helping them avoid the use of shareholders. These government banks, which were preferred by customers, tried to compete with the private banks and their loan ratios reached levels that were too high. As a result many Spanish banks were merged or recapitalized.

In summary, the economy of Spain shows that deep financial crisis tends to produce a sovereign debt crisis. Spain's government recovered from this crisis by lowering the costs of public programs and increasing foreign direct investment, yet these solutions have also created new problems with slower growth and deflationary expectations.

Carter Friedt
David A. Dieterle

See also: Euro (European Currency Unit); European Central Bank; European (Economic) Community; European Free Trade Association (Eurozone); European Union; France: General Economy

Further Reading

Central Intelligence Agency. 2016. Spain. The World Factbook. https://www.cia.gov/library/publications/resources/the-world-factbook/geos/sp.html (accessed May 11, 2016).

FocusEconomics. n.d. Spain economic outlook. www.focus-economics.com/countries/spain (accessed May 11, 2016).

Government of Spain. n.d. The Spanish economy: Economic outlook. www.thespanisheconomy.com/portal/site/tse/menuitem.efbc5feeac2b3957b88f9b10026041a0/?vgnextoid=b1fd7e7b61b7f310VgnVCM1000002006140aRCRD (accessed May 11, 2016).

The Heritage Foundation. 2015. 2015 Index of Economic Freedom: Spain. www.heritage.org/index/country/spain (accessed May 11, 2016).

SPECIAL ECONOMIC ZONES

Special economic zones (SEZs) are geographical areas within a country's national borders where business and trade laws and special economic regulations differ from the rest of the country. These policies are typically related to investment, taxation (such as tax incentives and lower tariffs), trading, quotas, and customs and labor regulations. Customs administration, improved fiscal administrative environment, and a more accessible and reliable infrastructure are also benefits of SEZs. The zones overcome barriers that limit investment in the whole economy, including restrictive rules, poor governance, inadequate infrastructure, and limited and insecure access to land.

Usually, the goal is to encourage businesses to establish within an SEZ, attempting to attract export-oriented investors and foreign direct investment (FDI), in particular. The benefits offered to the firms are the gains that can be realized by producing and trading goods at a globally competitive price.

In this way, the country hopes to bring about increased trade, increased investment, job creation and effective administration, foreign exchange earnings, economic diversification (often as a step in the processes of industrialization and industrial upgrading), and access to foreign manufacturing technology and know-how.

The SEZs were a key component of trade and investment policy in countries shifting away from import-substitution and in favor of integrating into global markets. SEZs were designed to attract investment in labor-intensive assembly and manufacturing from multinationals.

The results have been mixed. SEZs have been an important instrument for economic growth and structural transformation in some countries, particularly in East Asia. At the same time, there have been many failures of SEZs, where investments in infrastructure became underutilized "white elephants," or where zones have mostly generated an industry taking advantage of or dependent on tax breaks without achieving the expected employment or export goals.

Furthermore, in many cases short-term successes have failed to remain sustainable once labor costs have increased or when preferential trade access stops being an advantage. (A case in point is the end of the Multi-Fiber Arrangement, or MFA, which allowed bilateral quota restrictions on textile and apparel imports, usually between a developed nation and a developing one; the arrangement ended at the end of 2004.) SEZ failures can be the result of a variety of factors. Very often, SEZs are still affected by the same problems as the rest of the country: inefficient and corrupt customs, burdensome bureaucracy, and unreliable utilities—all of which discourage investment. Additionally, more general competitiveness challenges—like weak national governance, policy instability, and low productivity levels—typically constrain the potential of these zones.

At first, the activities within an SEZ were limited to manufacturing, restricting opportunities for investing in the key services sector, in particular for middle-income and even low-income economic growth. The design tended to create an enclave separated from the rest of the national market, severely limiting its potential to develop effective domestic linkages. Finally, traditionally the model depends heavily on unsustainable fiscal incentives to attract investment.

As a result, SEZs now cover larger land areas, offer greater flexibility for services and other nonmanufacturing activities (including residential and tourism development), and include a greater mix of export and domestic-market focused activities.

John Moore

See also: China: General Economy; East Asia: General Economies; Globalization; International Trade

Further Reading

Akinci, Gokhan, and James Crittle. 2008. Special economic zones. Performance, lessons learned, and implications for zone development. Documents & Reports. Washington, DC: World Bank. http://documents.worldbank.org/curated/en/343901468330977533/Special-economic-zone-performance-lessons-learned-and-implication-for-zone-development (accessed September 30, 2016).

Farole, Thomas. 2011. Special economic zones: What have we learned? *Economic Premise*, September, No. 64. http://siteresources.worldbank.org/INTPREMNET/Resources/EP64.pdf (accessed September 30, 2016).

Farole, Thomas, and Gokhan Akinci, eds. 2011. *Special economic zones: Progress, emerging challenges, and future directions*. Washington DC: The International Bank for Reconstruction and Development/The World Bank. https://openknowledge.worldbank.org/bitstream/handle/10986/2341/638440PUB0Exto00Box0361527B0PUBLIC0.pdf (accessed September 30, 2016).

ILO (International Labor Organization). 1988. *Economic and social effects of multinational enterprises in export processing zones*. Geneva, Switzerland: International Labor Organization.

Jayanthakumaran, K. 2003. Benefit-cost appraisals of export processing zones: A survey of the literature. *Development Policy Review* 21 (1): 51–65.

SPECIFIC FACTOR MODEL

The Specific Factor Model attempts to explain the relationship between different cost factors. Its origin can be traced to David Ricardo's writings in *The Principles of Political Economy and Taxation* (1817). Ricardo's concept was further refined into what is now termed the Specific Factor Model by University of Chicago economist Jacob Viner in the 1920s and 1930s. The model also served as a foundational forerunner to the Heckscher-Ohlin Theorem developed in the 1930s and the Stolper-Samuelson Theorem developed in the 1940s.

The basic presentation of the theory by way of example is to imagine two distinctly different industries that use machinery that can be used only to make each industry's product. For example, assume that one industry brews beer and the other industry makes baseballs. The beer machinery, which includes large vats, can be used only to make beer; it cannot be used to make baseballs. Likewise, the machinery that takes cork and leather and yarn and sews them all together to make a baseball cannot be used to brew beer. The financial capital that was expended to create these machines is not mobile, since they can be used only in the manufacture of a single specific product.

Next, as an additional part of the model, assume the existence of a third input that, instead of being unique to just one industry, is perfectly mobile and can move effortlessly between the two. The classic example of this would be labor. Further assume that labor can be employed incrementally in the production of either product, but the productivity of each incremental unit of labor will occur subject to the law of diminishing returns.

These various logical assumptions naturally lead to important observations. One is that there is a point at which each specific industry can no longer profitably add more labor. Since added labor becomes more costly per unit produced, due to diminishing returns on that labor, marginal profits begin to diminish. Thus, eventually the additional marginal costs eliminate any remaining profits, and maximum rational production is reached.

Another important conclusion to be drawn from the model occurs when the selling price of one of the two products increases while the selling price of the second product remains unchanged. The impact of the price increase will be to create additional marginal profits. This, in turn, will cause the producers of the first product to seek additional labor in order to actualize the opportunity to take in more profit. The increased demand—and likely increased wages as well, to act as an incentive—will cause a portion of the available labor to shift away from the second product and to the first product.

Aside from theory, the general principles of the model can be demonstrated empirically by historical observations. During much of the 19th century, Europe was rich in labor supply while at the same time constrained in land. In contrast, the United States was short of adequate labor supply and over-endowed with land resources. The result of this situation, consistent with the features of the Specific Factor Model above, was that labor wages in Europe were low and were unable to rise beyond a certain point. In contrast, wages were much higher in the United States due to a shortage of labor combined with an abundance of financial capital and natural resources. The long-term natural consequence of this situation would be for mobile labor to eventually transfer from Europe to the United States. In fact, this actually occurred. In the mid-19th century there was significant migration from Western Europe to the United States, particularly from Ireland. During the latter part of the century, significant numbers of eastern and southern Europeans, as well as Asians, immigrated to the United States.

In a well-ordered and fluid world, the Specific Factor Model is helpful in explaining international resource allocation and price behavior. It also suggests that over long periods of time, differences in the pricing of variable cost factors such as labor will converge due to migration transfers. However, this process is never assured, due to a range of potential factors, including war, political and legal barriers, and cultural issues. While the latter 19th century was a time of great convergence, wars and depressions from 1914 through 1945 severely interrupted any convergence forces. Ultimately, the implications of the Specific Factor Model are helpful in understanding international pricing and investment disparities, and they also help to explain long-term shifts in such variable production factors as labor and financial capital.

John Moore

See also: Absolute Advantage; Comparative Advantage; Heckscher-Ohlin Theory of Trade; Stolper-Samuelson Theorem; Trade Policy; *Vol. 1: Foundations of Economics:* Resources; Ricardo, David; *Vol. 3: Microeconomics:* Law of Diminishing Marginal Utility (Returns)

Further Reading

Eaton, Jonathan. 1987. A dynamic specific-factors model of international trade. *The Review of Economic Studies* 54 (2): 325–38.

O'Rourke, Kevin, Alan M. Taylor, and Jeffrey G. Williamson. 1996. Factor price convergence in the late nineteenth century. *International Economic Review* 37 (3): 499–530.

Viner, Jacob. 1960. *Studies in the theory of international trade.* London: Allen & Unwin.

SPENCE, MICHAEL

Born: November 7, 1943, in Montclair, New Jersey; Nationality: American; Professional Interests: job market signaling model, Nobel Prize (2001); Major Works: *Market Signaling* (1974), *The Next Convergence: The Future of Economic Growth in a Multispeed World* (2011).

Michael Spence is perhaps most notable in the 21st century for his job market signaling model, for which he, along with George Akerlof and Joseph Stiglitz, received the 2001 Nobel Prize in Economics. In *Market Signaling* (1974), Spence examines the information exchange between employees and employers. He argues that employees signal their skills to employers via their education credentials, and employers are willing to pay higher wages to more-educated employees because it is assumed that greater education correlates with greater ability. His current work on economic policy in emerging markets, the economics of information, and the impact of leadership on economic growth led to his appointment of chairman of the independent Commission on Growth and Development, where he served from 2006 to 2010.

A. Michael Spence was born on November 7, 1943, in Montclair, New Jersey. Spence grew up in Canada during and after World War II until leaving for college in the United States. His father was a member of the War Time Prices and Trades Board based in Ottawa, the Canadian version of wartime price controls. Spence graduated from Princeton University in 1966 with a degree in philosophy; he went on to study mathematics at Oxford University as a Rhodes Scholar before he received his PhD from Harvard University in 1972. Spence is also the former dean of the Stanford University Graduate School of Business and is a professor of economics at New York University's Stern School of Business.

Spence began his work on job market signaling in his doctoral thesis, for which he was awarded the David A. Wells Prize for outstanding doctoral dissertation at Harvard University in 1972. His market signaling model essentially led to more research and literature in the branch of contract theory. According to Spence, marketplace signals exist so that people with a high-quality product in the marketplace will have lower costs of emitting the signal than people with a low-quality product. In this model, Spence shows how qualified workers can signal their worth in the job market. The basic premise is that due to an information asymmetry during the hiring process, the worker knows more about his productivity than a potential employer knows. Since employers cannot sufficiently determine a worker's productivity by the interview alone, highly productive workers "signal" their productivity by getting formal education. For the model to work, it is not even necessary for education to have any intrinsic value because, Spence asserted, the education is less important for what particular knowledge that worker might have learned and more important as a signal of the worker's inherent worth.

Spence's market signaling model was significant because it was new to the study of economic behavior. For instance, people send signals to other people by the clothes they wear, the cars they drive, the food they eat, the movies/TV they watch, the people they socialize with, or the work they do.

As chairman of the independent Commission on Growth and Development, a global policy group launched by the World Bank and focused on growth and poverty reduction in developing countries, Spence spent time studying the shifting patterns of economic activity in developing countries. Following the end of his chairmanship in 2010, he published his latest work based on this experience: *The Next Convergence: The Future of Economic Growth* (2011).

In *The Next Convergence*, Spence writes that the industrialized West benefited much from economic growth before World War II, which led to enormous gaps in wealth and living standards between the West and the rest of the world. However, after the war this pattern of divergence reversed; emerging economies are reshaping the international order. Spence argues that although globalization has been critical to the rapid growth of emerging markets, it has also led to rising inequality in the rich countries, and they may respond by raising protectionist barriers, leading to frictions when the world tries to accommodate both rapidly growing emerging giants like India and China and slow-growing developed countries like the United States.

Spence discusses in detail the growth of the emerging markets, which he calls the "dynamics of high-speed growth." According to Spence, the dynamics of high-speed growth require these emerging markets to invest at very high rates; increase the size of the modernizing parts of the economy; employ surplus labor, which has little cost to them; and then sell into a global economy.

Spence emphasizes the importance of the role of the government in the economy as opposed to a laissez-faire economy. He believes that the United States needs to spend more on unemployment insurance, industrial policy, and public infrastructure. He advocates for "enhanced coordinated oversight" and "global effective government" for the world economy and the replacement of the current hybrid of floating and fixed exchange rates with "a new hybrid."

Among his many honors, Spence was elected a fellow of the American Academy of Arts and Sciences in 1983; was awarded the John Kenneth Galbraith Prize for excellence in teaching in 1978; and received the John Bates Clark Medal in 1981, for a "significant contribution to economic thought and knowledge." He has served as member of the boards of directors of General Mills, Siebel Systems, Nike, and Exult, and a number of private companies. From 1991 to 1997, he was chairman of the National Research Council Board on Science, Technology, and Economic Policy.

Spence's contribution on market signaling helped lay the foundation for research in contract theory. His current research interests focus on the study of economic growth and development, dynamic competition, and the economics of information. He is a senior fellow at the Hoover Institution, a professor of economics at the Stern School at New York University, and the Philip H. Knight Professor Emeritus of Management in the Graduate School of Business at Stanford University.

Ninee Shoua Yang

See also: Globalization; Stiglitz, Joseph; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics; *Vol. 2: Macroeconomics:* Economic Growth, Measures of; *Vol. 3: Microeconomics:* Akerlof, George; Markets

Further Reading

Badge, Peter. 2008. *Nobel faces.* Weinheim, Ger.: Wiley VCH.

Nobelprize.org. 2001. A. Michael Spence—Biographical. http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2001/spence-bio.html (accessed July 17, 2012).

Spence, Michael. 1973. Job market signaling. *Quarterly Journal of Economics* 87: 355–74.

Spence, Michael. 1974. *Market signaling: Informational transfer in hiring and related screening processes.* Cambridge, MA: Harvard Univ. Press.

Spence, Michael. 2001. Prize lecture: Signaling in retrospect and the informational structure of markets. http://nobelprize.org/nobel_prizes/economics/laureates/2001/spence-lecture.html (accessed July 17, 2012).

Spence, Michael. 2007. *Intellectual property*. Oxford, UK: Oxford Univ. Press.

Spence, Michael. 2011. *The next convergence: The future of economic growth in a multispeed world.* New York: Farrar, Straus & Giroux.

Stanford Graduate School of Business. n.d. A. Michael Spence. http://gsbapps.stanford.edu/ facultyprofiles/biomain.asp?id=36072009 (accessed July 17, 2011).

Vane, Howard R., and Chris Mulhearn. 2010. *James A. Mirrlees, William S. Vickrey, George A. Akerlof, A. Michael Spence and Joseph E. Stiglitz.* London: Edward Elgar.

SPOT EXCHANGE RATES

Spot exchange rates are the prices at which currencies contracts are trading in real time. In a floating exchange rate system, these rates will be subject to change at any time based upon supply and demand.

The foreign currency exchange market (forex) has grown increasingly active in the post–Bretton Woods era due to increased global trade and to improved technological developments. Evidence of both influences can be seen in the rapid increase in global currency trading. The Bank for International Settlements reports that average daily trade volumes, as measured in U.S. dollars, were $3.3 trillion in April 2007, $4.0 trillion in April 2010, and $5.3 trillion in 2013.

The majority of currency trading takes place through banks. There are no formal exchange floors where currency transactions are conducted and settled. Instead, banks act as dealers and offer both bid and ask prices. The difference between the two creates revenue for the bank. In that sense, the system for forex trading is logistically similar in many ways to virtual stock exchanges such as the NASDAQ.

How spot exchange rates are quoted begins with what is referred to as the fixed rate followed by the variable rate. The fixed rate is always assigned a valuation of one. For example, a standard quote designated as EUR/USD has the euro as the fixed rate and the U.S. dollar as the variable rate. This quote will produce the number of dollars that a single euro can buy. Accordingly, if it takes $1.35 to exchange for €1.00, the above standard quote would be quoted at 0.7407 (1.00/1.35).

Just as in stock markets, there is a time lapse between when foreign currency exchange transactions are agreed to and when they are settled. Currency contracts typically settle within two business days from the date that the transaction was entered into.

There are still some exceptions to the floating exchange rate systems. Although there is not a single nation that ties its currency to the gold standard any more, several nations elect to peg their currencies to another currency at a fixed exchange rate. In doing so, these countries operate in a middle ground between a fixed and floating exchange system. The peg to another currency has all the elements of a fixed exchange system, yet at the same time the pegged currency is indirectly impacted by changes in what is almost always a sponsor currency's floating rate on world markets.

As of 2015, Cuba, Jordan, Panama, Saudi Arabia, and Venezuela are among the nations that peg their currencies to the U.S. dollar. Bulgaria, Chad, Denmark, and Senegal are examples of nations that peg their currencies to the euro. The primary reason for a country to peg is to create international credibility and instill a degree of confidence in its domestic currency. Thus, a peg strategy is typically employed by nations that are Second- or Third-World economies.

There have been historical examples of smaller nations using foreign exchange and foreign exchange swap contracts to carry out domestic monetary policy. In entering into a foreign exchange transaction, these nations are able to create an expansionary monetary policy outcome. Winding out the contract has the opposite effect. In contrast to a large nation, such as the United States, these nations are faced with very thinly traded short-term securities markets. In the past, Switzerland has used this technique, and Germany and the Netherlands used it before joining the European Union. In present times, Third-World nations are the most likely candidates for this creative way of using foreign exchange markets to achieve a monetary policy outcome.

John Moore

See also: Euro (European Currency Unit); Exchange Rates; Foreign Exchange Market; Foreign Exchange Rates; Pegged Exchange Rates

Further Reading

Hooyman, Catharina J. 1994. The use of foreign exchange swaps by central banks. *Staff Papers (International Monetary Fund)* 41 (1): 149–62.

Miyajima, Ken, and Carlos Montoro. n.d. Impact of foreign exchange interventions on exchange rate expectations. BIS (Bank for International Settlements) Papers No. 73. www.bis.org/publ/bppdf/bispap73d_rh.pdf (accessed September 30, 2016).

USForex Foreign Exchange Services. n.d. Forex Tools: Spot Exchange Rates. www.usforex.com/exchange-rate (accessed September 30, 2016).

STATE CAPITALISM

State capitalism dates back to the East India Company and its relationship with the British government. Throughout history, young rising international powers have relied on the state for early economic growth. For example, the United States after the Revolutionary War and Japan after World War II relied on the state to protect their economies.

State capitalism has taken on a new look in the modern era. No longer do nations begin businesses with the idea of converting them to private businesses. Modern state capitalism involves businesses that are owned or backed by the government with the behavior of a private-sector multinational company. Today's modern state business develops into a full-fledged business model owned and operated by the state yet participating in the private global marketplace. The state-owned or state-partnered business model has become an influential economic structure in nations around the globe. The Europeans and Asians have incorporated state capitalism to create industrial centers and welfare states.

State capitalism has its proponents and practitioners in both the developed world and the developing world. France owns 85 percent of Europe's largest energy company, and Germany owns 32 percent of Europe's largest telecommunications company. In Asia, since 2003 Japan owns 50 percent of the Japan Tobacco Company (Economist Staff 2012). The state-owned businesses in the rich developed nations of the Organisation for Economic Co-operation and Development (OECD) have over 6 million employees and a total value of almost $2 trillion (Economist Staff 2012).

Modern state capitalism came of age with three global events. One was the growth of Singapore as an Asian economic powerhouse. A second was the transformation of China when it embraced globalization and instituted economic incentives with Chinese special economic zones, then welcomed foreign private companies to China. This new, more 21st-century form of state capitalism created in Asia was described as capitalism with "Asian values" (Economist Staff 2012). *Asian values* were defined as a combination of family values with authoritarianism state oversight. Deng Xiaoping, who led China into the era of state capitalism, promoted its economic transformation. He required China's new government-led enterprises to embrace the business model of the Western world. Importantly, he supported and sponsored large amounts of investment in research and development.

A third global event leading to the rise of modern state capitalism was the fall of the Soviet Union. Even though the fall was initially seen as a victory for personal freedom, liberty, and economic capitalism, soon former Communist leaders and oligarchs literally stole massive amounts of the commanding heights and economic base. This economic theft left the new countries of the former Soviet Union severely in debt as they attempted to transform themselves from command economies to capitalist economies. This disarray led to a return to state-owned enterprises under Russian president Vladimir Putin. Putin promoted and endorsed an all-encompassing combination of private businesses making up a private sector with a strong presence of state capitalism enterprises.

Modern state capitalism is different from the state capitalism of history. China's state-capitalistic companies are global companies with business operations around the globe. The Chinese government focuses its state-owned industries in countries where those industries can have a significant economic impact. The Chinese new modern economic position is that state capitalism is a viable, long-term business model and not just a bridge from a command economy to a market economy.

The new view of state capitalism has supporters in many emerging and transitional nations, such as Brazil and South Africa. As emerging nations strive to compete and participate in the global economy, state capitalism is a very appealing model for growth. With government support, the young economic nation gains instant credibility and clout, as if it were a mature privately held company.

State capitalism has strident supporters as well as critics. Supporters of state capitalism strongly promote it as a business model that can provide both growth and stability. State capitalism promotes a strong link between government and business.

State capitalism's critics are many. They believe state capitalism as an economic model is more a danger than a solution. One concern the critics cite is that state-capitalist governments are often unpredictable. Regardless of the business sector that the state-owned business is operating, if the government backing the business is not stable, the likelihood of a stable business greatly lessens. Another concern is the government protection and favoritism that are provided to government entities, making domestic competition unlikely. When the government supports and subsidizes one set of companies, the other companies in the sector are hurt. Supporters of market capitalism point to the resources used by state-owned enterprises that could have been used by privately owned enterprises. Finally, critics of state capitalism refer to the imbalance of the global trading community when a state-owned business enjoys government support regarding trade policy and foreign exchange policies, which creates an uneven trading environment.

Kerry Hritz
David A. Dieterle

See also: China: General Economy; Developing Countries; Organisation for Economic Co-operation and Development; *Vol. 1: Foundations of Economics:* Democratic Socialism; Lenin, Vladimir; Market Capitalism; Smith, Adam

Further Reading

Bremmer, Ian. n.d. State capitalism comes of age: The end of the free market? May/June 2009. Foreign Affairs. https://www.foreignaffairs.com/articles/united-states/2009-05-01/state-capitalism-comes-age (accessed December 11, 2016).

Dean, Jason, Andrew Browne, and Shai Oster. 2010. China's "state capitalism" sparks a global backlash. *Wall Street Journal*, November 16. http://online.wsj.com/news/articles/SB10001424052748703514904575602731006315198 (accessed December 2, 2013).

The Economist Staff. 2012. Special report: State capitalism—The visible hand. *The Economist*, January 21, 3–18. http://www.economist.com/node/21542931 (accessed December 2, 2013).

STIGLITZ, JOSEPH

Born: February 9, 1943, in Gary, Indiana; Nationality: American; Professional Interests: asymmetric information, taxation, international development, monetary theory, Nobel Prize (2001); Major Works: *Globalization and Its Discontents* (2001), *Making Globalization Work* (2006), *Freefall: America, Free Markets, and the Sinking of the World Economy* (2010), *The Price of Inequality: How Today's Divided Society Endangers Our Future* (2013).

Joseph Stiglitz is a voracious scholar of economics, specializing in the study of how to use multiple perspectives to a given problem to reach a reasoned solution. He was a member of the Clinton administration's Council of Economic Advisers from 1993 to 1995 and then its chairman from 1995 to 1997. He served as chief economist and senior vice president of the World Bank from 1997 to 2000. In 2001, with George Akerlof and Michael Spence, he was awarded the Nobel Prize for his analysis of markets with asymmetric information. He was also the lead author of the 1995 report of the Intergovernmental Panel on Climate Change, which shared the 2007 Nobel Peace Prize. At Columbia University, Stiglitz holds appointments at the Business School, the Department of Economics, and the School of International and Public Affairs (SIPA).

Joseph E. Stiglitz was born on February 9, 1943, in Gary, Indiana. Stiglitz attended public school, where he also learned the printing and electric trades. He thrived in his extracurricular activity of debate, which he states helped to shape his later interest in public policy. His most formative intellectual experiences took place during the period from 1960 to 1963, when he attended Amherst College on a full scholarship. His teachers favored the use of the Socratic seminar, which Stiglitz credits with helping him organize his thoughts and learn to ask useful questions. Late in his third year at Amherst College, Stiglitz decided to leave the field of physics to study economics—and put his mathematical ability to use to solve social problems.

Stiglitz's decision to pursue economics led him to leave Amherst before earning his degree (although Amherst later gave him one) and immediately begin his graduate studies at the Massachusetts Institute of Technology (MIT) to avoid repetition of studies. His modest last-minute fellowship from MIT gave Stiglitz $1 a day to live on after he paid the rent. Among his professors at MIT were four Nobel laureates: Paul Samuelson, Robert Solow, Franco Modigliani, and Kenneth Arrow. Notably, he worked to edit Paul Samuelson's collected papers. During the summer he moved to the University of Chicago to work with Hirofumi Uzawa. Stiglitz later received a Fulbright fellowship to Cambridge for 1965–1966. He later returned to Cambridge for a one-year appointment as an assistant professor at MIT while he worked on his PhD. Throughout his career, Stiglitz has also taught at Yale University, Oxford University, Princeton University, Stanford University, and Columbia University.

During the next few years, Stiglitz continued to develop his new Keynesian ideas. His work laid the foundation for the study of asymmetric information, including new ideas like adverse selection and moral hazard. When buyers and sellers have unequal knowledge about the markets, they may not use resources efficiently. According to Stiglitz, governments may then intervene as a third party to increase the information to all market participants in order to achieve a more efficient use of resources. He tempers this recommendation of government intervention with the need for a watchful eye on incentives of government's intervention, so that the buyers and the sellers are both better off as a result of this government intervention. His continued work also centers on further development of macroeconomic and monetary theory, development economics and trade theory, public and corporate finance, theories of industrial organization and rural organization, and theories of welfare economics and of income and wealth distribution.

In 1992, Stiglitz joined the Clinton administration as a member and then chairman of the Council of Economic Advisers and was able to put his ideas into practice. His research on adverse selection and moral hazard helped him to create a self-titled “third way” for limited government intervention within the market when markets do not work well.

Stiglitz served as the senior vice president for development policy and the chief economist for the World Bank in 1997–2000. Ultimately, he left this job as he felt the World Bank and the International Monetary Fund were using models that failed to incorporate advances in economic theory such as his work on imperfect information and incomplete markets. He advocated the use of openness, broad consensus building, and widespread consultations with parliaments or civil society to assist countries in need. Stiglitz credits his time in Washington with the founding of his initiative for policy dialogue to enhance democratic processes for decision-making in developing countries. He continues to advise foreign governments on a broad range of issues.

In 2008, Stiglitz chaired the Commission on the Measurement of Economic Performance and Social Progress at the request of French president Nicolas Sarkozy. The president of the United Nations General Assembly appointed Stiglitz chair of the Commission of Experts on Reform of the International Financial and Monetary System in 2009. Stiglitz has been a fellow of the Econometric Society since age 29, and he is a member of the National Academy of Sciences.

In addition to his work at Columbia University, Stiglitz is the editor of *The Economists' Voice* journal, and he chairs the Brooks World Poverty Institute at the University of Manchester. He co-chairs Columbia University's Committee on Global Thought. Stiglitz continues to publish an impressive number of economic works. At present, he has authored 54 books, including several textbooks on the principles of micro- and macroeconomics. *Globalization and Its Discontents* has been translated into 35 languages.

In 2011, *Time* magazine named Stiglitz one of the 100 most influential people in the world.

Kathryn Lloyd Gustafson

See also: Globalization; International Monetary Fund; Modigliani, Franco; Spence, Michael; World Bank; *Vol. 2: Macroeconomics:* Samuelson, Paul; Solow, Robert; *Vol. 3: Microeconomics:* Akerlof, George; Arrow, Kenneth

Further Reading

Brown, Gordon. 2011. Joseph Stiglitz. *Time*, April 21 http://content.time.com/time/specials/packages/article/0,28804,2066367_2066369_2066440,00.html (accessed February 14, 2012).

Columbia/SIPA. n.d. Joseph Stiglitz. https://sipa.columbia.edu/faculty/joseph-stiglitz (accessed February 14, 2012).

Library of Economics and Liberty. n.d. Joseph E. Stiglitz. In *The concise encyclopedia of economics*. http://www.econlib.org/library/Enc/bios/Stiglitz.html (accessed May 1, 2012).

Nobelprize.org. 2001. Joseph E. Stiglitz—Biographical. http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2001/stiglitz-bio.html (accessed February 14, 2012).

Stiglitz, Joseph. 2002. *Globalization and its discontents.* New York: Norton.

Stiglitz, Joseph. 2003. *The roaring nineties.* New York: Norton.

Stiglitz, Joseph. 2006. *Making globalization work.* New York: Norton.

Stiglitz, Joseph. 2010. *Freefall: America, free markets, and the sinking of the world economy.* New York: Norton.

Stiglitz, Joseph. 2013. *The price of inequality: How today's divided society endangers our future*. New York: Norton.

STOLPER-SAMUELSON THEOREM

The Stolper-Samuelson Theorem (SST) was introduced in 1941 by Wolfgang Stolper and Paul Samuelson. It represents a derivative insight that branches off from the earlier Heckscher-Ohlin Model (HO), a work written in 1933 to provide further insights connected to David Ricardo's theory of comparative advantage. Although the theorem may seem simple at first, its implications are significant. The focus of SST is to explain how an increase in the price of a particular good might impact the values of such subordinate inputs as materials, labor, and capital (e.g., machinery, factories, and/or other infrastructure used in the production of finished goods). These collective inputs are also referred to as factors.

In simple terms, SST posits that when the price of a good rises, the prices of the factor inputs will rise as well, but not necessarily in an equal pro-rata fashion. A significant consequence of this insight is that a change in technology or economic policy will likely impact certain industries directly, and will also impact other industries that draw upon the same factors. Taking this concept a step further, since most factors are interchangeable between industries, the rise in cost of an individual factor input set in motion by changes in one industry will likely impact other industries as well. This scenario causes economic winners and losers when change occurs to the prices of outputs.

The above assertions can be illustrated by way of historical example. In the early 20th century, American manufacturing increased dramatically across many industries, but particularly within automotive manufacturing. Very quickly, there was a significant need by the new automotive manufacturers for both engineering talent and a reliable force of unskilled but reliable workers to work the assembly lines. Henry Ford and his company experienced very high levels of employee turnover, which was very problematic. Many of these workers, a portion of whom came to the city from agricultural backgrounds, were simply not prepared for the repetitiveness and monotony of the assembly line. As a result, they quit. Ultimately, Ford was forced to introduce the "$5 working day," an extraordinary wage for the time, in order to induce workers economically to stay with the company and reduce turnover.

In the above example, the input factor of labor started to cost more. Ford was willing to pay that wage, because he was selling a lot of cars (a new technology) and it made economic sense to pay higher wages to workers in order to keep the assembly line running. An important consequence of Ford's decision was to cause labor wages to eventually rise in other industries as well. Workers now had the chance to earn a higher wage at Ford, and if companies in other industries wanted to keep good workers, they needed to pay competitive wages.

Another beneficial application of SST has been the impact of international trade and trade policy on such private-sector production factors as labor, materials, and capital. If one drills down further to split the labor factor into two subsets, skilled and unskilled, some of the ramifications of increased globalization can be readily seen. In the post–World War II era, many Asian nations have developed significant domestic manufacturing industries. The domestic labor factor in these countries is often less expensive than in the United States, allowing these exported manufactured goods to be offered to consumers in the United States at prices that are lower than what U.S. producers can charge.

Two significant consequences arise from the above situation. The first is that consumers are motivated to purchase the competing foreign product due to its better price. Domestic producers get placed in a quandary. They must lower their cost structure or lose business, or even go out of business. This process ultimately has the effect of lowering domestic factor inputs. Historically, this has been the case in the United States during the late 20th and early 21st centuries. A significant number of U.S. unskilled labor jobs have been lost or the prevailing wage has been reduced as a result of less expensive foreign imports. The second consequence ties to the first. In the face of less expensive foreign competition, those economic sectors that have sufficient critical mass exert political influence in support of trade restrictions. This was the case when American automotive producers and labor unions cooperated in calling for foreign import quotas in the 1970s and 1980s.

From one perspective, this example demonstrates that SST can work both ways: It can explain upward pressures on the cost of inputs, but it can also explain instances of downward pricing pressures. Although simply stated, SST's implications are significant. Business leaders need to understand these very well if they are to employ sound strategic planning in an era of expanding trade and technological change.

John Moore

See also: Comparative Advantage; Heckscher-Ohlin Model; Specific Factor Model; *Vol. 1: Foundations of Economics:* Ford, Henry; *Vol. 2: Macroeconomics:* Samuelson, Paul

Further Reading

Jones, Ronald W., and Sugata Marjit. 1985. A simple production model with Stolper-Samuelson properties. *International Economic Review* 26 (3): 565–67.

Stolper, W. F., and Paul A. Samuelson. 1941. Protection and real wages. *Review of Economic Studies* 9 (1): 58–73.

Uekawa, Yasua. 1971. Generalization of the Stolper-Samuelson theorem. *Econometrica* 9 (2): 197–217.

SUBSIDIES

A *subsidy* is a government payment to consumers or producers to encourage the consumption or production of a good or service. Subsidies are generally used for two primary purposes: to help consumers and producers compete in a market, and to correct for positive externalities. Subsidies are funded by taxpayers—and they can often lead to political debates, because the government selects the producers and consumers who receive subsidies, which provide them with a competitive advantage compared to the consumers and producers who do not receive subsidies.

Consumers who lack the ability to pay for necessary goods and services such as food, electricity, health care, and education often receive subsidies to pay for these essentials. These subsidies are antipoverty policies that are used to decrease the gap between the rich and the poor. Many people view these subsidies as necessary to promote the general welfare of society; and without the subsidies many people who live in poverty would most likely experience a rapid decline in their quality of life and their upward mobility.

Producers in highly competitive industries such as agriculture and in industries that compete against foreign companies with low production costs often receive subsidies that enable them to compete and sell their goods and services at a profit. Market prices are determined by the supply and demand of a specific good or service, and if production costs are higher than total revenue or if average total costs are higher than marginal revenue, the producer will earn a negative profit, or a loss. When firms suffer losses, they are encouraged to exit the market in search of other opportunities that will earn them a profit. For agricultural goods and other essential goods and services, society and the government have an incentive to keep firms producing—because the goods and services they produce are viewed as essential. To offset these firms' losses, the government often provides them with subsidies that give them a direct monetary incentive to produce.

An *externality* is an unintended side effect of a decision, and it can be positive or negative. In the case of a positive externality, individual consumers consume only the amount that maximizes their marginal benefit, despite the existence of the positive externality. The classic example of a positive externality is post-secondary education. It is a well-established fact that communities that have a populace with advanced education degrees often experience lower crime rates and improved social outcomes. It is important to note that when individual students make the decision to pay for education beyond high school, they are considering only their own benefit from the higher education, which is most often a higher-paying job and a higher quality of life in the future for themselves. They do not consider the social benefits of lower crime rates, or their positive impact on society based on their high level of education.

This creates a situation in which society would prefer having more students make the decision to pay for higher education; but because the price of education, like all goods and services, is determined by supply and demand, some students cannot afford the tuition of higher education and society is faced with the loss of the societal benefit for every student who chooses not to pay for advanced education. To entice consumers to consume more education to reach the preferred societal quantity, the government often offers subsidies to low-income students to enable them to purchase higher education, which corrects for the positive externality. The government can also offer subsidies to the producers of higher education; this increases the supply of education and drives down the price, which allows consumers to consume education at the preferred societal quantity.

Xavier Whitacre

See also: Isolationism; Outsourcing; Protectionism; Terms of Trade; Trade Policy; *Vol. 2: Macroeconomics:* Externality; Government Bailouts of Private Companies; Government Failure

Further Reading

Benitah, Marc. 2001. *The law of subsidies under the GATT/WTO system*. London: Kluwer Law International.
Frank, Robert. 2009. *The economic naturalist's field guide*. New York: Basic Books.
Wheelan, Charles. 2002. *Naked economics*. New York: Norton.

SUSTAINABLE CONSUMPTION

Sustainable consumption is the ability to satisfy people's present consumption needs without undermining the world's capacity to meet the consumption needs of future generations. Sustainable consumption applies to the purchase or use of resources, such as water or petroleum, as well as final goods, such as food, household appliances, and motor vehicles. It also applies to the decisions made by all consumptive units, including households, businesses, and governments. The overriding objective of sustainable consumption is to guarantee a high and sustainable quality of life for all people, today and in the future.

The movement toward sustainable consumption in the global economy was bolstered by a number of international agreements during the 1990s. The landmark Agenda 21, which was adopted by the UN Earth Summit held in Rio de Janeiro in 1992, propelled sustainable consumption into the international limelight. Agenda 21 made a compelling link between unsustainable consumption and production on the one hand, and global poverty and environmental degradation on the other. Agenda 21 recommended a global shift in lifestyles and consumption patterns, particularly in the industrialized countries. Agenda 21 noted that richer countries accounted for the lion's share of global consumption. Agenda 21 called for more efficient and "green" production methods; the use of new and renewable energy resources; the development and sharing of green technologies; the creation of recycling and waste reduction programs; and the dissemination of information about ethical consumption through education, public awareness programs, advertising, and other means.

Sustainable consumption was formally added to the UN Guidelines for Consumer Protection in 1999. Consumers International (CI), a nonprofit federation of consumer groups and non-governmental organizations (NGOs), was instrumental in framing the sustainable consumption addendum to the UN guidelines. Under the revised Guidelines for Consumer Protection, the United Nations challenged consumers, governments, businesses, labor organizations, environmental groups, and other stakeholders to join in common cause behind sustainable consumption.

The revised guidelines also called for governments to provide a suitable environment for sustainable consumption through appropriate regulations, prohibitions, and incentives to achieve desired results. The guidelines asked governments to lead by example by introducing sustainable consumption practices into their own operations, financing green research and development (R&D), ending subsidies to wasteful or inefficient producers, and forcing businesses to pay for external production costs such as pollution.

The goal of sustainable consumption requires a significant change in attitudes and lifestyles, particularly in the richer industrialized countries. In the early 2000s, the United Nations Environment Program (UNEP) reported slow progress in implementing the sustainable consumption recommendations outlined in the UN Guidelines for Consumer Protection. A UNEP survey cited high compliance with sustainable consumption guidelines in Australia, Belgium, Brazil, the Czech Republic, Denmark, Hungary, Korea, Mexico, Nicaragua, Sri Lanka, and Sweden. Lower compliance with the UN guidelines was recorded in Bulgaria, Burundi, Costa Rica, Cote d'Ivoire, Cyprus, Ecuador, Haiti, Kenya, and Zambia.

David E. O'Connor

See also: Sustainable Economic Development; *Vol. 1: Foundations of Economics:* Green National Accounting; Non-Governmental Organizations; United Nations System

Further Reading

Princen, Thomas, Michael F. Maniates, and Ken Conca, eds. 2002. *Confronting consumption.* Cambridge, MA: MIT Press.

Reisch, Lucia A., and Inge Ropke, eds. 2005. *The ecological economics of consumption.* Northampton, MA: Edward Elgar.

Southerton, Dale, Heather Chappelle, and Bas Van Vliet, eds. 2005. *Sustainable consumption.* Northampton, MA: Edward Elgar.

United Nations. 1992. *Agenda 21 Earth summit: United Nations program of action for Rio.* New York: United Nations.

Worldwatch Institute. 2004. *State of the world 2004: A Worldwatch Institute report on progress toward a sustainable society.* New York: Norton.

SUSTAINABLE ECONOMIC DEVELOPMENT

Sustainable economic development occurs when an economy achieves sustained economic growth and substantive improvements in people's quality of life. Economic growth results from increases in a country's total output of goods and services over time. The two most common measurements of economic growth are gross domestic product (GDP) and GDP per capita. Quality of life deals with the overall conditions under which people live. Quality-of-life indicators consider people's consumption levels; access to education, health, and social services; degree of personal security; and respect for civil and human rights.

The concept of sustainable economic development has expanded in recent years. The landmark Agenda 21 was an important outcome of the 1992 UN Conference on Environment and Development, also called the Rio Earth Summit. Agenda 21 is one of the world's most authoritative statements on sustainable development. Agenda 21 embraces a broad view of sustainable economic development, which includes economic growth and a series of protections for the natural environment, for worker and human rights, and for indigenous cultures. The UN's Millennium Declaration (adopted in 2000) solidified the link between sustainable economic development and global poverty reduction. The declaration established eight Millennium Development Goals, which rallied global support for poverty reduction, universal primary education, gender equity, health care, protection of the natural environment, and partnerships for development.

Economists often classify countries by level of economic development. The most recent International Monetary Fund (IMF) classification established two broad categories of economies. The 29 advanced economies, also called the developed countries, are the rich industrialized economies. The remaining 179 economies are considered emerging market and developing economies. A country's level of economic development is determined partly by its income status. All of the 29 advanced economies, for example, are high-income countries. Development status also considers the size and sophistication of the economy's three economic sectors: agricultural, goods-producing, and services-producing. The advanced economies have well-developed economic sectors, typically dominated by services-producing industries. Less-developed countries are obliged to devote more resources to agriculture and goods-producing industries to satisfy society's basic needs.

A convergence of many mutually supporting economic, political, and social factors is necessary if the virtuous cycle of development is to replace the vicious cycle of poverty in the developing world. The effective management of productive resources—natural resources, human resources, and capital goods—is one important step toward creating the virtuous cycle. The sustainability of natural resources is enhanced by policies to reduce environmental degradation, increase the use of renewable resources, and apply the principles of sustainable consumption. Human resources, or labor, are enhanced by education, job training, adequate food and fresh water, and health care. Investments in human resources expand society's human capital. Policies to reverse the "brain drain," and nurture domestic entrepreneurship, are also essential to human capital development. Finally, the accumulation of capital goods increases the productivity of labor and prospects for economic growth. Capital-deepening, the expansion of real capital per worker, is a key feature of sustainable development.

The virtuous cycle of development is also enhanced by a pro-growth business climate. A favorable business climate includes stable, transparent, and inclusive economic and political institutions and practices. A favorable economic environment relies on a well-developed economic infrastructure, a respect for private property and market institutions, and macroeconomic stability. A well-developed economic infrastructure includes transportation and communications systems, basic services in sanitation and water supply, health and educational facilities, and a system of justice that is capable of enforcing contracts and administering the rule of law. The infrastructure also includes institutions to attend to the specific needs of the poor and other marginalized segments of society. Respect for market institutions provides incentives to work, save, invest, and produce goods. Macroeconomic stabilization policies foster price stability, full employment, and growth.

A stable political environment is based on good governance. *Good governance* refers to honest and competent public service by government officials. Democratic practices and the rule of law underpin good governance. Good governance supports equal opportunity and protects private property rights and profits. Good governance has proven elusive for many developing countries, particularly those victimized by extreme poverty, dictatorship, corruption, and civil conflict. In recent years, international development institutions such as the World Bank and the IMF have extended financial and technical assistance to promote good governance. In addition, governments and multilateral organizations have encouraged participation by non-governmental organizations (NGOs) and civil society organizations (CSOs) to help devise and monitor compliance with the principles of good governance.

Foreign aid is another ingredient in attaining sustainable economic development. Foreign aid refers to cross-border grants, loans, technical assistance, and emergency aid. Foreign governments and multilateral organizations provide most economic assistance. Other sources of assistance include transnational corporations, NGOs, CSOs, and individual philanthropists. The five most important sources of economic assistance are the five mutually supporting institutions of the World Bank Group; the regional development banks and subregional banks; the IMF; the Development Assistance Committee, within the Organisation for Economic Co-operation and Development; and the specialized agencies and programs of the United Nations System. Today, the network of multilateral institutions is increasingly attentive to economic and human development in the world's poorer regions.

David E. O'Connor

See also: Developing Countries; Development Economics; Emerging Market Economies; Foreign Aid; Sustainable Consumption; *Vol. 1: Foundations of Economics:* Entrepreneurship; Factors of Production

Further Reading

Elliot, Jennifer A. 2005. *An introduction to sustainable development.* 3rd ed. New York: Routledge.

Jolly, Richard, Louis Emmerij, and Dharam Ghai. 2004. *UN contributions to development thinking and practice.* Bloomington, IN: Indiana Univ. Press.

Munasinghe, Mohan. 2005. *Towards sustainomics: Making development more sustainable.* Northampton, MA: Edward Elgar.

Rogers, Peter, Kazi F. Jalal, and John A. Boyd. 2005. *An introduction to sustainable development.* Cambridge, MA: Harvard Univ. Press.

Soubbotina, Tatyana P. 2004. *Beyond economic growth: An introduction to sustainable development.* 2nd ed. New York: World Bank Publications.

SWEATSHOPS

The term *sweatshop* originated between 1830 and 1850 as a specific type of workshop. The term was coined as a generic term for factories where workers were exposed to dangerous working conditions, long working hours, low pay, and/or little or no security. A certain type of middleman, the "sweater," directed others in clothes-making under unfavorable conditions. Throughout history there have been workplaces that were crowded, dangerous, low-paying, and without benefits. Between 1850 and 1900, sweatshops attracted the rural poor and immigrants to rapidly growing cities such as London and New York City to work in the garment industry. Labor leaders cited the industries as crowded, poorly ventilated, infested with rats, and prone to fires.

Criticism of garment sweatshops became a major force behind workforce labor laws and safety regulations. In 1910, the International Ladies' Garment Workers Union was founded to try to improve the working conditions of garment workers. Journalists as well as the government tried to intervene with sweatshops.

In the United States, journalists known as "muckrakers" wrote exposés of business practices and described factory working conditions that were dangerous and disgusting. One of the most notable journalists of this time, Upton Sinclair, wrote *The Jungle*, in which he described the unsafe and unhealthy working conditions in the meat-packing industry in Chicago.

To further the negative image of sweatshops, in 1911 the New York City Triangle Shirtwaist factory fire killed 145 workers when they were trapped inside the factory. The exit doors were locked, which drew public outrage for the working conditions within the factory. The fire made the public aware of fire hazards and the lack of safety codes in the factory.

It wasn't until the mid-1930s—with help from Franklin D. Roosevelt and pressure from trade unions—that much-needed changes were brought about in sweatshops, including minimum wage laws, fire safety codes, and labor laws. With these changes, the majority of sweatshops in the developed world have been eliminated.

Employers violate federal or state labor law if they disregard laws such as minimum wage, overtime, child labor, workers' compensation, or safety and health codes; if they're found guilty of these violations, they are considered to be sweatshops in the modern sense. Sweatshops have not been eliminated completely, especially for vulnerable populations such as migrant workers in the agricultural industry. Immigrant workers, both legal and illegal, work in conditions that include long daylight hours in extreme heat with few breaks. Wages are very low, and sometimes even illegal. Since the workers rarely have the means or education to improve their situation, they work under these conditions due to their desperation for money.

Sweatshops in the less-developed world have been even more difficult to eliminate because of their role in the global economy. Developing countries in Central and South America and Asia, with their lack of restrictions and regulations on sweatshops, encourage offshoring from the developed world. The offshored jobs from the industrial world can bring some wealth to extremely poor nations, where citizens struggle to provide the basic needs for their families. Low wages in the sweatshops are better than no wages at all.

The governments of many developing nations are reluctant to enforce strong worker-protection laws. These nations view cheap labor as one of their major assets to attract multinational corporations to create jobs for their citizens. Governments of these nations further argue that most countries in the developed world had sweatshops early in their economic histories as well. The goal of these government leaders is to achieve prosperity by offering jobs in multinational corporations that provide the best wages and working conditions available to their workers. These jobs are better than the other jobs that exist, such as begging, subsistence farming, and prostitution.

Tracy L. Ripley

See also: Developing Countries; Development Economics; *Vol. 1: Foundations of Economics:* Immigration; *Vol. 2: Macroeconomics:* Labor Productivity; *Vol. 3: Microeconomics:* Labor Economics

Further Reading

Aulakh, Raveena. 2013. My life as a sweatshop worker: Undercover reporter tells of crushing hours and terrible pay in Bangladeshi clothes factory where she worked for girl boss aged just NINE. *Daily Mail*, October 12. http://www.dailymail.co.uk/news/2456412/My-life-sweatshop-worker-Undercover-reporter-tells-crushing-work-terrible-pay-girl-boss-aged-just-NINE.html (accessed September 30, 2016).

Chicago Tribune Staff. n.d. In the news: Sweatshop. *Chicago Tribune*. http://articles.chicagotribune.com/keyword/sweatshop (accessed September 30, 2016).

Encyclopedia.com. 2009. Sweatshops. *Encyclopedia of Management*. http://www.encyclopedia.com/management/encyclopedias-almanacs-transcripts-and-maps/sweatshops (accessed September 30, 2016).

T

TARIFFS

A *tariff* is a tax levied by a government with the intent of either raising public revenue or restricting trade in order to protect domestic industries from foreign competition. Tariffs may be specific or ad valorem. Specific tariffs are imposed in relation to the quantity of the good. Ad valorem tariffs are levied according to the value of a good. Justification for tariffs includes the need to increase revenue, protect domestic jobs and infant-industries, reduce foreign dependency on essential goods in the event of war or international conflict—or as retaliation against tariffs imposed by other countries. Tariffs also have the unintended consequences of price increases for consumers and producers, inefficient allocation of resources, reduction in quality and variety of goods, retaliatory practices that reduce exports, decreased incentive to innovate, and an overall reduction in standard of living.

Least-developed countries (LDCs), which lack the adequate economic structure to produce a sufficient tax income, may impose tariffs in order to finance their budget. LDCs may use tariffs for poverty reduction, redistribution, and structural development. An excess of tariffs, however, would have negative effects and reduce tariff revenues by creating a disincentive for foreign producers to import, because the costs are too restrictive.

Tariffs may also be imposed with the intent of protecting new and developing industries, or infant-industries. The goal is to reduce competition until the industry grows to a size that allows it to compete internationally. Advocates of this type of tariff argue that the tariffs will no longer be needed when this level is achieved and that the income produced by the established industries will offset the costs that are imposed on society by restricting trade. Protecting infant-industries through tariffs has many unintended consequences. Creating trade barriers in order to become internationally competitive may compromise trade relations and thus hamper efforts to increase to large-scale industries exporting. If these industries fail to attain international competitiveness, they will be unable to achieve self-sufficiency outside of these protective tariffs. Countries will often continue tariffs in order to sustain the industry, which will keep prices high for consumers and permit small-scale, inefficient industries to survive.

In the United States, tariffs are often favored by industries that are experiencing heavy competition from foreign producers. Special interest groups representing these industries lobby the U.S. Congress to create legislation that benefits their specific interests. The benefits are realized by a relatively narrow percent of the population in comparison to the costs, which are spread throughout society. For example, the sugar industry was first protected by tariffs in the United States in

1789, and it continues to be protected through legislation. These regulations allow less-efficient domestic producers to control more of the market than more-efficient foreign producers. The costs are paid by U.S. consumers, who pay nearly double the world price for sugar. The increased costs are harmful to industries that use sugar as an input by making them less competitive with foreign confectioners, who pay far less for world sugar and then import their final products to the United States (Perry 2013).

Countries have an interest in protecting industries that provide goods that are essential to national security and defense. In the event of war or international conflict, a country may be militarily vulnerable if it does not have a steady source of defense materials. Without protection, inefficient industries may close as a result of foreign competition, which would leave a shortage in materials if supply is disturbed.

Sometimes, foreign producers have an unfair advantage due to subsidies or concessions they receive within their countries that allow these producers to keep their prices artificially low. Efficient domestic companies may be eliminated in competition, because they don't receive the same concessions as the foreign producers. Over time, this may create monopolistic tendencies—and as subsidies are eliminated, prices will rise.

The effect of income-producing tariffs depends on the price elasticity of the imported good. If there is low substitutability and the increase in price has little or no effect on the demand for the good, the tariff will have the desired income-producing result. If consumers respond greatly to an increase in price, the reduced demand for the good will overturn the intended income benefit.

Tariffs create distortions in the market. Trade barriers protect domestic producers by reducing the foreign supply of a good. When supply is limited in this way, an artificial price level is created and production begins to shift from unprotected industries to protected ones. The consequences of this include the reduction of supply in industries that may be more efficient but aren't protected. This increases consumer prices and unemployment levels in unprotected markets as resources are reallocated to less efficient, but protected, markets. Diverting production away from a nation's most efficient and competitive markets and toward lesser ones results in a lower standard of living. In addition, incentives to innovate are reduced.

The beneficiaries of tariffs are domestic producers and foreign consumers. Domestic consumers benefit because they have less competition from foreign producers. They are able to increase sales, price, profit, and employment levels. Some domestic producers are harmed, however, because they are forced to pay higher prices for input goods. The increased cost leaves them at a disadvantage to foreign producers, who pay less for inputs and can therefore charge less for their finished product. Foreign consumers benefit because the additional quantity of goods not exported reduces their prices domestically.

Those harmed by tariffs are domestic consumers and foreign producers. For both domestic and imported goods, the reduction of supply forces up the prices, which are paid by consumers. The variety of goods from which to choose is reduced, and quality suffers. Consumers will see an effective income decrease and a lower standard of living. Foreign producers are harmed because the decrease in demand may reduce the world price for goods, making the industry less profitable. In addition to the far-reaching consequences that tariffs impose on consumers, countries may impose retaliatory tariffs, which hamper trade relations and the profitability of exporting industries.

Heather Isom

See also: Developing Countries; Embargo; Foreign Direct Investment; Free Trade Area; Globalization; Protectionism; Trade Policy; *Vol. 2: Macroeconomics:* Government Failure

Further Reading

Kowalski, P. 2005. Impact of changes in tariffs on developing countries' government revenue. OECD Trade Policy Working Paper No. 18. http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=TD/TC/WP(2004)29/FINAL&docLanguage=En (accessed September 30, 2016).

Perry, Mark J. 2013. Protectionist sugar policy cost Americans $3 billion in 2012. *AEIdeas*, February 14. http://www.aei-ideas.org/2013/02/protectionist-sugar-policy-cost-americans-3-billion-in-2012/ (accessed September 30, 2016).

Thornton, Mark, and Robert Burton Ekelund. 2004. *Tariffs, blockades, and inflation: The economics of the civil war*. Wilmington, DE: Scholarly Resources.

TERMS OF TRADE

Terms of trade is a measure of the relative prices of a country's exports and imports. The terms of trade is expressed as a ratio of a country's export price index to its import price index, multiplied by 100. These price indexes are linked to a base year. In the base year, the terms of trade index is set at 100. A favorable movement in a country's terms of trade occurs when the terms of trade index rises above 100. A favorable movement indicates that the price of a country's exports has risen relative to the price of imported goods. A country's terms of trade deteriorates when the index falls below 100. This occurs when the price of its exports has fallen relative to the price of imported goods.

For decades, the terms of trade has been a major trade issue in the global economy. It is particularly contentious in trade relations between the nations of the Global South and the Global North. The World Bank and other multilateral institutions have encouraged developing countries to specialize in the production of goods in which they have a comparative advantage. Poorer countries have responded by specializing in the production of such basic commodities as cocoa, coffee, cotton, rubber, sugar, and tobacco. However, an economy's overreliance on one crop, or several crops, contributes to unbalanced growth and economic instability. When a certain commodity is in oversupply, its price plummets in global markets. When there is a shortage of the commodity, its price rises. Over time, the price of exported commodities from many developing countries, especially the least developed countries (LDCs), has fallen relative to the price of imported manufactured goods from the advanced countries. The deterioration in the terms of trade for these commodity-reliant countries often means that export earnings decline, and trade deficits rise. The Group of 77 (G77) and other voices from the developing world have expressed concerns about the worsening terms of trade, the lack of access to markets in the industrialized world, and other trade issues.

The terms of trade index cannot be used as the sole measure of a country's strength in the global trading system. For example, the deterioration of a country's terms of trade could reflect greater production efficiency in export industries. Greater efficiency by domestic producers could lower the average price of exported goods and vastly increase the quantity of exports sold in global markets. The terms of trade measures the average price of exports, but it does not measure the volume of exports or the reasons for an increase or decrease in the terms of trade index. Conversely, a favorable movement in a country's terms of trade could mean nothing more than that higher priced exports are being offered for sale in global markets. The higher prices, however, may reduce the demand for these exported goods.

David E. O'Connor

See also: Balance of Payments; Balance of Trade; Comparative Advantage; Developing Countries; Exports; General Agreement on Tariffs and Trade; Global Economy; Imports; International Trade; Least Developed Countries; Trade Policy; Trade, Measures of; World Bank

Further Reading

Akiyama, Takamasa. 2001. *Commodity market reforms: Lessons of two decades.* Washington, DC: World Bank Publications.

Ingco, Merlinda D. 2005. *Agriculture and the WTO: Creating a trading system for development.* Washington, DC: World Bank Publications.

United Nations. 2003. *Returning to an eternal debate: The terms of trade for commodities in the twentieth century.* New York: United Nations.

United Nations. 2005. *Export diversification and economic growth: The experience of selected least developed countries.* New York: United Nations.

THIRD WORLD SOCIALISM

Third World socialism refers to the application of socialist principles to developing economies. Most experiments in Third World socialism spanned a 40-year period between the mid-1940s and the mid-1980s. Key features of the socialist agenda included the redistribution of society's wealth and central economic planning, each designed to promote economic justice and sustainable economic development. Interest in Third World socialism faded during the 1980s, as unmet development objectives pushed developing countries toward market-oriented strategies.

Third World socialism faced many obstacles, most of which were associated with countries' low level of economic development. The success or failure of socialism became intertwined with the success or failure of nations' development efforts. Economic development was stymied by economic factors, including underdeveloped productive resources, infrastructure, and social services; political factors, including ineffective tax and regulatory regimes, rampant corruption, and political instability; and cultural factors, including population issues, tribal or clan conflict, and conflicting perceptions of modernity. Countries that embraced Third World socialism typically offered development plans based on land reform, nationalization, and central planning.

Land reform involved a change in ownership or control of productive farmland from a landed aristocracy to village groups. Land reform was viewed as pivotal to the socialist agenda due to the centrality of agriculture in developing economies. Tanzanian president Julius K. Nyerere initiated one bold experiment in land reform in the late 1960s when he introduced the "villagization" process, called *ujamaa.* Under *ujamaa,* tracts of land were transformed into community-based farming collectives. Clusters of families jointly worked the collectives and shared the output. Under the banner of "African socialism," Tanzania and other African countries sought to capitalize on the traditional, communal concept of land tenure that had existed in some precolonial African societies. Unfortunately, in Tanzania and elsewhere, collectivized agriculture failed to increase crop yields or the self-reliance of the people. At the same moment in time, a similar socialist experiment was underway in the South American country of Chile. Under legislation sponsored by the Socialist and Communist parties, the Chilean government expropriated uncultivated lands and established peasant cooperatives to work them. *Expropriation* is the government seizure of private property without compensation to the previous owner. Plans to expand Chile's agrarian reform during the early 1970s were cut short when, in 1973, Socialist president Salvador Allende was killed in a military coup d'état.

A second feature of the socialist agenda was the seizure of the economy's commanding heights. The commanding heights of an economy are its essential industries, such as transportation, communications, energy resources and production facilities, and financial services. Government seizures of property, through nationalization or expropriation, were intended to advance economic justice. After India gained its independence from Great Britain in 1947, the newly elected government of Socialist prime minister Jawaharlal Nehru instituted large-scale nationalization of mining, heavy industries, transportation, communications, and financial services. Egypt, under the leadership of Gamal Abdel Nasser, undertook an aggressive program of nationalization during the 1950s and 1960s. Nasser brought most major industrial and financial enterprises under the control of the government. Similar government seizures occurred in the North African nations of Tunisia and Algeria during the 1950s, Chile in the early 1970s, and dozens of other countries during the post-colonial era. The state-owned enterprises in the developing countries encountered predictable problems, such as poor work incentives, distorted price signals, and bloated bureaucracies.

A third feature of the socialist agenda was central economic planning. The scope and rigidity of economic plans varied. For example, India's indicative plans guided the nation's economic development, but they did not dictate production quotas or resource use for all industries. In fact, Indian five-year plans barely touched the agricultural sector, which remained in private hands and employed the vast majority of all workers in the country. More rigid five-year plans were formed in the one-party states and those run by military dictatorships. Socialist planning in these states more closely resembled that of the authoritarian socialists, such as the former Soviet Union. Central plans, usually called "development plans," stressed the collectivization of agriculture and the large-scale nationalization or expropriation of major industries to jump-start modernization. Economic planning also solidified the government's control over a country. One-party or military governments in the socialist camp were led by President Julius K. Nyerere in Tanzania, President Kwame Nkrumah in Ghana, President Gamal Abdel Nasser in Egypt, and President Sekou Toure in Guinea. Socialist economic planning was largely unsuccessful in the developing world. It was plagued by inaccurate or unreliable economic data, poor coordination of programs, and unrealistic expectations for progress.

In the early 2000s, Third World socialism surfaced in Venezuela, an upper-middle-income developing country. Under the elected president Hugo Chavez, Venezuelan socialism embraced workers' cooperative enterprises and expanded social programs and universal public education. Venezuela's "socialism for the 21st century" features a strong government presence in the economy. Government interventions include the creation of state-owned enterprises (SOEs) in transportation, communications, and other key industries; limited expropriation of undeveloped land from large estates; some restrictions on private enterprise; and control over Petroleos de Venezuela (PDVSA), the state-owned oil monopoly.

In 2005, President Chavez demanded a restructuring of some foreign transnational corporations (TNCs) into joint ventures, a proposal designed to increase the voice of the government in the local operations of ChevronTexaco (U.S.), BP (U.K.), and other TNCs. Revenues from Venezuela's petroleum exports help fund President Chavez's socialist agenda. When President Chavez died in 2013 he was succeeded by Nicholas Maduro. Maduro continued the policies of Chavez and Venezuela continued its economic and political decline.

Venezuela's recent experimentation with socialism has done little to reverse the pendulum swing away from command-oriented socialist approaches and toward market-oriented development strategies. Exemplars of successful market-based economic development include the newly industrialized economies (NIEs) of East Asia: Chinese Taipei, Hong Kong SAR, Singapore, and South Korea. Significant progress along the development continuum has also been made by the other emerging market economies, including Chile, the Czech Republic, Hungary, Poland, Slovenia, and the former Soviet republics of Estonia, Latvia, and Lithuania.

David E. O'Connor

See also: Developing Countries; Emerging Market Capitalism; Transnational Corporations; *Vol. 1: Foundations of Economics:* Command Economy; Democratic Socialism; Economic Systems; Marx, Karl; Socialism

Further Reading

Batley, Richard, and George Larbi. 2004. *The changing role of government: The reform of public services in developing countries.* New York: Palgrave Macmillan.

Brundenius, Claes, and John Weeks, eds. 2001. *Globalization and third-world socialism: Cuba and Vietnam.* New York: Palgrave Macmillan.
Muravchik, Joshua. 2002. *Heaven on earth: The rise and fall of socialism.* San Francisco, CA: Encounter Books.
Nyerere, Julius K. 1985. *Freedom and development.* New York: Oxford Univ. Press.

THREE-WAY ARBITRAGE

Three-way arbitrage describes trading opportunities in foreign currency exchange markets (forex) where an investor may be able to achieve arbitrage profits through trades that utilize the relationships between three separate currencies. The claim, which is supported by empirical examples, is that there are instances when the exchange rate relationship between two currencies may not be aligned in the same manner as the exchange rate between the two would be if it were conducted through intermediate trading of a third currency. During the early 20th century, a time of fixed exchange rates, exchange rate arbitrage did happen, in part due to the slowness of information transfer and associated administrative costs.

In contemporary times, even with floating exchange rates and active forex markets, exchange arbitrage is still possible. If this premise is true, then investors have an opportunity to generate a risk-free profit in the forex market. Consider the following scenario: Suppose that currency A trades for currency C at an exchange rate of 2.00 to 1.00. Also suppose that there is a currency B, which currency A trades at a rate of 2.00 to 1.50. Further suppose that currency B trades to currency C at a rate of 1.49 to 1.00. Under this three-point scenario, a trader could achieve a risk-free profit by doing the following:

1. Using 2.00 of A to purchase 1.50 of B.
2. Then using the 1.50 of B to purchase 1.007 of C.
3. Finally, using the 1.007 of C to purchase 2.013 of A (note the rounding on the calculations).

In the above series of transactions, by taking advantage of the very slight differences in forex relationships, an investor achieves a risk-free profit of .013.

While three-way arbitrage is theoretically possible, traders need to consider significant caveats when assessing whether it can be applied on a widespread basis. First and foremost, modern forex markets are highly active. They are very efficient at correcting any mispricing that occurs. As a result, any arbitrage opportunities that arise can occur with only very slight profit margins and in a very brief window of time. Markets will self-correct immediately once knowledge of the arbitrage is known. In summary, when arbitrage opportunities arise, they are temporary in a market that experiences rapid trading patterns.

The advent of computers has created new opportunities for traders to find and take advantage of arbitrage opportunities. However, the same technologies also ensure that any potential opportunity is short-lived as other traders become involved. In these instances, market equilibrium is quickly restored.

Another consideration is the transaction costs associated with making trades. Even if a theoretical arbitrage opportunity occurs, the administrative costs of executing a trade may be more than the profits available from the arbitrage. Thus, even though arbitrage may exist, due to transaction costs an investor may not be able to produce an actual profit.

Three-way arbitrage is theoretically possible, and there is empirical evidence that opportunities for arbitrage can occur in the marketplace. However, the combination of thin potential margins, the challenges to execute trades quickly, and the associated transaction costs all lead to the reality that actual arbitrage opportunities are few and far between.

John Moore

See also: Exchange Rates; Foreign Exchange Market; Foreign Exchange Rate; Globalization

Further Reading

Chacholidades, Miltiades. 1971. The sufficiency of three-point arbitrage to insure consistent cross rates of exchange. *Southern Economic Journal* 38 (1): 86–88.

Shleifer, Andrei, and Robert W. Vishny. 1997. The limits of arbitrage. *The Journal of Finance* 52 (1): 35–55.

Spiller, Pablo T., and Robert O. Wood. 1988. Arbitrage during the dollar-sterling gold standard, 1899–1908: An econometric approach. *Journal of Political Economy* 96 (4): 882–92.

THUROW, LESTER

Born: May 7, 1938, in Livingston, Montana; Died: March 25, 2016, in Westport, Massachusetts; Nationality: American; Professional Interests: global economy, income distribution; Major Works: *The Zero-Sum Society: Distribution and the Possibilities for Economic Change* (1980), *Head to Head: The Coming Battle among Japan, Europe, and America* (1992), *Building Wealth: The New Rules for Individuals, Companies and Nations in a Knowledge-Based Economy* (1999), *Fortune Favors the Bold: What We Must Do to Build a New and Lasting Global Prosperity* (2003).

Lester Thurow was a global economist, author, and professor. He was the Jerome and Dorothy Lemelson Professor of Management and Economics Emeritus at the Sloan School of Management at the Massachusetts Institute of Technology (MIT). He served as dean of the school from 1987 to 1993. Thurow served as a staff economist for President Lyndon Johnson. He wrote several books on the global economy and the distribution of income. He also contributed as a columnist for news magazines.

Lester Carl Thurow was born in Livingston, Montana, on May 7, 1938. Thurow earned his BA from Williams College in 1960 in political economy. As a Rhodes Scholar, he received his MA in philosophy, politics, and economics from the Balliol College at Oxford University in 1962. Thurow earned his PhD in economics from Harvard University in 1964.

After serving as a staff economist for President Lyndon Johnson's Council of Economic Advisers, Thurow taught at Harvard from 1966 to 1968. Beginning in 1968, Thurow served on the faculty of MIT. From 1987 to 1993, Thurow served as dean of the Sloan School of Management.

Thurow's academic work focused on global economy, the distribution of income and wealth, and public economic policy. In his 1980 book *The Zero-Sum Society: Distribution and the Possibilities for Economic Change*, Thurow argues that the economic turnaround needed from a slow-growing economy will not take place until the zero-sum theory in macroeconomics is applied, meaning that members of society will have to face taxation in order for government economic actions to work. His subsequent book, *Dangerous Currents: The State of Economics* (published in 1983), critiques academic economics as the only reliable tool for government policy.

Thurow's advocacy for the U.S. economy to change from an individual capitalism to a more communitarian form of capitalism is the basis of his 1992 *New York Times* best seller, *Head to Head: The Coming Battle among Japan, Europe, and America.* In *Head to Head*, he calls on government to play a leading role to help businesses become efficient in developing new processes and skill development to stay competitive in the global economy, with regard to Europe and Japan as economic superpowers. Further writing on globalization is the topic of Thurow's 2003 book, *Fortune Favors the Bold: What We Must Do to Build a New and Lasting Global Prosperity*. In this work, Thurow asserts that companies that want to succeed in the changing global economy must take bold financial risks.

In addition to his books, Thurow contributed as a columnist and editor. He wrote articles for the *Boston Globe* and *USA Today.* He served on the editorial board for the *New York Times* and on the board of economists for *Time* magazine. Thurow appeared on the television program *Nightly Business Report*, and he was featured on *60 Minutes.* He was a board of director member for such companies as Analog Devices and E-Trade. Thurow was a member of the American Academy of Arts and Sciences, and he served as vice president for the American Economic Association in 1993. He died March 25, 2016, in Westport, Massachusetts, at the age of 77.

Sara Standen

See also: Globalization; Krugman, Paul; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; Keynesian Economics; *Vol. 2: Macroeconomics:* Macroeconomics; Samuelson, Paul; *Vol. 3: Microeconomics:* Income

Further Reading

Jahnke, Art. 2003. 2010: Interview with Lester Thurow: We can shape the global economy. *CIO*, December 15. http://www.cio.com/article/32034/2010_Interview_with_Lester_Thurow_We_Can_Shape_The_Global_Economy (accessed July 2012).

Thurow, Lester. 1980. *The zero-sum society: Distribution and the possibilities for economic change.* New York: Basic.

Thurow, Lester. 1983. *Dangerous currents: The state of economics*. New York: Random House.

Thurow, Lester. 1992. *Head to head: The coming economic battle among Japan, Europe, and America.* New York: Morrow.

Thurow, Lester. 1996. Changing the nature of capitalism. In *Rethinking the future*, ed. Warren G. Bennis and Rowan Gibson, 228–50. London: Nicholas Brealey.
Thurow, Lester. 1999. *Building wealth: The new rules for individuals, companies and nations in a knowledge-based economy*. New York: HarperCollins.
Thurow, Lester. 2010. Growing older. In *Aging: Concepts and controversies*, ed. Harry R. Moody, 334–39. Thousand Oaks, CA: Pine Forge Press.

TRADE INTERFERENCE BY BARBARY COAST PIRATES, 1800

After the American Revolution, the United States was plagued by shipping problems. The British, the French, and pirates preyed on U.S. merchant ships. The lack of a strong navy made the ships of the United States the favorite targets of 18th-century pirates. Barbary pirates, or corsairs, were an early type of state-supported terrorists. Their home ports, which were known as the Barbary Coast, consisted of the African ports of Tunis, Algiers, and Tripoli in the Mediterranean, which were under the rule of the Ottoman Empire. Although the cargo raids were economically significant, their main purpose was to capture Christian slaves for the Islamic market of Africa.

The outcry of the New England states in response to the threat of piracy had led to the creation of the United States Navy in 1794. In addition, through treaties and in practice, America had adopted a policy of appeasement by paying ransom for captured ships and their crews and tributes to the local governments. By 1800, ransom and tribute payments had reached 20 percent of the American government's annual expenditures. The loss of ships and goods had also depressed the value of American trading companies, and rising insurance rates on American ships were becoming detrimental to the shipping industry. With only a few infant manufacturing firms, the United States was dependent on shipping and trade for its economic survival.

The Barbary pirates operated from the 16th to the 19th century, imprisoning more than a million slaves and capturing thousands of ships. Over the centuries, British ships, protected by treaties and Britain's naval power, had less trouble with these pirates than the ships of most countries. The merchant ships of the American colonies had benefited from British protection until the American Revolution, after which the pirates attacked American ships freely. The Barbary pirates controlled the Mediterranean Sea, raided the Atlantic coasts of Europe and Africa, and even sailed into the America-to-West Indies shipping lanes. Barbary pirate ships often posed as British vessels to avoid capture.

The New England shipping concerns forced Congress to pay ransom and tribute when necessary to free captured sailors, but the companies lost ships and cargo at high rates, driving up insurance costs. The inflationary results affected all of the United States. In 1784, Congress ratified a treaty with Morocco that effectively codified the practice of appeasement and ransom payments. Morocco, however, was only one of the Barbary States, and the others continued the piracy. The treaty cost the United States $30,000, and it gained the country very little in the long term.

Secretary of State Thomas Jefferson tried to form an alliance with France and Great Britain to confront the Barbary pirates, but America's weak navy offered little to the proposed alliance, so no agreement was reached. The British also believed it was to Great Britain's advantage to allow the Barbary pirates to disrupt American trade.

America's lack of naval power made frequent violations of the Moroccan treaty common. From 1793 to 1794, more than 11 U.S. ships and 200 sailors were captured. Congress passed a ransom payment of $642,000 and promised an annual tribute to Morocco of $21,000. As the federal government's costs rose, the nation called for more action. Congress passed the Naval Act of 1794 to build six new warships to combat the Barbary pirates. Ransom payments and increased military spending wiped out the government surplus that Alexander Hamilton had worked so hard to build, and it put the country $80 million in debt. Besides the economic cost, this piracy led citizens who lived on America's seacoasts to constantly ask the government for protection.

President Jefferson viewed the piracy crisis as a long-term economic problem. Jefferson differed with Washington and Hamilton on the root of American wealth. He believed in an agrarian society that would thrive on exporting agricultural products and importing manufactured goods. Such a view necessitated the existence of a strong merchant marine and navy. War, however, was not a popular option within Jefferson's party, the Democratic-Republicans.

Paying ransom was not popular either, but it was tolerated until the pasha of Tripoli launched a number of verbal insults against the United States and demanded a new treaty with new annual payments. This time he wanted $225,000 in tribute immediately, with annual payments of $25,000 to follow. Tripoli was only one of the Barbary States making demands on the United States. Jefferson, who had just been elected president, refused to negotiate. As a result, the pasha of Tripoli declared war on the United States. This, for Jefferson, was going too far. He did not even wait for congressional approval before responding, as required under the Constitution; instead, he launched a naval and marine campaign against Tripoli and its pirates in 1801 under the constitutional clause that the president could unilaterally take action to protect American commerce. Congress would eventually vote to support Jefferson's action.

The initial military campaign did not go well. Tripoli captured the warship *Philadelphia* and held the crew hostage. After this setback, Jefferson sent another naval and land expedition against Tripoli. American marines captured Tripoli and rescued the crew of the *Philadelphia*. Under pressure, Tripoli negotiated the release of sailors still in the hands of the other Barbary States, but at a cost of $60,000 per sailor. The final treaty would cost the United States millions of dollars. After this success, Jefferson cut military spending and other government spending to reduce the country's debt to $45 million in 1806. The piracy problem improved but continued to be a danger for shipping, until 1815 when Europe joined in the effort to stop piracy on the Barbary Coast.

Quentin R. Skrabec Jr.

See also: *Vol. 1: Foundations of Economics:* Hamilton, Alexander; *Vol. 2: Macroeconomics:* Economic Embargo and Depression, 1807

Further Reading

Davis, Robert C. 2003. *Christian slaves, Muslim masters: White slavery in the Mediterranean, the Barbary Coast, and Italy, 1500–1800* (Early Modern History and Culture). New York: Palgrave Macmillan.

Lambert, Frank. 2005. *The Barbary wars: American independence in the Atlantic world.* New York: Hill and Wang.

London, Joshua. 2005. *Victory in Tripoli: How America's war with the Barbary pirates established the U.S. navy and shaped a nation.* Hoboken, NJ: John Wiley.

TRADE POLICY

Over the past two decades, there has been considerable debate about the connection between trade and environmental policy. A specific concern of the environmental lobby has been that with increased trade liberalization, governments will not be able to set appropriate environmental policies because their use of complementary trade policies may be constrained by General Agreement on Tariffs and Trade (GATT) rules. A key implication to be drawn from this is that, without the ability to apply border measures such as tariffs, industries in countries that apply tough environmental standards will be hurt, either through loss of market share or by their total displacement to countries with weaker environmental standards—thereby creating pollution havens.

The ongoing policy discussion on how to address climate change is clearly characterized by this same set of concerns. Developed countries, including the United States and the European Union (EU) member countries, are pursuing national efforts to reduce carbon emissions. The expectation is that if they do this, their energy-intensive industries will face increased costs of production. As a consequence, much of the proposed climate legislation also includes some type of border measure targeted at energy-intensive imports, popularly referred to as carbon tariffs. The argument for needing such border measures is twofold: First, there likely will be carbon leakage; that is, production by domestic energy-intensive industries such as steel will simply be replaced by production in countries with less restrictive climate policies. Second, there likely will be a reduction in competitiveness of firms in those industries most affected by domestic climate policies.

The inclusion of border adjustments in proposed climate legislation can be rationalized as follows: Imposing import tariffs (export subsidies) on all energy-intensive traded goods will reduce carbon leakage (competitiveness restored) by worsening the terms of trade for countries that do not implement a tough climate policy. While there is considerable debate among legal observers as to whether such border measures will be treated as trade-distorting under current GATT rules, the principle for their use is actually well founded in the literature on origin taxation systems versus destination-based taxation systems. As long as a domestic tax is applied uniformly across all goods, and as long as legally termed "border tax adjustments" (BTAs) are set no higher than the domestic tax, there will be no effect on relative prices.

It is likely, however, that BTAs for domestic climate policy will be applied to only a small set of energy-intensive industries, including steel, aluminum, and paper production, in which case relative prices could be affected. Notwithstanding this, the GATT has rules in place on the level at which BTAs can be set: GATT Article II: 2(a) allows members of the World Trade Organization (WTO) to place on the imports of any good, a BTA equivalent to an internal tax on the like good. However, under GATT Article III: 2, the BTA cannot be applied in excess of that applied directly or indirectly to the like domestic good; that is, they have to be neutral in terms of their impact on trade, their objective being to preserve competitive equality between domestic and imported goods. In addition, with respect to exported goods, GATT rules allow rebate of the domestic tax on the exported good; as long as the border adjustment does not exceed the level of the domestic tax, it is not regarded as an export subsidy under the GATT Subsidies Code. In other words, the key underlying principle of the GATT rules is that a border measure cannot be used to provide domestic firms with a competitive advantage; that is, allowing BTAs for domestic climate policy would be motivated not by environmental concerns, but to ensure that competitive equality in international trade is preserved.

While the principle of border adjustments is recognized in the GATT rules, their application will likely be complex legally in the case of climate policy. Specifically, it is unclear whether a BTA will be allowed on imports of a final energy-intensive good such as steel, when domestic climate policy directly affects a nontraded input into steel production, such as electricity, which is not physically present in the final good. It could be argued that if a carbon tax on electricity production is designed to ensure that the price domestic consumers pay for an energy-intensive product such as steel reflects the social cost of producing steel, then a BTA on imported steel should be permitted. Importantly, though, if a BTA is constrained by GATT rules to restoring competitive equality between domestically produced and imported steel, it should be based on the implied tax on domestic steel production. In other words, the appropriate benchmark for BTAs is the carbon content of domestic steel production, and not that of imports. Interestingly, a precedent has already been set for this: BTAs levied on U.S. imports of goods that contain ozone-depleting chemicals (CFCs) are set with regard to the CFC content of U.S.-produced goods and not that of imports.

This discussion clearly highlights the tension between environmental lobbyists who regard trade policy as a means of pursuing environmental goals, and trade policy analysts who are concerned about the potential for protection through border measures for domestic environmental policy. This is borne out in recent empirical work by the World Bank. The World Bank evaluated what the effects would be, by 2020, of three border measures targeted at developing country imports if Organisation of Economic Co-operation and Development (OECD) countries were to unilaterally reduce their 2005 level of carbon emissions by 17 percent in 2012.

Based on current 2016 projections the United States needs to cut emissions 2–3 percent to meet 2020 goals and EU almost 3 percent. China and India base their 2020 goals on emissions ratio to gross domestic product instead of achieving a specific level of reduction.

These results show that a BTA based on the carbon content of developing country imports would have a significantly trade-distorting impact compared to a BTA based on the carbon content of domestic production. In addition, a BTA for both imports and exports based on the carbon content of domestic production would be the least trade-distorting outcome, a result that bears out the analysis of origin versus destination based tax systems. However, the latter would likely be difficult and complex to implement, which suggests that having no border measures might actually be the best policy if countries want to avoid costly trade disputes in applying their climate policies.

Ian M. Sheldon

See also: General Agreement on Tariffs and Trade; Import Quotas; International Environmental Agreements; International Trade; Organisation for Economic Co-operation and Development; Protectionism; Subsidies; Tariffs; *Vol. 2: Macroeconomics:* Externality; Taxes

Further Reading

Mattoo, A., A. Subramanian, D. van der Mensbrugghe, and J. He. 2009. Reconciling climate change and trade policy. CGD Working Paper 189. Washington, DC: Center for Global Development. http://www.cgdev.org/files/1423204_file_Subramanian_Climate_and_Trade_FINAL.pdf (accessed September 30, 2016).

Messerlin, P. A. 2012. Climate and trade policies: From mutual destruction to mutual support. *World Trade Review* 11 (1): 53–80.

OECD. 2015. Meeting climate goals will require stronger policies to cut emissions. http://www.oecd.org/environment/meeting-climate-goals-will-require-stronger-policies-to-cut-emissions.htm (accessed December 11, 2016).

TRADE, MEASURES OF

Trade measurement is the regulation of the buying and selling of goods and services. Since countries first began trading with each other, there have been opposing arguments on trade measurement. There will always be an argument for trade openness, as well as an argument for restrictions on trade.

There are many types of trade measures. A couple of the most common ones are tariffs and nontariff measures. *Tariffs* are a measure of trade that indirectly limits imports by taxing them (Gerber 2014). This is an effective way to control the amount of foreign goods being brought into a country. Tariffs also generate revenue for the government. The level of domestic employment and the balance of payments are also affected (Stern 1973). *Nontariff measures* can be defined as a means of regulating prices or affecting trade flow between countries—sometimes unintentionally (McLinden et al. 2011). This type of trade measure is nontransparent, which means it is not obvious and usually is not presented as a trade barrier.

Other forms of trade measures include trade ratios, adjusted trade flows, price-based measures, and composite indices (David 2007, 7–8). *Trade ratios* are just that: ratios. They are the most popular measurement of trade and often are calculated as imports plus exports divided by gross domestic product. This measurement is popular because in most countries this data is easy to obtain (David 2007, 9). Another trade measure, *adjusted trade flow*, uses deviations of actual trade flow from predicted free-trade flows to create measures (David 2007, 13). *Price-based measures* are measures that attempt to regulate price distortion. Arguments in favor of price-based measures claim that economic interpretation is easier when price-based measures are used than when flow-based measures are used (David 2007, 16). Finally, *composite indices* are measures that are based on three different factors: evaluations of trade barriers, structural characteristics, and institutional arrangements (David 2007, 22). Again, these are just a few of the types of trade measures. There are many more that can be considered, each one with its own advantages and disadvantages.

The trading of goods and services has been a common international practice for centuries, and it will continue to be a part of the global economy. Opposing viewpoints on trade are very common. The argument in favor of trade openness is that it promotes economic growth. On the other hand, there are arguments calling for more trade measures to aid in climate control; to protect the environment; and to address human rights issues, including child labor. There is also an argument for protecting domestic industries (Gerber 2014, 143). While all of those factors are important, most countries have a common goal of sustainable economic growth.

In the United States, advocates of trade measures believe that the measures help prevent a decline in output from U.S. producers, help prevent carbon leakage, and make it possible for other countries to reduce emissions (Yager 2009, 1–2). However, many studies have found that open trade has a positive correlation with economic growth (Ulaşan 2012, 13–14). Finding a balance between trade openness and trade measures—one that ensures economic growth while continuing to be ethical and doing the least harm to the environment—would be a desirable outcome.

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See also: Exports; Imports; International Trade; Protectionism; Tariffs; Terms of Trade; Trade Policy; *Vol. 2: Macroeconomics:* Bureau of Economic Analysis

Further Reading

David, H. Lane. 2007. A guide to measures of trade openness and policy. www.cgu.edu/Include/spe/Conf%20Pol%20Econ%20Indicators%202007/A%20Guide%20To%20Measures%20of%20Trade%20Openness%20and%20Policy.pdf (accessed February 28, 2016).

Gerber, James. 2014. *International economics*. 6th ed. Upper Saddle River, NJ: Pearson Education.

McLinden, Gerard, Enrique Fanta, David Widdowson, and Tom Doyle, eds. 2011. *Border management modernization*. Washington DC: The International Bank for Reconstruction and Development/The World Bank.

Stern, Robert M. 1973. Tariffs and other measures of trade control: A survey of recent developments. *Journal of Economic Literature* 11 (3): 857–88. www.jstor.org/stable/2721621 (accessed February 28, 2016).

Ulaşan, Bülent. 2012. Openness to international trade and economic growth: A cross-country empirical investigation. *Economics: The Open-Access, Open-Assessment E-Journal*. Discussion Paper 2012-25. www.economics-ejournal.org/economics/discussionpapers/2012-25/file (accessed February 28, 2016).

Yager, Loren. 2009. *Climate change trade measures: Considerations for U.S. policy makers*. Washington DC: Diane Publishing.

TRADE-RELATED ASPECTS OF INTELLECTUAL PROPERTY

The Trade-Related Aspects of Intellectual Property (TRIPS) agreement is an international agreement designed to protect intellectual properties in global markets. The TRIPS agreement was negotiated during the Uruguay Round (1986–1994) of trade talks, the eighth trade round conducted under the auspices of the General Agreement on Tariffs and Trade (GATT). The formal agreement, officially called the Agreement on Trade-Related Aspects of Intellectual Property Rights, came into effect on January 1, 1995. The World Trade Organization (WTO), GATT's successor organization, administers TRIPS.

TRIPS is the world's most comprehensive set of protections for intellectual property rights (IPRs). The agreement outlines minimum standards for the protection of intellectual properties from unauthorized duplication, broadcast, or other forms of intellectual piracy. Specific protections guard against the pirating of copyrighted materials, including computer programs, software, books, scripts, broadcasts, movies, and music; trademarks, including signs or symbols, personal names, letters, numbers, or color combinations that are registered to businesses; industrial designs; patents on new inventions, whether products or processes, in the realm of technology; and other innovations such as the layout designs of integrated circuits. The agreement also establishes specific procedures for monitoring compliance with TRIPS rules, settling disputes, and enforcing the ruling of the WTO. Noncompliance with TRIPS could result in the imposition of WTO trade sanctions.

The agreement is binding on WTO member nations. Compliance with the terms of the TRIPS agreement was phased in during the 1990s and early 2000s.

Advanced countries were required to make the necessary adjustments to national regulations and legislation by 1996. In most cases, the IPRs spelled out in the TRIPS agreement were already in effect in the advanced economies. A transition period for emerging markets and developing countries mandated compliance by 2000. Some of the world's least developed countries (LDCs) were given until 2006 to fulfill the terms of the agreement. The TRIPS agreement also respected the past work of the World Intellectual Property Organization (WIPO), a specialized agency within the United Nations System. WIPO administers 23 international treaties that deal with the protection of intellectual properties. In 2004, WIPO's Patent Cooperation Treaty recorded its one-millionth patent filing.

Economists view protections for patents and copyrights as essential to invention, innovation, and the spirit of entrepreneurship in the global economy. Violations of IPRs, on the other hand, reduce business profits and investments and cheat governments out of legitimate tax revenues. The United States initiated several legal actions related to TRIPS in recent years, mainly against piracy of copyrighted materials in other advanced economies. In 2005, however, the biggest IPR showdown was emerging between the United States and China. High-level negotiations between the economic giants resulted in assurances that rampant IPR piracy in China would be curtailed through improved legal rules, enforcement, and a national education campaign. In 2004, the administration of President George W. Bush pledged to monitor the piracy issue vigorously under its Strategy Targeting Organized Piracy (STOP!) initiative.

David E. O'Connor

See also: China: General Economy; General Agreement on Tariffs and Trade; Protectionism; World Trade Organization; *Vol. 1: Foundations of Economics:* Entrepreneurship; Intellectual Property Rights

Further Reading

Drahos, Peter, and John Braithwaite. 2003. *Information feudalism.* New York: Norton.

Drahos, Peter, and Ruth Mayne. 2002. *Global intellectual property rights: Knowledge, access, and development.* New York: Palgrave Macmillan.

Rao, M. B., and Manjula Guru. 2003. *Understanding TRIPS: Managing knowledge in developing countries.* Thousand Oaks, CA: SAGE Publications.

Richards, Donald G. 2004. *Intellectual property rights and global capitalism: The political economy of the TRIPS agreement.* Armonk, NY: M. E. Sharpe.

TRANSNATIONAL CORPORATIONS

A transnational corporation (TNC) is a company that is based in one country but owns or controls other companies, called affiliates, in one or more additional countries. From its headquarters in one country, this parent company exercises direct control over the policies of its affiliates, including policies related to the production and distribution of goods. The ownership of TNCs might be private, public, or some mixture of the two. Also called multinational corporations (MNCs), or multinationals, TNCs have strengthened the economic web that binds the global economy. The United Nations Conference on Trade and Development (UNCTAD) reported that about 62,000 TNCs, with 927,000 foreign affiliates, operated in the global economy by the early 2000s. In 2003, TNCs' foreign affiliates employed 54 million workers and controlled assets in excess of $30 trillion.

Ranked by total revenues, in 2016 Walmart Stores was the world's largest TNC (for the 11th time since 1995), with sales receipts of $482 billion, according to *Fortune*'s Global 500 List of the World's Largest Corporations. Walmart was also the world's largest corporate employer, with 2.3 million employees. Walmart is a privately owned U.S. company, with its corporate headquarters located in Bentonville, Arkansas. The corporation's primary business is retail trade, which encompasses four main divisions: Walmart Stores, Walmart Supercenters, SAM's Clubs, and Walmart Neighborhood Markets. Since the opening of the first Walmart store in 1962, the retail empire has focused on high-volume, low-margin retailing to guarantee low prices for consumers. In recent years, Walmart has come under increased scrutiny for exerting pressure on producers in global supply chains to reduce production costs, regardless of the impact on low-wage foreign labor. In 2004, about 11,500 Walmart retail outlets operated in 23 countries.

Top Transnational Corporations by Revenues, 2015 lists the world's top 10 TNCs, ranked by total revenues (in millions):

1. Walmart ($482,130)
2. State Grid ($329,601)
3. China National Petroleum ($299,271)
4. Sinopec Group ($294,344)
5. Royal Dutch Shell ($272,156)
6. Exxon Mobil ($246,204)
7. Volkswagen ($236,600)
8. Toyota Motor ($236,592)
9. Apple ($233,715)
10. BP ($225,982)

All but four of the world's top 100 corporations are headquartered in the advanced economies.

Ranked by the number of employees, Walmart was again the world's top transnational corporation in 2015 with 3.2 million employees followed by McDonalds (1.9 million), China National Petroleum (1.6 million), State Grid Corporation (1.5 million), and Hon Hai Precision Factory (Foxxcon) (1.2 million).

TNCs are also ranked by the dollar value of their foreign assets. Foreign assets include manufacturing or assembly plants, warehouses, equipment, and so on. According to the *World Investment Report 2016,* Royal Dutch Shell, Toyota Motor Corporation, General Electric, Total SA, BP, Exxon Mobil, Chevron, Volkswagen Group, Vodaphone Group, and Apple Computer held the 10 largest values of foreign assets, as shown in *World's Top TNCs by Foreign Assets, 2015*. Ranked by foreign assets, 99 of the top 100 TNCs hailed from advanced economies. Heavily represented in the top 100 TNCs were firms headquartered in European Union countries, North America, and East Asia and the Pacific. The United States entered 26 TNCs on the top 100 list, the largest total for a single country. The lone developing country penetrating the top 100 was Mexico, with America Movil SAB occupying the 95th position in the ranking.

Some TNCs are conglomerates. A *conglomerate* is a highly diversified corporation. For example, Unilever is one of the world's most diverse conglomerates, founded in 1930 and headquartered in the United Kingdom and the Netherlands. During the 1960s, Unilever acquired numerous firms in areas such as food, home care, and personal care. During the 1990s, the company reversed course by divesting itself of certain brand names and discontinuing others. Several popular

Unilever-owned brands in U.S. markets include Ben & Jerry's ice cream, SlimFast diet products, Lipton tea and soft drinks, Birds Eye frozen foods, Bertolli Mediterranean cuisine, Wish-Bone salad dressing, Dove soaps, and Pond's skin creams.

TNCs are a favorite target of antiglobalization activists, nongovernmental organizations, and other elements of civil society. Activists argue that TNCs put corporate profits ahead of corporate social responsibilities. In the process, they say, TNCs sacrifice people's quality of life by lowering workers' wages, ruining local environments, and disrespecting local cultures.

In effect, anti-globalization activists view trade and investment liberalization as an invitation for TNCs to exploit human and natural resources at the bottom of the supply chain. Pro-globalization forces, including major multilateral organizations and TNCs, counter that TNC investment and other cross-border business activity stimulate job and business creation. Pro-globalization forces also note the positive impact of TNC investment on technology transfers, capital formation, and the infusion of modern management skills to economies in the developing world. TNCs conclude that foreign investment is an important engine of sustainable economic growth.

David E. O'Connor

See also: Foreign Direct Investment; Maquiladoras; Offshoring; Race to the Bottom; *Vol. 1: Foundations of Economics:* Non-Governmental Organization; *Vol. 3: Microeconomics:* Corporate Social Responsibility

Further Reading

Cuyvers, Ludo, and Filip De Beule, eds. 2005. *Transnational corporations and economic development: From internalisation to globalization.* New York: Palgrave Macmillan.

Fortune Global 500. 2015. The top ten. http://beta.fortune.com/global500 (accessed December 11, 2016).

Ietto-Gillies, Grazia. 2005. *Transnational corporations and international production: Concepts, theories and effects.* Northampton, MA: Edward Elgar.

McCarthy, Niall. 2015. The world's biggest employers. Forbes.com. http://www.forbes.com/sites/niallmccarthy/2015/06/23/the-worlds-biggest-employers-infographic/#535f6cf51d09 (accessed December 11, 2016).

Navaretti, Giorgio B., and Anthony J. Venables. 2004. *Multinational firms in the world economy.* Princeton, NJ: Princeton Univ. Press.

United Nations Conference on Trade and Development. 2016. *The world's top 100 non-financial MNEs, ranked by foreign assets, 2015.* New York/Geneva: United Nations. http://www.worldinvestmentreport.org/wir2016/ (accessed December 11, 2016).

TREATY OF ROME, 1957

On March 25, 1957, France, the Federal Republic of Germany (West Germany), the Netherlands, Belgium, Italy, and Luxemburg signed the Treaty of Rome, establishing the European Economic Community (or EEC, also known as the Common Market) and customs union. Also on that day, these same countries signed the European Atomic Energy Community Treaty (EAEC, or Euratom), created for the purpose of developing peaceful applications of atomic energy. Collectively, the treaties are known as the Treaties of Rome. National parliaments then ratified the treaties, with their full effect beginning on January 1, 1958. The EEC has since grown into the European Union (EU).

Before establishing this treaty, political and social leaders had spent many years trying to reconstruct Europe after the devastation of World War II. Sir Winston Churchill even posed the idea of a United States of Europe in 1946. In 1951, the creation of the European Coal and Steel Community (ECSC) opened the markets for those products between several countries in continental Europe. Robert Schuman (Germany) and Jean Monet (France), along with Paul-Henri Spaak (Belgium) and others, saw this as a beginning for a common Europe. They believed that greater cooperation between France and Germany would bring greater prosperity for all and would end any chance of war between these nations. Benelux (Belgium, the Netherlands, and Luxemburg) suggested a meeting in Messina, Sicily, in June 1955 with West Germany, France and Italy—the members of the ECSC.

This meeting, chaired by Paul-Henri Spaak, established four institutions: a commission, a council of ministers, a European parliament, and a European court of justice. It led to a proposal for a general common market and a European atomic energy authority. The common market zone was founded on the "four freedoms"—the free movement of persons, services, goods, and capital. It would create a large space in Europe with the same trading policy, challenge the economic might of the United States, combine resources for expansion and greater prosperity, and raise the standard of living for participants.

The treaty included the adoption of a Common Agricultural Policy between members. This enacted a free market for agricultural products within the EEC with protectionist policies for European farmers. The treaty also prohibited monopolies, some transport common policies, and some commercial privileges for the colonial territories of the member states. There was no agreement on how to treat nonmembers relative to both import duties to the common zone or a common agricultural policy from nonmembers. Great Britain also sent representatives to the Messina Conference in July, but ultimately did not join as it was concerned about loss of independence.

The treaty would lay the foundation of a progressive political integration between member nations. It established a gradual approach to building the EU in 1993. The EEC's treaty remained a key document for the new EU, and the organization was renamed the European Community (EC). The treaty was retained until the Lisbon Treaty of 2009, when it was eliminated and the Treaty of Rome was formally renamed the Treaty on the Functioning of the European Union.

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See also: Customs Union; European (Economic) Community

Further Reading

Editors of Encyclopaedia Britannica. n.d. Treaty of Rome. *Britannica Online*. http://www.britannica.com/EBchecked/topic/508886/Treaty-of-Rome (accessed November 21, 2014).

Civitas Staff. n.d. Treaty of Rome. EU Facts for Schools. http://www.civitas.org.uk/eu-facts/eu-overview/treaty-of-rome/ (accessed November 21, 2014).
EUR-Lex Staff. n.d. Treaty establishing the European Economic Community, EEC Treaty—original text. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV:xy0023 (accessed November 21, 2014).
Ocaña, Juan Carlos, and Jonathan Goldberg, eds. n.d. The treaties of Rome (1957). http://www.historiasiglo20.org/europe/traroma.htm (accessed November 21, 2014).
Trueman, C. N. 2015. The treaty of Rome. History Learning Site. http://www.historylearningsite.co.uk/treaty_of_rome.htm (accessed November 21, 2014).

TRIANGLE TRADE

The term *triangle trade* refers to a historic transatlantic trading pattern involving the import and export of goods. The three sides of the route—or triangle—involve sea voyages from Europe to Western Africa, from Western Africa to the Americas, and from the Americas back to England. Trade centered on manufactured products from Europe, including guns, cloth, and beads; slaves from West Africa; and such raw materials and natural resources as sugar, tobacco, and cotton from the Americas. The natural ocean currents and trade winds across the Atlantic also made this route easier to navigate. Cross-Atlantic trade existed prior to this system; however, triangle trade carried a higher risk and therefore a greater potential profit. This system was invaluable for England's mercantilism, through which the colonies helped their parent country to prosper.

The first leg of the triangle consisted of travel from England to Africa. On this part of the voyage, slave ships would leave from English ports with English goods such as cloth, guns, munitions, ironware, and drink. In the beginning, these goods were traded for gold, other metals, feathers, and ivory tusks along the West African coast.

Later it became more profitable to trade with slave traders or African chiefs for men, women, and children. African dealers would kidnap people from inland villages, then force-march these people to the coast and trade them for European goods. The traders would hold the enslaved people until a ship arrived. It often took several months for a captain to completely fill his ship. Many times, the kidnapped Africans violently resisted the slave ship crews; "free" Africans also attacked these ships from shore. Slavery had existed within Africa for hundreds of years prior to triangle trade. The Spanish and Portuguese had used slaves extensively during this period. The English did not join this practice until 1562, when Sir John Hawkins tried the triangular route and made a profit on every leg.

The second leg of the triangle—often called the Middle Passage—involved travel from West Africa to the West Indies or the Americas. Slaves were densely packed onto ships and transported under horrible, subhuman conditions. The mortality rate for these people was 12 percent or higher; traders referred to this simply as "the cost of the business." Once in the Americas, slaves were sold to the highest bidder at slave auctions or were traded for tobacco, cotton, sugar, and molasses. These people were then enslaved to work on plantations as the property of the plantation owners. They had no rights, and many times their work and living conditions included harsh and violent punishment.

The last leg of the triangle was travel from the West Indies or the Americas back to England. Goods and produce such as sugar, tobacco, and cotton from the plantations were taken back to Europe for sale.

An alternate triangle involved the trade of rum and goods from New England to West Africa, the trade of slaves from West Africa to the West Indies, and the trade of sugar from the West Indies to New England.

The triangle trade route is estimated to have been used to sell 10–12 million people into slavery. It lasted for about 300 years, until many countries abolished the practice of slavery.

Kathryn Lloyd Gustafson

See also: *Vol. 1: Foundations of Economics:* Economic History; Slavery and the Slave Trade

Further Reading

The Abolition Project Staff. n.d. Slavery—The triangular trade. http://abolition.e2bn.org/slavery_43.html (accessed November 21, 2014).

African Cultural Center Staff. n.d. History—Slaves. http://www.africanculturalcenter.org/history/ (accessed November 21, 2014).

Boston Tea Party Historical Society Staff. n.d. Triangular trade in New England colonies. http://www.boston-tea-party.org/triangular-trade.html (accessed November 21, 2014).

Land of the Brave Staff. n.d. Triangular trade. http://www.landofthebrave.info/triangular-trade.htm (accessed November 21, 2014).

TRICHET, JEAN-CLAUDE

Born: December 20, 1942, in Lyon, France; Nationality: French; Professional Interests: monetary policy, public administration; Major Works: unpublished papers and speeches.

Jean-Claude Trichet is a former president of the European Central Bank (ECB). He was instrumental in establishing the euro system and the ECB when it began in 1999. In the 1970s, Trichet was France's general inspector of finance. He became director of France's Treasury Department in 1987. Trichet was France's head central banker as governor of the Bank of France in 1993. He served as president of the ECB from 2003 to 2011.

Jean-Claude Trichet was born on December 20, 1942, in Lyon, France. He obtained a degree in civil engineering from the École des Mines de Nancy in 1964. In 1966, he graduated from the University of Paris with a degree in economics and certificate in political studies.

Trichet began his career as an engineer before joining the French government in 1971. Prior to becoming president of the ECB, Trichet held positions in several French government agencies, including the general inspector's office; the Treasury Department, in which he held several positions; and Economic Affairs. In 1987 he became director of the Treasury Department, and in 1993 he began his first term as governor of the Bank of France, France's central bank.

Jean-Claude Trichet's tenure as director of the French Treasury was marred with scandal in 2002. In what was labeled the Credit Lyonnais Affair, several banking officials, including Trichet, were charged with fraud for manipulating financial reports to suppress the real business health of Credit Lyonnais. The reports were presumably altered to hide the actual losses on some property investments by Credit Lyonnais. The French government was the majority owner of Credit Lyonnais; the government used public monies to supply emergency funding, and the crisis was averted. Trichet was cleared of any wrongdoing in 2003. If any legal charges had been brought against Trichet and he had been convicted of them, he would not have been eligible for the ECB presidency.

Trichet was an active participant in the euro system's development and the launching of the ECB in 1999. Prior to his appointment as governor for the Bank of France, he served as chairman of the European Monetary Committee in 1992 and 1993. As governor, he also served as governor for the Bank of International Settlements and for the World Bank, furthering his experience and expertise in international banking. In 1994, he chaired the Council of the European Monetary Institute, and in 2003, as chairman of the Group of Ten Governors, he was a leading choice for president of the ECB.

Jean-Claude Trichet's term as president of the ECB began with expectations that he was a much better and more experienced policy maker and consensus builder than his predecessor, Wim Duisenberg. With the ECB, Trichet had a new single-currency region consisting of a wide diversity of countries. One of Trichet's early successes came in 2004, when he was able to slow the appreciation of the euro without a significant rise in interest rates.

Trichet was often faced with conflicts between what he thought was best for the euro region versus what each country thought was best for its own situation. This conflict was especially noticeable in 2004, when Trichet apparently felt a rate cut was warranted. In his transparent fashion of management, he made his assessment known to the press and the public, only to have it denounced and rejected at the bank's meeting. The politics of the euro zone had won out over the region's economic interests. Not only did his credibility take a hit, but so did the ECB's.

Debate and discussions over the Common Agriculture Policy (CAP) were another example of the interests of the European Union (EU) clashing with the interests of each sovereign nation member. Since well before the EU came into being, the direct subsidies and revenues generated through the tariffs imposed on non-EU goods as part of CAP have been a valuable source of revenue to EU countries. Thus, each attempt to revise or even repeal the subsidies or tariffs from CAP is met with stiff opposition.

In 2011, Jean-Claude Trichet stepped down as president of the ECB.

David A. Dieterle

See also: Draghi, Mario; Euro (European Currency Unit); European Central Bank; Lagarde, Christine

Further Reading

Bruegel-Board Members. 2012. Trichet, Jean-Claude: Chairperson of the Board. http://bruegel.org/author/jean-claude-trichet/ (accessed December 11, 2016).

Business Insider. n.d. Jean-Claude Trichet. http://www.businessinsider.com/blackboard/jean-claude-trichet#ixzz26uD5oUL5 (accessed October 29, 2012).

Edmond Israel Foundation. n.d. Biography of Jean-Claude Trichet, recipient of the vision for Europe award 2008. http://www.ei-foundation.lu/vision/08bio_trichet.htm (accessed October 1, 2012).

Lichfield, John. 2011. Jean Claude-Trichet: The guardian of the euro. *Independent*. http://www.independent.co.uk/news/people/profiles/jean-claude-trichet-the-guardian-of-the-euro-2332716.html (accessed December 11, 2016).

Money and Banking. 2015. Interview: Jean Claude-Trichet. http://www.moneyandbanking.com/commentary/2015/1/15/interview-jean-claude-trichet-former-president-european-central-bank (accessed December 11, 2016).

OECD (Organisation for Economic Co-operation and Development) Staff. 2001. Transparency is key to stability, Trichet says. In *Sustainable development and the new economy: Forum highlights, 2001,* 49. Paris: OECD.

TROPICAL RAIN FORESTS

Tropical rain forests are located between the Tropic of Cancer and Tropic of Capricorn, primarily in developing nations within Central and South America, West and Central Africa, and Southeast Asia, where annual rainfall averages more than 2,500 mm annually.

These forests cover only a small part of the Earth's surface, but they contain well over half of the world's terrestrial plant, insect, and animal species, providing biodiversity levels unmatched by any other biome.

Tropical deforestation increased from approximately 7.75 million hectares per year in the 1920s, to a high point of approximately 14.67 million hectares per year in the early 1980s, to the recent level of approximately 7.43 million hectares per year through 2010. The rate of deforestation for the last three decades has been highest in Asia (1.1 percent, 2.9 percent, and 4.1 percent in the 1980s, 1990s, and 2000s, respectively). Latin America and Africa are behind this figure with annual losses of between 0.7 percent and 2.1 percent, but also increasing over this time period. In absolute terms, the total amount of primary forest lost has been greatest in Brazil, India, and Mexico, totaling over 374 million, 261 million, and 132 million hectares by 2005, respectively. The largest source of tropical deforestation is the conversion of primary forest to cropland and pasture.

Tropical deforestation is of global concern, because these ecosystems are critical for hydrological and carbon cycles; they provide habitat for rare species; and they generate local and regional benefits, including soil and erosion control and nontimber and timber forest products. These ecosystems have environmental impacts that reach far beyond political borders. For example, approximately 8 trillion tons of water evaporates from Amazonian forests each year, affecting atmospheric circulation and precipitation patterns that span continents and hemispheres.

The public good characteristics of tropical forests create a market failure that motivates economic policy aimed at forest protection and sustainable use. Unlike temperate forests, because of the inherent low fertility of the soils and slow growth rate of tropical timber species, tropical forests are often treated as a nonrenewable resource in policy. Policy analysis distinguishes between the sources, immediate causes, and underlying causes of deforestation to better identify the appropriate targets for policy and to develop the means by which these effects can be empirically measured. The sources of deforestation are described as the land uses that replace forest cover (such as agriculture, ranching, plantations, and urban land) and the activities that result in loss of forest cover (such as charcoal production and logging at high intensities). Policies to address the sources of deforestation target landowners, firms, and households. The immediate causes of deforestation include the set of existing choices as determined by agent characteristics and other exogenous factors (including tax incentives, market prices of goods produced on cleared land, laws, and regulations) that can be confounded by population dynamics.

Policies to address the immediate causes of deforestation target regional markets, transportation, and marketing infrastructure. The underlying causes of deforestation include the macroeconomic policies that promote or support deforestation through the design and implementation of specific laws and regulations (such as migration policies, industry level subsidies, and other government policies that directly or indirectly impact deforestation rates). These policies affect the immediate causes of deforestation and the sources of deforestation through regional and national markets that are impacted by social, political, and cultural norms and technological ability. Policies to address the underlying causes of deforestation target macroeconomic conditions and/or national and international markets.

Efforts to reduce deforestation and preserve biodiversity are often complicated by government policies that encourage economic development (such as road, dam, and settlement projects) to address poverty, foreign debt, and international trade deficits. Agricultural subsidies, tax breaks, and illegal logging have also contributed to forest clearing in many nations. Thus, given the inherent trade-offs between deforestation and development, strategies to reduce deforestation rates face the challenge of encouraging preservation while respecting national sovereignty to advance populations and tap natural resources for economic development. Some market-based interventions include timber certification programs, roundtables on sustainable production (such as for acai and palm oil), and moratoria (e.g., on beef).

At the local level, polices are focused on the sources of deforestation. In this case, government and nongovernmental organization policy goals can be divided between those that aim to stabilize agriculture (such as shade farming and agroforestry) and policies that seek to increase returns of the forest (such as the harvest of nontimber forest products, including rubber and native fruits and nuts). Government support for ecotourism can address the sources and the immediate and underlying causes by providing employment opportunities for local peoples as well as creating a national revenue source supported by federal preservation and park designations.

Internationally, programs that provide monetary incentives for developing countries to avoid deforestation and reduce deforestation rates are the most promising option to date. These programs that fall under REDD and REDD+ (Reducing Emissions from Deforestation and Forest Degradation). REDD "is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development." These payments are made for conservation (or avoiding deforestation), sustainable management of forests, and the enhancement of carbon stocks.

Jill Caviglia-Harris

See also: Developing Countries; Development Economics; Protectionism; Subsidies; *Vol. 1: Foundations of Economics:* Biodiversity; *Vol. 2: Macroeconomics:* Public Goods

Further Reading

Angelsen, A., and D. Kaimowitz. 1999. Rethinking the causes of deforestation: Lessons from economic models. *World Bank Research Observer* 14:73–98.

Betts, Richard A., Yadvinder Malhi, and J. Timmons Roberts. 2008. The future of the Amazon: New perspectives from climate, ecosystem and social sciences. *Philosophical Transactions of the Royal Society B. Biological Sciences* 363 (1498): 1729–35.

FAO (Food and Agriculture Organization of the United Nations). 2012. *State of the world's forests*. Rome: FAO/UNEP.

Malhi, Yadvinder, J. Timmons Roberts, Richard A. Betts, Timothy J. Killeen, Wenhong Li, and Carlos A. Nobre. 2008. Climate change, deforestation, and the fate of the Amazon. *Science* 319 (5860): 169–72.

Nepstad, Daniel C., Claudia M. Stickler, Britaldo Soares-Filho, and Frank Merry. 2008. Interactions among Amazon land use, forests and climate: Prospects for a near-term forest tipping point. *Philosophical Transactions of the Royal Society B: Biological Sciences* 363 (1498): 1737–46.

UN-REDD Staff. n.d. UN-REDD programme. http://www.un-redd.org/ (accessed March 22, 2013).

U

U.S. AID FOR INTERNATIONAL DEVELOPMENT

The United States Aid for International Development (USAID) is the lead U.S. government agency that works to end extreme global poverty and enable resilient, democratic societies to realize their potential. The international development assistance program began after World War II ended in 1945. The USAID employs has more than 3,000 employees worldwide. USAID can be described as a hierarchy organization with multiple departments, such as office of the administrator, bureaus (which consist of various functionalities and geographic locations for USAID), independent offices, advisory committees, a board for international food and agricultural development, coordinators, and a global development council.

George C. Marshall was appointed secretary of state under President Franklin D. Roosevelt and continued under President Harry S. Truman, from 1947 to 1949. Marshall was responsible for providing significant financial and technical assistance to Europe after the war. Later on, this assistance became to be known as the Marshall Plan. The goal of the Marshall Plan was to rebuild Europe's infrastructure, strengthen its economy, and stabilize the region.

President Truman began expanding the Marshall Plan and proposed an international development assistance program in 1949. Immediately following this change, two goals were established: creating markets for the United States by reducing poverty and increasing production in developing countries, and diminishing the threat of communism by helping countries prosper under capitalism.

From early 1952 to 1961, programs supporting technical assistance and capital projects continued as the primary form of U.S. aid. They became a key component of U.S. foreign policy. Without delay, the U.S. government began adding key departments to what we now know as the USAID. In 1961, President John F. Kennedy signed the Foreign Assistance Act into law and created USAID by executive order. USAID's efforts to help combat poverty globally were in high demand, and this time became to be known as the "decade of development."

USAID is headquartered in Washington, D.C. The stated mission and vision of the USAID is to end poverty while promoting democratic societies, human dignity, and economic prosperity. USAID's values include integrity, inclusion, empowerment, and commitment to learning.

USAID has two distinctive branches. One is a presidential initiative, and the second is known as "divisions." The divisions consist of U.S. global development lab, agriculture and food security, democracy, human rights and governance, economic growth and trade, education, ending extreme poverty, environment and global climate change, gender equality and women's empowerment, global health, water and sanitation, and working in crises and conflict.

It is important to highlight that the USAID plays an active and critical role in the promotion of U.S. foreign policy interests. The various investments that the USAID makes in developing nations are considered to have long-term benefits for the United States of America and its citizens. American foreign policy has two strong components: defense and diplomacy. A third component is development. USAID devotes its resources to working in the following areas of the world: Afghanistan and Pakistan, Africa, Asia, Europe and Eurasia, Latin America and the Caribbean, and the Middle East.

Bernard P. Kanjoma

See also: Developing Countries; Development Economics; International Economics; World Bank; *Vol. 1: Foundations of Economics:* Poverty

Further Reading

USAID. 2015. *USAID*. http://www.usaid.gov/who-we-are (accessed September 30, 2016).

USAID/CIDI. 2015. *Center for international disaster information*. http://www.cidi.org/about-cidi/#.VVymkPm6fVQ (accessed September 30, 2016).

World Bank/USAID. 2008. *Programmatic Technical Assistance Partnership (PTAP) capital market development and pension reform.* http://documents.worldbank.org/curated/en/614931468309546912/Programmatic-Technical-Assistance-Partnership-PTAP-capital-market-development-and-pension-reform-a-year-in-review-and-priorities-for-the-year-ahead-report-on-the-PTAP-implementation (accessed September 30, 2016).

UNITED KINGDOM: GENERAL ECONOMY

The U.K. economy is a market economy with an interesting history. Despite rough times in the past, today the U.K. economy is recovering. The United Kingdom is one of the oldest governments in the world, and it laid the foundation for the capitalist economic system. Early in its history, paired with Ireland the United Kingdom had the largest economy in the world, reaching its peak in the 19th century.

The United Kingdom's position of dominance in the world economy ended after World War I and World War II. The British economy was in shambles after the wars, and it would never be the same. Its economic influence declined, but it was still a key player in world economics.

Margaret Thatcher's time as prime minister, from 1978 to 1990, was a period of economic turmoil. Thatcher was a strong advocate for the market economy, espousing the economic theories of Friedrich von Hayek. She believed very strongly in privatizing many of Britain's government controlled industries. The special attention she devoted to privatizing Britain's coal industry often brought about violent confrontations with coal industry unions. In time, Thatcher prevailed and many of Britain's commanding heights industries became members of the private sector.

After Thatcher left office, the United Kingdom was no longer known as the "Sick Man of Europe." A more recent decline—the global financial crisis in 2007 and 2008—forced the United Kingdom into a deep recession.

Today the United Kingdom's economy is recovering. In the Economic Freedom scores that came out for 2015, the United Kingdom is ranked fifth out of the 43 European countries. The Index of Economic Freedom is a ranking system that reveals the advancement of economic systems in such categories as rule of law, government size, regulatory efficiency, and market openness. The United Kingdom improved on four of the ten Economic Freedoms.

The United Kingdom has had the fastest growing economy among the G7 countries. The G7 is a group of finance ministers and central bank governors—from Canada, Germany, Japan, Italy, France, the United States, and the United Kingdom—who gather to discuss economic issues. From 2012 to 2014 the United Kingdom had relatively strong growth even with weak consumer spending and business investment. In 2015 the Bank of England began discussing raising interest rates.

However, in June 2016, Great Britain voted to leave the European Union. The 52 percent to 48 percent vote by the voters in England, Wales, Scotland, and Northern Ireland was a referendum for Great Britain to separate itself from the EU. The Brexit vote, as it became known, raised concerns about Great Britain's economy going forward. Great Britain has significant trade and economic ties to the other countries of the EU and London has been a major financial center for EU activities. Great Britain's economic future not being an EU member is still to be written.

Alex Nemer
David A. Dieterle

See also: European Union; France: General Economy; Germany: General Economy; Privatization; *Vol. 1: Foundations of Economics:* Hayek, Friedrich von; Thatcher, Margaret

Further Reading

Economy Watch. 2010. UK economy: UK economic history. www.economywatch.com/world_economy/united-kingdom/uk-economic-history.html (accessed October 29, 2015).

Gov.uk. n.d. History of the UK government. www.gov.uk/government/history (accessed October 29, 2015).

Hunt, Alex, and Brian Wheeler. November 2016. Brexit: All you need to know about the UK leaving the EU. BBC News. http://www.bbc.com/news/uk-politics-32810887. (accessed December 12, 2016).

2015 Index of Economic Freedom. 2015. United Kingdom. www.heritage.org/index/country/unitedkingdom (accessed October 29, 2015).

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

The UN Conference on Trade and Development, or UNCTAD, is a body of the United Nations that deals with problems that have to do primarily with international trade, a major part of economic development. The UNCTAD can be described by three words: think, debate, and deliver. One of the major fields in which the UNCTAD excels is data collection and statistics.

Created in 1964, the UNCTAD has played a huge role in the development of countries, and it has a major influence on international trade. The UNCTAD is made up of 194 member states that meet every four years to discuss trade and development issues.

UNCTAD also is concerned about investments. Every two years it holds a world investment forum to promote investments that assist in global development. The investments and international trade not only contribute to the economy, but also contribute in building up countries that are not yet where the organization feels they need to be.

Development is a main goal of UNCTAD. The other issues, like trade and investment, have end goals of helping to develop countries. A forum of experts focuses on development through three key tasks: (1) building, researching, and analyzing different policies; (2) collecting data to present for debate and discussion; and (3) providing assistance designed for specific developing countries. The UNCTAD gives special attention to countries that are the least developed, plus the countries whose economy is going through a transition.

Not all development and growth is good, though. UNCTAD's analyses provide information about the consequences of globalization for countries that are being developed. UNCTAD conducts its research through data and statistics. Statistics strengthens the UNCTAD, which serves as a middleman between those who provide statistical data and those who use that data.

UNCTAD has a goal of helping the world achieve sustainable development by 2030. UNCTAD assists in progressing 52 specific targets categorized under 10 of the 17 sustainable development goals. UNCTAD's goal is to help achieve the future of prosperity.

UNCTAD is a key player in the world of macroeconomics. The organization views how different trades and investments help expand the world economy and benefit the developing economies of the world. UNCTAD also wants to ensure that the economies keep going in the right direction; thus, most of UNCTAD's activities are aimed at moving toward the goal of sustainable development.

Kenneth Maly
David A. Dieterle

See also: Globalization; International Monetary Fund; International Trade; Trade Policy; Trade, Measures of; World Bank

Further Reading

UNCTAD (United Nations Conference on Trade and Development). n.d. About us. unctad.org/en/Pages/AboutUs.aspx (accessed October 25, 2015).

UNCTAD (United Nations Conference on Trade and Development). n.d. UNCTAD conferences. unctad.org/en/Pages/Meetings/UNCTAD-Conferences.aspx (accessed October 25, 2015).

UNCTAD (United Nations Conference on Trade and Development). n.d. UNCTAD delivers on the sustainable development goals. unctad.org/en/Pages/About%20UNCTAD/UNCTAD-and-the-Global-Goals.aspx (accessed October 25, 2015).

UN-NGLS (Non-Governmental Liaison Service). n.d. United Nations conference on trade and development (UNCTAD). https://unngls.org/index.php/engage-with-the-un/un-civil-society-contact-points/127-united-nations-conference-on-trade-and-development-unctad (accessed October 25, 2015).

V

VINER, JACOB

Born: May 3, 1892, in Montreal, Canada; Died: September 12, 1970, in Princeton, New Jersey; Nationality: American; Professional Interests: public policy, international trade, history of economic thought; Major Works: *Dumping: A Problem in International Trade* (1921), *The Customs Union Issue* (1950).

Jacob Viner was an accomplished economist of international stature, covering topics that span the spectrum from pure theory to public policy. His major fields of research and influence were in the theory of international trade and the history of economic and social thought. Viner died in 1970.

Jacob Viner was born on May 3, 1892, in Montreal, Canada, and he later became a naturalized citizen of the United States. He graduated from McGill University in 1914, came to the United States, and received his doctorate from Harvard University in 1922, where he was a pupil of Frank W. Taussig; the two men later became close friends and colleagues.

Viner was an instructor at the University of Chicago for nine years, beginning in 1916, while writing his dissertation on international trade under the direction of Taussig. He subsequently held professorships at the University of Chicago from 1925 to 1946 and later at Princeton University from 1946 until 1960, when he was given emeritus status.

It was at the University of Chicago that he developed his seminal theories of international trade. Viner's first work, *Dumping: A Problem in International Trade*, was published in 1923. His thorough analysis of the economic significance of dumping as a method of international competition laid the groundwork for subsequent studies in international trade—including Viner's doctoral dissertation, which was published in 1924 as *Canada's Balance of International Indebtedness: 1900–1913*.

Among Viner's works are his lecture to commemorate the sesquicentennial of the publication of *The Wealth of Nations,* titled "Adam Smith and Laissez Faire," in 1927; his *Studies in the Theory of International Trade*, a history of trade theories and policies, in 1937; and his *Guide to John Rae's "Life of Adam Smith."* These established him, along with Joseph A. Schumpeter, as one of the leading economic historians of his time. Viner's 1940 Harris Foundation lecture "International Economic Relations," published in 1941 as *The Foundations of a More Stable World Order*, called for an international cooperation of political and economic resistance to all forms of dictatorship.

In 1950 Viner, by that time teaching at Princeton University, published *The Customs Union Issue*, a groundbreaking analysis of the trade-creating and trade-destroying effects of customs unions throughout the 19th and 20th centuries. Also in 1950, he delivered a series of lectures at the National University of

Brazil (published in 1952 as *International Trade and Economic Development*) that applied international trade theory to present-day problems. In 1958, *The Long View and the Short: Studies in Economic Theory and Policy* was published in commemoration of Viner's 65th birthday. This compilation of his previously published essays, ranging from economic theory and policy to the history of economic thought, and shorter book reviews also contained his famous 1931 essay "Cost Curves and Supply Curves," making an important micro-contribution by helping to simplify the Marshallian long-run average cost, or planning, curve.

Viner, along with Frank Knight and Henry Simons, has been identified as a cofounder of the Chicago school of economics. Additionally, he was editor of the *Journal of Political Economy* for 18 years, and he served on the U.S. Tariff Commission and the Shipping Board during World War I. He participated in the early planning of the Social Security program of the 1930s and was a consultant to the U.S. State Department and the board of governors of the Federal Reserve.

Jacob Viner served as president of the American Economic Association in 1939. He was a permanent member of the Institute for Advanced Study at Princeton and an honorary fellow at the London School of Economics. In 1962, Jacob Viner was awarded the Frances A. Walker Medal by the American Economic Association.

Jacob Viner died on September 12, 1970, in Princeton, New Jersey.

Joseph A. Weglarz

See also: International Trade; *Vol. 1: Foundations of Economics:* Economic History; Schumpeter, Joseph; Smith, Adam

Further Reading

Ekelund, Robert B., Jr., and Robert F. Hebert. 2007. Alfred Marshall and the neoclassical synthesis. In *A history of economic theory and method.* 5th ed., 344–80. Long Grove, IL: Waveland Press.

Roncaglia, Alessandro. 2005. Marshallism in the United States: From John Bates Clark to Jacob Viner. In *The wealth of ideas: A history of economic thought*, 372–74. Cambridge, UK: Cambridge Univ. Press.

Viner, Jacob. 1923. *Dumping: A problem of international trade.* Chicago, IL: Univ. of Chicago Press.

Viner, Jacob. 1924. *Canada's balance of international indebtedness, 1900–1913.* Cambridge, MA: Harvard Univ. Press.

Viner, Jacob. 1937. *Studies in the theory of international trade.* New York: Harper and Brothers.

Viner, Jacob. 1950. *The customs union issue.* New York: Carnegie Endowment for International Peace.

Viner, Jacob. 1952. *International trade and economic development: Lectures delivered at the National University of Brazil.* New York: Free Press.

Viner, Jacob. 1958. *The long view and the short: Studies in economic theory and policy.* New York: Free Press.

VOLUNTARY QUOTAS

A *voluntary quota* is a bilateral trade agreement that limits the import of a specific good or expands the export of a certain good. Thus, a voluntary quota is a type of trade barrier. A voluntary quota is an alternative to imposing an import quota by law or decree. Once a voluntary quota is negotiated, the terms are binding. Voluntary quotas were often viewed as a type of backdoor protectionism. That is, for decades voluntary quotas sidestepped free trade pledges made under the General Agreement on Tariffs and Trade (GATT) and the World Trade Organization (WTO). The two types of voluntary quotas are voluntary export restraint and voluntary import expansion agreements.

The voluntary export restraint (VER) is a bilateral agreement that restricts the quantity of a product that can be exported from one country to another. Weight, number, volume, and other units are used to measure the quantity of an exported good. The United States negotiated a VER with Japan during the early 1980s to protect the ailing U.S. auto industry from a surge of Japanese auto imports. The VER set a number limit of 1.68 million Japanese auto imports in 1981. The VER was raised to 1.85 million Japanese autos in 1984, and to 2.3 million autos in 1985. This VER was eventually removed in the early 1990s. During the 1950s and 1960s, many other VERs were negotiated between the advanced countries and such East Asian countries as South Korea and Chinese Taipei in the textile, clothing, and footwear industries.

A second type of voluntary quota is voluntary import expansion (VIE). VIE is a bilateral agreement that requires one country to accept additional imports from a second country. VIEs are sometimes negotiated to level the playing field in international trade by counteracting nontariff trade barriers in the first country. Nontariff trade barriers include licensing and excessive product-testing requirements. In the mid-1990s, the United States negotiated a VIE agreement that required Japan to open its doors to additional U.S.-produced automobiles and auto parts. VIE agreements might also be negotiated to help correct a severe trade imbalance between two countries.

Voluntary quotas, like other trade barriers, are a form of trade protectionism. VERs, for example, were used extensively by advanced economies over the past 50 years to restrict imports of clothing and textiles from low-wage developing countries. During the 1950s and 1960s the United States and the European Economic Community (EEC) negotiated VERs with emerging Asian economies to limit their clothing and textile exports. Later, many VERs were absorbed into multilateral agreements, such as the Multi-Fiber Agreement in the early 1970s and the Agreement on Textiles and Clothing in the mid-1990s.

The WTO, which began operations on January 1, 1995, banned new VERs, and set in motion a phaseout of existing VERs. The Agreement on Textiles and Clothing was formally terminated in January 2005. In May 2005, President George W. Bush invoked the "safeguard clause" to limit the annual growth of some Chinese imports to the United States. Under the safeguard clause, which was built into China's WTO accession agreement, the U.S. president can restrict the growth of certain imports to 7.5 percent per year. The safeguard clause offers some protection for U.S. industries threatened by imports from China.

David E. O'Connor

See also: Embargo; Exports; General Agreement on Tariffs and Trade; Import Quotas; Imports; International Trade; Protectionism; Tariffs; World Trade Organization

Further Reading

Berry, Steven. 1995. *Voluntary export restraints on automobiles: Evaluating a strategic trade policy*. Cambridge, MA: National Bureau of Economic Research.

Lusztig, Michael. 2004. *The limits of protectionism: Building coalitions for free trade*. Pittsburgh, PA: Univ. of Pittsburgh Press.

Monnich, Christina. 2004. *Tariff rate quotas and their administration.* New York: Peter Lang Publishing.

Suh, Joon H. 1981. *"Voluntary" export restraints and their effects on exporters and consumers: The case of footwear quotas.* St. Louis, MO: Center for the Study of American Business, Washington University.

W

WASHINGTON CONSENSUS

The Washington Consensus refers to a series of 10 economic policy priorities put forth by economist John Williamson in an article published in 1989 and disseminated by the Institute for International Economics. The motivation for this document came from a desire for sound economic policy recommendations to Latin American countries seeking to establish long-term economic growth in the wake of the Lost Decade of the 1980s. Williamson's policy recommendations addressed what he believed were the steps that developing nations which experienced economic distress needed to consider in order to position themselves for economic success in the future. The Washington Consensus is important because it has deeply influenced the typical structures of conditionality that international organizations such as the International Monetary Fund (IMF) had mandated when extending credit to struggling nations.

The Washington Consensus highlights 10 key points, ranging from fiscal policy and monetary policy to trade, exchange rate stabilization, and domestic market-oriented rules. The key points include a nation's ability to create small, manageable budget deficits and to spend public monies on services that provide greater returns, such as primary education, health care, and infrastructure investment.

One of the main fiscal policy changes under the Washington Consensus is tax reform. According to the Consensus, it is important for the nation both to broaden its tax base and to reduce its marginal tax rates. It is also important to free up interest rates so they more accurately reflect current market interest rates.

A second series of Consensus objectives revolve around a nation's exchange rate manipulations and trade policies. The Consensus advocates an export-friendly exchange rate, so that additional domestic products have the possibility of being exported. Along trade-policy lines, it is also important for the nation to replace quota restrictions with temporary tax revenue tariffs on imports. The tariffs would be gradually reduced to a more uniform rate for all protected imports. Trade policy adjustments also include the reduction or total elimination of any barriers that restrict or are disincentives for foreign direct investment.

The final set of Consensus goals focuses on the nation developing a more market-oriented domestic market. These goals include privatizing any state-owned enterprises and reducing or eliminating any regulations that restrict new businesses or competition in an existing market. Finally, the goal that some consider most important is to work toward an economy based on private property and property rights protection through a creditable court system with the rule of law. For developing nations, this last goal is especially important in the less-organized, or informal, sector of the nation's economy.

The above points all coalesce around a central theme: If developing second-world nations wish to promote long-term economic growth, they need to embrace liberalized economic policies. At the time the Washington Consensus was written, Latin American nations tended to trend toward such economic interventions as the Import Substitution Industrialization (ISI) policies that had been prevalent during the 1970s and 1980s. The Consensus advocated a move toward a more market-oriented approach.

Many commentators suggest that the Washington Consensus implicitly endorses a strong free market approach. It is safe to say that the above points incorporated such concepts as the rule of law and private property rights. In addition, countries should refrain from activist economic intervention in the economy. In areas where government has a proper role in administrating national resources, the Consensus advocates directing those resources toward efforts such as providing education to as many citizens as possible, in order to build up the intellectual capital of the country.

In the years since the Washington Consensus was authored, the historical economic track record for Latin American nations has been mixed. Although a great number of Latin American countries initiated policies called forth in that document, and have successfully lowered their levels of sovereign debt, brought down inflation, and expanded their levels of international trade, there simply has not been a wave of economic prosperity.

Some nations, such as Chile, have enjoyed relatively strong economic growth. Other nations, most notably Argentina, have struggled to achieve consistent and positive economic growth rates. There are some factors that partially explain why Latin America has not enjoyed widespread economic success, despite its attempts at economic liberalization. These shortcomings relate back to elements of the Consensus that have not been successfully achieved. In particular, Latin American countries have not successfully moved forward on efforts to invest in their domestic human capital. Overall education levels, an important part of the Consensus, still lag. One of the byproducts of this shortcoming is continuing high levels of poverty.

The Washington Consensus remains a relevant and important document. Although its authors never intended for it to represent a complete economic program, the document nonetheless blueprints key elements for second world countries to consider in their pursuit of further economic development. The evidence for this lies in the fact that many of the recommendations used in current times by the IMF when negotiating conditionality with nations that require IMF assistance.

John Moore

See also: Globalization; Import-Substitution and Export-Led Growth Industrialization; International Monetary Fund; Lost Decade, 1980s; Latin America: General Economy; Privatization; *Vol. 2: Macroeconomics:* Property Rights

Further Reading

Arestis, Philip. 2004–2005. Washington consensus and financial liberalization. *Journal of Post Keynesian Economics* 27 (2): 251–71.

Moreno-Brid, Juan Carlos, Esteban Perez Caldenty, and Pablo Ruiz Napoles. 2004–2005. The Washington consensus: A Latin American perspective fifteen years later. *Journal of Post Keynesian Economics* 27 (2): 345.
Williamson, John. 2003. The Washington consensus and beyond. *Economic and Political Weekly* 38 (15): 1475.
Williamson, John. 2004–2005. The strange history of the Washington consensus. *Journal of Post Keynesian Economics* 27 (2): 95.

WATER IN DEVELOPMENT

Most readers of this entry probably woke up this morning and turned on a tap to get water for their first cup of coffee (or tea) or reached into a refrigerator for a beverage. Unfortunately, for billions of people around the world, obtaining drinking water is much more challenging. It probably involves a family member walking a few miles, standing in line to collect just one jerrican of water from an unreliable public source, hauling this awkward container all the way home under the unrelenting sun, storing the water in a somewhat clean vessel, and finally maybe filtering and or boiling some of the water to provide for several family members. Does economics have any insights on these two very different realities—that is, why an environmental resource such as water is obtained and consumed in such strikingly different ways around the world?

While water is an essential input for agriculture and various manufacturing and other industries, we focus on the use of water for drinking and human consumption because the benefits (for human health) relative to the costs are perhaps most striking. Additionally, many of the arguments discussed later also apply to the demand for and supply of water in agriculture and industry in the developing world. We do not need a lecture on how to resolve the diamond–water paradox—the fact that diamonds are less useful but more expensive than water—to realize that the willingness to pay for clean sufficient regular water (i.e., high demand primarily because of health benefits) usually exceeds the costs of supply. Thus, the task of providing abundant, clean, and reliable water to large populations was tackled head-on by planners in the United States, Europe, and many newly industrialized countries. Western governments decided early in the development process to invest in centralized water treatment plants from which water is distributed to individual houses through a network of underground pipes, and that each of these houses has a meter by which to compute consumption and generate bills to partially cover the operating costs.

Unfortunately, in much of the developing world it has been virtually impossible to replicate this strategy because of a combination of reasons related to (1) lack of resources, including information; (2) tropical ecology and climate, leading to frequent and high incidences of disease (including water-borne diseases); and (3) historical factors influencing governance and institutional evolution (or the lack thereof). More recent studies offer deeper reasons for why policy analysts appear to have consistently overestimated benefits and underestimated the cost of supplying clean water in developing countries.

On the demand side, the common assertions are that the citizens of developing countries are simply too poor to pay for clean water and/or are misinformed about the dangers of drinking water that is contaminated with microbial and other pollutants. Further probing suggests at least four deeper and complementary reasons for low realized demand:

1. Households exposed to contaminated water also face a host of environmental and other exposures, such as high levels of air pollution. Thus, even if people pay for clean water, their health may not noticeably improve because of a myriad of exposures.
2. Even noticeable improvements in health might not translate into higher human capital returns, because of missing educational and labor markets; that is, healthy bright future workers may have limited earning potential.
3. Without clear market signals, potential users may pay too much attention to other preference modifiers, including such sociological factors as peer pressure (i.e., because everyone else in their community is consuming water from traditional sources), or to psychological drivers such as high discount rates or risk aversion that lead to a down-weighting of future uncertain benefits.
4. Demand may be low for the service that is delivered (few hours, low volume, contaminated water) compared with the conceived service, subject to benefit–cost analysis for planning.

On the supply side, costs are likely underestimated for at least three reasons:

1. For all intents and purposes, water supply is a quasi-public good that requires costly coordination among users leading to high transaction costs for sustained provision. For example, if all households in a remote village do not make timely financial or labor contributions, the system will break and maintenance and upgrading will cease.
2. Improving public source water quality leads to limited health benefits, unless accompanied by other complementary (but costly) behaviors such as safe water handling and handwashing by a majority of households. Prevention and infection externalities dominate and make household coordination unlikely and/or very costly.
3. Dysfunctional governance and weak accountability result in inefficient implementation, with corruption as a primary source of leakage or high effective unit costs of delivery.

The academic and practitioner communities are working hard to fill our knowledge gaps regarding many of the demand and supply questions surrounding water. Applied economists are conducting field experiments and/or relying on quasi-experiments around the developing world to understand, for example, how provision of information on the quality of drinking water changes demand and how community-level social capital and collective efficacy reduce the average cost of water supply. Drawing on some of these findings, increasingly, donors and aid agencies have broadened their objectives from a narrow focus on physical infrastructure to a sustainable service provision through three types of programs:

1. Donors have focused on helping utilities reduce costs and increase revenues to become financially viable, thereby improving and extending service delivery.
2. We have witnessed a rise in large-scale projects in which corporate entities, with private equity, assume operating risk and/or develop under a license or contract to deliver water.

3. The community is being put front and center in the planning, design, implementation, and operations processes—replacing career bureaucrats with qualified technocrats as project guides. This philosophy is typically captured in reflecting community needs through participatory planning, decentralized delivery, cost-sharing (typically 10 percent of capital and 100 percent of operations costs), and strengthening local institutions.

The jury is still out—that is, there are few rigorous impact evaluations—on whether these reforms will remove the large disparities in drinking water needs around the world.

Subhrendu K. Pattanayak
Jie-Sheng Tan-Soo

See also: Developing Countries; *Vol. 1: Foundations of Economics:* Social Capital and Behavioral Economics; Social Capital and Personal Capital; *Vol. 2: Macroeconomics:* Public Goods; *Vol. 3: Microeconomics:* Demand; Supply; Technological Innovation

Further Reading

Olmstead, S. 2010. The economics of water quality. *Review of Environmental Economics and Policy* 4 (1): 44–62.

Pattanayak, S. K., and A. Pfaff. 2009. Behavior, environment and health in developing countries: Evaluation and valuation. *Annual Review of Resource Economics* 1: 183–222.

Whittington, D., W. M. Hanemann, C. Sadoff, and M. Jeuland. 2009. The challenge of improving water and sanitation services in less developed countries. *Foundations and Trends in Microeconomics* 4 (6): 469–609.

WOLFSON ECONOMICS PRIZE

The Wolfson Economics Prize was announced on October 18, 2011. Simon Wolfson, Baron Wolfson of Aspley Guise and a Conservative life peer, offered a £250,000 reward for proposals on how to safely dismantle the euro. The prize was organized by the Policy Exchange think tank, an independent, nonpartisan educational charity that seeks free market and localist solutions to public policy questions.

Wolfson voiced the concern that political or economic pressure would force a state to leave the euro, possibly causing catastrophe for European savings, employment, and international banking stability. The winning plan should describe what a post-euro zone would look like; how a smooth transition would be achieved; and how the interests of employment, savers, and debtors would be balanced. In addition, prize entries were to address the impact of their proposal on the international banking system.

The 2012 winner, Roger Bootle, led the Capital Economics team to win with an entry titled “Leaving the Euro: A Practical Guide.” In their proposal the team concluded that even though there would be some loss with the exit of one or more members from the euro, the overall effect would be positive for future growth and prosperity. Bootle recommended that if a single member such as Greece were to leave, a new currency should be introduced at parity with the euro on the first day for wages, prices, loans, and deposits to be redenominated into the new currency on a one-to-one ratio. The Capital Economics team also recommended allowing existing euro notes and coins to be used for small transactions for six months, and for the exiting country to announce a system of inflation-targeting, adopt tough fiscal rules monitored by independent experts, outlaw wage indexation, and issue inflation-linked government bonds. In addition, the leaving country should redenominate its debt into the new national currency and renegotiate the terms of the debt. These actions might incur substantial default, reducing the ratio of debt to gross domestic product (GDP) to 60 percent.

Other of the team's ideas were for the key officials of the leaving country to meet in secret one month before making their intentions public. Other euro zone partners and international monetary organizations would be notified three days before, preferably on a Friday. At that notification, it would be announced publicly that the currency change would occur the following week; then, in order to prevent capital flight, all domestic banks and financial markets should close. The exiting country and other EU institutions would then work to minimize any legal uncertainty.

The 2014 Wolfson Economics Prize was awarded to David Rudlin, the director of the urban design and research consultancy URBED (Urbanism, Environment and Design), located in Manchester and London. The 2014 competition sought solutions to this question: "How would you deliver a new Garden City which is visionary, economically viable, and popular?" The concept of a "garden city" was created in England as an urban planned community with green areas (greenbelts) and a planned mix of industry, agriculture, and homes. The winning proposal recommended the abolition of new garden cities and proposed instead to allow existing cities to expand and use a portion of the greenbelt. The British government has rejected the idea, however, stating that it is committed to protecting the greenbelt from development and urban sprawl.

Kathryn Lloyd Gustafson

See also: Euro (European Currency Unit); European (Economic) Community; European Free Trade Association; *Vol. 1: Foundations of Economics:* Nobel Prize in Economics

Further Reading

Donnelly, M. 2014. Government distances itself from Wolfson prize winner's green belt plan. *Planning Resource*, September 5. www.planningresource.co.uk/article/1310975/government-distances-itself-wolfson-prize-winners-green-belt-plan (accessed September 20, 2014).

Grice, A. 2014. Proposal to build 3.5m homes in 40 UK towns wins the £250,000 Wolfson Prize. *The Independent*, September 3. www.independent.co.uk/news/uk/politics/proposal-to-expand-build-35m-homes-in-40-uk-towns-wins-250000-wolfson-prize-9709721.html# (accessed September 20, 2014).

Policy Exchange. n.d. *Wolfson economics prize 2012*. www.policyexchange.org.uk/component/zoo/item/wolfson-economics-prize-2012 (accessed August 5, 2014).

Policy Exchange. n.d. *Wolfson economics prize 2014*. www.policyexchange.org.uk/component/zoo/item/wolfson-economics-prize (accessed August 5, 2014).

Wolfson Foundation. n.d. *The Wolfson foundation*. http://www.wolfson.org.uk/about-us (accessed September 20, 2014).

WORLD BANK

The World Bank, formerly known as the International Bank for Reconstruction and Development (IBRD), was founded in July 1944 in the city of Bretton Woods, New Hampshire. The agreement to form the IBRD was largely brought about by representatives from the United Kingdom and the United States.

The World Bank is a cooperative made up of 189 member countries. These member countries can also be considered as shareholders. They are represented by a board of governors that is the ultimate policy maker at the World Bank. The governors are member countries' ministers of finance or ministers of development. They meet once a year at the annual meetings of the boards of governors of the World Bank Group and the International Monetary Fund. The World Bank is headed by a president who is nominated by the board of executive directors and is entitled to a renewable five-year term. The World Bank is made up of two independent organizations, the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA), which assist the poorest countries with their development needs.

The World Bank is recognized as an international financial institution with a goal of ending poverty in the world. Headquartered in Washington, D.C., the organization has more than 10,000 employees and has 120 offices worldwide. Its staff members come from various professional backgrounds, including economists, public policy experts, sector experts, and social scientists. The World Bank's mission is to work toward ending poverty by providing loans to developing nations for capital programs.

The World Bank has established different methods of ending poverty in developing nations. The different methodologies include investments in environmental and natural resource management, education, health, public administration, infrastructure, and financial and private sector development. Most projects are jointly funded in conjunction with private investors, commercial banks, governments, and other interested institutions.

A focus on innovative knowledge sharing by the World Bank has brought programs and educational tools to developing nations. Through innovative knowledge sharing, the World Bank supports developing countries with policy advice, research and analysis, technical assistance, investment advice, and capacity development. The World Bank sponsors, hosts, and participates in a wide range of conferences and forums on issues pertaining to development, usually with the help of outside partners.

To help developing nations end poverty, the World Bank has worked continuously through five of its internal institutions:

1. The International Bank for Reconstruction and Development (IBRD) was founded in 1944. It aims to reduce poverty in middle-income countries and creditworthy poorer countries by promoting sustainable development through loans, guarantees, risk management products, and analytical and advisory services.
2. The International Development Association (IDA), founded in 1944, aims to reduce poverty by providing loans—also referred to as "credits" and grants—for programs that boost economic growth, reduce inequalities, and improve people's living conditions.

3. The International Finance Corporation (IFC) was launched in 1950. It is the largest global development institution focused exclusively on the private sector. The IFC helps developing countries achieve sustainable growth by financing investment, mobilizing capital in international financial markets, and providing advisory services to businesses and governments.
4. The Multilateral Investment Guarantee Agency (MIGA), founded in 1988, aims to promote foreign direct investment into developing countries to support economic growth, reduce poverty, and improve people's lives. MIGA fulfills this mandate by offering political risk insurance (guarantees) to investors and lenders.
5. The International Centre for Settlement of Investment Disputes (ICSID) was created as an impartial international forum, providing facilities for the resolution of legal disputes between eligible parties through conciliation or arbitration procedures.

Bernard P. Kanjoma

See also: Bretton Woods Agreement; International Monetary Fund; World Trade Organization; *Vol. 1: Foundations of Economics:* Keynes, John Maynard; *Vol. 2: Macroeconomics:* White, Harry Dexter

Further Reading

Gerber, James. 2013. *International economics*, 6th ed. Upper Saddle River NJ: Pearson Education.

Gwin, Catherine. 2003. *Sharing knowledge: Innovations and remaining challenges: An OED evaluation*. Washington, DC: The World Bank.

International Bank for Reconstruction and Development. n.d. About. http://www.worldbank.org/en/about/what-we-do/brief/ibrd (accessed November 30, 2016).

International Centre for Settlement of Investment and Disputes (ICSID). n.d. World bank/International centre for settlement of investment and disputes. https://icsid.worldbank.org/apps/ICSIDWEB/Pages/default.aspx (accessed November 30, 2016).

International Finance Corporation. n.d. International finance corporation/World bank. http://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/home (accessed November 30, 2016).

Multilateral Investment Guarantee Agency. n.d. Who we are. http://www.miga.org/ (accessed November 30, 2016).

World Bank. n.d. About. http://www.worldbank.org/en/about (accessed November 30, 2016).

WORLD ECONOMIC FORUM

The World Economic Forum (WEF) is a nonprofit foundation committed to improving people's quality of life and improving the state of the world. WEF members and partners come from the global business community. Today, WEF consists of about 1,200 member companies, mostly large transnational corporations (TNCs). Partner companies share WEF's commitment to building a stronger, more prosperous global economy. Members and partners work closely with other stakeholders in economic growth and development. Key stakeholders include governments, academics, nongovernmental organizations (NGOs), and civil society organizations (CSOs). WEF's headquarters is located in Cologny, Switzerland. The forum's largest meeting, the Annual Meeting, is held in Davos, Switzerland.

Klaus Schwab, a business professor at the University of Geneva, founded WEF in 1971. Schwab created the European Management Forum, the precursor to WEF, after hosting a successful conference attended by business leaders. The organization's name was changed to World Economic Forum in 1987, largely to reflect its more global outlook. WEF provides a forum for communication among leaders in the private and public sectors of the global economy. WEF members, partners, and other invited leaders discuss issues related to the business and investment climate and to sustainable growth and development. Recent discussions have focused on the importance of good governance and the rule of law, gender equity in education, entrepreneurship, and environmental protection. At the 2005 annual meeting, measures were proposed to reduce global poverty, including improved foreign aid delivery systems, reduced trade barriers, and strengthened anticorruption partnerships.

Through the WEF's publications, its research staff complements the work conducted at meetings and summits. WEF research on global competitiveness identifies strengths and weaknesses in nations' economies. WEF's flagship publication, *The Global Competitiveness Report*, is among the world's most authoritative statements on the competitiveness of nations. Businesses, scholars, governments, labor organizations, multilateral organizations, and aid agencies use WEF's research to form policies in the public and private sectors. The two barometers of competitiveness shown in the annual report are the Growth Competitiveness Index and the Business Competitiveness Index. The Growth Competitiveness Index is mainly concerned with macroeconomic stability and the strength of nations' public institutions and infrastructure. The Business Competitiveness Index is mainly concerned with such microeconomic indicators as business management and corporate strategies. Combined, the indexes paint a portrait of hospitable and inhospitable economic environments under which economic activity occurs in the global economy. The advanced economies are clustered at the top of each index ranking, and the poorer developing countries are clustered near the bottom.

In recent years, WEF has come under fire from a number of NGOs and others that are opposed to globalization and the dominance of the industrial global North over the poorer regions of the global South. Critics point out that membership in WEF is highly selective, not elected, and not representative of the diverse interests of the peoples of the world. Critics argue that the WEF is more concerned with the profits of TNCs than with improving people's quality of life. During the early 2000s, antiglobalization demonstrations targeted WEF annual meetings in Davos and WEF's regional meetings. Similar protests disrupted summits, conferences, and meetings of the World Trade Organization, the International Monetary Fund, and the World Bank during that period.

David E. O'Connor

See also: Global Economy; Globalization; International Monetary Fund; World Bank; World Trade Organization; *Vol. 1: Foundations of Economics:* Non-Governmental Organization; Poverty; Transnational Corporations

Further Reading

Dutta, Soumitra, Bruno Lanvin, and Fiona Paua. 2005. *The global information technology report 2004–2005* (World Economic Forum Reports). New York: Palgrave Macmillan.

Houtart, Francois, and Francois Polet. 2001. *The other Davos: The globalization of resistance to the world economic order.* New York: Zed Books.

Porter, Michael E., Klaus Schwab, Xavier Sala-I-Martin, and Augusto Lopez-Claros. 2004. *The global competitiveness report 2004–2005.* New York: Palgrave Macmillan.

Schwab, Klaus, ed. 1995. *Overcoming indifference: Ten key challenges in today's changing world.* New York: New York Univ. Press.

WORLD HEALTH ORGANIZATION

The World Health Organization (WHO) is a multilateral organization dedicated to improving the health of all people. Under the WHO constitution, *human health* is defined as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." The WHO constitution also establishes human health as a "fundamental right" to which all people are entitled.

The WHO was founded on April 7, 1948, as a specialized agency within the United Nations system. The main goals of WHO are to provide guidance for nations on health issues, to set global health standards, to strengthen nations' health programs, and to develop and share new health technologies with the peoples of the world. Between 1948 and 2015, WHO membership grew from the original 26 signatory countries to 194 countries.

The World Health Assembly (WHA), the supreme decision-making body for WHO, consists of representatives from all member nations. It meets once each year to establish priorities and policies. The WHA also elects the director-general, WHO's top official, and approves the biennial budget. WHO's 2016 director-general is Dr. Margaret Chan of the People's Republic of China. She began her first five-year term of office in 2006. She was reelected to a second term in 2012 through June of 2017. Numerous boards and commissions convene throughout the year to implement WHO policies—a process supported by 3,500 administrative staff. WHO's secretariat is located in Geneva, Switzerland.

WHO has helped eradicate diseases such as smallpox and yaws. It has led successful campaigns to reduce other diseases such as leprosy, guinea-worm disease, and river blindness. Currently, the major challenges for the WHO are the global epidemic of HIV/AIDs, which had claimed more than 20 million lives by the early 2000s; a resurgence of tuberculosis (TB); the perennial battle with malaria; and periodic outbreaks of ebola and Severe Acute Respiratory Syndrome (SARS).

The WHA approves a biennial budget, called a Program Budget, every second year. It is part of the most recent 12th General Programme of Work, which covers years 2014–2019. In its Draft Proposed Programme Budget for 2018–2019, the WHA proposes $4.6 billion to attend to its global health commitments. Only 30 percent of the WHA funds are generated from assessed contributions from member states. The remaining 70 percent of all funds are derived from voluntary contributions. The biennial budget for 2006–2007 allocated roughly half of all funds to "essential health interventions," which is mainly concerned with the prevention and treatment of diseases. The remaining funds were allocated to research, the dissemination of health information, health personnel, food safety, administrative costs, and other programs.

David E. O'Connor

See also: Developing Countries; Sachs, Jeffrey; Sustainable Economic Development; *Vol. 1: Foundations of Economics:* Poverty; United Nations System; *Vol. 2: Macroeconomics:* Economic Growth, Measures of

Further Reading

Burci, Gian L., and Claude-Henri Vignes. 2004. *World Health Organization.* Norwell, MA: Kluwer Law International.

Powell, Jillian. 2000. *World Health Organization.* Danbury, CT: Franklin Watts.

World Health Organization. 2004. *The world health report 2004: HIV/AIDS—Changing history.* Geneva, Switzerland: World Health Organization.

World Health Organization. 2005. *Draft Proposed programme budget, 2018–2019.* Geneva, Switzerland: World Health Organization.

World Health Organization. 2005. *The world health report 2005: Make every mother and child count.* Geneva, Switzerland: World Health Organization.

WORLD TRADE ORGANIZATION

The intent of the World Trade Organization (WTO) is to supervise and liberalize international trade. The organization was officially introduced on January 1, 1995, under the Marrakesh Agreement. The WTO replaced the General Agreement on Tariffs and Trade (GATT), which was established in 1948. The WTO is headquartered in Geneva, Switzerland. The leader of the WTO is referred to as a director-general. The WTO secretariat consists of experts in various professional fields of lawyers, economists, statisticians, and communications experts.

As of July 2016, the WTO had a membership of 164 countries. Besides the 164 members of the WTO, there are also observing members. The current number of observing members is 20. To apply for membership in the WTO, a country has to meet certain criteria set by the WTO. The economic development of a country applying for membership has a significant impact on whether the WTO approves that nation for membership.

As the global economy developed and evolved, one main issue was the lack of an international organization to serve as arbiter when two countries had a trade conflict. One of the WTO's responsibilities is to serve as a liaison to settle trade disputes between countries. Similarly, the WTO operates as a system of trade rules monitoring national trade policies. The WTO ensures that countries and governments are adhering to its rules, such as protecting consumers and preventing the spread of diseases between nations. Further, the WTO provides technical assistance and training for developing countries and cooperates with other international organizations. The WTO can also aid nations by serving as a place where governments negotiate trade agreements.

The WTO is a complex organization that is responsible for various trade topics. The WTO considers trade negotiations, including agreements that cover goods, services, and intellectual property. It continually discusses the importance of the principles of liberalization with member nations, with allowable exceptions. The WTO promotes individual countries' commitments to lower their customs tariffs and various trade barriers.

All WTO members are obligated to have their trade policies and practices reviewed by the WTO to ensure that proper procedures are met. Implementing and monitoring WTO agreements requires governments to make their trade policies known by notifying the WTO about laws and measures they've adopted. WTO councils and committees ensure that these requirements are being followed and that WTO agreements are being properly implemented.

The WTO has implemented procedures for resolving trade quarrels under the organization's dispute settlement understanding. This understanding is vital for enforcing the rules and thereby ensuring that trade among countries is flowing smoothly.

WTO agreements contain special provisions for developing countries to use in building their trade capacity. These provisions may include longer time periods to implement agreements and commitments, measures that help increase trading opportunities, support to help developing nations build their trade capacity, and assistance to handle disputes and implement technical standards. The WTO is responsible for organizing technical cooperation missions for developing countries annually.

The WTO ensures that aid for trade is geared toward helping developing countries develop the skills and infrastructure necessary to expand their trade. The WTO enforces regular dialogue with nongovernmental organizations, parliamentarians, and other international organizations. The WTO regularly educates the media and the general public on various aspects of the WTO and the ongoing negotiations among nations, with the aim of enhancing cooperation and increasing awareness of WTO activities. This is one of the biggest tasks the WTO undertakes, in order to keep its members informed on current trade issues that need to be shared to the general public.

The WTO's secretariat organizational structure has subsidiary committees that help oversee various departments. A ministerial conference has the following subsidiary groups:

- The Council for Trade in Goods is made up of 14 committees, and each committee has a specific task. Members of the WTO participate in the committees. The body has its own chair and 10 members. The body also has several groups relating to textiles.
- A second major group, the Council for Trade-Related Aspects of Intellectual Property Rights, centers on information regarding intellectual property and the WTO. It also provides news and official records of the activities on intellectual property. The WTO's work with other international organizations in this field is critical because other international organizations share information with the WTO in order to enhance trade security measures.

- The Council for Trade in Services and the Trade Negotiations Committee, also referred to as TNC, is the committee that deals with current trade talks. Because of the importance of this committee, WTO's director-general serves as the chair of the TNC.

In addition to trading policies, the WTO has initiated principles of national treatment and nondiscrimination. *National treatment* is the requirement that foreign goods be treated similarly to the same domestic goods once the foreign goods enter a nation's markets. *Nondiscrimination*, also known as nondiscriminatory trading, is embodied in the concept of most-favored nation (MFN) status. MFN status requires all WTO members to treat each other the same way the other nations treat their most-favored trading partner. This prohibits trade discrimination. It is the intent of the WTO that all members consider all other members as a MFN regarding trade relations.

Bernard P. Kanjoma

See also: European Economic Community (European Union); General Agreement on Tariffs and Trade; International Monetary Fund; Trade Policy; Trade-Related Aspects of Intellectual Property Rights; World Bank

Further Reading

Gerber, James. 2011. *International Economics*. 6th ed. Upper Saddle River, NJ: Pearson Education.

World Trade Organization. 2006. WTO structure. http://www.wto.org/english/thewto_e/whatis_e/tif_e/organigram_landscape_e.pdf (accessed November 30, 2016).

World Trade Organization. 2016. Understanding the WTO: Who we are. http://www.wto.org/english/thewto_e/whatis_e/who_we_are_e.htm (accessed November 30, 2016).

World Trade Organization. 2016. The WTO. http://www.wto.org/english/thewto_e/thewto_e.htm (accessed November 30, 2016).

World Trade Organization. 2016. WTO videos. http://www.wto.org/english/res_e/webcas_e/webcas_e.htm (accessed November 30, 2016).

Y

YEN

The yen, which means “circle” or “round object,”’ is the official currency of Japan. Its currency symbol is ¥. The yen is the third most traded currency in the world and the most heavily traded in Asia. Its low interest rates make it a popular choice to carry trades between the U.S. dollar and the Australian dollar.

In the eighth century, Japan minted the *Wado Kaichin*, or silver and copper coins, which imitated Chinese coins. Japan continued to import Chinese currency when it could no longer produce its own coins. The *Toraisen* and *Shichusen*, two privately minted Japanese coins, entered circulation from the 14th to 16th centuries, when there were not enough Chinese coins for Japanese use. *Koshu Kin*, provincial minted gold coins, became the new standard currency. During the 15th century, the Japanese government established a unified monetary system, including gold currency and silver and copper coins.

Spanish dollars and local currencies were used in Japan during the 19th century. The Spanish coins were minted in Mexico City and came from Manila galleons from Acapulco, Mexico. Later, other silver dollars were used, similar to the Mexican peso and obtained from Latin American countries. To unify and centralize the different currencies, the Meiji government introduced the yen on May 10, 1871.

The New Currency Act of 1871 established a Japanese monetary system with a decimal account similar to the European one, with the hope of stabilizing Japan’s rocky currency situation. Silver was devalued in 1873, and by 1897 the yen moved solely to the gold standard. The value of the yen was frozen at US$0.50. The value fell in subsequent years, and World War II inflation continued to reduce the value of the yen.

The U.S. occupation government as part of the Bretton Woods System stepped in to stabilize the value of the yen. Japan fixed its exchange rate to the U.S. dollar until 1971, when the Japanese government signed the Smithsonian Agreement and agreed to a new fixed exchange rate. The agreement proved difficult to maintain. Three years later, Japan switched to the floating exchange rate, where it remains today. In the early 1980s, the yen was undervalued compared to the U.S. dollar, resulting in a Japanese trade surplus. In 1985, the Group of Five industrialized nations (now the G7) agreed that the U.S. dollar was overvalued and signed the Plaza Accord to prompt the yen to appreciate. Japan saw a period of depreciation after the asset price bubble burst. The work now of the Bank of Japan is to move Japan from deflation to an inflation rate of 1 percent to 2 percent as well as steady economic growth.

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See also: Exchange Rates; Global Currencies; Globalization; Japan: General Economy

Further Reading

CI Currency Information and Research for the Foreign Exchange Industry. 2011. *Japanese yen: History.* http://www.currencyinformation.org/History-of-the-Japanese-Yen.htm (accessed August 15, 2014).

Narayana, Nagesh, and Eric Burroughs. 2008. Chronology—Milestones in yen's history. Reuters, March 10. http://www.reuters.com/article/2008/03/10/yen-idUST24254120080310 (accessed August 15, 2014).

XE. n.d. JPY—Japanese yen. http://www.xe.com/currency/jpy-japanese-yen (accessed August 15, 2014).

YUAN/RENMINBI

China uses three forms of active currency: the renminbi, derived from the yuan and used in mainland China; the Hong Kong dollar, used in Hong Kong; and the Macanese pataca, used in Macau. The modern Chinese yuan is also called the renminbi and is noted with the symbol ¥.

The renminbi (RMB), meaning "the people's currency," has been used in China for many years. China is notably one of the first countries to use currency in place of a barter system. Original coins from the fourth century were made from bronze with a round hole in the middle so they could be kept on a string. The first Chinese emperor, Qin Shi Huang, who began his reign in 221 BCE, began a uniform monetary system using the copper coin as China's official currency, and this did not change for 2,000 years. Researchers believe the first bank note used by any nation was the Chinese leather bank note in 118 BCE, made from white deerskin about one square foot in size. The Chinese were the first to introduce paper currency, during the ninth century, far earlier than the European paper money of the 13th century. In 1889, the yuan—a silver coin derived from the Spanish dollar—replaced copper cash and silver ingots called *sycees*. The yuan was also issued in bank notes.

The Chinese Communist Party's People's Bank of China first issued the renminbi on December 1, 1948, to stabilize Communist areas during the civil war with the Chinese Nationalist Party. When the Communists won mainland China in 1955, the People's Bank of China issued the second series of renminbi to stabilize the high inflation. Its rate of one new RMB to 10,000 old renminbi has not changed. In 1962, multicolor printing and hand-engraved printing plates were introduced in a third series of renminbi. Many underground foreign exchange transactions then began to occur due to an unrealistic exchange rate. This problem was eliminated with other Chinese economic reforms during the 1980s. Later series of renminbi included watermarks, magnetic and fluorescent ink, and images of Mao Zedong on all notes.

The renminbi was fixed to the U.S. dollar for many years, until July 21, 2005. China now allows the renminbi or yuan to trade on spot interbank markets. This helps promote trade, and it decreases the cost of currency conversion and reliance on the U.S. dollar. The yuan is projected to rise slightly against the dollar in the next few years.

Economists believe that China undervalues its currency by 25 percent to 40 percent. The Chinese deny that this is a form of trade protectionism, helping to keep domestic prices low and protect Chinese jobs. The Chinese limitations of the yuan against the U.S. dollar are now leading to inflation. Economists also predict that the yuan could become a major reserve currency in the future.

Kathryn Lloyd Gustafson

See also: China: General Economy; Exchange Rates; Global Currencies; Globalization

Further Reading

Anderson, K. n.d. The best resources on the history of Chinese currency. Mint.com. https://www.mint.com/the-best-resources-on-the-history-of-chinese-currency/ (accessed August 15, 2014).

Chiu, L. n.d. A brief history of the renminbi. ChineseCulture.About.com. http://chineseculture.about.com/od/thechinesegovernment/a/RMB.htm (accessed August 15, 2014).

CI Currency Information and Research for the Foreign Exchange Industry. n.d. History of the Chinese yuan. http://www.currencyinformation.org/History-of-the-Chinese-Yuan.htm (accessed August 15, 2014).

Computersmiths.com. n.d. History of Chinese invention—The invention of paper money. http://www.computersmiths.com/chineseinvention/papermoney.htm (accessed August 15, 2014).

Xie, S. n.d. Renminbi and the Chinese yuan—Facts and history of the Chinese currency. Futures' Forex Trading. http://www.futuresforextrading.com/renminbi/history.html (accessed August 15, 2014).

YUNUS, MUHAMMAD

Born: June 28, 1940, in Chittagong, Bengal, India; Nationality: Bangladesh; Professional Interests: development economics, banker, social entrepreneur; Major Works: founded Grameen Bank and Yunus Centre, PlaNet Finance, Microcredit Summit Campaign.

Muhammad Yunus is a prominent Bangladeshi development economist and social reformer. Yunus, the founder of the Grameen Bank in Bangladesh, introduced microcredit as a viable antipoverty and development strategy. Yunus was born in Chittagong, Bengal, India. In 1947, Chittagong became part of East Pakistan, and, in 1971, part of an independent Bangladesh.

Yunus exhibited exceptional intellectual abilities as a child. Born to a middle-class family, Yunus attended the best schools. He earned a bachelor's degree (1960) and a master's degree (1961) from Dhaka University. Yunus traveled to the United States for his advanced studies in development economics, and he earned a PhD from Vanderbilt University in 1970. From the United States, Yunus supported East Pakistan's independence movement and eventual break from West Pakistan. Soon after independence was achieved, and Bangladesh established, Yunus returned to his homeland to teach and to initiate radical reform in the country's rural development.

As a social scientist, Yunus was committed to finding solutions to development problems. After Yunus returned to Bangladesh in the early 1970s, he accepted a position in government service in Dhaka, and an economics professorship at Chittagong College, neither of which satisfied his desire to bring positive change to his desperately poor country. In 1976, Professor Yunus developed the concept of microcredit to fit local conditions in Bangladesh. Microcredit had existed on a small scale in other world regions for decades. Yunus argued that microcredit could accelerate the pace of rural development by jump-starting entrepreneurship on the farms and in the small villages. Microloans of $50 or $100 could start a new business enterprise and improve the quality of life for an entire household.

Yunus based his microcredit program on several key principles. First, microloans would be made mainly to landless, marginalized peoples who did not qualify for conventional commercial loans. Second, microloans were loans, not grants. Repayment of principal plus interest was required in weekly installments. Third, most microloans would be made to women, mainly to develop this untapped reservoir of entrepreneurial talent. Fourth, small groups of borrowers would take collective responsibility for microloans. The success or failure of each borrower would directly affect future loans to other group members. The experiment in microfinance expanded rapidly, spurred on by near-perfect loan repayments and by outside assistance from such international donors as the International Fund for Agricultural Development and the Ford Foundation. In September 1983, Yunus officially established the Grameen Bank, jointly owned by private shareholders and the government of Bangladesh.

Today, the Grameen Bank is the world largest microfinance institution (MFI). In 2003, the Grameen Bank made $369 million in loans. Since its founding, the Grameen Bank has extended $8.7 billion in microloans to 7.9 million borrowers. Of all microloan recipients, 97 percent have been women. By 2009, the Grameen Bank provided services to 83,458 villages through the bank's 2,562 branches.

In addition, Yunus's experiment in microcredit inspired the creation of microfinance institutions throughout the developing world. Over time, multilateral organizations, including the World Bank and regional development banks, embraced microcredit as a viable development strategy. The United Nations proclaimed 2005 the Year of Microcredit.

Microcredit is widely acclaimed as a success story in Bangladesh and in other countries of the developing world. Some criticisms have been leveled at microcredit practices, however. One criticism is that microcredit, which often carries a high interest rate, creates additional debt for the world's poorest citizens. Second, some research suggests that microcredit obtained by women sometimes ends up in the hands of their husbands. Third, some experts suggest that microfinance institutions are inherently unstable. The financial challenges faced by the Grameen Bank after the devastating 1998 floods in Bangladesh illustrate the pitfalls of collateral-free loans. The impact of microcredit on households' financial security and on economic development will be fertile ground for research in the coming years.

David E. O'Connor

See also: Global Economy; Microfinance Institutions; Sustainable Economic Development; *Vol. 1: Foundations of Economics:* Capital Markets; Capitalism; Poverty

Further Reading

Fernando, Jude L. 2012. *Microfinance: Perils and prospects* (Routledge Studies in Developmental Economics). Reissue Edition. New York: Routledge.

Grameen Bank. 2014. Historical data series in USD. http://www.grameen.com/data-and-report/historical-data-series-in-usd/ (accessed June 1, 2016).

Rahman, Aminur. 2001. *Women and microcredit in rural Bangladesh: An anthropological study of Grameen Bank.* Boulder, CO: Westview Press.

Yunus, Muhammad. 2003. *Banker to the poor: Micro-lending and the battle against world poverty.* Trade Paperback Edition. Washington, DC: Public Affairs.

Yunus, Muhammad, and Alan Jolis. 2001. *Banker to the poor: The autobiography of Muhammad Yunus, founder of Grameen Bank.* New York: Oxford Univ. Press.

Z

ZOELLICK, ROBERT

Born: July 25, 1953, in Evergreen Park, Illinois; Nationality: American; Professional Interests: diplomat for international trade, president of the World Bank (2007); Major Works: "Campaign 2000: A Republican Foreign Policy" (2000), *America and Russia: Memos to a President* (co-edited with Philip Zelikow) (2000), *America and the East Asian Crisis: Memos to a President* (co-edited with Philip Zelikow) (2000), *America and the Balkans: Memos to a President* (co-edited with Philip Zelikow) (2001), *Trauma, Triumph, Transition* (2008).

Robert Zoellick became the 11th chief executive of the World Bank in 2007. A career public servant, Zoellick served in the U.S. State Department and the U.S. Treasury, was a U.S. trade representative, and worked in the offices of the Federal National Mortgage Association (FNMA, or Fannie Mae) and in the White House for the president. The main focus of Zoellick's public service was in economic policy and diplomatic affairs. He was the lead diplomat in many U.S. trade treaties. Zoellick was an adviser to U.S. presidents Ronald Reagan, George H. W. Bush, and George W. Bush. He was a personal adviser to President George H. W. Bush. Zoellick was a major player in the U.S. post–Cold War economic policy.

Robert Bruce Zoellick was born on July 25, 1953, in Evergreen Park, Illinois. In 1975, he graduated from Swarthmore College. He earned his JD degree from Harvard Law School, graduating with honors. He stayed at Harvard, receiving a master's degree in public policy from Harvard's Kennedy School of Government in 1981.

Following graduation from Harvard, Zoellick entered U.S. government public service. Between 1985 and 1993, he served Treasury Secretary James Baker as a deputy assistant secretary for financial institutions policy and counselor to the secretary, and as an undersecretary of state within the State Department; he also spent time in the White House as a deputy chief of staff. Zoellick led the U.S. delegation for the German reunification in 1989 and 1990, and he assisted the president in preparing for the 1991 and 1992 G7 Economic Summits.

In 1993 Zoellick left the White House and joined Fannie Mae as executive vice president. In 1997, he made a temporary career change when he left Fannie Mae to join the U.S. Naval Academy.

Zoellick returned to public service and economic policy diplomacy in 2001, when he served in President George W. Bush's administration as the nation's 13th U.S. trade representative, a cabinet position in the White House. In his new role as trade representative, Zoellick negotiated free-trade agreements with many countries. He was instrumental in developing policies for global, regional, and bilateral agreements and launching the Doha Development Agenda of the World Trade Organization (WTO). He had significant influence in many countries becoming members of the WTO, including China, Chinese Taipei, Cambodia, Vietnam, Russia, and Saudi Arabia.

Zoellick was highly influential in the negotiations of many free-trade agreements for the United States. He also served as an advisor to the U.S. Congress in many trade and economic policy agreements with developing countries. He brought free-trade agreements to completion with many South American countries and developing countries in Africa. He had a leadership role in initiating U.S. free-trade relations with a number of other countries, including Peru, Colombia, and Panama.

In 2005, Zoellick returned to the State Department as a deputy secretary for a year. In 2006, he entered the private sector as a vice chairman at Goldman Sachs. In 2007, President George W. Bush appointed Robert Zoellick to be the 11th chief executive of the World Bank.

Robert Zoellick retired from the World Bank on July1, 2012. He joined the faculty at the Harvard Kennedy School's Belfer Center for Science and International Affairs.

David A. Dieterle

See also: Draghi, Mario; Free Trade Area; Globalization; International Monetary Fund; Lagarde, Christine; World Bank; World Trade Organization

Further Reading

National Bureau of Asian Research (U.S.) and Richard Baum. 2005. *Whither U.S.—China relations? A roundtable discussion of deputy secretary of state Robert Zoellick's September 2005 remarks to the national committee on U.S.–China relations*. Seattle, WA: National Bureau of Asian Research.

Nicoll, Alexander, and Robert B. Zoellick. 2008. *Trauma, triumph, transition*. London: Routledge.

Schneiderman, R. M. 2011. No return to the gold standard. *Newsweek*, January 23. http://www.newsweek.com/2011/01/23/no-return-to-the-gold-standard.html (accessed March 15, 2011).

World Bank. n.d. Robert Bruce Zoellick. http://www.worldbank.org/en/about/archives/history/past-presidents/robert-bruce-zoellick (accessed March 15, 2011).

Zoellick, Robert. 2000. Campaign 2000: A republican foreign policy. *Foreign Affairs* 79 (1). http://www.foreignaffairs.com/articles/55632/robert-b-zoellick/campaign-2000-a-republican-foreign-policy (accessed March 15, 2011).

Zoellick, Robert B., and Philip Zelikow, eds. 2000. *America and the East Asian crisis: Memos to a president*. New York: Norton.

Zoellick, Robert B., and Philip Zelikow, eds. 2000. *America and Russia: Memos to a president*. New York: Norton.

Zoellick, Robert B., and Philip Zelikow, eds. 2001. *America and the Balkans: Memos to a president*. New York: Norton.

Primary Documents

Embargo Act of 1807

The Napoleonic Wars can be viewed as the origin of the Embargo Act. The Embargo Act of 1807 was signed by Thomas Jefferson on December 22, 1807 effectively restraining American trading overseas until March 1809. The Embargo Act of 1807 was created as an attempt to stop warring France and Britain from restricting American Trade. The Act introduced a form of non-violent resistance to the British and French interference of U.S. merchant ships.

An Act laying an Embargo on all ships and vessels in the ports and harbors of the United States

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That an embargo be, and hereby is laid on all ships and vessels in the ports and places within the limits or jurisdiction of the United States, cleared or not cleared, bound to any foreign port or place; and that no clearance be furnished to any ship or vessel bound to such foreign port or place, except vessels under the immediate direction of the President of the United States: and that the President be authorized to give such instructions to the officers of the revenue, and of the navy and revenue cutters of the United States, as shall appear best adapted for carrying the same into full effect: Provided, that nothing herein contained shall be construed to prevent the departure of any foreign ship or vessel, either in ballast, or with the goods, wares and merchandise on board of such foreign ship or vessel, when notified of this act.

And be it further enacted, That during the continuance of this act, no registered, or sea letter vessel, having on board goods, wares and merchandise, shall be allowed to depart from one port of the United States to any other within the same, unless the master, owner, consignee or factor of such vessel shall first give bond, with one or more sureties to the collector of the district from which she is bound to depart, in a sum of double the value of the vessel and cargo, that the said goods, ware, or merchandise shall be relanded in some port of the United States, dangers of the seas excepted, which bond, and also a certificate from the collector where the same may be relanded, shall by the collector respectively be transmitted to the Secretary of the Treasury. All armed vessels possessing public commissions from any foreign power are not to be considered as liable to the embargo laid by this act.

Source*:* U.S. Statutes at Large 2 Stat. 451.

National Bank Act of 1863

The National Bank Act of 1863 was the third attempt for the United States to create a national banking system. In the past banks were chartered only by the states. Signed into law by President Abraham Lincoln the Act had three goals to benefit the Union; create a system of national banks under the influence of the federal government; establish a new national currency to help finance the Civil War; help finance the Union's Civil War effort by establishing a secondary market so the federal government could sell war bonds and treasury securities. None of these goals were very popular with Congress at the time. The National Bank Act of 1863 and 1864 had great difficulty getting passed through Congress. The Act also established a mechanism for creating the national currency and the national banking system.

The National Bank Act

The Act entitled "An Act to provide a national currency secured by a pledge of United States bonds, and to provide for the circulation and redemption thereof," approved June 3, 1864, shall be known as "The National Bank Act." (June 20, 1874, ch. 343, §1, 18 Stat. 123.)

§ 39. Reservation of rights of associations organized under Act of 1863 Nothing in title 62 of the Revised Statutes shall affect any appointments made, acts done, or proceedings had or commenced prior to the third day of June 1864, in or toward the organization of any national banking association under the act of February 25, 1863; but all associations which, on the third day of June 1864, were organized or commenced to be organized under that act, shall enjoy all the rights and privileges granted, and be subject to all the duties, liabilities, and restrictions imposed by title 62 of the Revised Statutes, notwithstanding all the steps prescribed by title 62 of the Revised Statutes for the organization of associations were not pursued, if such associations were duly organized under that act. (R.S. §5156.)

CODIFICATION R.S. §5156 derived from act June 3, 1864, ch. 106, §62, 13 Stat. 118, which was the National Bank Act.

Source*:* The National Bank Act. www.gpo.gov/fdsys/pkg/USCODE-2011-title12/pdf/USCODE-2011-title12-chap2-subchapI-sec38.pdf.

Interstate Commerce Act of 1887

Originally designed to legislate and regulate the monopolistic behavior of the railroad industry the Interstate Commerce Act of 1887 created the Interstate Commerce Commission (ICC). Its importance in the economic history of the United States is that it was the first federal law to regulate a private industry. The key purpose of the law was to force the railroads to offer "reasonable and just" rates to their customers and to publicize those rates. It also prohibited price discrimination between the rate differences of short- and long-haul rates, a common practice of the railroads at the time.

The ICC was the first independent agency established by the federal government for the express purpose of regulating a private industry. The ICC presided over complaints lodged against the railroad companies, issue cease-and-desist orders against practices the ICC deemed unfair and contest any unfair practices of the railroads. The ICC scope of *enforcement was limited to railroads that operated across state lines. From 1903 through 1910 amendments increased the scope of the ICC to include bridges, ferries, oil pipelines, cable, telephone, and telegraph companies. The Motor Carrier Act in 1935 added the trucking industry and bus lines to ICC oversight.*

That the provisions of this act shall apply to any common carrier or carriers engaged in the transportation of passengers or property wholly by railroad, or partly by railroad and partly by water when both are used, under a common control, management, or arrangement, for a continuous carriage or shipment, from one State or Territory of the United States, or the District of Columbia, to any other State or Territory of the United States, or the District of Columbia, or from any place in the United States to an adjacent foreign country, or from any place in the United States through a foreign country to any other place in the United States, and also to the transportation in like manner of property shipped from any place in the United States to a foreign country and carried from such place to a port of trans-shipment, or shipped from a foreign country to any place in the United States and carried to such place from a port of entry either in the United States or an adjacent foreign country: *Provided, however*, That the provisions of this act shall not apply to the transportation of passengers or property, or to the receiving, delivering, storage, or handling of property, wholly within one State, and not shipped to or from a foreign country from or to any State or Territory as aforesaid.

The term "railroad" as used in this act shall include all bridges and ferries used or operated in connection with any railroad, and also all the road in use by any corporation operating a railroad, whether owned or operated under a contract, agreement, or lease; and the term "transportation" shall include all instrumentalities of shipment or carriage.

Source*:* U.S. Statutes at Large, 24 (1887): 379.

Sherman Antitrust Act of 1890

Signed in 1890 by President Benjamin Harrison it was not until 1901 under President Theodore Roosevelt the Act was first enforced to limit the monopoly and cartel behavior of businesses. Named for Senator John Sherman (R-OH) the Sherman Antitrust Act forbids certain business practices that would diminish the competitiveness of a market. The Act gave the federal government the right to investigate and bring federal suits against businesses if the federal government deemed a business practice in violation of the act. The act focused primarily on monopoly behavior by businesses and the collusion of companies through cartels. It was the first federal act to interfere in a private market sharply limiting or making illegal monopolies and cartels. There were three key sections to the Sherman Antitrust Act; defining noncompetitive behavior by businesses; defining which market results would constitute noncompetitive behavior; extended the reach of the act to include U.S. territories and the District of Columbia.

Sec. 1. Every contract, combination in the form of trust or otherwise; or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is hereby declared to be illegal. Every person who shall make any such contract or engage in any such combination or conspiracy, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

Sec. 2. Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

Sec. 3. Every contract, combination in form of trust or otherwise, or conspiracy, in restraint of trade or commerce in any Territory of the United States or of the District of Columbia, or in restraint of trade or commerce between any such Territory and another, or between any such Territory or Territories and any State or States or the District of Columbia, or with foreign nations, or between the District of Columbia and any States or States or foreign nations, is hereby declared illegal. Every person who shall make any such contract or engage in any such combination or conspiracy, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

Sec. 4. The several circuit courts of the United States are hereby invested with jurisdiction to prevent and restrain violations of this act; and it shall be the duty of the several district attorneys of the United States, in their institute proceedings in equity to prevent and restrain such violations. Such proceedings may be by way of petition setting forth the case and praying that such violation shall be enjoined or otherwise prohibited. When the parties complained of shall have been duly notified of such petition the courts shall proceed, as soon as may be, to the hearing and determination of the case; and pending such petition and before final decrees, the court many at any time make such temporary restraining order or prohibition as shall be deemed just in the premises.

Sec. 5. Whenever it shall appear to the court before which any proceeding under Section four of this act may be pending, that the ends of justice require that other parties should be brought before the court, the court may cause them to be summoned, whether they reside in the district in which the court is held or not; and subpoenas to that end may be served in any district by the marshal thereof.

Sec. 6. Any property owned under any contract or by any combination, or pursuant to any conspiracy (and being the subject thereof) mentioned in section one of this act, and being in the course of transportation from one State to another, or to a foreign country, shall be forfeited to the United States, and may be seized and condemned by like proceedings as those provided by law for the forfeiture, seizure, and condemnation of property imported into the United States contrary to law.

Sec. 7. Any person who shall be injured in his business or property by any other person or corporation by reason of anything forbidden or declared to be unlawful by this act, may sue therefor in any circuit court of the United States in the district in which the defendant resides or is found, without respect to the amount in controversy, and shall recover threefold the damages by him sustained, and the costs of suit, including a reasonable attorney's fee.

Sec. 8. That the word "person," or "persons," wherever used in this act shall be deemed to include corporations and associations existing under or authorized by the laws of either the United States, the laws of any of the Territories, and the laws of any State, or the laws of any foreign country.

Source*:* Statutes at Large, 51st Cong., 1st sess., vol. 26, ch. 647: 209

Pure Food and Drug Act of 1906

President Theodore Roosevelt signed the Pure Food and Drug Act in 1906. Prior to the Act the United States did not have a statute for the provision requiring compositional food standards. The Pure Food and Drug act of 1906 outlawed any food that was an imitation of another food or advertised under the name of another food. However, food was considered legal if packaging mentioned that imitations or blends of the contents inside.

SEC. 1. MANUFACTURE OF ADULTERATED FOODS OR DRUGS.[2]

That it shall be unlawful for any person to manufacture within any Territory or the District of Columbia any article of food or drug which is adulterated or misbranded, within the meaning of this Act; and any person who shall violate any of the provisions of this section shall be guilty of a misdemeanor, and for each offense shall, upon conviction thereof, be fined not to exceed five hundred dollars or shall be sentenced to one year's imprisonment, both such fine and imprisonment, in the discretion of the court, and for each subsequent offense and conviction thereof shall be fined not less than one thousand dollars or sentenced to one year's imprisonment, or both such fine and imprisonment, in the discretion of the court.

SEC. 2. INTERSTATE COMMERCE OF ADULTERATED GOODS.

That the introduction into any State or Territory or the District of Columbia from any other State or Territory or the District of Columbia, or from any foreign country, or shipment to any foreign country of any article of food or drugs which is adulterated or misbranded, within the meaning of this Act, is hereby prohibited; and any person who shall ship or deliver for shipment from any State or Territory or the District of Columbia to any other State or Territory or the District of Columbia, or to a foreign country, or who shall receive in any State or Territory or the District of Columbia from any other State or Territory or the District of Columbia, or foreign country, and having so received, shall deliver, in original unbroken packages, for pay or otherwise, or offer to deliver to any other person, any such article so adulterated or misbranded within the meaning of this Act, or any person who shall sell or offer for sale in the District of Columbia or the Territories of the United States any such adulterated or misbranded foods or drugs or export or offer to export the same to any foreign country, shall be guilty of a misdemeanor, and for such offense be fined not exceeding two hundred dollars for the first offense and upon conviction for each subsequent offense not exceeding three hundred dollars or be imprisoned not exceeding one year, or both, in the discretion of the court: *Provided*, That no article shall be deemed misbranded or adulterated within the provisions of this Act when intended for export to any foreign country and prepared or packed according to the specifications or directions of the foreign purchaser when no substance is used in the preparation or packing thereof in conflict with the laws of the foreign country to which said article is intended to be shipped; but if said article shall be in fact sold or offered for sale for domestic use or consumption, then this proviso shall not exempt said article from the operation of any of the other provisions of this Act.

Source*:* U.S. Statutes at Large, 34 (1906): 768.

Federal Reserve Act of 1913

Following a history of depressions, bank runs, and a couple of failed attempts of a national bank, in May 1908 Congress passed the Aldrich-Vreeland Act, establishing a bipartisan National Monetary Commission to study central banking and monetary reform. At issue was the debate between the conservative "money trust" financiers of New York City who supported a banker-controlled plan and the "progressives" who supported a more publicly controlled central bank.

The result was the Federal Reserve Act of 1913. The Act called for a central bank with the power to make decisions regarding the nation's money and money supply without political or private pressure. This was the first compromise to what would become the Federal Reserve System. A second compromise was for at least 8 but no more than 12 private regional Federal Reserve banks each with their own branches, board of directors, and district boundaries. On December 23, 1913, President Woodrow Wilson signed the Federal Reserve Act into law.

An Act To provide for the establishment of Federal reserve banks, to furnish an elastic currency, to afford means of rediscounting commercial paper, to establish a more effective supervision of banking in the United States, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the short title of this Act shall be the "Federal Reserve Act."

Wherever the word "bank" is used in this Act, the word shall be held to include State bank, banking association, and trust company, except where national banks or Federal reserve banks are specifically referred to.

The terms "national bank" and "national banking association" used in this Act shall be held to be synonymous and interchangeable. The term "member bank" shall be held to mean any national bank, State bank, or bank or trust company which has become a member of one of the reserve banks created by this Act. The term "board" shall be held to mean Federal Reserve Board; the term "district" shall be held to mean Federal reserve district; the term "reserve bank" shall be held to mean Federal reserve bank.

Section 2. Federal Reserve Districts.

As soon as practicable, the Secretary of the Treasury, the Secretary of Agriculture and the Comptroller of the Currency, acting as "The Reserve Bank Organization Committee," shall designate not less than eight nor more than twelve cities to be known as Federal reserve cities, and shall divide the continental United States, excluding Alaska, into districts, each district to contain only one of such Federal Reserve cities. The determination of said organization committee shall not be subject to review except by the Federal Reserve Board when organized: Provided, That the districts shall be apportioned with due regard to the convenience and customary course of business and shall not necessarily be coterminous with any State or States. The districts thus created may be readjusted and new districts may from time to time be created by the Federal Reserve Board, not to exceed twelve in all. Such districts shall be known as Federal reserve districts and may be designated by number. A majority of the organization committee shall constitute a quorum with authority to act.

Source*:* Federal Reserve Act (ch. 6, 38 Stat. 251, enacted December 23, 1913, 12 U.S.C. ch.3)

Clayton Antitrust Act of 1914

President Woodrow Wilson signed the Clayton Antitrust Act into law in 1914. It was a supplement to the earlier legislated Sherman Antitrust Act. The Clayton Antitrust Act made price-cutting, rebates, or exclusive contracts specifically for the purpose of eliminating the competition illegal. The act excluded two groups: labor unions and agricultural cooperatives. The Clayton Antitrust Act of 1914 was written to further strengthen the government's control of monopolies and monopolistic activities that had been accused of weakening trade in the United States. The Clayton Act also further strengthened the antitrust laws originally expressed in the Sherman Antitrust Act of 1890. It allowed a person to sue if he or she could prove damage by an illegal arrangement to restrain trade. According to the Clayton Act, a successful plaintiff in such a case would be allowed to recover three times the damages sustained. The purpose of the triple damages rule was to encourage private lawsuits against conspiring oligopolists.

Section 2. That it shall be unlawful for any person engaged in commerce, in the course of such commerce, either directly or indirectly to discriminate in price between different purchasers of commodities, which commodities are sold for use, consumption, or resale within the United States or any Territory thereof or the District of Columbia or any insular possession or other place under the jurisdiction of the United States, where the effect of such discrimination may be to substantially lessen competition or tend to create a monopoly in any line of commerce: Provided, That nothing herein contained shall prevent discrimination in price between purchasers of commodities on account of differences in the grade, quality, or quantity of the commodity sold, or that makes only due allowance for difference in the cost of selling or transportation, or discrimination in price in the same or different communities made in good faith to meet competition: And provided further, That nothing herein contained shall prevent persons engaged in selling goods, wares, or merchandise in commerce from selecting their own customers in bona fide transactions and not in restraint of trade.

Section 3. That it shall be unlawful for any person engaged in commerce, in the course of such commerce, to lease or make a sale or contract for sale of goods, wares, merchandise, machinery, supplies or other commodities, whether patented or unpatented, for use, consumption or resale within the United States or any Territory thereof or the District of Columbia or any insular possession or other place under the jurisdiction of the United States, or fix a price charged therefor, or discount from, or rebate upon, such price, on the condition, agreement or understanding that the lessee or purchaser thereof shall not use or deal in the goods, wares, merchandise, machinery, supplies or other commodities of a competitor or competitors of the lessor or seller, where the effect of such lease, sale, or contract for sale or such condition, agreement or understanding may be to substantially lessen competition or tend to create a monopoly in any line of commerce.

Source*:* U.S. Code, 15 (1914): §§ 12 et seq.

Tariff Act of 1930 (Smoot-Hawley Tariff Act)

With consumer spending on the decline and many workers losing their jobs Congress passed the Tariff Act of 1930 (Smoot-Hawley Tariff Act) in an attempt to help the economy. President Hoover signed the Tariff Act of 1930 despite the objections of over 1,000 economists. The legislation became known as the Smoot-Hawley Tariff Act for the legislation's chief sponsors, Senator Reed Smoot of Utah and House Representative Willis Hawley of Oregon. Senator Smoot was chairman of the Senate's Finance Committee, and Representative Hawley was chairman of the House Ways and Means Committee. The Smoot-Hawley Tariff Act was the last legislative act in which the United States imposed definitive tariff rates. The Act raised the average tariff on all imported products to 50 percent and started a trade war between the United States and its trading partners around the world.

(a) Authority of President; modification and decrease of duties; altering import restrictions
(1) For the purpose of expanding foreign markets for the products of the United States (as a means of assisting in establishing and maintaining a better relationship among various branches of American agriculture, industry, mining, and commerce) by regulating the admission of foreign goods into the United States in accordance with the characteristics and needs of various branches of American production so that foreign markets will be made available to those branches of American production which require and are capable of developing such outlets by affording corresponding market opportunities for foreign products in the United States, the President, whenever he finds as a fact that any existing duties or other import restrictions of the United States or any foreign country are unduly burdening and restricting the foreign trade of the United States and that the purpose

above declared will be promoted by the means hereinafter specified, is authorized from time to time—

(A)

To enter into foreign trade agreements with foreign governments or instrumentalities thereof:

Provided, That the enactment of the Trade Agreements Extension Act of 1955 shall not be construed to determine or indicate the approval or disapproval by the Congress of the executive agreement known as the General Agreement on Tariffs and Trade.

(B)

To proclaim such modifications of existing duties and other import restrictions, or such additional import restrictions, or such continuance, and for such minimum periods, of existing customs or excise treatment of any article covered by foreign trade agreements, as are required or appropriate to carry out any foreign trade agreement that the President has entered into hereunder.

(2) No proclamation pursuant to paragraph (1)(B) of this subsection shall be made—

(A)

Increasing by more than 50 per centum any rate of duty existing on July 1, 1934; except that a specific rate of duty existing on July 1, 1934, may be converted to its ad valorem equivalent based on the value of imports of the article concerned during the calendar year 1934 (determined in the same manner as provided in subparagraph (D)(ii)) and the proclamation may provide an ad valorem rate of duty not in excess of 50 per centum above such ad valorem equivalent.

(B)

Transferring any article between the dutiable and free lists.

(C)

In order to carry out a foreign trade agreement entered into by the President before June 12, 1955, or with respect to which notice of intention to negotiate was published in the Federal Register on November 16, 1954, decreasing by more than 50 per centum any rate of duty existing on January 1, 1945.

(D) In order to carry out a foreign trade agreement entered into by the President on or after June 12, 1955, and before July 1, 1958, decreasing (except as provided in subparagraph (C) of this paragraph) any rate of duty below the lowest of the following rates:

(i)

The rate 15 per centum below the rate existing on January 1, 1955.

(ii)

In the case of any article subject to an ad valorem rate of duty above 50 per centum (or a combination of ad valorem rates aggregating more than 50 per centum), the rate 50 per centum ad valorem (or a combination of ad valorem rates aggregating 50 per centum). In the case of any article subject to a specific rate of duty (or a combination of rates including a specific rate) the ad valorem equivalent of which has been determined by the President to have been above 50 per centum during a period determined by the President to be a representative period, the rate 50 per centum ad valorem or the rate (or a combination of rates), however stated, the ad valorem equivalent of which the President determines would have been 50 per centum during such period. The standards of valuation contained in section 1401a of this title (as in effect, with respect to the article concerned, during the representative period) shall be utilized by the President, to the maximum extent he finds such utilization practicable, in making the determinations under the preceding sentence.

(E)

In order to carry out a foreign trade agreement entered into by the President on or after July 1, 1958, decreasing any rate of duty below the lowest of the rates provided for in paragraph (4)(A) of this subsection.

(3)

(A)

Subject to the provisions of subparagraphs (B) and (C) of this paragraph and of subparagraph (B) of paragraph (4) of this subsection, the provisions of any proclamation made under paragraph (1)(B) of this subsection, and the provisions of any proclamation of suspension under paragraph (5) of this subsection, shall be in effect from and after such time as is specified in the proclamation.

(B) In the case of any decrease in duty to which paragraph (2)(D) of this subsection applies—

(i)

if the total amount of the decrease under the foreign trade agreement does not exceed 15 per centum of the rate existing on January 1, 1955, the amount of decrease becoming initially effective at one time shall not exceed 5 per centum of the rate existing on January 1, 1955;

(ii)

except as provided in clause (i), not more than one-third of the total amount of the decrease under the foreign trade agreement shall become initially effective at one time; and

(iii)

no part of the decrease after the first part shall become initially effective until the immediately previous part shall have been in effect for a period or periods aggregating not less than one year.

(C)

No part of any decrease in duty to which the alternative specified in paragraph (2)(D)(i) of this subsection applies shall become initially effective after the expiration of the three-year period which begins on July 1, 1955. If any part of such decrease has become effective, then for purposes of this subparagraph any time thereafter during which such part of the decrease is not in effect by reason of legislation of the United States or action thereunder shall be excluded in determining when the three-year period expires.

(D) If (in order to carry out a foreign trade agreement entered into by the President on or after June 12, 1955) the President determines that such action will simplify the computation of the amount of duty imposed with respect to an article, he may exceed any limitation specified in paragraph (2)(C) or (D) or paragraph (4)(A) or (B) of this subsection or subparagraph (B) of this paragraph by not more than whichever of the following is lesser:

(i)

The difference between the limitation and the next lower whole number, or

(ii)

One-half of 1 per centum ad valorem.

In the case of a specific rate (or of a combination of rates which includes a specific rate), the one-half of 1 per centum specified in clause (ii) of the preceding sentence shall be determined in the same manner as the ad valorem equivalent of rates not stated wholly in ad valorem terms is determined for the purposes of paragraph (2)(D)(ii) of this subsection.

(4)

(A) No proclamation pursuant to paragraph (1)(B) of this subsection shall be made, in order to carry out a foreign trade agreement entered into by the President on or after July 1, 1958, decreasing any rate of duty below the lowest of the following rates:

(i)

The rate which would result from decreasing the rate existing on July 1, 1958, by 20 per centum of such rate.

(ii)

Subject to paragraph (2)(B) of this subsection, the rate 2 per centum ad valorem below the rate existing on July 1, 1958.

(iii)

The rate 50 per centum ad valorem or, in the case of any article subject to a specific rate of duty or to a combination of rates including a specific rate, any rate (or combination of rates), however stated, the ad valorem equivalent of which has been determined as 50 per centum ad valorem.

The provisions of clauses (ii) and (iii) of this subparagraph and of subparagraph (B)(ii) of this paragraph shall, in the case of any article, subject to a combination of ad valorem rates of duty, apply to the aggregate of such rates; and, in the case of any article, subject to a specific rate of duty or to a combination of rates including a specific rate, such provisions shall apply on the basis of the ad valorem equivalent of such rate or rates, during a representative period (whether or not such period includes July 1, 1958), determined in the same manner as the ad valorem equivalent of rates not stated wholly in ad valorem terms is determined for the purpose of paragraph (2)(D)(ii) of this subsection.

(B)

(i)

In the case of any decrease in duty to which clause (i) of subparagraph (A) of this paragraph applies, such decrease shall become initially effective in not more than four annual stages, and no amount of decrease becoming initially effective at one time shall exceed 10 per centum of the rate of duty existing on July 1, 1958, or, in any case in which the rate has been increased since that date, exceed such 10 per centum or one-third of the total amount of the decrease under the foreign trade agreement, whichever is the greater.

(ii)
In the case of any decrease in duty to which clause (ii) of subparagraph (A) of this paragraph applies, such decrease shall become initially effective in not more than four annual stages, and no amount of decrease becoming initially effective at one time shall exceed 1 per centum ad valorem or, in any case in which the rate has been increased since July 1, 1958, exceed such 1 per centum or one-third of the total amount of the decrease under the foreign trade agreement, whichever is the greater.
(iii)
In the case of any decrease in duty to which clause (iii) of subparagraph (A) of this paragraph applies, such decrease shall become initially effective in not more than four annual stages, and no amount of decrease becoming initially effective at one time shall exceed one-third of the total amount of the decrease under the foreign trade agreement.
(C)
In the case of any decrease in duty to which subparagraph (A) of this paragraph applies (i) no part of a decrease after the first part shall become initially effective until the immediately previous part shall have been in effect for a period or periods aggregating not less than one year, nor after the first part shall have been in effect for a period or periods aggregating more than three years, and (ii) no part of a decrease shall become initially effective after the expiration of the four-year period which begins on July 1, 1962. If any part of a decrease has become effective, then for the purposes of clauses (i) and (ii) of the preceding sentence any time thereafter during which such part of the decrease is not in effect by reason of legislation of the United States or action thereunder shall be excluded in determining when the three-year period or the four-year period, as the case may be, expires.

Source: 19 U.S.C. 4- Tariff Act of 1930.

Banking Act of 1933 (Glass-Steagall Act)

The Banking Act of 1933 is also known as the Glass-Steagall Act. It was introduced as a response to the stock market crash of 1929 in hopes of providing some security to the banking system. The Act combined two congressional projects; one, the creation of a federal system of bank deposit insurance and two, the regulation of commercial and investment banking. It addressed the first objective through the creation of the Federal Deposit Insurance Corporation (FDIC). One focus on banking industry regulation addressed by Glass-Steagall was that commercial banks limit their lending only to short-term loans to finance only the production and sale of goods and not for investments such as stocks or bonds.

The Committee on Banking and Currency, to whom was referred the bill (H.R. 5661) to provide for the safer use of the assets of banks, to regulate interbank control, to prevent the undue diversion of funds into speculative operations, and for other purposes, having considered the same, report favorably thereon, and recommend that the bill do pass.

STATEMENT

This bill provides for salutary reforms of our banking system and the laws governing it along three important lines.

It makes provisions for strengthening the restrictions upon banks and bank officers in the making of loans for speculative purposes and in investing bank funds.

It makes provision for expediting the liquidation of hundreds of banks now in receivership, but providing for the purchase of the good but frozen assets belonging to such receivership, or the lending of funds on such assets as collateral security, so as to enable prompt distribution to the distressed depositors in these closed banks.

. . .

The bill makes provision for insuring deposits both in national and other member banks and in nonmember State banks, which it is believed will provide absolute indemnity against loss for depositors in banks insured. The bill does not provide that the Government shall guarantee the payment of deposits; but it does provide and require that the banks under Government supervision and regulation shall mutually guarantee the deposits of each other through the medium of a Government controlled instrumentality designed for that purpose; and that the banks shall make such contributions to the insurance fund provided for, from time to time, as may be necessary to provide for the payment of all deposits in banks which may be closed; and that such contributions shall be made by the banks in proportion to the amount of their deposits.

Source: Report to Accompany H.R. 5661. U.S. Congress, House Committee on Banking and Currency, 73rd Congress, 1st Session, Report No. 150, May 19, 1933. Available online at FRASER: Federal Reserve Archive. https://fraser.stlouisfed.org/scribd/?title_id=994&filepath=/docs/historical/congressional/1933_bankingact_hrep150.pdf#scribd-open

Securities Exchange Act of 1934

The Securities Exchange Act of 1934 was the government's initial intervention in the securities market that would place regulation on companies who offer various types of investment products including stocks, bonds, and other securities. The goal of the Act was to impose a set of rules and guidelines for companies who offered such products. It sought to increase transparency, organization and order as well as confidence in the market following the 1929 stock market crash. The Securities Exchange Act of 1934 created the Securities and Exchange Commission (SEC). The SEC enforces the rules of the securities market including the rules established through the Exchange Act and Sarbanes-Oxley Act with other various regulations and rules established by the SEC. The SEC's direct responsibilities include ensuring that companies meet the disclosure requirements established in the Exchange Act, creating and enforcing rules for the conduct of market participants, *and oversee self-regulatory organizations. The Act sought to decrease the level of fraud and insider trading regarding the sale of securities.*

The Act focuses on the transactions and exchanges that occur after a company's initial public offering (IPO). Several mandates of the Act included that public corporations register their stock sales and distributions, provide periodic financial disclosures, and made it possible for the SEC to in fact regulate exchanges, brokers, over-the-counter markets and proper disclosure of financial data reporting. It also gave the SEC the power to disseminate any public utility companies that became too large and too powerful.

REGULATION OF THE USE OF MANIPULATIVE AND DECEPTIVE DEVICES

SEC. 10. It shall be unlawful for any person, directly or indirectly, by the use of any means or instrumentality of interstate commerce or of the mails, or of any facility of any national securities exchange—

(a)(1) To effect a short sale, or to use or employ any stop loss order in connection with the purchase or sale, of any security other than a government security, in contravention of such rules and regulations as the Commission may prescribe as necessary or appropriate in the public interest or for the protection of investors.

(2) [31] Paragraph (1) of this subsection shall not apply to security futures products.

(b) To use or employ, in connection with the purchase or sale of any security registered on a national securities exchange or any security not so registered, or any securities based swap agreement[32] any manipulative or deceptive device or contrivance in contravention of such rules and regulations as the Commission may prescribe as necessary or appropriate in the public interest or for the protection of investors.

(c)(1) To effect, accept, or facilitate a transaction involving the loan or borrowing of securities in contravention of such rules and regulations as the Commission may prescribe as necessary or appropriate in the public interest or for the protection of investors.

(2) Nothing in paragraph (1) may be construed to limit the authority of the appropriate Federal banking agency (as defined in section 3(q) of the Federal Deposit Insurance Act (12 U.S.C. 1813(q))), the National Credit Union Administration, or any other Federal department or agency having a responsibility under Federal law to prescribe rules or regulations restricting transactions involving the loan or borrowing of securities in order to protect the safety and soundness of a financial institution or to protect the financial system from systemic risk.

Rules promulgated under subsection (b) that prohibit fraud, manipulation, or insider trading (but not rules imposing or specifying reporting or recordkeeping requirements, procedures, or standards as prophylactic measures against fraud, manipulation, or insider trading), and judicial precedents decided under subsection (b) and rules promulgated thereunder that prohibit fraud, manipulation, or insider trading, shall apply to security-based swap agreements to the same extent as they apply to securities. Judicial precedents decided under section 17(a) of the Securities Act of 1933 and sections 9, 15, 16, 20, and 21A of this title, and judicial precedents decided under applicable rules promulgated under such sections, shall apply to security-based swap agreements to the same extent as they apply to securities.

SEC. 10A. AUDIT REQUIREMENTS.

(a) IN GENERAL.—Each audit required pursuant to this title of the financial statements of an issuer by a registered public accounting firm shall include, in accordance with generally accepted auditing standards, as may be modified or supplemented from time to time by the Commission—

(1) procedures designed to provide reasonable assurance of detecting illegal acts that would have a direct and material effect on the determination of financial statement amounts;

(2) procedures designed to identify related party transactions that are material to the financial statements or otherwise require disclosure therein; and

(3) an evaluation of whether there is substantial doubt about the ability of the issuer to continue as a going concern during the ensuing fiscal year.

(b) REQUIRED RESPONSE TO AUDIT DISCOVERIES.—

(1) INVESTIGATION AND REPORT TO MANAGEMENT.—If, in the course of conducting an audit pursuant to this title to which subsection (a) applies, the registered public accounting firm detects or otherwise becomes aware of information indicating that an illegal act (whether or not perceived to have a material effect on the financial statements of the issuer) has or may have occurred, the firm shall, in accordance with generally accepted auditing standards, as may be modified or supplemented from time to time by the Commission—

(A)(i) determine whether it is likely that an illegal act has occurred; and

(ii) if so, determine and consider the possible effect of the illegal act on the financial statements of the issuer, including any contingent monetary effects, such as fines, penalties, and damages; and

(B) as soon as practicable, inform the appropriate level of the management of the issuer and assure that the audit committee of the issuer, or the board of directors of the issuer in the absence of such a committee, is adequately informed with respect to illegal acts that have been detected or have otherwise come to the attention of such firm in the course of the audit, unless the illegal act is clearly inconsequential.

(2) RESPONSE TO FAILURE TO TAKE REMEDIAL ACTION.—If, after determining that the audit committee of the board of directors of the issuer, or the board of directors of the issuer in the absence of an audit committee, is adequately informed with respect to illegal acts that have been detected or have otherwise come to the attention of the firm in the course of the audit of such accountant, the registered public accounting firm concludes that—

(A) the illegal act has a material effect on the financial statements of the issuer;

(B) the senior management has not taken, and the board of directors has not caused senior management to take, timely and appropriate remedial actions with respect to the illegal act; and

(C) the failure to take remedial action is reasonably expected to warrant departure from a standard report of the auditor, when made, or warrant resignation from the audit engagement; the registered public accounting firm shall, as soon as practicable, directly report its conclusions to the board of directors.

(3) NOTICE TO COMMISSION; RESPONSE TO FAILURE TO NOTIFY.—An issuer whose board of directors receives a report under paragraph (2) shall inform

the Commission by notice not later than 1 business day after the receipt of such report and shall furnish the registered public accounting firm making such report with a copy of the notice furnished to the Commission. If the registered public accounting firm fails to receive a copy of the notice before the expiration of the required 1-business-day period, the registered public accounting firm shall—

(A) resign from the engagement; or

(B) furnish to the Commission a copy of its report (or the documentation of any oral report given) not later than 1 business day following such failure to receive notice.

(4) REPORT AFTER RESIGNATION.—If a registered public accounting firm resigns from an engagement under paragraph

(3)(A), the firm shall, not later than 1 business day following the failure by the issuer to notify the Commission under paragraph (3), furnish to the Commission a copy of the report of the firm (or the documentation of any oral report given).

(c) AUDITOR LIABILITY LIMITATION.—No registered public accounting firm shall be liable in a private action for any finding, conclusion, or statement expressed in a report made pursuant to paragraph (3) or (4) of subsection (b), including any rule promulgated pursuant thereto.

(d) CIVIL PENALTIES IN CEASE-AND-DESIST PROCEEDINGS.—If the Commission finds, after notice and opportunity for hearing in a proceeding instituted pursuant to section 21C, that a registered public accounting firm has willfully violated paragraph (3) or (4) of subsection (b), the Commission may, in addition to entering an order under section 21C, impose a civil penalty against the registered public accounting firm and any other person that the Commission finds was a cause of such violation. The determination to impose a civil penalty and the amount of the penalty shall be governed by the standards set forth in section 21B.

(e) PRESERVATION OF EXISTING AUTHORITY.—Except as provided in subsection (d), nothing in this section shall be held to limit or otherwise affect the authority of the Commission under this title.

(f) DEFINITIONS.—As used in this section, the term “illegal act” means an act or omission that violates any law, or any rule or regulation having the force of law. As used in this section, the term “issuer” means an issuer (as defined in section 3), the securities of which are registered under section 12, or that is required to file reports pursuant to section 15(d), or that files or has filed a registration statement that has not yet become effective under the Securities Act of 1933 (15 U.S.C. 77a et seq.), and that it has not withdrawn.

(g) PROHIBITED ACTIVITIES.—Except as provided in subsection (h), it shall be unlawful for a registered public accounting firm (and any associated person of that firm, to the extent determined appropriate by the Commission) that performs for any issuer any audit required by this title or the rules of the Commission under this title or, beginning 180 days after the date of commencement of the operations of the Public Company Accounting Oversight Board established under section 101 of the Sarbanes-Oxley Act of 2002 (in this section referred to as the “Board”), the rules of the Board, to provide to that issuer, contemporaneously with the audit, any nonaudit service, including—

(1) bookkeeping or other services related to the accounting records or financial statements of the audit client;

(2) financial information systems design and implementation;

(3) appraisal or valuation services, fairness opinions, or contribution-in-kind reports;

(4) actuarial services;

(5) internal audit outsourcing services;

(6) management functions or human resources;

(7) broker or dealer, investment adviser, or investment banking services;

(8) legal services and expert services unrelated to the audit; and

(9) any other service that the Board determines, by regulation, is impermissible.

(h) PREAPPROVAL REQUIRED FOR NON-AUDIT SERVICES.—A registered public accounting firm may engage in any non-audit service, including tax services, that is not described in any of paragraphs

(1) through (9) of subsection (g) for an audit client, only if the activity is approved in advance by the audit committee of the issuer, in accordance with subsection (i).

(i) PREAPPROVAL REQUIREMENTS.—

(1) IN GENERAL.—

(A) AUDIT COMMITTEE ACTION.—All auditing services (which may entail providing comfort letters in connection with securities underwritings or statutory audits required for insurance companies for purposes of State law) and non-audit services, other than as provided in subparagraph

(B), provided to an issuer by the auditor of the issuer shall be preapproved by the audit committee of the issuer.

(B) DE MINIMIS EXCEPTION.—The preapproval requirement under subparagraph (A) is waived with respect to the provision of non-audit services for an issuer, if—

(i) the aggregate amount of all such non-audit services provided to the issuer constitutes not more than 5 percent of the total amount of revenues paid by the issuer to its auditor during the fiscal year in which the non-audit services are provided;

(ii) such services were not recognized by the issuer at the time of the engagement to be non-audit services; and

(iii) such services are promptly brought to the attention of the audit committee of the issuer and approved prior to the completion of the audit by the audit committee or by 1 or more members of the audit committee who are members of the board of directors to whom authority to grant such approvals has been delegated by the audit committee.

(2) DISCLOSURE TO INVESTORS.—Approval by an audit committee of an issuer under this subsection of a non-audit service to be performed by the auditor of the issuer shall be disclosed to investors in periodic reports required by section 13(a).

(3) DELEGATION AUTHORITY.—The audit committee of an issuer may delegate to 1 or more designated members of the audit committee who are independent directors of the board of directors, the authority to grant preapprovals required

by this subsection. The decisions of any member to whom authority is delegated under this paragraph to preapprove an activity under this subsection shall be presented to the full audit committee at each of its scheduled meetings.

(4) APPROVAL OF AUDIT SERVICES FOR OTHER PURPOSES.—

In carrying out its duties under subsection (m)(2), if the audit committee of an issuer approves an audit service within the scope of the engagement of the auditor, such audit service shall be deemed to have been preapproved for purposes of this subsection.

(j) AUDIT PARTNER ROTATION.—It shall be unlawful for a registered public accounting firm to provide audit services to an issuer if the lead (or coordinating) audit partner (having primary responsibility for the audit), or the audit partner responsible for reviewing the audit, has performed audit services for that issuer in each of the 5 previous fiscal years of that issuer.

(k) REPORTS TO AUDIT COMMITTEES.—Each registered public accounting firm that performs for any issuer any audit required by this title shall timely report to the audit committee of the issuer—

(1) all critical accounting policies and practices to be used;

(2) all alternative treatments of financial information within generally accepted accounting principles that have been discussed with management officials of the issuer, ramifications of the use of such alternative disclosures and treatments, and the treatment preferred by the registered public accounting firm; and

(3) other material written communications between the registered public accounting firm and the management of the issuer, such as any management letter or schedule of unadjusted differences.

(l) CONFLICTS OF INTEREST.—It shall be unlawful for a registered public accounting firm to perform for an issuer any audit service required by this title, if a chief executive officer, controller, chief financial officer, chief accounting officer, or any person serving in an equivalent position for the issuer, was employed by that registered independent public accounting firm and participated in any capacity in the audit of that issuer during the 1-year period preceding the date of the initiation of the audit.

(m) STANDARDS RELATING TO AUDIT COMMITTEES.—

(1) COMMISSION RULES.—

(A) IN GENERAL.—Effective not later than 270 days after the date of enactment of this subsection, the Commission shall, by rule, direct the national securities exchanges and national securities associations to prohibit the listing of any security of an issuer that is not in compliance with the requirements of any portion of paragraphs (2) through (6).

(B) OPPORTUNITY TO CURE DEFECTS.—The rules of the Commission under subparagraph (A) shall provide for appropriate procedures for an issuer to have an opportunity to cure any defects that would be the basis for a prohibition under subparagraph (A), before the imposition of such prohibition.

(2) RESPONSIBILITIES RELATING TO REGISTERED PUBLIC ACCOUNTING FIRMS.—The audit committee of each issuer, in its capacity as a committee of the board of directors, shall be directly responsible for the appointment, compensation, and oversight of the work of any registered public accounting firm employed

by that issuer (including resolution of disagreements between management and the auditor regarding financial reporting) for the purpose of preparing or issuing an audit report or related work, and each such registered public accounting firm shall report directly to the audit committee.
(3) INDEPENDENCE.—
(A) IN GENERAL.—Each member of the audit committee of the issuer shall be a member of the board of directors of the issuer, and shall otherwise be independent.
(B) CRITERIA.—In order to be considered to be independent for purposes of this paragraph, a member of an audit committee of an issuer may not, other than in his or her capacity as a member of the audit committee, the board of directors, or any other board committee—
(i) accept any consulting, advisory, or other compensatory fee from the issuer; or
(ii) be an affiliated person of the issuer or any subsidiary thereof.
(C) EXEMPTION AUTHORITY.—The Commission may exempt from the requirements of subparagraph (B) a particular relationship with respect to audit committee members,
as the Commission determines appropriate in light of the circumstances.
(4) COMPLAINTS.—Each audit committee shall establish procedures for—
(A) the receipt, retention, and treatment of complaints received by the issuer regarding accounting, internal accounting controls, or auditing matters; and
(B) the confidential, anonymous submission by employees of the issuer of concerns regarding questionable accounting or auditing matters.
(5) AUTHORITY TO ENGAGE ADVISERS.—Each audit committee shall have the authority to engage independent counsel and other advisers, as it determines necessary to carry out its duties.
(6) FUNDING.—Each issuer shall provide for appropriate funding, as determined by the audit committee, in its capacity as a committee of the board of directors, for payment of compensation—
(A) to the registered public accounting firm employed by the issuer for the purpose of rendering or issuing an audit report; and
(B) to any advisers employed by the audit committee under paragraph (5).

Source: Securities Exchange Act of 1934. "Regulation of the use of Manipulative and Deceptive Devices Sec. 10." pp. 89–100.

National Labor Relations Act of 1935 (Wagner Act)

President Franklin D. Roosevelt signed the National Labor Relations Act in 1935. It affected labor laws in the United States protecting the rights of employees in the private sector to organize themselves into labor unions. The unofficial name of the act is the Wagner Act recognizing the efforts of New York senator Robert F. Wagner. The Act was a response to the Supreme Court striking down the National Industrial Recovery Act as unconstitutional. The goal of the Act was to remedy an inequality of bargaining power. NLRA gave employees the freedom to organize and form a legally protected bargaining unit, or trade union, meant to collectively bargain terms and conditions of employment.

Section 1.[§151.] The denial by some employers of the right of employees to organize and the refusal by some employers to accept the procedure of collective bargaining lead to strikes and other forms of industrial strife or unrest, which have the intent or the necessary effect of burdening or obstructing commerce by (a) impairing the efficiency, safety, or operation of the instrumentalities of commerce; (b) occurring in the current of commerce; (c) materially affecting, restraining, or controlling the flow of raw materials or manufactured or processed goods from or into the channels of commerce, or the prices of such materials or goods in commerce; or (d) causing diminution of employment and wages in such volume as substantially to impair or disrupt the market for goods flowing from or into the channels of commerce.

The inequality of bargaining power between employees who do not possess full freedom of association or actual liberty of contract and employers who are organized in the corporate or other forms of ownership association substantially burdens and affects the flow of commerce, and tends to aggravate recurrent business depressions, by depressing wage rates and the purchasing power of wage earners in industry and by preventing the stabilization of competitive wage rates and working conditions within and between industries.

Experience has proved that protection by law of the right of employees to organize and bargain collectively safeguards commerce from injury, impairment, or interruption, and promotes the flow of commerce by removing certain recognized sources of industrial strife and unrest, by encouraging practices fundamental to the friendly adjustment of industrial disputes arising out of differences as to wages, hours, or other working conditions, and by restoring equality of bargaining power between employers and employees.

Experience has further demonstrated that certain practices by some labor organizations, their officers, and members have the intent or the necessary effect of burdening or obstructing commerce by preventing the free flow of goods in such commerce through strikes and other forms of industrial unrest or through concerted activities which impair the interest of the public in the free flow of such commerce. The elimination of such practices is a necessary condition to the assurance of the rights herein guaranteed.

NATIONAL LABOR RELATIONS BOARD

Sec. 3. [§ 153.] (a) [Creation, composition, appointment, and tenure; Chairman; removal of members] The National Labor Relations Board (hereinafter called the "Board") created by this Act [subchapter] prior to its amendment by the Labor Management Relations Act, 1947 [29 U.S.C. § 141 et seq.], is continued as an agency of the United States, except that the Board shall consist of five instead of three members, appointed by the President by and with the advice and consent of the Senate. Of the two additional members so provided for, one shall be appointed for a term of five years and the other for a term of two years. Their successors, and the successors of the other members, shall be appointed for terms of five years each, excepting that any individual chosen to fill a vacancy shall be appointed only for the unexpired term of the member whom he shall succeed. The President shall designate one member to serve as Chairman of the Board. Any member of the Board may be removed by the President, upon notice and hearing, for neglect of duty or malfeasance in office, but for no other cause.

Source*:* U.S. Code, 29, §§ 151 et seq.

Social Security Act of 1935

President Franklin D. Roosevelt signed the Social Security Act in 1935. The Act established a system to benefit older workers who had accidents while on the job or became unemployed and to support handicapped and single mothers with children. The original act also provided benefits for the blind and the physically handicapped. The Social Security Act has many components. It provided universal support to the elderly. The act provided aid to states for children abandoned during the Depression and orphans. It provided states with funds to provide for the health and well-being of crippled children. The federal government provided funds to the states to set up public health facilities and the personnel training so that facilities and health care would be adequately and professionally administered. The most unique aspect of the new law was a system that would be financed by both employers and employees. The Act also specified who would be exempt from the law and established a Social Security Board to oversee the new program.

An act to provide for the general welfare by establishing a system of Federal old-age benefits, and by enabling the several States to make more adequate provision for aged persons, blind persons, dependent and crippled children, maternal and child welfare, public health, and the administration of their unemployment compensation laws; to establish a Social Security Board; to raise revenue; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE II-FEDERAL OLD-AGE BENEFITS OLD-AGE RESERVE ACCOUNT

Section 201. (a) There is hereby created an account in the Treasury of the United States to be known as the Old-Age Reserve Account hereinafter in this title called the Account. There is hereby authorized to be appropriated to the Account for each fiscal year, beginning with the fiscal year ending June 30, 1937, an amount sufficient as an annual premium to provide for the payments required under this title, such amount to be determined on a reserve basis in accordance with accepted actuarial principles, and based upon such tables of mortality as the Secretary of the Treasury shall from time to time adopt, and upon an interest rate of 3 per centum per annum compounded annually. The Secretary of the Treasury shall submit annually to the Bureau of the Budget an estimate of the appropriations to be made to the Account.

(b) It shall be the duty of the Secretary of the Treasury to invest such portion of the amounts credited to the Account as is not, in his judgment, required to meet current withdrawals. Such investment may be made only in interest-bearing obligations of the United States or in obligations guaranteed as to both principal and interest by the United States. For such purpose such obligations may be acquired

(1) on original issue at par, or

(2) by purchase of outstanding obligations at the market price. The purposes for which obligations of the United States may be issued under the Second Liberty Bond Act, as amended, are hereby extended to authorize the issuance at par of special obligations exclusively to the Account. Such special obligations shall bear interest at the rate of 3 per centum per annum. Obligations other than such special obligations may be acquired for the Account only on such terms as to provide an investment yield of not less than 3 per centum per annum.

(c) Any obligations acquired by the Account (except special obligations issued exclusively to the Account) may be sold at the market price, and such special obligations may be redeemed at par plus accrued interest.

(d) The interest on, and the proceeds from the sale or redemption of, any obligations held in the Account shall be credited to and form a part of the Account.

(e) All amounts credited to the Account shall be available for making payments required under this title.

(f) The Secretary of the Treasury shall include in his annual report the actuarial status of the Account.

OLD-AGE BENEFIT PAYMENTS

SEC. 202. (a) Every qualified individual (as defined in section 210) shall be entitled to receive, with respect to the period beginning on the date he attains the age of sixty-five, or on January 1, 1942, whichever is the later, and ending on the date of his death, an old-age benefit (payable as nearly as practicable in equal monthly installments) as follows:

(1) If the total wages (as defined in section 210) determined by the Board to have been paid to him, with respect to employment (as defined in section 210) after December 31, 1936, and before he attained the age of sixty- five, were not more than $3,000, the old-age benefit shall be at a monthly rate of one-half of 1 per centum of such total wages;

(2) If such total wages were more than $3,000, the old-age benefit shall be at a monthly rate equal to the sum of the following:

(A) One-half of 1 per centum of $3,000; plus

(B) One-twelfth of 1 per centum of the amount by which such total wages exceeded $3,000 and did not exceed $45,000; plus

(C) One-twenty-fourth of 1 per centum of the amount by which such total wages exceeded $45,000.

(b) In no case shall the monthly rate computed under subsection (a) exceed $85.

(c) If the Board finds at any time that more or less than the correct amount has theretofore been paid to any individual under this section, then, under regulations made by the Board, proper adjustments shall be made in connection with subsequent payments under this section to the same individual.

(d) Whenever the Board finds that any qualified individual has received wages with respect to regular employment after he attained the age of sixty-five, the old-age benefit payable to such individual shall be reduced, for each calendar month in any part of which such regular employment occurred, by an amount equal to one month s benefit. Such reduction shall be made, under regulations prescribed by the Board, by deductions from one or more payments of old-age benefit to such individual.

TITLE IX—TAX ON EMPLOYERS OF EIGHT OR MORE

IMPOSITION OF TAX

SECTION 901. On and after January 1, 1936, every employer (as defined in section 907) shall pay for each calendar year an excise tax, with respect to having individuals in his employ, equal to the following percentages of the total wages (as defined in section 907) payable by him (regardless of the time of payment) with respect to employment (as defined in section 907) during such calendar year:

(1) With respect to employment during the calendar year 1936 the rate shall be 1 per centum;

(2) With respect to employment during the calendar year 1937 the rate shall be 2 per centum;

(3) With respect to employment after December 31, 1937, the rate shall be 3 per centum.

CREDIT AGAINST TAX

SEC. 902. The taxpayer may credit against the tax imposed by section 901 the amount of contributions, with respect to employment during the taxable year, paid by him (before the date of filing of his return for the taxable year) into an unemployment fund under a State law. The total credit allowed to a taxpayer under this section for all contributions paid into unemployment funds with respect to employment during such taxable year shall not exceed 90 per centum of the tax against which it is credited, and credit shall be allowed only for contributions made under the laws of States certified for the taxable year as provided in section 903.

CERTIFICATION OF STATE LAWS

SEC. 903 (a) The Social Security Board shall approve any State law submitted to it, within thirty days of such submission, which it finds provides that—

(1) All compensation is to be paid through public employment offices in the State or such other agencies as the Board may approve;

(2) No compensation shall be payable with respect to any day of unemployment occurring within two years after the first day of the first period with respect to which contributions are required;

(3) All money received in the unemployment fund shall immediately upon such receipt be paid over to the Secretary of the Treasury to the credit of the Unemployment Trust Fund established by section 904;

(4) All money withdrawn from the Unemployment Trust Fund by the State agency shall be used solely in the payment of compensation, exclusive of expenses of administration;

(5) Compensation shall not be denied in such State to any otherwise eligible individual for refusing to accept new work under any of the following conditions:

(A) If the position offered is vacant due directly to a strike, lockout, or other labor dispute;

(B) if the wages, hours, or other conditions of the work offered are substantially less favorable to the individual than those prevailing for similar work in the locality;

(C) if as a condition of being employed the individual would be required to join a company union or to resign from or refrain from joining any bona-fide labor organization;

(6) All the rights, privileges, or immunities conferred by such law or by acts done pursuant thereto shall exist subject to the power of the legislature to amend or repeal such law at any time. The Board shall, upon approving such law, notify the Governor of the State of its approval.

(b) On December 31 in each taxable year the Board shall certify to the Secretary of the Treasury each State whose law it has previously approved, except that it shall not certify any State which, after reasonable notice and opportunity for hearing to the State agency, the Board finds has changed its law so that it no longer contains the provisions specified in subsection (a) or has with respect to such taxable year failed to comply substantially with any such provision.

(c) If, at any time during the taxable year, the Board has reason to believe that a State whose law it has previously approved, may not be certified under subsection (b), it shall promptly so notify the Governor of such State.

UNEMPLOYMENT TRUST FUND

SEC. 904. (a) There is hereby established in the Treasury of the United States a trust fund to be known as the Unemployment Trust Fund, hereinafter in this title called the Fund . The Secretary of the Treasury is authorized and directed to receive and hold in the Fund all moneys deposited therein by a State agency from a State unemployment fund. Such deposit may be made directly with the Secretary of the Treasury or with any Federal reserve bank or member bank of the Federal Reserve System designated by him for such purpose.

(b) It shall be the duty of the Secretary of the Treasury to invest such portion of the Fund as is not, in his judgment, required to meet current withdrawals. Such investment may be made only in interest-bearing obligations of the United States or in obligations guaranteed as to both principal and interest by the United States. For such purpose such obligations may be acquired

(1) on original issue at par, or

(2) by purchase of outstanding obligations at the market price. The purposes for which obligations of the United States may be is- sued under the Second Liberty Bond Act, as amended, are hereby extended to authorize the issuance at par of special obligations exclusively to the Fund. Such special obligations shall bear interest at a rate equal to the average rate of interest, computed as of the end of the calendar month next preceding the date of such issue, borne by all interest-bearing obligations of the United States then forming part of the public debt; except that where such average rate is not a multiple of one eighth of 1 per centum, the rate of interest of such special obligations shall be the multiple of one-eighth of 1 per centum next lower than such average rate. Obligations other than such special obligations may be acquired for the Fund only on such terms as to provide an investment yield not less than the yield which would be required in the case of special obligations if issued to the Fund upon the date of such acquisition.

(c) Any obligations acquired by the Fund (except special obligations issued exclusively to the Fund) may be sold at the market price, and such special obligations may be redeemed at par plus accrued interest.

(d) The interest on, and the proceeds from the sale or redemption of, any obligations held in the Fund shall be credited to and form a part of the Fund.

(e) The Fund shall be invested as a single fund, but the Secretary of the Treasury shall maintain a separate book account for each State agency and shall credit quarterly on March 31, June 30, September 30, and December 31, of each year, to each account, on the basis of the average daily balance of such account, a proportionate part of the earnings of the Fund for the quarter ending on such date.

(f) The Secretary of the Treasury is authorized and directed to pay out of the Fund to any State agency such amount as it may duly requisition, not exceeding the amount standing to the account of such State agency at the time of such payment.

Source: Public Law 74-271, *U.S. Statutes at Large*, 49 (1935): 620.

Commodities Exchange Act of 1936

Passed in 1936 the Commodity Exchange Act established federal regulation on all future trading activities. It also served as the successor to earlier legislation that proved ineffective in stopping the manipulation of commodity prices. The Commodity Exchange Act prohibited the manipulation of commodity future prices while maintaining that commodity futures be traded strictly on licensed contract markets. Fraud was prohibited and brokerage firms handled customer orders. Future commission merchants were required to be registered with the federal government. The Commodity Exchange Commission was in charge of administering the Commodity Exchange Act composed of the attorney general and the secretaries of agriculture and commerce.

SEC. 2. The Grain Futures Act (U. S. C., 1934 ed., title 7, sets. 1 to 17, inclusive) is amended by striking out the word "grain" amended wherever it appears in such Act and inserting in lieu thereof "commodity", "any commodity", or "commodities", as the case may require, and by striking out the phrase "cash grain" wherever such phrase appears and inserting in lieu thereof "any cash commodity".

SEC. 3. Section 2 of the Grain Futures Act (U. S. C. 1934 ed. title 7, sees. 2, 3 and 4) is amended by—

(a) striking out the third sentence of paragraph (a) and inserting in lieu thereof the following : "The word 'commodity' shall mean wheat, cotton, rice, corn, oats, barley, rye, flaxseed, grain sorghums, mill feeds, butter, eggs and Solanum tuberosum (Irish potatoes)"; and

(b) adding at the end of paragraph (a) the following sentences:

"The words 'cooperative association of producers' shall mean any cooperative association, corporate or otherwise, not less than 75 per centum in good faith owned or controlled, directly or indirectly, by producers of agricultural products and otherwise complying with an Act of Congress of February 18, 1922 (U. S. C., 1934 ed., title 7, secs. 291 and 292), as now or hereafter amended, including any organization acting for a group of such associations and owned or controlled by such associations, provided that business done for or with the United States of America, or any agency thereof, shall not be considered either member or nonmember business in determining the compliance of any such association with said Act of Congress of February 18, 1922. The words 'member of a contract market' shall mean and include individuals, associations, partnerships, corporations, and trusts owning or holding membership in, or admitted to membership representation on, a contract market or given members' trading privileges thereon. The words 'futures commission merchant' shall mean and include individuals, associations, partnerships, corporations, and trusts engaged in soliciting or in accepting orders for the purchase or sale of any commodity for future delivery on or subject to the rules of any contract market and that, in or in connection with such solicitation or acceptance of orders, accepts any money, securities, or property (or extends credit in lieu thereof) to margin, guarantee, or secure any trades or contracts that result or may result therefrom".

Source: 74th Congress. Session II. June 1936. "CHS. 544, 545." legisworks.org/sal/49/stats/STATUTE-49-Pg1491a.pdf

Bretton Woods Agreement (1944)

Following World War II the Bretton Woods Agreement was an international monetary contract for exchanging one currency for another. In 1944 representatives from 44 nations came together in Bretton Woods, New Hampshire to establish an agreement to monitor exchange rates and lend funds to member nations with trade deficits. The agreement was followed by the creation of the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development, now known as the World Bank. In 1971, President Richard Nixon put an end to the Bretton Woods Agreement by discontinuing the link between gold and the dollar, known as the gold standard.

The Bretton Woods Agreement was based on four fundamental factors. First, the negotiators agreed on a new par value exchange rate system allowing member countries to *declare a par value for their national currencies. Second, because exchange rates were not to float freely member countries needed a guarantee of enough emergency supply of monetary reserve. Third, in order to prevent the economic conflicts of the 1930s all member countries were prohibited from getting involved in discriminatory currency or exchange regulation. And fourth all members agreed there was a need for an institutional assembly to monitor and regulate international monetary issues.*

a) Articles of Agreement of the International Bank for Reconstruction and Development, July 22, 1944

INTRODUCTORY ARTICLE

The International Bank for Reconstruction and Development is established and shall operate in accordance with the following provisions:

ARTICLE I. PURPOSES

The purposes of the Bank are:

(i) To assist in the reconstruction and development of territories of members by facilitating the investment of capital for productive purposes, including the restoration of economies destroyed or disrupted by war, the reconversion of productive facilities to peacetime needs and the encouragement of the development of productive facilities and resources in less developed countries.

(ii) To promote private foreign investment by means of guarantees or participations in loans and other investments made by private investors; and when private capital is not available on reasonable terms, to supplement private investment by providing, on suitable conditions, finance for productive purposes out of its own capital, funds raised by it and its other resources.

(iii) To promote the long-range balanced growth of international trade and the maintenance of equilibrium in balances of payments by encouraging international investment for the development of the productive resources of members, thereby assisting in raising productivity, the standard of living and conditions of labor in their territories.

(iv) To arrange the loans made or guaranteed by it in relation to international loans through other channels so that the more useful and urgent projects, large and small alike, will be dealt with first.

(v) To conduct its operations with due regard to the effect of international investment on business conditions in the territories of members and, in the immediate post-war years, to assist in bringing about a smooth transition from a wartime to a peacetime economy.

The Bank shall be guided in all its decisions by the purposes set forth above.

b) Articles of Agreement of the International Monetary Fund, July 22, 1944

The Governments on whose behalf the present Agreement is signed agree as follows:

INTRODUCTORY ARTICLE

The International Monetary Fund is established and shall operate in accordance with the following provisions:

ARTICLE I. PURPOSES

The purposes of the International Monetary Fund are:

(i) To promote international monetary cooperation through a permanent institution which provides the machinery for consultation and collaboration on international monetary problems.

(ii) To facilitate the expansion and balanced growth of international trade, and to contribute thereby to the promotion and maintenance of high levels of employment and real income and to the development of the productive resources of all members as primary objectives of economic policy.

(iii) To promote exchange stability, to maintain orderly exchange arrangements among members, and to avoid competitive exchange depreciation.

(iv) To assist in the establishment of a multilateral system of payments in respect of current transactions between members and in the elimination of foreign exchange restrictions which hamper the growth of world trade.

(v) To give confidence to members by making the Fund's resources available to them under adequate safeguards, thus providing them with opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity.

(vi) In accordance with the above, to shorten the duration and lessen the degree of disequilibrium in the international balances of payments of members.

The Fund shall be guided in all its decisions by the purposes set forth in this Article.

Source: *Proceedings and Documents of the United Nations Monetary and Financial Conference*, Bretton Woods, New Hampshire, July 1–22, 1944. Volume 1. Washington, DC: Government Printing Office, 1948.

Servicemen's Readjustment Act of 1944 (GI Bill)

When World War II came to a close there was a need to help returning servicemen acclimate back to civilian life. President Franklin Roosevelt signed the Servicemen's Readjustment Act into law in 1944. The "GI Bill" included benefits ranging from loans to start a business, tuition reimbursements for those who wanted to return to school either to finish high school or attend a postsecondary school, living expenses including one year of unemployment compensation, and below-market interest mortgage loans to buy homes without a down payment. The Servicemen's Readjustment Act of 1944 clearly had as significant an impact on the U.S. economy as any legislation before it or since.

An Act to Provide Federal Government Aid for the Readjustment in Civilian Life of Returning World War II Veterans

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the Servicemens Readjustment Act of 1944.

Title II
Chapter IV Education of Veterans
Sec. 400. (a) Subsection (f) of section 1, title I, Public Law Numbered 2, Seventy-third Congress, added by the Act of March 24, 1943 (Public Law Numbered 16, Seventy-eighth Congress), is hereby amended to read as follows:
(f) Any person who served in the active military or naval forces on or after September 16, 1940, and prior to the termination of hostilities in the present war, shall be entitled to vocational rehabilitation subject to the provisions and limitations of Veterans Regulation Numbered 1 (a), as amended, part VII, or to education or training subject to the provisions and limitations of part VIII.
(b) Veterans Regulation Numbered 1 (a), is hereby amended by adding a new part VIII as follows:
Part VIII
1. Any person who served in the active military or naval service on or after September 16, 1940, and prior to the termination of the present war, and who shall have been discharged or released there-from under conditions other than dishonorable, and whose education or training was impeded, delayed, interrupted, or interfered with by reason of his entrance into the service, or who desires a refresher or retraining course, and who either shall have served ninety days or more, exclusive of any period he was assigned for a course of education or training under the Army specialized training program or the Navy college training program, which course was a continuation of his civilian course and was pursued to completion, or as a cadet or midshipman at one of the service academies, or shall have been discharged or released from active service by reason of an actual service-incurred injury or disability, shall be eligible for and entitled to receive education or training under this part: Provided, That such course shall be initiated not later than two years after either the date of his discharge or the termination of the present war, whichever is the later: Provided further, That no such education or training shall be afforded beyond seven years after the termination of the present war: And provided further, That any such person who was not over 25 years of age at the tune he entered the service shall be deemed to have had his education or training impeded, delayed, interrupted, or interfered with.
2. Any such eligible person shall be entitled to education or training, or a refresher or retraining course, at an approved educational or training institution, for a period of one year (or the equivalent thereof in continuous part-time study), or for such lesser time as may be required for the course of instruction chosen by him. Upon satisfactory completion of such course of education or training, according to the regularly prescribed standards and practices of the institutions, except a refresher or retraining course, such person shall be entitled to an additional period or periods of education or training, not to exceed the time such person was in the active service on or after September 16, 1940, and before the termination of the war, exclusive of any period he was assigned for a course of education or training under the Army specialized training program or the Navy college training program, which course was a continuation of his civilian course and was pursued to completion,

or as a cadet or midshipman at one of the service academies, but in no event shall the total period of education or training exceed four years: Provided, That his work continues to be satisfactory throughout the period, according to the regularly prescribed standards and practices of the institution: Provided, however, That wherever the additional period of instruction ends during a quarter or semester and after a major part of such quarter or semester has expired, such period of instruction shall be extended to the termination of such unexpired quarter or semester.

3. Such person shall be eligible for and entitled to such course of education or training as he may elect, and at any approved educational or training institution at which he chooses to enroll, whether or not located in the State in which he resides, which will accept or retain him as a student or trainee in any field or branch of knowledge which such institution finds him qualified to undertake or pursue: Provided, That, for reasons satisfactory to the Administrator, he may change a course of instruction: And provided further, That any such course of education or training may be discontinued at any time, if it is found by the Administrator that, according to the regularly prescribed standards and practices of the institution, the conduct or progress of such person is unsatisfactory.

4. From time to time the Administrator shall secure from the appropriate agency of each State a list of the educational and training institutions (including industrial establishments), within such jurisdiction, which are qualified and equipped to furnish education or training (including apprenticeship and refresher or retraining training), which institutions, together with such additional ones as may be recognized and approved by the Administrator, shall be deemed qualified and approved to furnish education or training to such persons as shall enroll under this part: Provided, That wherever there are established State apprenticeship agencies expressly charged by State laws to administer apprentice training, whenever possible, the Administrator shall utilize such existing facilities and services in training on the job when such training is of one year's duration or more.

5. The Administrator shall pay to the educational or training institution, for each person enrolled in full time or part time course of education or training, the customary cost of tuition, and such laboratory, library, health, infirmary, and other similar fees as are customarily charged, and may pay for books, supplies, equipment, and other necessary expenses, exclusive of board, lodging, other living expenses, and travel, as are generally required for the successful pursuit and completion of the course by other students in the institution: Provided, That in no event shall such payments, with respect to any person, exceed $500 for an ordinary school year: Provided further, That no payments shall be made to institutions, business or other establishments furnishing apprentice training on the job: And provided further, That if any such institution has no established tuition fee, or if its established tuition fee shall be found by the Administrator to be inadequate compensation to such institution for furnishing such education or training, he is authorized to provide for the payment, with respect to any such person, of such fair and reasonable compensation as will not exceed $500 for an ordinary school year.

6. While enrolled in and pursuing a course under this part, such person, upon application to the Administrator, shall be paid a subsistence allowance of $50 per month,

if without a dependent or dependents, or $75 per month, if he has a dependent or dependents, including regular holidays and leave not exceeding thirty days in a calendar year. Such person attending a course on a part-time basis, and such person receiving compensation for productive labor performed as part of their apprentice or other training on the job at institutions, business or other establishments, shall be entitled to receive such lesser sums, if any, as subsistence or dependency allowances, as may be determined by the Administrator: Provided, That any such person eligible under this part, and within the limitations thereof, may pursue such full time or part-time course or courses as he may elect, without subsistence allowance.

7. Any such person eligible for the benefits of this part, who is also eligible for the benefit of part VII, may elect which benefit he desires: Provided, That, in the event of such election, subsistence allowance hereunder shall not exceed the amount of additional pension payable for training under said part VII.

8. No department, agency, or officer of the United States, in carrying out the provisions of this part, shall exercise any supervision or control, whatsoever, over any State educational agency, or State apprenticeship agency, or any educational or training institution: Provided, That nothing in this section shall be deemed to prevent any department, agency, or officer of the United States from exercising any supervision or control which such department, agency, or officer is authorized, by existing provisions of law, to exercise over any Federal educational or training institution, or to prevent the furnishing of education or training under this part in any institution over which supervision or control is exercised by such other department, agency, or officer under authority of existing provisions of law.

9. The Administrator of Veterans Affairs is authorized and empowered to administer this title, and, insofar as he deems practicable, shall utilize existing facilities and services of Federal and State departments and agencies on the basis of mutual agreements with them. Consistent with and subject to the provisions and limitations set forth in this title, the Administrator shall, from time to time, prescribe and promulgate such rules and regulations as may be necessary to carry out its purposes and provisions.

10. The Administrator may arrange for educational and vocational guidance to persons eligible for education and training under this part. At such intervals as he deems necessary, he shall make available information respecting the need for general education and for trained personnel in the various crafts, trades, and professions: Provided, That facilities of other Federal agencies collecting such information shall be utilized to the extent he deems practicable.

11. As used in this part, the term educational or training institutions shall include all public or private elementary, secondary, and other schools furnishing education for adults, business schools and colleges, scientific and technical institutions, colleges, vocational schools, junior colleges, teachers colleges, normal schools, professional schools, universities, and other educational institutions, and shall also include business or other establishments providing apprentice or other training on the job, including those under the supervision of an approved college or university or any State department of education, or any State apprenticeship agency or State board of vocational education, or any State apprenticeship council or the Federal Apprentice Training Service established in accordance with Public, Numbered

308, Seventy-fifth Congress, or any agency in the executive branch of the Federal Government authorized under other laws to supervise such training.

Source*:* Public Law 346, *U.S. Statutes at Large*, 58 (1944): 284.

Employment Act of 1946

Enacted by Congress and signed by President Truman the Employment Act of 1946 was enacted as a result of the high unemployment rate in the United States in the 1930s. This Act held the government was responsible to maintain both high employment and price stability. The Council of Economic Advisors was established to assist the President in preparing an annual economics report, collect economic data and report economic growth and trends within the U.S. economy while advising the President on economic policies. Truman's proposed 1945 program included required full employment legislation, and increasing minimum wage, plus better unemployment and social security benefits.

ECONOMIC REPORT OF THE PRESIDENT Sec. 3. (a) The President shall transmit to the Congress within sixty days after the beginning of each regular session (commencing with the Tear 1947) an economic report (hereinafter called the "Economic Report") setting forth (1) the levels of employment, production, and purchasing power obtaining in the United States and such levels needed to carry out the policy declared in section 2; (2) current and foreseeable trends in the levels of employment, production, and purchasing power; (3) a review of the economic program of the Federal Government and a review of economic conditions affecting employment in the United States or any considerable portion thereof during the preceding year and of their effect upon employment, production, and purchasing power; and (4) a program for carrying out the policy declared in section 2, together with such recommendations for legislation as he may deem necessary or desirable. . . .

COUNCIL OF ECONOMIC ADVISERS TO THE PRESIDENT Sec. 4. (a) There is hereby created in the Executive Office of the President a Council of Economic Advisers (hereinafter called the "Council"). The Council shall be composed of three members who shall be appointed by the President, by and with the advice and consent of the Senate, and each of whom shall be a person who, as a result of his training, experience, and attainments, is exceptionally qualified to analyze and interpret economic developments, to appraise programs and activities of the Government in the light of the policy declared in section 2, and to formulate and recommend national economic policy to promote employment, production, and purchasing power under free competitive enterprise. . . .

JOINT COMMITTEE ON THE ECONOMIC REPORT Sec. 5; (a) There is hereby established a Joint Committee on the Economic Report, to be composed of seven Members of the Senate, to be appointed by the President of the Senate, and seven Members of the House of Representatives, to be appointed by the Speaker of the House of Representatives. The party representation on the joint committee shall as nearly as may be feasible reflect the relative membership of the majority and minority parties in the Senate and House of Representatives. (b) It shall be the function of the Joint Committee— (1) to make a continuing study of matters relating to the Economic Report; (2) to study means of coordinating programs in order to further the policy of this Act; and (3) as a guide to the several committees of the Congress dealing with legislation relating to the Economic Report, not later than May 1 of each year (beginning with the year 1947) to file a report with the Senate and the House of Representatives containing its findings and recommendations with respect to each of the main recommendations made by the President in the Economic Report, and from time to time to make such other reports and recommendations to the Senate and House of Representatives as it deems advisable.

Source*:* U.S. Code, 15 (1946): §§ 1021 et seq.

Economic Opportunity Act of 1964

The Economic Opportunity Act (EOA) of 1964 was passed by Congress and signed by President Lyndon B. Johnson. The EOA was one component of President Johnson's Great Society programs and war on poverty. Some of the more successful programs of the Act included Job Corps and Head Start. The Act was designed to provide people in poverty with decent wages and standard of living. It provided funding to Community Action Agencies, public government organizations to directly serve the needs of the low-income families providing job training, adult education, and loans to small businesses to replenish the United States from the harsh poverty.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That this Act may be cited as the "Economic Opportunity Act of 1964".

FINDINGS AND DECLARATION OF PURPOSE

SEC. 2. Although the economic well-being and prosperity of the United States have progressed to a level surpassing any achieved in world history, and although these benefits are widely shared throughout the Nation, poverty continues to be the lot of a substantial number of our people. The United States can achieve its full economic and social potential as a nation only if every individual has the opportunity to contribute to the full extent of his capabilities and to participate in the workings of our society. It is, therefore, the policy of the United States to eliminate the paradox of poverty in the midst of plenty in this Nation by opening to everyone the opportunity for education and training, the opportunity to work, and the opportunity to live in decency and dignity. It is the purpose of this Act to strengthen, supplement, and coordinate efforts in furtherance of that policy.

TITLE I—YOUTH PROGRAMS

PART A—JOB CORPS

STATEMENT OF PURPOSE

SEC. 101. The purpose of this part is to prepare for the responsibilities of citizenship and to increase the employ ability of young men and young women aged sixteen through twenty-one by providing them in rural and urban residential centers with education, vocational training, useful work experience, including work directed toward the conservation of natural resources, and other appropriate activities.

ESTABLISHMENT OF JOB CORPS

SEC. 102. In order to carry out the purposes of this part, there is hereby established within the Office of Economic Opportunity (hereinafter referred to as the "Office"), established by title VI, a Job Corps (hereinafter referred to as the "Corps").

JOB CORPS PROGRAM

SEC. 103. The Director of the Office (hereinafter referred to as the "Director") is authorized to—

(a) enter into agreements with any Federal, State, or local agency or private organization for the establishment and operation, in rural and urban areas, of conservation camps and training centers and for the provision of such facilities and services as in his judgment are needed to carry out the purposes of this part, including but not limited to agreements with agencies charged with the responsibility of conserving, developing, and managing the public natural resources of the Nation and of developing, managing, and protecting public recreational areas, whereby the enrollees of the Corps may be utilized by such agencies in carrying out, under the immediate supervision of such agencies, programs planned and designed by such agencies to fulfill such responsibility, and including agreements for a botanical survey program involving surveys and maps of existing vegetation and investigations of the plants, soils, and environments of natural and disturbed plant communities;

(b) arrange for the provision of education and vocational training of enrollees in the Corps: Provided That, where practicable, such programs may be provided through local public educational agencies or by private vocational educational institutions or technical institutes where such institutions or institutes can provide substantially equivalent training with reduced Federal expenditures;

(c) provide or arrange for the provision of programs of useful work experience and other appropriate activities for enrollees;

(d) establish standards of safety and health for enrollees, and furnish or arrange for the furnishing of health services; and

(e) prescribe such rules and regulations and make such arrangements as he deems necessary to provide for the selection of enrollees and to govern their conduct after enrollment, including appropriate regulations as to the circumstances under which enrollment may be terminated.

COMPOSITION OF THE CORPS

SEC. 104. (a) The Corps shall be composed of young men and young women who are permanent residents of the United States, who have attained age sixteen but have not attained age twenty-two at the time of enrollment, and who meet the standards for enrollment prescribed by the Director. Participation in the Corps shall not relieve any enrollee of obligations under the Universal Military Training and Service Act (50 U.S.C. App. 451 et seq.).

(b) In order to enroll as a member of the Corps, an individual must agree to comply with rules and regulations promulgated by the Director for the government of the Corps.
(c) The total enrollment of any individual in the Corps shall not exceed two years except as the Director may determine in special cases.
(d) Each enrollee must execute and file with the Director an affidavit that he does not believe in, and is not a member of and does not support any organization that believes in or teaches, the overthrow of the United States Government by force or violence or by any illegal or unconstitutional methods, and (2) each enrollee must take and subscribe to an oath or affirmation in the following form: "I do solemnly swear (or affirm) that I will bear true faith and allegiance to the United States of America and will support and defend the Constitution and laws of the United States against all its enemies foreign and domestic". The provisions of section 1001 of title 18, United States Code, shall be applicable with respect to such affidavits.

Source*:* Public Law 88-452.

Auto Pact of 1965

The Auto Pact of 1965 was a free trade agreement between the United States and Canada focusing specifically on both the intermediate goods production and final assembled automobile. There were many positive outcomes of this trade agreement but perhaps the most meaningful was the evidence free trade creates wealth through comparative advantage and specialization. The Pact allowed the major North American (United States and Canada) automotive manufacturers to integrate production processes to engage in a greater degree of specialization between both countries. The specialization resulted in greater economies of scale leading to reduced production costs for all manufacturers integrating the United States and Canadian automotive markets creating a single automotive market with increasing the consumer base for each market. Many consider the Auto Pact of 1965 as the launch of greater trade pacts leading to the North American Free Trade Agreement (NAFTA).

Sec. 101. Short Title
This Act may be cited as the "Automotive Products Trade Act of 1965".

Sec. 102. Purposes
The purposes of this Act are—
(1) To provide for the implementation of the Agreement concerning Automotive Products between the Government of the United States of America and the Government of Canada signed on January 16, 1965 (hereinafter referred to as "the Agreement"), in order to strengthen the economic relations and expand trade in automotive products between the United States and Canada; and
(2) To authorize the implementation of such other international agreements providing for the mutual reduction or elimination of duties applicable to automotive products as the Government of the United States may hereafter enter into.

Sec. 201. Implementation of the Agreement

(a) The President is authorized to proclaim the modifications of the Harmonized Tariff Schedule of the United States provided for in title IV of this Act.

(b) At any time after the issuance of the proclamation authorized by subsection (a), the President is authorized to proclaim further modifications of the Harmonized Tariff Schedule of the United States to provide for the duty-free treatment of any Canadian article which is original motor-vehicle equipment (as defined by such Schedules as modified pursuant to subsection (a)) if he determines that the importation of such article is actually or potentially of commercial significance and that such duty-free treatment is required to carry out the Agreement.

TITLE III—Tariff Adjustment and Other Adjustment Assistance

Sec. 301.

(a) Subject to section 302 of this act, a petition may be filed for tariff adjustment or for a determination of eligibility to apply for adjustment assistance under title III of the Trade Expansion Act of 1962 [19 U.S.C. 1901 et seq.] as though the reduction or elimination of a duty proclaimed by the President pursuant to section 2011 or 2012 of this title were a concession granted under a trade agreement.

(b) For purposes of applying chapter 3 of Title III of the Trade Expansion Act of 1962, adjustment assistance shall be available to a worker covered by a certification made concerning a petition files pursuant to subsection (a) only with respect to a total or partial separation which occurs after the date specified by the President in such certification as the date on which the unemployment or underemployment began or threatens to begin, and a readjustment allowance may be paid only for a week of unemployment which begins after that date.

Source*:* HR-United States-Canada Automotive Products Agreement. 1965. "Text of H.R. 6960." p. 15. www.stewartlaw.com/Content/Documents/HR%20-%20United%20States-Canada%20Automotive%20Products%20Agreement.pdf

Bankruptcy Reform Act of 1978

President Jimmy Carter signed the Bankruptcy Reform Act of 1978 on November 6, 1978, taking effect in October of 1979. The Act was intended to lighten the burden for businesses and individuals to file bankruptcy and/or reorganize their economic lives. The Act was a major change from past bankruptcy practices. The Act authorized three main types of bankruptcies: Chapter 7 which allows to liquidation of a business and discharge of debts; Chapter 11 which allows for corporations to continue operations after reorganizations; and Chapter 13 which restructures debt but does not forgive it. While these important changes helped bankruptcy law in the United States the Act created several controversies in the process. A 1982 Supreme Court ruling led to the Bankruptcy Amendment Act of 1984 but the Bankruptcy Reform Act of 1978 was a first major transformation of bankruptcy law in the United States.

§ 109. Who may be a debtor H USC 109.

(a) Notwithstanding any other provision of this section, only a person that resides in the United States, or has a domicile, a place of business, or property in the United States, or a municipality, may be a debtor under this title.

(b) A person may be a debtor under chapter 7 of this title only if Post, p. 2604. such person is not—

(1) a railroad;
(2) a domestic insurance company, bank, savings bank, cooperative bank, savings and loan association, building and loan association, homestead association, or credit union; or
(3) a foreign insurance company, bank, savings bank, cooperative bank, savings and loan association, building and loan association, homestead association, or credit union, engaged in such business in the United States.

(c) An entity may be a debtor under chapter 9 of this title if and Post, p. 2621. only if such entity—

(1) is a municipality;
(2) is generally authorized to be a debtor under such chapter by State law, or by a governmental officer or organization empowered by State law to authorize such entity to be a debtor under such chapter;
(3) is insolvent or unable to meet such entity's debts as such debts mature;
(4) desires to effect a plan to adjust such debts; and
(5) (A) has obtained the agreement of creditors holding at least a majority in amount of the claims of each class that such entity intends to impair under a plan in a case under such chapter;
(B) has negotiated in good faith with creditors and has failed to obtain the agreement of creditors holding at least a majority in amount of the claims of each class that such entity intends to impair under a plan in a case under such chapter;
(C) is unable to negotiate with creditors because such negotiation is impracticable; or
(D) reasonably believes that a creditor may attempt to obtain a preference.
(d) Only a person that may be a debtor under chapter 7 of this title, except a stockholder or a commodity broker, and a railroad may be a debtor under chapter 11 of this title. Post, p. 2626.
(e) Only an individual with regular income that owes, on the date of the filing of the petition, noncontingent, liquidated, unsecured debts of less than $100,000 and noncontingent, liquidated, secured debts of less than $350,000, or an individual with regular income and such individual's spouse, except a stockbroker or a commodity broker, that owe, on the date of the filing of the petition, noncontingent, liquidated, unsecured debts that aggregate less than $100,000 and noncontingent, liquidated, secured debts of less than $350,000 may be a debtor under chapter 13 of this title.

Source*:* Public Law 95-598. November, 1978.

Monetary Control Act of 1980

The Depository Institutions Deregulation and Monetary Control Act of 1980 was signed by President Jimmy Carter to strengthen the financial sector regulation which was still considered weak from the Great Depression. It is considered one of the most important *changes financial institutions since 1933. This Act has nine components covering many areas of financial institutions. It revised previous regulations regarding bank reserves, Federal Reserve services, and deposit requirements. It changed the operations of all financial institutions and many businesses.*

POWERS OF DEPOSITORY INSTITUTIONS

General

The Act authorizes banks to continue to provide automatic transfer services from savings to checking accounts; authorizes savings and loan associations to establish remote service units to credit and debit savings accounts, or credit payments on loans, and provide related financial transactions; and authorizes federally insured credit unions to offer share draft accounts. The Act also extends nationwide the authority for depository institutions to offer NOW accounts, effective December 31, 1980. NOW accounts may consist solely of funds in which the entire beneficial interest is held by one or more individuals or by an organization operated primarily for religious, philanthropic, charitable, educational, or other similar purposes and not operated for profit. The insurance of accounts of federally insured banks, savings and loan associations, and credit unions has been increased from $40,000 to $100,000.

Thrift Institutions

The Act also authorizes various new investment authorities for federally chartered savings and loan associations and permits them to offer credit card services and to exercise trust and fiduciary powers; expands authority to make real estate loans; authorizes Federal mutual savings banks to make commercial, corporate and business loans, subject to limitations, and to accept demand deposits in connection with a commercial, corporate, or business loan relationship; and in other ways expands the powers of thrift institutions.

Source: Federal Reserve Publications. December 1980. "The Monetary Control Act of 1980." www.federalreservehistory.org/Media/Material/Event/43-257

Schengen Agreement (1985)

The Schengen Agreement put in place the elimination of customs and passport control at shared borders. Signed in the town of Schengen, Luxembourg in 1985 the five original countries were Belgium, France, Germany, Luxembourg, and the Netherlands. The agreement serves to create more efficient movement of labor, goods, services, and capital across borders. It also demonstrated a level of trust between member nations. The burden of customs and immigration control is shifted to the outside of the area in this case the outside border to the European Union territory. These foundations set the stage for the European Union and their unified market approach.

The Governments of the Kingdom of Belgium, the Federal Republic of Germany, the French Republic, the Grand Duchy of Luxembourg and the Kingdom of the Netherlands, hereinafter referred to as 'the Parties', Aware that the ever closer union of the peoples of the Member States of the European Communities should find its expression in the freedom to cross internal borders for all nationals of the Member States and in the free movement of goods and services,

Anxious to strengthen the solidarity between their peoples by removing the obstacles to free movement at the common borders between the States of the Benelux Economic Union, the Federal Republic of Germany and the French Republic,

Considering the progress already achieved within the European Communities with a view to ensuring the free movement of persons, goods and services, Prompted by the resolve to achieve the abolition of checks at their common borders on the movement of nationals of the Member States of the European Communities and to facilitate the movement of goods and services at those borders, Considering that application of this agreement may require legislative measures which will have to be submitted to the parliaments of the Signatory States in accordance with their constitutions,

Having regard to the statement by the Fontainebleau European Council on 25 and 26 June 1984 on the abolition of police and customs formalities for people and goods crossing intra-Community frontiers,

Having regard to the agreement concluded at Saarbrücken on 13 July 1984 between the Federal Republic of Germany and the French Republic,

Having regard to the conclusions adopted on 31 May 1984 following the meeting of the transport ministers of the Benelux States and the Federal Republic of Germany at Neustadt/Aisch, Having regard to the memorandum of the Governments of the Benelux Economic Union of 12 December 1984 forwarded to the Governments of the Federal Republic of Germany and the French Republic,

HAVE AGREED AS FOLLOWS:

TITLE I

MEASURES APPLICABLE IN THE SHORT TERM

Article 1 As soon as this agreement enters into force and until all checks are abolished completely, the formalities for nationals of the Member States of the European Communities at the common borders between the States of the Benelux Economic Union, the Federal Republic of Germany and the French Republic shall be carried out in accordance with the conditions laid down below.

Article 2 With regard to the movement of persons, from 15 June 1985 the police and customs authorities shall as a general rule carry out simple visual surveillance of private vehicles crossing the common border at reduced speed, without requiring such vehicles to stop. However, they may carry out more thorough controls by means of spot checks. These shall be performed where possible off the main road, so as not to interrupt the flow of other vehicles crossing the border.

Article 3 To facilitate visual surveillance, nationals of the Member States of the European Communities wishing to cross the common border in a motor vehicle may affix to the windscreen a green disc measuring at least 8 centimetres in diameter. This disc shall indicate that they have complied with border police rules, are carrying only goods permitted under the duty-free arrangements and have complied with exchange regulations.

Article 4 The Parties shall endeavour to keep to a minimum the time spent at common borders in connection with checks on the carriage of passengers by road for hire or reward. The Parties shall seek solutions enabling them by 1 January 1986 to waive systematic checks at their common borders on passenger waybills and licences for the carriage of passengers by road for hire or reward.

Article 5 By 1 January 1986, common checks shall be put in place at adjacent national control posts insofar as that is not already the case and insofar as physical-conditions so permit. Consideration shall subsequently be given to the possibility of introducing common checks at other border crossing points, taking account of local conditions. 1. AGREEMENT + CONVENTION + ACCESSIONS 21

Article 6 Without prejudice to the application of more favourable arrangements between the Parties, the latter shall take the measures required to facilitate the movement of nationals of the Member States of the European Communities resident in the local administrative areas along their common borders with a view to allowing them to cross those borders at places other than authorised crossing points and outside checkpoint opening hours. The persons concerned may benefit from these advantages provided that they transport only goods permitted under the dutyfree arrangements and comply with exchange regulations.

Article 7 The Parties shall endeavour to approximate their visa policies as soon as possible in order to avoid the adverse consequences in the field of immigration and security that may result from easing checks at the common borders. They shall take, if possible by 1 January 1986, the necessary steps in order to apply their procedures for the issue of visas and admission to their territories, taking into account the need to ensure the protection of the entire territory of the five States against illegal immigration and activities which could jeopardise security.

Article 8 With a view to easing checks at their common borders and taking into account the significant differences in the laws of the States of the Benelux Economic Union, the Federal Republic of Germany and the French Republic, the Parties undertake to combat vigorously illicit drug trafficking on their territories and to coordinate their action effectively in this area.

Article 9 The Parties shall reinforce cooperation between their customs and police authorities, notably in combating crime, particularly illicit trafficking in narcotic drugs and arms, the unauthorised entry and residence of persons, customs and tax fraud and smuggling. To that end and in accordance with their national laws, the Parties shall endeavour to improve the exchange of information and to reinforce that exchange where information which could be useful to the other Parties in combating crime is concerned. Within the framework of their national laws the Parties shall reinforce mutual assistance in respect of unauthorised movements of capital.

Article 10 With a view to ensuring the cooperation provided for in Articles 6 to 9, meetings between the Parties' competent authorities shall be held at regular intervals.

Article 11 With regard to the cross-border carriage of goods by road, the Parties shall waive, as from 1 July 1985, systematic performance of the following checks at their common borders: 22 The Schengen acquis — control of driving and rest periods (Council Regulation (EEC) No 543/69 of 25 March 1969 on the harmonisation of certain social legislation relating to road transport and AETR); — control of the weights and dimensions of commercial vehicles; this provision shall not prevent the introduction of automatic weighing systems for spot checks on weight; — controls on the vehicles' technical state. Measures shall be taken to avoid checks being duplicated within the territories of the Parties.

Article 12 From 1 July 1985 checks on documents detailing transport operations not carried out under licence or quota pursuant to Community or bilateral rules shall be replaced at the common borders by spot checks. Vehicles carrying out transport operations under such arrangements shall display a visual symbol to that effect when crossing the border. The Parties' competent authorities shall determine the features of this symbol by common agreement.

Article 13 The Parties shall endeavour to harmonise by 1 January 1986 the systems applying among them to the licensing of commercial road transport with regard to cross-border traffic, with the aim of simplifying, easing and possibly replacing licences for journeys by licences for a period of time, with a visual check when vehicles cross common borders. The procedures for converting licences for journeys into licences for periods of time shall be agreed on a bilateral basis, account being taken of the road haulage requirements in the different countries concerned.

Article 14 The Parties shall seek solutions to reduce the waiting times of rail transport at the common borders caused by the completion of border formalities.

Article 15 The Parties shall recommend to their respective rail companies: — to adapt technical procedures in order to minimise stopping times at the common borders; — to do their utmost to apply to certain types of carriage of goods by rail, to be defined by the rail companies, a special routing system whereby the common borders can be crossed rapidly without any appreciable stops (goods trains with reduced stopping times at borders).

Article 16 The Parties shall harmonise the opening dates and opening hours of customs posts for inland waterway traffic at the common borders.

TITLE II

MEASURES APPLICABLE IN THE LONG TERM

Article 17 With regard to the movement of persons, the Parties shall endeavour to abolish checks at common borders and transfer them to their external borders. To that end they shall endeavour first to harmonise, where necessary, the laws, regulations and administrative provisions concerning the prohibitions and restrictions on which the checks are based and to take complementary measures to safeguard internal security and prevent illegal immigration by nationals of States that are not members of the European Communities.

Article 18 The Parties shall open discussions, in particular on the following matters, account being taken of the results of the short-term measures: (a) drawing up arrangements for police cooperation on crime prevention and investigation; (b) examining any difficulties that may arise in applying agreements on international judicial assistance and extradition, in order to determine the most appropriate solutions for improving cooperation between the Parties in those fields; (c) seeking means to combat crime jointly, inter alia by studying the possibility of introducing a right of hot pursuit for police officers, taking into account existing means of communication and international judicial assistance.

Article 19 The Parties shall seek to harmonise laws and regulations, in particular on: — narcotic drugs; — arms and explosives; — the registration of travellers in hotels.

Article 20 The Parties shall endeavour to harmonise their visa policies and the conditions for entry to their territories. Insofar as is necessary, they shall also prepare the 24 The Schengen acquis harmonisation of their rules governing certain aspects of the law on aliens in regard to nationals of States that are not members of the European Communities.

Article 21 The Parties shall take common initiatives within the European Communities: (a) to achieve an increase in the duty-free allowances granted to travellers; (b) in the context of Community allowances to remove any remaining restrictions on entry to the Member States of goods possession of which is not prohibited for their nationals. The Parties shall take initiatives within the European Communities so that VAT on tourist transport services within the European Communities is collected in the country of departure on a harmonised basis.

Article 22 The Parties shall endeavour both among themselves and within the European Communities: — to increase the duty-free allowance for fuel in order to bring it into line with the normal contents of bus and coach fuel tanks (600 litres); — to approximate the tax rates on diesel fuel and to increase the duty-free allowances for the normal contents of lorry fuel tanks.

Article 23 In the field of goods transport the Parties shall also endeavour to reduce stopping times and the number of stopping points at adjacent national control posts.

Article 24 With regard to the movement of goods, the Parties shall seek means of transferring the checks currently carried out at the common borders to the external borders or to within their own territories. To that end they shall take, where necessary, common initiatives among themselves and within the European Communities to harmonise the provisions on which checks on goods at the common borders are based. They shall ensure that these measures do not adversely affect the necessary protection of the health of humans, animals and plants.

Article 25 The Parties shall develop their cooperation with a view to facilitating customs clearance of goods crossing a common border, through a systematic, automatic exchange of the necessary data collected by means of the single document.

Article 26 The Parties shall examine how indirect taxes (VAT and excise duties) may be harmonised in the framework of the European Communities. To that end they shall support the initiatives undertaken by the European Communities.

Article 27 The Parties shall examine whether, on a reciprocal basis, the limits on the duty-free allowances granted at the common borders to frontier-zone residents, as authorised under Community law, may be abolished.

Article 28 Before the conclusion of any bilateral or multilateral arrangements similar to this agreement with States that are not Parties thereto, the Parties shall consult among themselves.

Article 29 This agreement shall also apply to Berlin, unless a declaration to the contrary is made by the Government of the Federal Republic of Germany to the Governments of the States of the Benelux Economic Union and the Government of the French Republic within three months of entry into force of this agreement.

Source*: The Schengen acquis integrated into the European Union*. May 1999. www.consilium.europa.eu/uedocs/cmsUpload/SCH.ACQUIS-EN.pdf

North American Free Trade Agreement (NAFTA) (1994)

In 1994 trade in North America took a significant step toward more open trade and globalization with the North American Free Trade Agreement (NAFTA). It created a trilateral trade bloc between the United States, Canada, and Mexico. NAFTA became the third-largest trade bloc in the world impacting over 460 million people and is the largest in land size. With the elimination of many, if not all, of the tariffs between the United States, Canada, and Mexico trade between the nations definitely increased for many products, from durable goods such as automobiles and televisions to agricultural products such as corn and meats. Imports and exports increased across all the borders. NAFTA also addressed the sensitive issue of protecting intellectual property and removing all nontariff barriers to trade.

Chapter Seventeen: Intellectual Property
PART SIX: INTELLECTUAL PROPERTY

Article 1705: Copyright

1. Each Party shall protect the works covered by Article 2 of the Berne Convention, including any other works that embody original expression within the meaning of that Convention. In particular:

(a) all types of computer programs are literary works within the meaning of the Berne Convention and each Party shall protect them as such; and
(b) compilations of data or other material, whether in machine readable or other form, which by reason of the selection or arrangement of their contents constitute intellectual creations, shall be protected as such.

The protection a Party provides under subparagraph (b) shall not extend to the data or material itself, or prejudice any copyright subsisting in that data or material.
2. Each Party shall provide to authors and their successors in interest those rights enumerated in the Berne Convention in respect of works covered by paragraph 1, including the right to authorize or prohibit:

(a) the importation into the Party's territory of copies of the work made without the right holder's authorization;
(b) the first public distribution of the original and each copy of the work by sale, rental or otherwise;
(c) the communication of a work to the public; and
(d) the commercial rental of the original or a copy of a computer program.

Subparagraph (d) shall not apply where the copy of the computer program is not itself an essential object of the rental. Each Party shall provide that putting the original or a copy of a computer program on the market with the right holder's consent shall not exhaust the rental right.
3. Each Party shall provide that for copyright and related rights:

(a) any person acquiring or holding economic rights may freely and separately transfer such rights by contract for purposes of their exploitation and enjoyment by the transferee; and
(b) any person acquiring or holding such economic rights by virtue of a contract, including contracts of employment underlying the creation of works and sound recordings, shall be able to exercise those rights in its own name and enjoy fully the benefits derived from those rights.

4. Each Party shall provide that, where the term of protection of a work, other than a photographic work or a work of applied art, is to be calculated on a basis other than the life of a natural person, the term shall be not less than 50 years from the end of the calendar year of the first authorized publication of the work or, failing such authorized publication within 50 years from the making of the work, 50 years from the end of the calendar year of making.
5. Each Party shall confine limitations or exceptions to the rights provided for in this Article to certain special cases that do not conflict with a normal exploitation

of the work and do not unreasonably prejudice the legitimate interests of the right holder.
6. No Party may grant translation and reproduction licenses permitted under the Appendix to the Berne Convention where legitimate needs in that Party's territory for copies or translations of the work could be met by the right holder's voluntary actions but for obstacles created by the Party's measures.
7. Annex 1705.7 applies to the Parties specified in that Annex.

Article 1708: Trademarks

1. For purposes of this Agreement, a trademark consists of any sign, or any combination of signs, capable of distinguishing the goods or services of one person from those of another, including personal names, designs, letters, numerals, colors, figurative elements, or the shape of goods or of their packaging. Trademarks shall include service marks and collective marks, and may include certification marks. A Party may require, as a condition for registration, that a sign be visually perceptible.
2. Each Party shall provide to the owner of a registered trademark the right to prevent all persons not having the owner's consent from using in commerce identical or similar signs for goods or services that are identical or similar to those goods or services in respect of which the owner's trademark is registered, where such use would result in a likelihood of confusion. In the case of the use of an identical sign for identical goods or services, a likelihood of confusion shall be presumed. The rights described above shall not prejudice any prior rights, nor shall they affect the possibility of a Party making rights available on the basis of use.
3. A Party may make registrability depend on use. However, actual use of a trademark shall not be a condition for filing an application for registration. No Party may refuse an application solely on the ground that intended use has not taken place before the expiry of a period of three years from the date of application for registration.
4. Each Party shall provide a system for the registration of trademarks, which shall include:

(a) examination of applications;
(b) notice to be given to an applicant of the reasons for the refusal to register a trademark;
(c) a reasonable opportunity for the applicant to respond to the notice;
(d) publication of each trademark either before or promptly after it is registered; and
(e) a reasonable opportunity for interested persons to petition to cancel the registration of a trademark.

A Party may provide for a reasonable opportunity for interested persons to oppose the registration of a trademark.
5. The nature of the goods or services to which a trademark is to be applied shall in no case form an obstacle to the registration of the trademark.
6. Article 6bis of the Paris Convention shall apply, with such modifications as may be necessary, to services. In determining whether a trademark is wellknown, account shall be taken of the knowledge of the trademark in the relevant sector of the public, including knowledge in the Party's territory obtained as a result of

the promotion of the trademark. No Party may require that the reputation of the trademark extend beyond the sector of the public that normally deals with the relevant goods or services.

7. Each Party shall provide that the initial registration of a trademark be for a term of at least 10 years and that the registration be indefinitely renewable for terms of not less than 10 years when conditions for renewal have been met.

8. Each Party shall require the use of a trademark to maintain a registration. The registration may be canceled for the reason of non-use only after an uninterrupted period of at least two years of non-use, unless valid reasons based on the existence of obstacles to such use are shown by the trademark owner. Each Party shall recognize, as valid reasons for non-use, circumstances arising independently of the will of the trademark owner that constitute an obstacle to the use of the trademark, such as import restrictions on, or other government requirements for, goods or services identified by the trademark.

9. Each Party shall recognize use of a trademark by a person other than the trademark owner, where such use is subject to the owner's control, as use of the trademark for purposes of maintaining the registration.

10. No Party may encumber the use of a trademark in commerce by special requirements, such as a use that reduces the trademark's function as an indication of source or a use with another trademark.

11. A Party may determine conditions on the licensing and assignment of trademarks, it being understood that the compulsory licensing of trademarks shall not be permitted and that the owner of a registered trademark shall have the right to assign its trademark with or without the transfer of the business to which the trademark belongs.

12. A Party may provide limited exceptions to the rights conferred by a trademark, such as fair use of descriptive terms, provided that such exceptions take into account the legitimate interests of the trademark owner and of other persons.

13. Each Party shall prohibit the registration as a trademark of words, at least in English, French or Spanish, that generically designate goods or services or types of goods or services to which the trademark applies.

14. Each Party shall refuse to register trademarks that consist of or comprise immoral, deceptive or scandalous matter, or matter that may disparage or falsely suggest a connection with persons, living or dead, institutions, beliefs or any Party's national symbols, or bring them into contempt or disrepute.

Article 1709: Patents

1. Subject to paragraphs 2 and 3, each Party shall make patents available for any inventions, whether products or processes, in all fields of technology, provided that such inventions are new, result from an inventive step and are capable of industrial application. For purposes of this Article, a Party may deem the terms “inventive step” and “capable of industrial application” to be synonymous with the terms “non-obvious” and “useful”, respectively.

2. A Party may exclude from patentability inventions if preventing in its territory the commercial exploitation of the inventions is necessary to protect ordre public

or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to nature or the environment, provided that the exclusion is not based solely on the ground that the Party prohibits commercial exploitation in its territory of the subject matter of the patent.

3. A Party may also exclude from patentability:

(a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals;
(b) plants and animals other than microorganisms; and
(c) essentially biological processes for the production of plants or animals, other than non-biological and microbiological processes for such production.

Notwithstanding subparagraph (b), each Party shall provide for the protection of plant varieties through patents, an effective scheme of *sui generis* protection, or both.

4. If a Party has not made available product patent protection for pharmaceutical or agricultural chemicals commensurate with paragraph 1:

(a) as of January 1, 1992, for subject matter that relates to naturally occurring substances prepared or produced by, or significantly derived from, microbiological processes and intended for food or medicine, and
(b) as of July 1, 1991, for any other subject matter, that Party shall provide to the inventor of any such product or its assignee the means to obtain product patent protection for such product for the unexpired term of the patent for such product granted in another Party, as long as the product has not been marketed in the Party providing protection under this paragraph and the person seeking such protection makes a timely request.

5. Each Party shall provide that:

(a) where the subject matter of a patent is a product, the patent shall confer on the patent owner the right to prevent other persons from making, using or selling the subject matter of the patent, without the patent owner's consent; and
(b) where the subject matter of a patent is a process, the patent shall confer on the patent owner the right to prevent other persons from using that process and from using, selling, or importing at least the product obtained directly by that process, without the patent owner's consent.

6. A Party may provide limited exceptions to the exclusive rights conferred by a patent, provided that such exceptions do not unreasonably conflict with a normal exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patent owner, taking into account the legitimate interests of other persons.

7. Subject to paragraphs 2 and 3, patents shall be available and patent rights enjoyable without discrimination as to the field of technology, the territory of the Party where the invention was made and whether products are imported or locally produced.

8. A Party may revoke a patent only when:

(a) grounds exist that would have justified a refusal to grant the patent; or
(b) the grant of a compulsory license has not remedied the lack of exploitation of the patent.

9. Each Party shall permit patent owners to assign and transfer by succession their patents, and to conclude licensing contracts.

10. Where the law of a Party allows for use of the subject matter of a patent, other than that use allowed under paragraph 6, without the authorization of the right holder, including use by the government or other persons authorized by the government, the Party shall respect the following provisions:

(a) authorization of such use shall be considered on its individual merits;
(b) such use may only be permitted if, prior to such use, the proposed user has made efforts to obtain authorization from the right holder on reasonable commercial terms and conditions and such efforts have not been successful within a reasonable period of time. The requirement to make such efforts may be waived by a Party in the case of a national emergency or other circumstances of extreme urgency or in cases of public non-commercial use. In situations of national emergency or other circumstances of extreme urgency, the right holder shall, nevertheless, be notified as soon as reasonably practicable. In the case of public non-commercial use, where the government or contractor, without making a patent search, knows or has demonstrable grounds to know that a valid patent is or will be used by or for the government, the right holder shall be informed promptly;
(c) the scope and duration of such use shall be limited to the purpose for which it was authorized;
(d) such use shall be non-exclusive;
(e) such use shall be non-assignable, except with that part of the enterprise or goodwill that enjoys such use;
(f) any such use shall be authorized predominantly for the supply of the Party's domestic market;
(g) authorization for such use shall be liable, subject to adequate protection of the legitimate interests of the persons so authorized, to be terminated if and when the circumstances that led to it cease to exist and are unlikely to recur. The competent authority shall have the authority to review, on motivated request, the continued existence of these circumstances;
(h) the right holder shall be paid adequate remuneration in the circumstances of each case, taking into account the economic value of the authorization;
(i) the legal validity of any decision relating to the authorization shall be subject to judicial or other independent review by a distinct higher authority;
(j) any decision relating to the remuneration provided in respect of such use shall be subject to judicial or other independent review by a distinct higher authority;
(k) the Party shall not be obliged to apply the conditions set out in subparagraphs (b) and (f) where such use is permitted to remedy a practice determined after judicial or administrative process to be anticompetitive. The need to correct anticompetitive practices may be taken into account in determining the amount of remuneration in such cases. Competent authorities shall have the authority to refuse termination of authorization if and when the conditions that led to such authorization are likely to recur;
(l) the Party shall not authorize the use of the subject matter of a patent to permit the exploitation of another patent except as a remedy for an adjudicated violation of domestic laws regarding anticompetitive practices.

11. Where the subject matter of a patent is a process for obtaining a product, each Party shall, in any infringement proceeding, place on the defendant the burden of establishing that the allegedly infringing product was made by a process other than the patented process in one of the following situations:

(a) the product obtained by the patented process is new; or
(b) a substantial likelihood exists that the allegedly infringing product was made by the process and the patent owner has been unable through reasonable efforts to determine the process actually used.

In the gathering and evaluation of evidence, the legitimate interests of the defendant in protecting its trade secrets shall be taken into account.

12. Each Party shall provide a term of protection for patents of at least 20 years from the date of filing or 17 years from the date of grant. A Party may extend the term of patent protection, in appropriate cases, to compensate for delays caused by regulatory approval processes.

Source*:* North American Free Trade Agreement. https://www.nafta-sec-alena.org/Home/Legal-Texts/North-American-Free-Trade-Agreement?mvid=2

Gramm-Leach-Bliley Act (Financial Modernization Act of 1999)

The Gramm-Leach-Bliley Act is also known as the Financial Modernization Act of 1999. The Act controls the ways in which financial institutions handle the private information of individuals. The Act has three sections; "The Financial Privacy Rule" regulating the collection and disclosure of private financial information; "The Safeguards Rule" guaranteeing financial institutions must implement security programs to protect such private information; and "The Pretexting Provisions" prohibiting the practice of accessing private information under false pretenses. The Act also requires financial institutions to give customers a written privacy notice that details all aspects of the institutions information-sharing practices.

An Act

To enhance competition in the financial services industry by providing a prudential framework for the affiliation of banks, securities firms, insurance companies, and other financial service providers, and for other purposes. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS. (a) SHORT TITLE.—This Act may be cited as the "Gramm-Leach-Bliley Act"
SEC. 101. GLASS-STEAGALL ACT REPEALS.

(a) SECTION 20 REPEALED.—Section 20 of the Banking Act of 1933 (12 U.S.C. 377) (commonly referred to as the "Glass-Steagall Act") is repealed. (b) SECTION 32 REPEALED.—Section 32 of the Banking Act of 1933 (12 U.S.C. 78) is repealed.

SEC. 102. ACTIVITY RESTRICTIONS APPLICABLE TO BANK HOLDING COMPANIES THAT ARE NOT FINANCIAL HOLDING COMPANIES.
(a) IN GENERAL.—Section 4(c)(8) of the Bank Holding Company Act of 1956 (12 U.S.C. 1843(c)(8)) is amended to read as follows: "(8) shares of any company

the activities of which had been determined by the Board by regulation or order under this paragraph as of the day before the date of the enactment of the Gramm-Leach-Bliley Act, to be so closely related to banking as to be a proper incident thereto (subject to such terms and conditions contained in such regulation or order, unless modified by the Board);”.

(b) CONFORMING CHANGES TO OTHER STATUTES.—

(1) AMENDMENT TO THE BANK HOLDING COMPANY ACT AMENDMENTS OF 1970.—Section 105 of the Bank Holding Company Act Amendments of 1970 (12 U.S.C. 1850) is amended by striking “, to engage directly or indirectly in a nonbanking activity pursuant to section 4 of such Act,”.
(2) AMENDMENT TO THE BANK SERVICE COMPANY ACT.— Section 4(f) of the Bank Service Company Act (12 U.S.C. 1864(f)) is amended by inserting before the period at the end the following: “as of the day before the date of the enactment of the Gramm-Leach-Bliley Act”.

SEC. 103. FINANCIAL ACTIVITIES.
(a) IN GENERAL.—Section 4 of the Bank Holding Company Act of 1956 (12 U.S.C. 1843) is amended by adding at the end the following new subsections:
“(k) ENGAGING IN ACTIVITIES THAT ARE FINANCIAL IN NATURE.—
“(1) IN GENERAL.—Notwithstanding subsection (a), a financial holding company may engage in any activity, and may acquire and retain the shares of any company engaged in any activity, that the Board, in accordance with paragraph (2), determines (by regulation or order)—
“(A) to be financial in nature or incidental to such financial activity; or
“(B) is complementary to a financial activity and does not pose a substantial risk to the safety or soundness of depository institutions or the financial system generally.

Source: Public Law 106–102.

Sarbanes-Oxley Act (2002)

President George W. Bush signed the Sarbanes-Oxley Act (SOX) in 2002. At the time of enactment, the United States was the largest economy in the world and entangled in a crisis surrounding the fraudulent reporting of corporate financial data by a number of publicly traded companies. Illegal accounting methods had cost billions of dollars. The Sarbanes-Oxley Act contains 11 sections including the establishment of a public company accountability board, requirements for auditor independence, details concerning corporate responsibility, enhanced conflict of interest provisions, and new criminal penalties for corporate fraud. The Act boosted the reliability of corporate disclosures and changed the way securities analysts interact with corporate management. In the wake of such financial losses directly due to fraud SOX even required top management to personally certify corporate financial information.

An Act
To protect investors by improving the accuracy and reliability of corporate disclosures made pursuant to the securities laws, and for other purposes. [NOTE: July 30, 2002 - [H.R. 3763]]
Be it enacted by the Senate and House of Representatives of the United States of America in Congress

SEC. 103. [NOTE: 15 USC 7213.] AUDITING, QUALITY CONTROL, AND INDEPENDENCE STANDARDS AND RULES.

(a) Auditing, Quality Control, and Ethics Standards.—

(1) In general.—The Board shall, by rule, establish, including, to the extent it determines appropriate, through adoption of standards proposed by 1 or more professional groups of accountants designated pursuant to paragraph (3)(A) or advisory groups convened pursuant to paragraph (4), and amend or otherwise modify or alter, such auditing and related attestation standards, such quality control standards, and such ethics standards to be used by registered public accounting firms in the preparation and issuance of audit reports, as required by this Act or the rules of the Commission, or as may be necessary or appropriate in the public interest or for the protection of investors.

(2) Rule requirements.—In carrying out paragraph (1), the Board—

(A) shall include in the auditing standards that it adopts, requirements that each registered public accounting firm shall

(i) prepare, and maintain for a period of not less than 7 years, audit work papers, and other information related to any audit report, in sufficient detail to support the conclusions reached in such report;

(ii) provide a concurring or second partner review and approval of such audit report (and other related information), and concurring approval in its issuance, by a qualified person (as prescribed by the Board) associated with the public accounting firm, other than the person in charge of the audit, or by an independent reviewer (as prescribed by the Board); and

(iii) describe in each audit report the scope of the auditor's testing of the internal control structure and procedures of the issuer, required by section 404(b), and present (in such report or in a separate report)—

(I) the findings of the auditor from such testing;

(II) an evaluation of whether such internal control structure and procedures—

(aa) include maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the issuer;

(bb) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the issuer are being made only in accordance with authorizations of management and directors of the issuer; and

(III) a description, at a minimum, of material weaknesses in such internal controls, and of any material noncompliance found on the basis of such testing.

(B) shall include, in the quality control standards that it adopts with respect to the issuance of audit reports, requirements for every registered public accounting firm relating to—

(i) monitoring of professional ethics and independence from issuers on behalf of which the firm issues audit reports;

(ii) consultation within such firm on accounting and auditing questions;

(iii) supervision of audit work;

(iv) hiring, professional development, and advancement of personnel;

(v) the acceptance and continuation of engagements;

(vi) internal inspection; and

(vii) such other requirements as the Board may prescribe, subject to subsection (a)(1).

(3) Authority to adopt other standards.—

(A) In general.—In carrying out this subsection, the Board—

(i) may adopt as its rules, subject to the terms of section 107, any portion of any statement of auditing standards or other professional standards that the Board determines satisfy the requirements of paragraph (1), and that were proposed by 1 or more professional groups of accountants that shall be designated or recognized by the Board, by rule, for such purpose, pursuant to this paragraph or 1 or more advisory groups convened pursuant to paragraph (4); and

(ii) notwithstanding clause (i), shall retain full authority to modify, supplement, revise, or subsequently amend, modify, or repeal, in whole or in part, any portion of any statement described in clause (i).

(B) Initial and transitional standards.—The Board shall adopt standards described in subparagraph (A)(i) as initial or transitional standards, to the extent the Board determines necessary, prior to a determination of the

Commission under section 101(d), and such standards shall be separately approved by the Commission at the time of that determination, without regard to the procedures required by section 107 that otherwise would apply to the approval of rules of the Board.

(4) Advisory groups.—The Board shall convene, or authorize its staff to convene, such expert advisory groups as may be appropriate, which may include practicing accountants and other experts, as well as representatives of other interested groups, subject to such rules as the Board may prescribe to prevent conflicts of interest, to make recommendations concerning the content (including proposed drafts) of auditing, quality control, ethics, independence, or other standards required to be established under this section.

(b) Independence Standards and Rules.—The Board shall establish such rules as may be necessary or appropriate in the public interest or for the protection of investors, to implement, or as authorized under, title II of this Act.

(c) Cooperation With Designated Professional Groups of Accountants and Advisory Groups.—

(1) In general.—The Board shall cooperate on an ongoing basis with professional groups of accountants designated under subsection (a)(3)(A) and advisory groups convened under subsection (a)(4) in the examination of the need for changes in any standards subject to its authority under subsection (a), recommend issues for inclusion on the agendas of such designated professional groups of accountants or advisory groups, and take such other steps as it deems appropriate to increase the effectiveness of the standard setting process.

(2) Board responses.—The Board shall respond in a timely fashion to requests from designated professional groups of accountants and advisory groups referred to in paragraph (1) for any changes in standards over which the Board has authority.

(d) Evaluation of Standard Setting Process.—The Board shall include in the annual report required by section 101(h) the results of its standard setting responsibilities during the period to which the report relates, including a discussion of the work of the Board with any designated professional groups of accountants and advisory groups described in paragraphs (3)(A) and (4) of subsection (a), and its pending issues agenda for future standard setting projects.

SEC. 104. [NOTE: 15 USC 7214.] INSPECTIONS OF REGISTERED PUBLIC ACCOUNTING FIRMS.

(a) In General.—The Board shall conduct a continuing program of inspections to assess the degree of compliance of each registered public accounting firm and associated persons of that firm with this Act, the rules of the Board, the rules of the Commission, or professional standards, in connection with its performance of audits, issuance of audit reports, and related matters involving issuers.

(b) Inspection Frequency.—

(1) In general.—Subject to paragraph (2), inspections required by this section shall be conducted—

(A) annually with respect to each registered public accounting firm that regularly provides audit reports for more than 100 issuers; and

(B) not less frequently than once every 3 years with respect to each registered public accounting firm that regularly provides audit reports for 100 or fewer issuers.

(2) Adjustments to schedules.—The Board may, by rule, adjust the inspection schedules set under paragraph (1) if the Board finds that different inspection schedules are consistent with the purposes of this Act, the public interest, and the protection of investors. The Board may conduct special inspections at the request of the Commission or upon its own motion.

(c) Procedures.—The Board shall, in each inspection under this section, and in accordance with its rules for such inspections—

(1) identify any act or practice or omission to act by the registered public accounting firm, or by any associated person thereof, revealed by such inspection that may be in violation of this Act, the rules of the Board, the rules of the Commission, the firm's own quality control policies, or professional standards;

(2) report any such act, practice, or omission, if appropriate, to the Commission and each appropriate State regulatory authority; and

(3) begin a formal investigation or take disciplinary action, if appropriate, with respect to any such violation, in accordance with this Act and the rules of the Board.

(d) Conduct of Inspections.—In conducting an inspection of a registered public accounting firm under this section, the Board shall—

(1) inspect and review selected audit and review engagements of the firm (which may include audit engagements that are the subject of ongoing litigation or other controversy between the firm and 1 or more third parties), performed at various offices and by various associated persons of the firm, as selected by the Board;

(2) evaluate the sufficiency of the quality control system of the firm, and the manner of the documentation and communication of that system by the firm; and

(3) perform such other testing of the audit, supervisory, and quality control procedures of the firm as are necessary or appropriate in light of the purpose of the inspection and the responsibilities of the Board.

(e) Record Retention.—The rules of the Board may require the retention by registered public accounting firms for inspection purposes of records whose retention is not otherwise required by section 103 or the rules issued thereunder.

(f) Procedures for Review.—The rules of the Board shall provide a procedure for the review of and response to a draft inspection report by the registered public accounting firm under inspection. The Board shall take such action with respect to such response as it considers appropriate (including revising the draft report or continuing or supplementing its inspection activities before issuing a final report), but the text of any such response, appropriately redacted to protect information reasonably identified by the accounting firm as confidential, shall be attached to and made part of the inspection report.

(g) Report.—A written report of the findings of the Board for each inspection under this section, subject to subsection (h), shall be—

(1) transmitted, in appropriate detail, to the Commission and each appropriate State regulatory authority, accompanied by any letter or comments by the Board or the inspector, and any letter of response from the registered public accounting firm; and

(2) made available in appropriate detail to the public (subject to section 105(b)(5)(A), and to the protection of such confidential and proprietary information as the Board may determine to be appropriate, or as may be required by law), except that no portions of the inspection report that deal with criticisms of or potential defects in the quality control systems of the firm under inspection shall be made public if those criticisms or defects are addressed by the firm, to the satisfaction of the Board, not later than 12 months after the date of the inspection report.

Source: Public Law 107-204.

Patient Protection and Affordable Care Act (2010)

In 2010, Congress passed the Patient Protection and Affordable Care Act (ACA). Congress crafted the legislation and the accompanying taxes to deal with the negative externalities and social issues related to the health care market. In March 2010, the ACA became law, creating considerable changes in health insurance. The goals of the act included making affordable health insurance available for all Americans and reducing the costs of health care for individuals and the government. It proposed mandates, subsidies, and insurance exchanges as mechanisms to reach these goals. The main tools for increasing insurance coverage were creating state-based insurance exchanges and expanding Medicaid eligibility.

A central component of this legislation was the health insurance mandate, requiring all Americans to buy health insurance or pay a fine for not participating. Soon after President Obama signed ACA Florida and 25 other states, two individuals, and the National Federation of Independent Business (NFIB), among others, filed lawsuits against the federal government challenging the constitutionality of the individual mandate. After legal battles where the U.S. Federal Court for the Northern District of Florida agreed with the plaintiffs that the commerce clause of the Constitution limits Congress's authority declaring the entire law unconstitutional and upheld upon appeal in the Eleventh Circuit Court of Appeals the stage was set for a showdown in the U.S. Supreme Court.

SEC. 2715. DEVELOPMENT AND UTILIZATION OF UNIFORM EXPLANATION OF COVERAGE DOCUMENTS AND STANDARDIZED DEFINITIONS.

(a) IN GENERAL.—Not later than 12 months after the date of enactment of the Patient Protection and Affordable Care Act, the Secretary shall develop standards for use by a group health plan and a health insurance issuer offering group or individual health insurance coverage, in compiling and providing to enrollees a summary of benefits and coverage explanation that accurately describes the benefits and coverage under the applicable plan or coverage. In developing such standards, the Secretary shall consult with the National Association of Insurance Commissioners (referred to in this section as the 'NAIC'), a working group composed of representatives of health insurance-related consumer advocacy organizations, health insurance issuers, health care professionals, patient advocates including those representing individuals with limited English proficiency, and other qualified individuals.

(b) REQUIREMENTS.—The standards for the summary of benefits and coverage developed under subsection (a) shall provide for the following:

(1) APPEARANCE.—The standards shall ensure that the summary of benefits and coverage is presented in a uniform format that does not exceed 4 pages in length and does not include print smaller than 12-point font.
(2) LANGUAGE.—The standards shall ensure that the summary is presented in a culturally and linguistically appropriate manner and utilizes terminology understandable by the average plan enrollee.
(3) CONTENTS.—The standards shall ensure that the summary of benefits and coverage includes—
   (A) uniform definitions of standard insurance terms and medical terms (consistent with subsection (g)) so that consumers may compare health insurance coverage and understand the terms of coverage (or exception to such coverage);
   (B) a description of the coverage, including cost sharing for—
      (i) each of the categories of the essential health benefits described in subparagraphs (A) through (J) of section 1302(b)(1) of the Patient Protection and Affordable Care Act; and
      (ii) other benefits, as identified by the Secretary;
   (C) the exceptions, reductions, and limitations on coverage;
   (D) the cost-sharing provisions, including deductible, coinsurance, and co-payment obligations;
   (E) the renewability and continuation of coverage provisions;
   (F) a coverage facts label that includes examples to illustrate common benefits scenarios, including pregnancy and serious or chronic medical conditions and related cost sharing, such scenarios to be based on recognized clinical practice guidelines;
   (G) a statement of whether the plan or coverage—
      (i) provides minimum essential coverage (as defined under section 5000A(f) of the Internal Revenue Code 1986); and
      (ii) ensures that the plan or coverage share of the total allowed costs of benefits provided under the plan or coverage is not less than 60 percent of such costs;
   (H) a statement that the outline is a summary of the policy or certificate and that the coverage document itself should be consulted to determine the governing contractual provisions; and

(I) a contact number for the consumer to call with additional questions and an Internet web address where a copy of the actual individual coverage policy or group certificate of coverage can be reviewed and obtained.

Source: Office of the Legislative Counsel. May 2010. *Compilation of Patient Protection and Affordable Care Act.* www.hhs.gov/sites/default/files/ppacacon.pdf

Financial Reform Act of 2010 (Dodd-Frank Act)

The Financial Reform Act of 2010 was an effort to reform financial regulation following the financial crisis of 2008. Signed by President Obama on July 21, 2010 the law is also known as the Dodd-Frank Wall Street Reform and Consumer Protection Act, or simply "Dodd-Frank" in reference to the significant work of Senator Christopher J. Dodd (D-CT) and Representative Barney Frank (D-MA). Dodd-Frank is one of the most extensive financial reforms since the Banking Act of 1933 (Glass-Steagall Act). The Act established the Financial Stability Oversight Council. The role of the council is to identify risks for U.S. financial stability from financial and nonfinancial organizations, promote market discipline, and respond to emergency risks to the U.S. financial system.

Two components of Dodd-Frank seemed especially popular with the public. One is what became known as the "Volcker Rule." Proposed by former chair of the Federal Reserve Paul Volcker the rule restricts the trading financial companies can do with their own accounts limiting their ability to take excessive risks. It also restricts banks from owning, investing, sponsoring hedge funds, private equity funds, or proprietary trading for their own profit. The second popular component was the new Consumer Financial Protection Bureau. Housed and funded within the Federal Reserve this new Bureau consolidates the functions of many different agencies to write rules, supervise companies, and enforce federal consumer financial protection laws as well as serving to promote financial education and monitor financial markets for consumers.

Subtitle A—Financial Stability Oversight Council

SEC. 111. FINANCIAL STABILITY OVERSIGHT COUNCIL ESTABLISHED.

(a) Establishment- Effective on the date of enactment of this Act, there is established the Financial Stability Oversight Council.

(b) Membership- The Council shall consist of the following members:

(1) VOTING MEMBERS- The voting members, who shall each have 1 vote on the Council shall be—

(A) the Secretary of the Treasury, who shall serve as Chairperson of the Council;
(B) the Chairman of the Board of Governors;
(C) the Comptroller of the Currency;
(D) the Director of the Bureau;
(E) the Chairman of the Commission;
(F) the Chairperson of the Corporation;
(G) the Chairperson of the Commodity Futures Trading Commission;
(H) the Director of the Federal Housing Finance Agency;

(I) the Chairman of the National Credit Union Administration Board; and
(J) an independent member appointed by the President, by and with the advice and consent of the Senate, having insurance expertise.

(2) NONVOTING MEMBERS- The nonvoting members, who shall serve in an advisory capacity as a nonvoting member of the Council, shall be—
(A) the Director of the Office of Financial Research;
(B) the Director of the Federal Insurance Office;
(C) a State insurance commissioner, to be designated by a selection process determined by the State insurance commissioners;
(D) a State banking supervisor, to be designated by a selection process determined by the State banking supervisors; and
(E) a State securities commissioner (or an officer performing like functions), to be designated by a selection process determined by such State securities commissioners.

(3) NONVOTING MEMBER PARTICIPATION- The nonvoting members of the Council shall not be excluded from any of the proceedings, meetings, discussions, or deliberations of the Council, except that the Chairperson may, upon an affirmative vote of the member agencies, exclude the nonvoting members from any of the proceedings, meetings, discussions, or deliberations of the Council when necessary to safeguard and promote the free exchange of confidential supervisory information.

TITLE XI—FEDERAL RESERVE SYSTEM PROVISIONS

SEC. 1101. FEDERAL RESERVE ACT AMENDMENTS ON EMERGENCY LENDING AUTHORITY.

(a) Federal Reserve Act- The third undesignated paragraph of section 13 of the Federal Reserve Act (12 U.S.C. 343) (relating to emergency lending authority) is amended—

(1) by inserting '(3)(A)' before 'In unusual';

(2) by striking 'individual, partnership, or corporation' the first place that term appears and inserting the following: 'participant in any program or facility with broad-based eligibility';

(3) by striking 'exchange for an individual or a partnership or corporation' and inserting 'exchange,';

(4) by striking 'such individual, partnership, or corporation' and inserting the following: 'such participant in any program or facility with broad-based eligibility';

(5) by striking 'for individuals, partnerships, corporations' and inserting 'for any participant in any program or facility with broad-based eligibility'; and

(6) by striking 'may prescribe.' and inserting the following: 'may prescribe.

'(B)(i) As soon as is practicable after the date of enactment of this subparagraph, the Board shall establish, by regulation, in consultation with the Secretary of the Treasury, the policies and procedures governing emergency lending under this paragraph. Such policies and procedures shall be designed to ensure that any emergency lending program or facility is for the purpose of providing liquidity to the financial system, and not to aid a failing financial company, and that the security for emergency loans is sufficient to protect taxpayers from losses and that any such program is terminated in a timely and orderly fashion. The policies and procedures established by the Board shall require that a Federal reserve bank assign, consistent with sound risk management practices and to ensure protection for the taxpayer, a lendable value to all collateral for a loan executed by a Federal reserve bank under this paragraph in determining whether the loan is secured satisfactorily for purposes of this paragraph.

'(ii) The Board shall establish procedures to prohibit borrowing from programs and facilities by borrowers that are insolvent. Such procedures may include a certification from the chief executive officer (or other authorized officer) of the borrower, at the time the borrower initially borrows under the program or facility (with a duty by the borrower to update the certification if the information in the certification materially changes), that the borrower is not insolvent. A borrower shall be considered insolvent for purposes of this subparagraph, if the borrower is in bankruptcy, resolution under title II of the Dodd-Frank Wall Street Reform and Consumer Protection Act, or any other Federal or State insolvency proceeding.

'(iii) A program or facility that is structured to remove assets from the balance sheet of a single and specific company, or that is established for the purpose of assisting a single and specific company avoid bankruptcy, resolution under title II of the Dodd-Frank Wall Street Reform and Consumer Protection Act, or any other Federal or State insolvency proceeding, shall not be considered a program or facility with broad-based eligibility.

'(iv) The Board may not establish any program or facility under this paragraph without the prior approval of the Secretary of the Treasury.

'(C) The Board shall provide to the Committee on Banking, Housing, and Urban Affairs of the Senate and the Committee on Financial Services of the House of Representatives—

'(i) not later than 7 days after the Board authorizes any loan or other financial assistance under this paragraph, a report that includes—

'(I) the justification for the exercise of authority to provide such assistance;

'(II) the identity of the recipients of such assistance;

'(III) the date and amount of the assistance, and form in which the assistance was provided; and

'(IV) the material terms of the assistance, including—

'(aa) duration;

'(bb) collateral pledged and the value thereof;

'(cc) all interest, fees, and other revenue or items of value to be received in exchange for the assistance;

'(dd) any requirements imposed on the recipient with respect to employee compensation, distribution of dividends, or any other corporate decision in exchange for the assistance; and

'(ee) the expected costs to the taxpayers of such assistance; and

'(ii) once every 30 days, with respect to any outstanding loan or other financial assistance under this paragraph, written updates on—

'(I) the value of collateral;

'(II) the amount of interest, fees, and other revenue or items of value received in exchange for the assistance; and

'(III) the expected or final cost to the taxpayers of such assistance.

'(D) The information required to be submitted to Congress under subparagraph (C) related to—

'(i) the identity of the participants in an emergency lending program or facility commenced under this paragraph;

'(ii) the amounts borrowed by each participant in any such program or facility;

'(iii) identifying details concerning the assets or collateral held by, under, or in connection with such a program or facility,

shall be kept confidential, upon the written request of the Chairman of the Board, in which case such information shall be made available only to the Chairpersons or Ranking Members of the Committees described in subparagraph (C).

'(E) If an entity to which a Federal reserve bank has provided a loan under this paragraph becomes a covered financial company, as defined in section 201 of the Dodd-Frank Wall Street Reform and Consumer Protection Act, at any time while such loan is outstanding, and the Federal reserve bank incurs a realized net loss on the loan, then the Federal reserve bank shall have a claim equal to the amount of the net realized loss against the covered entity, with the same priority as an obligation to the Secretary of the Treasury under section 210(b) of the Dodd-Frank Wall Street Reform and Consumer Protection Act.'.

(b) Conforming Amendment- Section 507(a)(2) of title 11, United States Code, is amended by inserting 'unsecured claims of any Federal reserve bank related to loans made through programs or facilities authorized under section 13(3) of the Federal Reserve Act (12 U.S.C. 343),' after 'this title,'.

(c) References- On and after the date of enactment of this Act, any reference in any provision of Federal law to the third undesignated paragraph of section 13 of the Federal Reserve Act (12 U.S.C. 343) shall be deemed to be a reference to section 13(3) of the Federal Reserve Act, as so designated by this section.

Source: H.R. 4173 (111th), January 5, 2010. www.govtrack.us/congress/bills/111/hr4173/text

America Invents Act of 2011 (Leahy-Smith Act)

The America Invents Act of 2011, also known as the Leahy-Smith Act, was sponsored by House Judiciary Committee chairman Lamar Smith (R-TX) and Senator Patrick Leahy (D-VT) and signed by President Obama. The Act updates the patent system to encourage innovation, job creation, and economic growth. The America Invents Act affects three main parts of the economy: job creation, patent office reforms, and legal reform. The Act protects the rights of inventors for their original inventions and encourages business growth by speeding up the patent process so entrepreneurs and innovators can quickly turn their inventions into businesses. It also permits universities and small businesses to keep title to their inventions in exchange for fulfilling a series of obligations: disclosing the invention to the federal agency funding the research, electing to retain title, and filing patent applications. The Act influences legal reform creating an administrative program for review of business method patents.

§ 102. Conditions for patentability; novelty

(a) NOVELTY; PRIOR ART.—A person shall be entitled to a patent unless—

(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention; or

(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

(b) EXCEPTIONS.—

(1) DISCLOSURES MADE 1 YEAR OR LESS BEFORE THE EFFECTIVE FILING DATE OF THE CLAIMED INVENTION.—A disclosure made 1 year or less before the effective filing date of a claimed invention shall not be prior art to the claimed invention under subsection (a)(1) if—

(A) the disclosure was made by the inventor or joint inventor or by another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor; or

(B) the subject matter disclosed had, before such disclosure, been publicly disclosed by the inventor or a joint inventor or another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor.

(2) DISCLOSURES APPEARING IN APPLICATIONS AND PAT- ENTS.—A disclosure shall not be prior art to a claimed invention under subsection (a)(2) if—

(A) the subject matter disclosed was obtained directly or indirectly from the inventor or a joint inventor;

(B) the subject matter disclosed had, before such subject matter was effectively filed under subsection (a)(2), been publicly disclosed by the inventor or a joint inventor or another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor; or

(C) the subject matter disclosed and the claimed invention, not later than the effective filing date of the claimed invention, were owned by the same person or subject to an obligation of assignment to the same person.

(c) COMMON OWNERSHIP UNDER JOINT RESEARCH AGREEMENTS.—Subject matter disclosed and a claimed invention shall be deemed to have been owned by the same person or subject to an obligation of assignment to the same person in applying the provisions of subsection (b)(2)(C) if—

(1) the subject matter disclosed was developed and the claimed invention was made by, or on behalf of, 1 or more parties to a joint research agreement that was in effect on or before the effective filing date of the claimed invention;

(2) the claimed invention was made as a result of activities undertaken within the scope of the joint research agreement; and

(3) the application for patent for the claimed invention discloses or is amended to disclose the names of the parties to the joint research agreement.

(d) PATENTS AND PUBLISHED APPLICATIONS EFFECTIVE AS PRIOR ART.—For purposes of determining whether a patent or application for patent is prior art to a claimed invention under subsection (a)(2), such patent or application shall be considered to have been effectively filed, with respect to any subject matter described in the patent or application—

"(1) if paragraph (2) does not apply, as of the actual filing date of the patent or the application for patent; or

(2) if the patent or application for patent is entitled to claim a right of priority under section 119, 365(a), or 365(b), or to claim the benefit of an earlier filing date under section 120, 121, or 365(c), based upon 1 or more prior filed applications for patent, as of the filing date of the earliest such application that describes the subject matter.".

(2) CONTINUITY OF INTENT UNDER THE CREATE ACT.—The enactment of section 102(c) of title 35, United States Code, under paragraph (1) of this subsection is done with the same intent to promote joint research activities that was

expressed, including in the legislative history, through the enactment of the Cooperative Research and Technology Enhancement Act of 2004 (Public Law 108–453; the “CREATE Act”), the amendments of which are stricken by subsection (c) of this section. The United States Patent and Trademark Office shall administer section 102(c) of title 35, United States Code, in a manner consistent with the legislative history of the CREATE Act that was relevant to its administration by the United States Patent and Trademark Office.

Source: Authenticated U.S. Government Information. January 2011. “H.R. 1249.” Government Printing Office. www.uspto.gov/aia_implementation/bills-112hr1249enr.pdf

Nobel Laureates in Economics

2016	Oliver Hart, Bengt Holmström
2015	Angus Deaton
2014	Jean Tirole
2013	Eugene F. Fama, Lars Peter Hansen, Robert J. Shiller
2012	Alvin Roth, Lloyd Shapley
2011	Thomas Sargent, Christopher Sims
2010	Peter Diamond, Dale Mortensen, Christopher Pissarides
2009	Elinor Ostrom, Oliver Williamson
2008	Paul Krugman
2007	Leonid Hurwicz, Eric Maskin, Roger Myerson
2006	Edmund Phelps
2005	Robert Aumann, Thomas Schelling
2004	Finn Kydland, Edward Prescott
2003	Robert Engle, Clive Granger
2002	Daniel Kahneman, Vernon Smith
2001	George Akerlof, Michael Spence, Joseph Stiglitz
2000	James Heckman, Daniel McFadden
1999	Robert Mundell
1998	Amartya Sen
1997	Robert Merton, Myron Scholes
1996	James Mirrlees, William Vickrey
1995	Robert E. Lucas Jr.
1994	John Harsanyi, John Nash, Reinhard Selten
1993	Robert Fogel, Douglass North
1992	Gary Becker
1991	Ronald Coase
1990	Harry Markowitz, Merton Miller, William Sharpe
1989	Trygve Haavelmo
1988	Maurice Allais

1987	Robert Solow
1986	James Buchanan
1985	Franco Modigliani
1984	Richard Stone
1983	Gerard Debreu
1982	George Stigler
1981	James Tobin
1980	Lawrence Klein
1979	Theodore Schultz, Arthur Lewis
1978	Herbert Simon
1977	Bertil Ohlin, James Meade
1976	Milton Friedman
1975	Leonid Kantorovich, Tjalling Koopmans
1974	Gunnar Myrdal, Friedrich Hayek
1973	Wassily Leontief
1972	John Hicks, Kenneth Arrow
1971	Simon Kuznets
1970	Paul Samuelson
1969	Ragnar Frisch, Jan Tinbergen

Timeline of Key Events in the Global Economy, 1776–2016

1776	Adam Smith publishes *An Inquiry into the Nature and Causes of the Wealth of Nations*, a treatise that underpins the free enterprise system.
1798	Thomas R. Malthus publishes *An Essay on the Principle of Population as It Affects the Future Improvement of Society*, a major treatise on the consequences of unbridled population growth.
1817	David Ricardo publishes *Principles of Political Economy and Taxation*, defending free trade based on the theory of comparative advantage.
1848	Karl H. Marx and Friedrich Engels publish *The Communist Manifesto*, a fundamental treatise on communism.
1850s	The first modern "age" of globalization begins (1850s to 1914).
1867	The first of three volumes of Marx's *Das Kapital* is published.
1883	The Paris Convention creates protections for industrial property rights.
1886	The Berne Convention creates protections for copyrights.
1895	The International Co-operative Alliance (ICA) is founded.
1914	World War I breaks out in Europe, paralyzing global trade and investment.
	The first modern "age" of globalization ends.
1917	Russian Bolsheviks stage a successful communist revolution in Russia under the leadership of Vladimir I. Lenin.
1919	The League of Nations is formed.
	The International Labor Organization (ILO) is formed to protect workers' rights.
1920	Arthur Pigou publishes *The Economics of Welfare*, marking the birth of welfare economics.
1921	The New Economic Policy restores some private enterprise in the Union of Soviet Socialist Republics (USSR).
1922	The USSR is formally established as the world's first communist country.
1928	Joseph Stalin introduces the five-year plan to dictate the use of productive resources in the Soviet Union.
1929	The Stock Market Crash signals the beginning of the Great Depression in the United States.
1930	Most of the industrialized world sinks into a global economic depression.

The Smoot-Hawley Tariff is passed in the United States, severely restricting foreign trade and touching off trade wars.

The Bank for International Settlements (BIS) is founded to promote international financial stability and cooperation.

World population hits 2 billion people.

1939 World War II erupts in Europe, crippling the global economy.

1941 The Freedom House is founded in the United States.

1942 Joseph A. Schumpeter publishes *Capitalism, Socialism, and Democracy*, stressing the role of innovation and creative destruction in economic growth.

1944 The Bretton Woods Conference is held in New Hampshire, creating the Bretton Woods institutions: the International Monetary Fund (IMF) and the precursor to the World Bank.

The fixed exchange rate system is established.

Friedrich August von Hayek publishes *The Road to Serfdom*, a passionate defense of capitalism and *laissez-faire* economics.

1945 The United Nations (UN) is created at the San Francisco Conference to promote world peace, economic development, and human rights.

The UN Educational, Scientific, and Cultural Organization (UNESCO) is founded.

World War II ends in Europe (May) and Asia (September).

1946 The Bretton Woods System goes into effect.

The International Labor Organization (ILO) joins the UN system.

The Iron Curtain divides the East from the West, and the Cold War begins.

The second modern "age" of globalization begins (1946–present).

1947 The General Agreement on Tariffs and Trade (GATT) negotiations begin.

The Organization of European Economic Cooperation (OEEC) is founded.

1948 The Marshall Plan provides massive U.S. aid to war-torn Europe.

The World Health Organization (WHO) is formed to advance human health—the physical and mental well-being of all people.

Delegates to the Havana Conference support the International Trade Organization (ITO), but governments do not ratify the agreement.

1949 The People's Republic of China is established under Mao Zedong.

1951 The European Coal and Steel Community (ECSC) Treaty begins European economic integration.

Japan creates the Ministry of International Trade and Industry (MITI) to support export industries.

1956 The International Finance Corporation (IFC) joins the World Bank Group.

1957 The Rome Treaties create the European Economic Community (EEC) and the European Atomic Energy Community (Euratom).

1959 The Inter-American Development Bank begins operations.

Fidel Castro establishes communism in Cuba.

1960 The European Free Trade Association (EFTA) is formed.

The Organization of Petroleum Exporting Countries (OPEC) is founded.

The Central American Common Market (CACM) is founded.

Consumers International (CI) is founded as a federation of consumer organizations and an advocate for consumer rights in the global economy.

The International Development Association (IDA) joins the World Bank Group.

W. W. Rostow's *The Stages of Economic Growth: A Non-Communist Manifesto* popularizes linear development theory.

The U.S. embargo of Cuba is established.

1961 The Organisation for Economic Co-operation and Development (OECD) is founded to replace the OEEC.

The Peace Corps, an agency within the U.S. federal government, is created to foster mutual understanding and economic development throughout the world.

1964 The African Development Bank (ADB) is founded.

The G77 is formed to promote a new and just world economic order.

1965 Mexico establishes the Border Industrialization Program, later renamed the Maquiladora Program, to attract U.S. investment.

1966 The Asian Development Bank (ADB) is founded.

The International Centre for Settlement of Investment Disputes (ICSID) joins the World Bank Group.

1967 The Association of Southeast Asian Nations (ASEAN) is founded.

Julius K. Nyerere commits Tanzania to *ujamaa* socialism, a type of African socialism based on traditional tribal communalism.

The World Intellectual Property Organization (WIPO) is founded; it will enter into force in 1970.

1968 Karl Gunnar Myrdal publishes *Asian Drama: An Inquiry into the Poverty of Nations*, which rekindles debate about development strategies in the third world.

1969 The ARPANET, later to be called the Internet, is invented by the U.S. Department of Defense as an "inter-networking of networks."

1971 The Generalized System of Preferences is implemented.

The World Economic Forum (WEF) is founded (originally called the European Management Forum; its name was changed to WEF in 1987).

1972 The United Nations Environment Programme (UNEP) is formed.

The African Development Fund (ADF) joins the African Development Bank Group.

The Freedom House begins its annual freedom rankings of countries.

1973 The Bretton Woods System collapses, and a flexible exchange rate system replaces the fixed exchange rate system.

The Caribbean Community and Common Market (CARICOM) is formed.

Some OPEC members place an oil embargo on Western countries in retaliation for Western support for Israel in the Yom Kippur War.

E. F. Schumacher publishes *Small Is Beautiful: Economics as if People Mattered* to defend localized production and appropriate technology.

1975 The Economic Community of West African States (ECOWAS) is founded.

The G7, comprising leading industrialized nations, is formed.

World population climbs to 4 billion people.

1976 The Nigeria Trust Fund (NTF) joins the African Development Bank Group.

1978 Deng Xiaoping adopts a gradualist approach to initiating market-oriented economic reforms in China.

1983 Muhammad Yunus formally establishes the Grameen Bank in Bangladesh.

1985 The United Nations Guidelines for Consumer Protection are adopted.

Mikhail Gorbachev introduces *perestroika* to restructure the Soviet economy, and *glasnost* to open the Soviet political system.

1986 The Uruguay Round (1986–1994) of trade negotiations commences.

1987 The Montreal Protocol is established to reduce emissions of ozone-depleting substances into the Earth's atmosphere.

1988 The Multilateral Investment Guarantee Agency (MIGA) joins the World Bank Group.

The U.S.–Canada Free Trade Agreement is created.

1989 Poland becomes the first Soviet bloc nation to elect a noncommunist government.

The Asia-Pacific Economic Cooperation (APEC) group is founded.

The Inter-American Investment Corporation joins the Inter-American Development Bank Group.

Hernando de Soto publishes *The Other Path: The Invisible Revolution in the Third World*, which supports inclusion of the poor in the formal economy.

Tim Berners-Lee invents the World Wide Web.

1990 A Human Development Index is introduced by the United Nations Development Programme (UNDP) to measure progress toward sustainable economic development.

The European Bank for Reconstruction and Development (EBRD) is founded, and begins operations in 1991.

1991 MERCOSUR, the Southern Common Market, is formed.

The USSR is dissolved.

The Council on Mutual Economic Assistance (COMECON) is disbanded.

Transition economies begin an epic transformation toward market-based economies and democracy.

1992 The Rio Conference generates *Agenda 21*, a plan for global development; it approves the United Nations Framework Convention on Climate Change (UNFCCC).

The Commonwealth of Independent States (CIS) is formed.

1993 The Maastricht Treaty creates the European Union (EU).

The Andean Free Trade Area is formed.

The Multilateral Investment Fund joins the Inter-American Development Bank Group.

1994 The European Economic Area (EEA) creates a single market for EU and EFTA nations (only Switzerland votes not to join the EEA).

The Marrakesh Treaty is approved at the conclusion of the Uruguay Round; it creates the World Trade Organization (WTO) to replace GATT.

The Western Hemisphere is introduced to the idea of a free trade area for the 34 democracies of North and South America.

The North American Free Trade Agreement (NAFTA) takes effect.

The International Conference on Population takes place in Cairo, Egypt.

1995 The WTO officially replaces GATT.

James D. Wolfensohn becomes World Bank president, beginning the first of his two five-year terms of office in the World Bank's top spot.

About 25,000 non-governmental organizations (NGOs) operate globally.

The Trade-Related Aspects of Intellectual Property (TRIPS) agreement is implemented.

1996 The Heavily Indebted Poor Countries (HIPC) Initiative is launched by the IMF and the World Bank.

The Helms-Burton Act strengthens the U.S. embargo on Cuba.

1997 Hong Kong becomes a Special Administrative Region (SAR) of China.

Kofi Annan begins his first term as UN secretary-general.

The East Asian financial crisis begins (1997–1998), destabilizing the global economy and illustrating the dangers of financial contagion.

The Kyoto Protocol targets greenhouse gases and global warming.

1998 The G8 is formed by including Russia alongside the G7 countries.

The ILO announces its *Declaration of Fundamental Principles and Rights at Work*.

The Russian financial crisis begins (1998–1999), another example of financial contagion.

1999 Macao is returned to China by Portugal.

The Poverty Reduction and Growth Facility (PRGF) is established.

The so-called Millennium Round of trade negotiations fails completely at the WTO's ministerial conference in Seattle, Washington.

The Treaty of Amsterdam paves the way for an EU enlargement.

The euro is introduced as the EU's common currency, beginning a three-year phase-in period.

The Global Compact is adopted by the United Nations.

The Global Sullivan Principles are introduced by the Rev. Leon H. Sullivan.

The "banana war" trade dispute erupts between the United States and the European Union.

The G20 is created to promote the inclusion of key developing countries in global decision-making.

Sustainable consumption is formally added to the UN Guidelines for Consumer Protection.

2000 Foreign direct investment inflows peak at $1.4 trillion.

The UN Millennium Summit adopts the UN Millennium Development Goals (MDGs).

The *Global Entrepreneurship Monitor* (*GEM*) is launched.

The World Resources Institute publishes *World Resources 2000–2001*, which warns against continued abuse of natural ecosystems by human populations.

The World Bank introduces the gross national income (GNI) per capita, a new measurement of economic well-being.

China moves from low-income status to lower-middle-income status.

The G77 adopts the Havana Program of Action, a sign of improved South–South communication and consensus.

World population hits 6 billion people.

2001 The Summit of the Americas is held in Quebec City to lay the groundwork for the creation of a 34-nation Free Trade Area of the Americas (FTAA).

The United States and the European Union quietly settle the banana war.

The September 11 terrorist attacks on the United States jolt international markets.

The Ministry of Economy, Trade and Industry (METI) replaces MITI in Japan.

The Doha Development Round of trade negotiations begins—a WTO trade round stressing economic development in the world's poorer regions.

Argentina defaults on $81 billion in government bonds, the largest default in history.

2002 The euro replaces the national currencies of 12 EU countries in the eurozone.

Hong Kong SAR is named the world's freest economy by leading think tanks.

About 3,000 export processing zones operate in the global economy.

2003 The third annual World Social Forum attracts over 100,000 participants from 156 countries.

The United Nations drafts the UN Convention Against Corruption.

The WTO's 2003 ministerial meeting in Cancun, Mexico, makes little progress in implementing the Doha Development Agenda.

Official Development Assistance (ODA) and Official Aid (OA) hit $76 billion.

62,000 transnational corporations control 927,000 foreign affiliates in the global economy.

Foreign direct investment (FDI) inflows tumble to $560 billion, less than half of the $1.4 trillion in FDI inflows during the 2000 peak year.

2,265 bilateral investment treaties (BITS) and 2,361 double taxation treaties (DDTs) define the rules of cross-border investment.

2004 The IMF creates two classifications for economies: advanced economies, and emerging market and developing countries.

The U.S. trade deficit hits a record $617 billion.

The nominal gross domestic product (GDP) of the United States reaches $11.7 trillion; the United States remains the world's largest economy.

Freedom House reports that 119 democracies exist in the world.

An EU enlargement adds 10 countries to the EU.

The value of world exports hits $11 trillion.

Foreign exchange (forex) trading hits $1.9 trillion per day.

Global GDP hits $42 trillion (exchange rate method), or $56 trillion (PPP method).

More than half a trillion dollars is spent on advertising in the global economy.

A catastrophic tsunami rips through Western Asia and East Africa; billions of dollars in humanitarian aid flow to the effected regions.

Walmart is the world's largest corporation, measured by total revenues and by total employees.

2005 The proposed Free Trade Area of the Americas fails to gain formal approval by the January target date.

World oil prices spike at more than $70 per barrel.

France and the Netherlands reject the proposed EU Constitution.

The average annual growth rate for the world economy is 3.8 percent between 1996 and 2005.

The Kyoto Protocol, which limits greenhouse gas emissions, enters into force after Russia signs the multilateral environmental treaty.

The external debt of emerging market and developing countries reaches $3 trillion.

The UN's Millennium Ecosystem Assessment proposes global policy changes to reverse environmental degradation.

The UN is made up of 191 member countries.

208 economies operate in the global economy.

The UN proclaims 2005 the Year of Microcredit.

About 300 regional trade agreements (RTAs) operate in the global economy.

About 1.1 billion people live in extreme poverty.

Jeffrey Sachs publishes *The End of Poverty: Economic Possibilities for Our Time*, a comprehensive blueprint for economic development.

About 50,000 NGOs operate globally.

World population hits 6.5 billion people.

2008 China hosts the 2008 Summer Olympics.

2009 The controversial Three Gorges Dam in China is scheduled for completion.

The British economy is officially in recession.

President Obama signs the $787 billion economic stimulus package into law.

The American Recovery and Reinvestment Act of 2009 includes a variety of spending measures and tax cuts intended to promote economic recovery.

President Obama unveils the Homeowner Affordability and Stability Plan.

U.S. Treasury Secretary unveils the Public–Private Investment Program.

Chrysler files for bankruptcy.

General Motors files for bankruptcy.

Fiat completes its acquisition of Chrysler assets.

The Cash-for-Clunkers program ends.

2010 The Senate confirms Federal Reserve chairman Ben Bernanke's second term.

The Federal Reserve raises the discount rate charged to banks for direct loans by a quarter point to 0.75 percent.

President Obama signs a landmark health care overhaul bill.

President Obama signs extension of jobless benefits.

The Wall Street Reform and Consumer Protection Act is signed into law by President Obama.

Obama signs a six-month extension of emergency jobless benefits for the long-term unemployed.

The Federal Reserve announces a second round of quantitative easing through the purchase of $600 billion in long-term Treasury bonds.

Obama signs into law an extension of the existing federal income tax cuts and long-term unemployment benefits. The bill also includes a 2 percent rollback of Social Security payroll taxes.

2011 Commodity prices soar.

Uprisings occur in the Middle East.

A powerful earthquake and tsunami devastate Northern Japan.

Debt problems in Europe and the United States weigh on U.S. stocks.

President Obama signs free-trade agreements with South Korea, Colombia, and Panama.

Six Central Banks take joint action to enhance global liquidity.

Obama signs a two-month extension of the payroll tax cut.

2012 The city of San Bernardino, CA, files for bankruptcy.

European Central Bank plans to launch an "outright monetary transactions" program.

Spain's credit rating is downgraded by S&P.

The Federal Reserve extends "Operation Twist" through the end of 2012.

2013 Ten U.S. banks settle with the Securities and Exchange Commission to stop mortgage foreclosure process audits.

Ukraine signs a shale gas deal with Royal Dutch Shell.

The eurozone slides into deeper recession, making 2012 the first year with no growth in any quarter since tracking began in 1995.

Japan records the first trade deficit since 1979 for January 2013.

Moody's downgrades the United Kingdom's credit rating from AAA to AA1.

President Hugo Chavez of Venezuela dies.

The UN passes more sanctions against North Korea.

Fitch downgrades Italy's credit rating from A– to BBB+.

The European Parliament rejects an EU budget for the first time in its history.

Xi Jingping becomes president of China.

Cyprus is in financial crisis.

Bank of Japan to pump monetary stimulus into economy.

Former U.K. prime minister Margaret Thatcher dies.

European Union lifts oil trade embargo to Syria.

United States announces new sanctions against Syria.

Japan suspends imports of U.S. wheat after the discovery of genetically modified wheat on a U.S. farm.

United States expands sanctions against Iran.

Croatia becomes the 28th member of the European Union.

Detroit files for Chapter 9 bankruptcy protection, the largest municipal bankruptcy in U.S. history.

China institutes business tax breaks and export liberalization in an effort to boost its economic growth.

United States and Japan announce they are moving closer to tapping a new energy source: methane hydrate.

The eurozone returns to growth in the second quarter, led by Germany and France.

China unveils its Atmospheric Pollution Prevention Action Plan.

Saboteurs blow up an export oil pipeline in Yemen.

The Affordable Care Act's health insurance exchanges debut.

China's real GDP grows 7.8 percent in the third quarter of 2013.

Iran agrees with the United States, Great Britain, France, Germany, China, and Russia to limit its nuclear development program in exchange for sanctions relief.

Greece is demoted to "emerging market" status by the MSCI Emerging Markets Index.

Former president of South Africa Nelson Mandela dies.

Latvia becomes the 18th country to join the eurozone.

Congress approves a budget deal raising taxes and postponing automatic spending cuts (sequestration), avoiding the "fiscal cliff."

2014 Janet Yellen takes over as chair of the Federal Reserve.

Minimum wage for federal contract workers is raised to $10.10 an hour.

Russia formally annexes Crimea.

The U.S. Supreme Court allows the EPA to regulate air pollution from power plants that crosses state lines.

The World Bank announces that India has become the world's third-largest economy in purchasing power parity after the United States and China, moving ahead of Japan.

China and Russia sign a 30-year natural gas export contract.

Italian GDP is set to include underground economy.

Russia, Kazakhstan, and Belarus sign treaty forming Eurasian Economic Union.

EPA issues new regulations aiming to cut carbon emissions in the U.S. power sector by 2030—to be decreased from 2005 levels by 30 percent.

The European Central Bank cuts its prime interest rate to 0.15 percent and sets the deposit rate at –0.10 percent.

Crisis continues in Iraq.

Chinese and Japanese shipping companies announce they will start a regular service to carry Siberian natural gas across the Arctic Ocean to East Asia.

Russia bans imports of beef, pork, fruit, vegetables, poultry, fish, cheeses, and milk from the United States, the European Union, Australia, Canada, and Norway.

The European Central Bank cuts its prime interest rate to 0.05 percent from a previous record low of 0.15 percent.

China's third-quarter GDP grows by 7.3 percent year-over-year, its slowest pace in more than five years.

Russia and Ukraine reach an agreement to resume deliveries of natural gas from Russia to Ukraine until March 2015.

Bank of Japan announces expanded monetary stimulus.

China and the United States reach an agreement on climate change; China commits to stop its CO_2 emissions from increasing by 2030, and the United States commits to cutting CO_2 emissions 26–28 percent below 2005 levels by 2025.

Japan announces a drop in its third-quarter GDP following a contraction in the second quarter; a sales tax increase is deferred and a snap election on December 14 is announced.

China cuts its benchmark one-year loan rate for the first time since July 2012.

OPEC decides not to cut its oil production output amid falling oil prices; the West Texas Intermediate benchmark oil price falls to $65.94 a barrel, marking the first time it has been below $70 since May 2010.

The Russian ruble falls to a historic low of 73 against the U.S. dollar; Apple Inc. halts online sales in Russia.

The Bank of Russia hikes its key interest rate for a sixth time this year.

The United States restores full diplomatic relations with Cuba and plans to open an embassy in Havana; in addition, the United States eases restrictions on remittances, travel, and banking relations.

Crisis in Ukraine.

2015 Eurozone consumer prices fall in December for the first time since 2009, by 0.2 percent.

Switzerland's Central Bank announces that it is dropping the three-year old cap on the value of its currency, the franc, against the euro.

China reports that its economy grew 7.4 percent in 2014, its slowest growth in 24 years.

European Central Bank announces monetary stimulus of 60 billion euros a month—to start in March and intended to run through to September 2016.

Saudi Arabia's King Abdullah dies.

The European Central Bank agrees to lend 3.3 billion euros more in emergency funds to Greece, extending the amount of time available for negotiations with creditors.

The European Central Bank begins buying public and private sector debt at a pace of 60 billion euros per month.

Deutsche Bank agrees to pay a $2.5 billion fine to settle U.S. and U.K. investigations into its role in rigging the London Interbank Offered Rate (LIBOR).

Inflation in the United Kingdom turns negative for the first time since 1960.

Greece announces a referendum on the bailout program for July 5 and imposes capital controls to stop money from leaving the country.

Puerto Rico's governor declares that the commonwealth cannot pay its estimated $72 billion debt.

Greece misses a payment of €1.5 billion to the IMF.

Greek voters reject bailout terms from international creditors.

The Shanghai Composite Index drops by more than 30 percent from its peak in June 2015 after surging by more than 150 percent from mid-2014.

Greece reaches a new bailout agreement with international creditors.

Greek banks reopen, but capital controls remain.

The Greek parliament approves the bailout reform package.

Puerto Rico fails to make a $58 million bond payment.

Greece's stock market reopens after a five-week closure over the country's debt crisis. Shares fall more than 16 percent at closing.

China devalues its currency by nearly 2 percent against the U.S. dollar, the largest movement since 1994.

The U.S. embassy reopens in Cuba after 54 years.

Japan's economy shrinks by 1.6 percent in the second quarter due to weak consumer spending and exports.

China cuts interest rates and lowers minimum requirements for bank reserves for the second time in two months to support its slowing economy and falling stock market.

Canada is in recession. According to Statistics Canada, GDP fell 0.8 percent in the first quarter and 0.5 percent in the second quarter.

The immigration crisis in Europe intensifies as the number of refugees from Africa, the Middle East, and South Asia rises to an estimated 360,000 in August and September, bringing the total for the year so far to 710,000.

The Trans-Pacific Partnership (TPP) trade agreement wins approval of the United States and 11 other nations, and now requires separate legislative approval from each.

China's third-quarter GDP grows by 6.9 percent year-over-year, its slowest pace in more than six years.

China cuts interest rates and lowers minimum requirements for bank reserves for the third time in four months to support its slowing economy.

China announces that it will end its one-child policy, allowing all families to have two children for the first time since the policy was instituted 30 years ago.

The IMF approves adding the Chinese renminbi to its basket of reserve currencies, which includes the U.S. dollar, the euro, the British pound, and the Japanese yen.

Officials from 195 nations approve a global climate accord in Paris.

Lithuania becomes the 19th country to join the eurozone.

2016 Saudi Arabia ends its diplomatic relations with Iran.

Iran sanctions are lifted by the United States and European nations after inspections show that Iran has adequately dismantled its nuclear weapons program.

China's economy grows by 6.9 percent in 2015, its slowest pace since 1990.

Bank of Japan cuts benchmark interest rate below zero.

U.K. citizens vote to drop out of the European Union; the formal process has taken the name "Brexit," for "British exit."

Adapted from Encyclopedia of the Global Economy, Volume 2*, David E. O'Connor, 2005 (http://www.dof.ca.gov/HTML/FS_DATA/LatestEconData/Chronology/chronology.htm).*

Glossary

Abatement policies—Policies created to propose a reduction in the amount or degree of pollution.

Absolute advantage—A situation in which one party can produce more using a given quantity of resources (or the same amount using fewer resources) than another party can.

Accounting profit—Business profit created when revenues exceed explicit costs (wages, rents, materials cost, etc.)

Adjustable rate mortgage (ARM)—A home loan in which the interest rate is tied to a short-term rate and is reset at various intervals. The interest rate and monthly payment will vary over the life of the loan.

Affirmative action—Policies intended to counter discrimination in employment, education, and business by taking into account such factors as race, skin color, religion, gender, national origin, and sexual orientation.

***Affluent Society, The*—**The 1958 book by John Kenneth Galbraith, Harvard economist, regarding the post–World War II United States and the growth of the private sector at the expense of the public sector.

Affordable Care Act (ACA)—Passed in 2010, this act provides for all citizens to have access to health insurance.

AFL-CIO—Union created in 1955 by the merger of the American Federation of Labor (AFL) and the Congress of Industrial Organizations (CIO).

Africa Union—An international organization created to promote cooperation among the independent nations of Africa; headquartered in Addis Ababa, Ethiopia.

Aggregate demand—The sum of all expenditures (household consumption, business investment, government spending, and net exports) in a nation's economy.

Aggregate supply—The sum of all production in a nation's economy.

Agreement—An agreed-upon arrangement between several parties.

Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)—Created by the World Trade Organization (WTO), this agreement protects the ideas and creations of innovators relating those rights to the global trading environment.

Agricultural Adjustment Act—A legislative law passed by Congress as part of the New Deal. The act restricted agricultural production, paying subsidies to farmers for not planting or for killing off livestock. The Supreme Court struck the act down in 1936.

Air Pollution Control Act of 1955—One of the first laws to define the role of federal and state governments in addressing air pollution when state boundaries are crossed. It was followed up by the CAA of 1963 and the Air Quality Act of 1967.

Alaska Department of Environmental Conservation (ADEC)—State agency whose mission is to conserve and protect the state's natural resources and environment.

American Academy of Arts and Sciences—A leading center for independent policy research; election to the academy is one of the nation's highest honors; the center is headquartered in Cambridge, Massachusetts.

American Economic Association (AEA)—Established in 1885, AEA is the learned society in the field of economics; headquartered in Nashville, Tennessee, AEA publishes the prestigious academic journal, the *American Economic Review*.

American Enterprise Institute—A conservative think tank founded in 1943 as an independent nonprofit organization to defend American freedom and democratic capitalism, including limited government, private enterprise, and individual liberty and responsibility; headquartered in Washington, D.C.

American Federation of Labor—Founded in 1886 in Columbus, Ohio, by craft unions, the AFL was one of the first federations of labor unions.

American Finance Association—A professional, academic organization to study, promote, and expand the knowledge of financial economics.

American Recovery and Reinvestment Act—The goal of the act, passed in 2009, was to create new jobs and save existing jobs as part of an economic stimulus package in response to the 2008–2009 financial crisis.

American Revenue Act—*See* Sugar Act of 1764.

American Temperance Society and the Woman's Christian Temperance Union (WCTU)—Led by Francis Willard; held that alcoholic beverages were the cause of many of the country's social ills.

Amicus curiae—Someone who is not a party to the case, but believes the court's decision may have a relevant impact on them.

Anglo-Irish Agreement of 1985—Signed in 1985; gave the government of Ireland an official voice in governing Northern Ireland.

Annual percentage yield (APY)—The effective annual rate of return (APR), calculated using simple interest. It does not pay interest on the prior interest received; thus, APY is higher than APR.

Annuity—Type of insurance contract that pays the owner a stream of payments for a fixed term or lifetime, in return for an up-front payment or payments.

Antidumping duty—A tariff levied on imports, usually in retaliation for selling a product below fair value.

Anti-Injunction Act—A federal act that prohibited a federal court, in most cases, from issuing an injunction against a state court.

Anti-Saloon League—Founded in 1893, lobbying group that worked to create political support for Prohibition.

Antitrust—Government legislation to prevent monopolies and deter companies from conducting business in a collusive or anticompetitive manner.

Apprenticeship—The entry-level position for some trades or professions that includes both on-the-job and classroom training and education for new entrants into the trade or profession.

Aristotle—An ancient Greek philosopher whose early knowledge and teachings have been the basis for much of modern Western thought.

Article II of the Constitution of the United States—Article that creates the executive branch of the federal government and establishes criteria for, election of, and powers of the branch.

Article V of the Constitution of the United States—Establishes how amendments to the Constitution are created; requires a two-thirds vote of both houses of Congress to propose an amendment and three-fourths of the states to ratify such proposals.

Asian Dragons—Term describing the four modern economies of Hong Kong, Singapore, Taiwan, and South Korea; also called Asian Tigers.

Asian financial crisis—Economic crisis that officially began in Thailand when the Thai government decided to stop pegging its local currency to the U.S. dollar; also called the Asian Contagion.

Asian Tigers—a Term describing four modern economies of Hong Kong, Singapore, Taiwan, and South Korea; also called Asian Dragons.

Asymmetric information—When two parties to a transaction have different amounts of information concerning the transaction.

Austrian School of economics—A school of economic thought that focuses on the actions of the individual and the study of human behavior; its main tenets include the theses that economic models are unreliable and that prices are best determined by the equilibrium of supply and demand when markets function freely.

Automatic stabilizers—Government policies, such as taxes and spending, that take effect to reduce economic impacts.

Automatic teller machine (ATM)—A convenient way to deposit funds and withdraw cash. A debit card, issued by the bank, gives consumers ready access to their bank funds and can be used at ATMs as well as to make purchases from merchants.

Average cost pricing—Policy often used by regulators in setting prices for monopolists or for allowing for small price increases.

Average fixed cost (AFC)—The costs found by dividing total fixed cost by output.

Average tax rate—The total tax paid, divided by the total income.

Average total cost (ATC)—Total Costs (TC) divided by Quantity (Q) produced.

Average variable cost (AVC)—Total Variable Costs (TVC) divided by Quantity (Q) produced.

Baby boomers—According to the U.S. Census Bureau, the generation of the U.S. population that was born between the years 1946 and 1964.

Baht—Official currency of Thailand; its devaluation was considered the beginning of the Asian financial crisis.

Baker Plan—Proposed in 1985, and named after U.S. Treasury Secretary James Baker. This was an attempt to increase investments from Latin American banks. Despite the efforts of the Baker Plan, it was not successful.

Bakeshop Act of 1895—An act passed by the New York state assembly, establishing minimum sanitation standards that prohibited domestic animals from being kept in bakeries and prohibited workers from using the bake room as a sleeping room.

Balance of payments—A system of accounts that measures the trade, financial, and foreign aid transactions between a nation's domestic economic components during a specific period of time.

Balance of trade—The difference between a nation's exports and imports of goods and services.

Bandwagon behavior—When people copy the decisions of others, regardless of what their own internal signals are telling them, leading to what some refer to as irrational or bounded rational decisions; also known as informational cascade.

Bangkok Declaration—The document that formed the Association of Southeast Asian Nations, including Thailand, Singapore, Malaysia, Indonesia, and the Philippines; also known as the ASEAN Declaration.

Bank Holding Company Act of 1956—An act regulating bank expansion and protecting the separation of banking and nonbanking activity; considered by some to be the most important banking legislation after World War II.

Banking crisis—Failure in banks that causes further failure and disintermediation to spread to other banks; a common feature when an international financial crisis occurs.

Bank of International Settlements (BIS)—An international organization that serves as a central bank for national central banks.

Bankruptcy—The condition of financial failure, when the assets of a person, company, or nation are less than its liabilities.

Banks—Regulated by the Federal Reserve Board of Governors, financial intermediary institutions that provide checking and savings accounts, investment and retirement planning and products, commercial and business banking, mortgages, and credit cards.

Bargaining table—Term used for collective bargaining.

Barriers of entry—Defines how easy or difficult it is to enter or exit an industry.

Barriers to trade—Transparent forms of protectionism include tariffs and quotas, while nontransparent forms include specific manufacturing standards, licenses, fees, or patents.

Barter system—Market interactions between a buyer and seller conducted without a form of money but on a duo coincidence of wants.

Basel Capital Accord Agreements—Established by the Basel Committee on Bank Supervision to recommend banking regulations on risk (capital, market, operational), and to assure that financial institutions have sufficient capital during periods of financial stress.

Baumol and Bowen cost of disease (or paradox)—Economists Baumol and Bowen challenged classical economic thought by suggesting that some salaries rise without a rise in productivity.

Bayesian games—A game, designed by economic game theorists, in which players have incomplete information about other players and/or the payoffs for various actions.

Beef War of 1999—European Union banned the import of U.S. beef from cows raised using hormones. The U.S. responded by placing tariffs on European clothing and certain foods.

Behavioral bias—Describes investors who hold on to losing investments, preventing them from selling at a loss, and then reinvesting the proceeds into another investment.

Behavioral economics—A study of economics that emphasizes human behavior and the psychological aspects of decision-making.

Behavioral finance—The field of research that studies how investors make judgments and choices in financial markets.

Belief perseverance—People tend to hold onto the original opinion they form, even when they're presented with contrasting evidence; this often leads to economic bubbles.

Bell, Alexander Graham—Inventor of the telephone, in 1876.

Belovezh Accords—The agreement signed on December 8, 1991, that declared the Soviet Union effectively dissolved and established the Commonwealth of Independent States in its place.

Benz, Karl, and Gottleib Daimler—First to use the gasoline-powered internal combustion engine in the production of the automobile.

Berkshire Hathaway—A U.S.-based multinational holding company owned by Warren Buffett and headquartered in Omaha, Nebraska.

Beta—Measures stock volatility and risk.

Bitcoin—Conceptualized by Satoshi Nakamoto, an innovative virtual currency and payment network.

Black blizzards—In 1935, during the Dust Bowl, these weather conditions turned day to night and reduced visibility to five or six feet; responsible for many deaths from dust pneumonia.

Black Friday—September 24, 1869, when the gold market in New York crashed, the stock market plummeted 20 percent, and agricultural products plummeted 50 percent—the result of economic scam and political scandal. It was considered a natural contraction of the economy after the Civil War.

Black market—A market where goods and services are interchanged illegally; also known as an underground economy.

Black Monday—A stock market crash on October 19, 1987; the first major financial catastrophe of the second half of the 20th century.

Black-Scholes model—A mathematical model of financial markets and derivative investment instruments that is widely used to price options; introduced by Fischer Black and Myron Scholes in 1973.

Black Thursday—October 24, 1929, the first day of the 1929 stock market crash; often considered to be the start of the Great Depression.

Black Tuesday—October 29, 1929; the day on which the stock market volume traded was a record volume and market loss of $14 billion.

Bolshevik Revolution—The armed military seizure of governmental power by the socialist Bolshevik political party in October 1917; also known as Red October or the October Uprising.

Bond—A loan to a company or government in exchange for periodic interest payments. Bonds rated BB and lower are considered high-yield bonds (also known as junk bonds); bonds rated C or below are considered to have very high default risk.

Bond funds—Funds based on different types of bond holdings, including federal government, municipal, corporate, asset backed securities, mortgages, and bond derivatives; these funds may be bond mutual funds or exchange-traded funds.

Bond issuer—The company or government entity issuing a bond and setting the bond's payment schedule.

Bond price—Varies depending on the coupon rate, time to maturity, and credit quality of the issuer, and on the current level of interest rates. When interest rates increase, bond prices fall, and when interest rates decrease, bond prices increase.

Bootleggers—People smuggling alcohol into the United States from Canada, the Caribbean, and Europe, leading to a rise in organized crime and corruption in the United States.

Border Industrialization Program—Established by the Mexican government to address high unemployment along the U.S.–Mexico border and also to save Mexican industries.

Border Tax—A tax on both imports and exports between countries of the Common Market.

Bounded rationality—Concept that the cognitive or brain's processing and information-gathering capacity is limited, making rational economic decisions costly.

Boycott—The act of intentionally not participating in the buying or using a good or service from a business, person, or organization as an expression of dissatisfaction or protest, usually for a social, ethical, or political reason.

Breach of contract—Not honoring an agreed-upon legal contract through noncompliance or noncompletion.

Bread-winner hypothesis—A rarely confirmed hypothesis that the partner who is more highly educated or has an occupation of more prestige has a better-paid job and consequently more influence in decisions.

Bretton Woods Conference—A conference held in Bretton Woods, New Hampshire, in July 1944. The conference established the international financial and economic order after World War II. The foundations for both the World Bank and International Monetary Fund began here.

Brokered CD—A CD purchased in an investment brokerage account and issued by a national bank. Because a bank issues the CD, FDIC insurance applies.

Brookings Institution—A liberal think tank based in Washington, D.C., that conducts research and education regarding the global economy and development to make recommendations to strengthen American democracy, improve social welfare, and support cooperation on public policy issues.

Bryan, William Jennings—Democratic congressman from Nebraska; three-time Democratic presidential candidate; Secretary of State under President Woodrow Wilson. Known for supporting the 1893 Free Silver policy, which attempted to pump more silver into the economy to combat inflation.

Budget Enforcement Act of 1990—Federal legislation creating new budget controls, spending caps, and a pay-as-we-go process for entitlements and taxes.

Budget Sequestration—Automatic spending cuts of the U.S. federal budget.

Burden of taxation—The level of taxation on individuals or businesses.

Bureau of Economic Analysis (BEA)—An agency of the U.S. Department of Commerce that provides economic data, including the U.S. gross domestic product.

Bureau of Labor Statistics (BLS)—An agency of the U.S. Department of Labor whose responsibilities include collecting, analyzing, and distributing important economic data regarding employment, inflation, and economic growth.

Burger, Chief Justice Warren E.—Chief Justice of the Supreme Court from 1969 to 1986.

Business cycle—The stages of an economy over time, including contraction, peak, expansion, and trough; also known as the economic cycle.

Business economics—Field of economics specializing in the use of quantitative economic methods and economic theory to analyze businesses and business practices.

Business Employment Dynamics (BED)—Set of statistics created by the Quarterly Census of Employment and Wages program of the Bureau of Labor Statistics.

Business structures—Vary based on number of owners, access to capital, length of life, and level of liability.

Cable Television Consumer Protection Act—Competition was again allowed in hopes of stabilizing rates and brining improved service.

Callable CD (Liquid CD)—Allows investors greater flexibility to withdraw part of the account without penalty but receive a lower interest rate for the option.

Call option—The option to buy at a predetermined price. Options can be a cheap way of speculating, instead of buying the underlying security.

Capital account—One of the three Balance of Payments subaccounts that records, on a net basis, capital transfers and changes in financial assets of migrants and debt forgiveness of the United States. (*See also* Balance of payments; Current account; Financial account.)

Capital financial asset—An investment in a financial asset such as a stock, bond, mutual fund, or other investment vehicle, including real estate.

Capital inflow—An increase in money available for investment from foreign sources.

Capitalism—The economic system—also known as free enterprise and the market economy—where the answers to the key economic questions (what to produce, how to produce, and for whom to produce) are answered in the marketplace in the interaction between buyers and sellers.

Capital losses—Offset capital gains eliminating any tax implications.

Capital outflow—When financial assets leave a country.

Capital resources—All human-made tools, machines, buildings, and technology used in the production of final goods.

Carson, Rachel—Biologist and science writer, author of *Silent Spring* (1962); considered a pioneer of the environmental movement.

Cartels—Countries or businesses that collaborate their business decision-making in an effort to generate monopoly power in an industry.

Cash flow—Movement of cash coming into a household or business and cash going out of the business or household.

Cato Institute—A Washington, D.C., think tank that promotes free markets, free trade, and a conservative political philosophy.

Central American Free Trade Agreement (CAFTA)—A free trade agreement the United States has with the countries of Central America.

Central bank—The national bank that serves other banks and is responsible for a nation's money supply, monetary policy, and commercial bank regulations.

Centrally planned economy—An economy where the three main questions (what to produce, how to produce, and for whom to produce) are addressed, answered, and implemented by a central authority (government); also known as a command or planned economy.

Certificate of deposit (CD)—Common type of interest-bearing investment instrument for a fixed time duration; usually for a large denomination with an interest rate higher than available in a more conventional savings account.

Certified financial manager (CFM)—Professional certification of financial professionals.

Certified fraud examiner (CFE)—A professional designation of fraud examiners.

Certified government financial manager (CGFM)—The certification of government financial managers.

Certified internal auditor (CIA)—A key professional designation of the Institute of Internal Auditors.

Certified management accountant (CMA)—An accountant who combines skill in accounting and strategic management. The holder of this certification must have attended a CMA program and passed a series of tests.

Certified public accountant (CPA)—A prestigious qualification signifying ethical and professional accounting standards with a level of professional expertise earned by completing an examination and fulfilling specific work requirements.

Certiorari—A writ to the lower court to send the case to it for review.

Chain-store paradox—An apparent game-theory paradox that refutes standard game-theory reasoning.

Chapter 7—Bankruptcy chapter also known as the liquidation bankruptcy.

Chapter 11—Bankruptcy chapter also known as the rehabilitation bankruptcy.

Chapter 12—Bankruptcy chapter specifically designed for family farmers and fisherman.

Chapter 13—Bankruptcy chapter, also known as the wage-earners bankruptcy.

Cheap money—Money without intrinsic value and without backing by gold or silver.

Checks—A form of financial transaction for a demand deposit account; also known as demand deposits.

Chicago Board of Trade—One of the oldest exchanges, specializing in futures and options trading; founded in 1848 in Chicago, Illinois.

Chicago Boys—A group of young Chilean economics students from the University of Chicago who returned to their home country and were instrumental in transitioning Chile to a market economy.

Chicago School—A neoclassical school of thought that rejected Keynesianism in favor of monetary policy popularized by economists and faculty of the University of Chicago.

Children's Health Insurance Program (CHIP)—Begun in 1997, a program that covers approximately eight million children in families whose incomes are too high to be eligible to receive Medicaid benefits but who cannot afford private medical insurance coverage.

Circuit Court of Appeals—Twelve regional circuits of the federal United States court system that hear appeals from lower district courts within their specific circuit, or hear appeals from federal administrative agencies.

Circular flow of economic activity—A pictorial depiction of an economy, identifying the key markets (product, resource, financial, foreign) and the interaction of the key participants (households, businesses, government, financial institutions, and foreign companies) within each of the markets.

Civil Aeronautics Board (CAB)—Federal agency responsible for regulating air transportation within the United States, including airfares and interstate routes by commercial airlines; disbanded in 1984.

Civilian labor force—Sum of civilians who are employed and the civilians age 16 or over who are unemployed but are actively pursuing employment.

Civilian noninstitutional population—U.S. population of those 16 years of age and older residing in the 50 states and the District of Columbia.

Classical economics—Widely regarded as the first modern school of economic thought; major figures include Adam Smith, Jean-Baptiste Say, David Ricardo, Thomas Malthus, and John Stuart Mill, all of whom generally agreed that free markets will regulate themselves.

Classical liberalism—A political ideology that promotes limiting government involvement in the economy so that the government is restricted to providing rule of law and economic freedom.

Clean Air Act of 1963—The first federal legislation aimed at reducing air pollution.

Clean Air Act of 1970 (CAA)—Initiated more sophisticated and comprehensive regulations to reduce air emissions from industrial and mobile sources.

Cliometrics—Originating in 1958, the systematic application of economic theory and econometrics and mathematical methods to the study of history; also known as new economic history or econometric history.

Closed Shop—Under the Wagner Act, once a union was certified, workers were required to join the union to maintain their employment. In 1947, the Taft-Hartley Act limited the application of a true closed shop.

Coase theorem—Describes the economic efficiency that can be achieved by an economic allocation or outcome in the presence of externalities; first presented by Nobel laureate Ronald Coase.

Cobb-Douglas Production Function—Signifies the relationship between inputs (land, labor, capital) and outputs (goods and services).

Coinage Act of 1792—Legislation that established the United States Mint and the U.S. coinage system; also known as the Mint Act.

Coincident indicators—Measurements of current economic activity, such as employment and average weekly hours worked.

Cold War—From approximately the late 1940s to the early 1990s, a continual global condition of both political and military tensions between primarily the United States and the Soviet Union.

Collateral—A real asset such as a building, or a financial asset such as a stock or a bond. This asset secures one's borrowing in case of default. If a borrower defaults on the loan, the lender can sell this collateral to collect the value of the loan.

Collective bargaining—Negotiation process between employer and employees to establish acceptable working conditions, including wages, benefits, and conditions of the workplace.

Collusion—An agreement between parties to restrict competition of a market; the agreement may be legal but collusion is most often illegal and done in secrecy.

Command economy—An economy in which the three main questions (what to produce, how to produce, and for whom to produce) are addressed, answered, and implemented by a central authority (government).

Commander-in-chief—Leader of a nation's armed forces; in the United States the commander-in-chief is the president of the United States.

Commanding heights—Term used by Lenin to identify the major sectors of an economy, such as steel, manufacturing, and transportation.

Commerce Clause—A provision in the U.S. Constitution that gives Congress power over interstate trade and trade with foreign countries; also includes trades with Indian tribes.

Commercial bank—A financial institution that participates in individual and business banking activities, including taking deposits and making personal and business loans.

Committee for Industrial Organization (CIO)—Eight international unions under the guidance of John Lewis, formed to take on U.S. companies.

Commodities—The generic term to describe the natural resources—such as coal, oil, and natural gas—used in the production of final goods.

Commodity-backed money—When the value of a currency is based on the value of the resource on which it is backed, such as gold, silver, other metal, or even seashells, tobacco, or beads; also known as specie money.

Common carrier—A company that transports goods—such as communication—for the general public.

Common good—Term referring to an act or policy that has benefit for all of society.

Common market—Group of countries that form an alliance to promote free trade and labor mobility.

Common-pool resources—Resources owned by no one and yet by everyone in the absence of property rights. They are rival and nonexcludable, which often leads to their overuse—and consequently to the "tragedy of the commons" concept.

Common stock—A stock that confers voting rights to the stockholder, on top of the stockholder receiving cash payments called dividends.

Communications Act of 1934—Act of Congress that transferred the regulation of the interstate telephone service from the Interstate Commerce Commission (ICC) to the Federal Communications Commission (FCC).

Communism—A political system of government where the state holds authoritarian control and one political party holds power; the economy and all resources of the economy are owned and controlled by the government.

Communist League—Established in 1847 in London, the Communist League is considered the first Marxist political party; it promoted the political and economic philosophies of Karl Marx and was disbanded in 1852.

***Communist Manifesto, The*—**An 1848 work by Karl Marx and Friedrich Engels; the most influential book on theories of class struggle and capitalism's shortcomings, it became the foundation of the Communist Party; it was originally titled the *Manifesto of the Communist Party*.

Community Reinvestment Act (CRA)—Under this act, when extending loans banks are required to meet numeric goals based on the low-income and minority populations in the area in which they serve.

Comparative advantage—A situation in which one person, company, or nation can produce a good or service with lower opportunity costs than another person, company, or nation; useful for determining the most efficient allocation of resources; when two entities specialize and trade according to their comparative advantages, it benefits both.

Comparative economic systems—The study of different economic organizations, including market, command, and mixed economies.

Competition—In economics, the act of several persons, businesses, or nations vying to be the most efficient, the most effective, or the most favorable for the allocation of resources.

Compound interest—Earning interest on interest earned.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)—Act of Congress that established Superfund, a federal government program designed to fund the cleanup of sites contaminated with hazardous substances and pollutants.

Compromise Tariff of 1833— Congressional act intended to gradually lower tariffs over 10 years back to 1816 levels.

Conditionality—Conditions that a country must meet in order to receive debt relief from an international organization such as the International Monetary Fund (IMF).

Congressional Budget Office (CBO)—A federal agency within the U.S. legislative branch of government, established in 1974, to provide timely, nonpartisan economic data and analysis to Congress.

***Congressional Quarterly*—**Privately owned publication that reports on the actions of the U.S. Congress.

Congressional Research Service (CRS)—Provides the U.S. Congress and its committees with analyses on legal and policy issues.

Congress of Industrial Organizations (CIO)—Founded in 1935, a United States labor union organization based on industrial industries; was part of the American Federation of Labor.

Consideration—In law, an act or a promise intended to persuade one party to enter into a contract.

Conspicuous consumption—The consumption of goods and services by individuals in a manner beyond basic utility, such as driving a Rolls Royce instead of a Buick.

Consumer credit—A loan offered to the borrower to buy now and pay later; money that is borrowed, using a credit card or through a payment plan, to purchase consumer goods that depreciate (decline) in value over time. For example, a credit card gives the holder credit to buy goods and services up to a certain amount.

Consumer debt—The amount of debt a consumer accumulates through borrowing money to purchase goods or services in the present and pay for those goods or services in the future.

Consumer directed health plan (CDHP)—Often referred to as a high deductible plan, it usually requires greater initial out-of-pocket expenses; this type of plan may require a consumer to pay $2,500 to $5,000 out of pocket before the health plan payments take effect.

Consumer Expenditure Survey (CES)—A program of the Bureau of Labor Statistics (BLS) consisting of surveys that provide information on the buying habits of U.S. consumers.

Consumer Price Index (CPI)—Index indicating monthly changes in the prices paid by consumers for a representative basket of goods and services.

Consumer rights—Various laws and organizations designed to promote consumer education and safety; also known as consumer protection.

Consumers—Purchasers of final goods or services.

Consumers International (CI)—A nonprofit federation of consumer groups and nongovernmental organizations.

Consumer sovereignty—Term expressing the freedom of consumers to choose the goods and services they desire, which determines which goods and services will be produced in a market economy.

Consumer surplus—The difference between the amount consumers would be willing and able to pay and the amount they pay upon market interaction with sellers.

Consumption—A household consumer's spending of current income on a good or service.

Consumption function—An economics mathematical expression of consumer spending—the relationship between total consumption and gross national income.

Continentals—Bills of credit or paper currency issued by the states in the early years of the United States; helped to finance the Revolutionary War, but depreciated and lost their value because they were not backed by gold or silver.

Contingent valuation method (CVM)—Employs the use of surveys outlining a hypothetical market or referendum to elicit people's willingness to pay (WTP) for the preservation of a particular species.

Contract—A voluntary, lawful agreement between two or more parties.

Contraction, economic—The portion of the business cycle in which a nation's economy slows down.

Coordination costs—Transaction costs.

Cooperative federalism—System under which national, state, and local governments would interact collectively to solve problems.

Copyright—The legal protection of a creative work, giving the originator of the work exclusive rights for a period of time.

Core Inflation—An inflation rate measure consisting of the current Consumer Price Index (CPI) amount excluding price measures for food and energy.

Corn Laws—Trade laws implemented between 1815 and 1846 to protect the cereal producers in Great Britain and Ireland against foreign imports.

Corporate Average Fuel Economy (CAFE)—Regulations enacted by the U.S. government in 1976 as part of its environmental movement and fuel-saving efforts.

Corporate bonds—Bonds issued by corporations; considered riskier than Treasury and municipal bonds, so they result in a higher bond yield.

Corporate Deficit—A corporate deficit occurs when a company is not selling enough to cover its costs. The revenue minus costs is less than what is needed to pay the bills.

Corporation—A business structure that protects the personal assets of the business owners from liability brought against the business. Various corporate structures exist, including C-, S-, LLC, and nonprofit.

Cost-benefit analysis—An economic decision-making methodology that weighs the possible positive consequences of an action against the possible negative consequences.

Cost of goods sold (COGS)—An accounting term referring to the direct costs attributable to the production of the goods sold by a company. This amount includes the cost of the materials used in creating the good along with the direct labor costs used to produce the good.

Cost of Living Index (COLI)—A measure based on the relative cost of living of typical mid-management households in more than 300 cities in the U.S.

Cost-push inflation—Inflation caused by increases in the cost of resources (land, labor, capital), causing a decrease in aggregate supply.

Costs—The trade-off of using a resource for the production or consumption of a good or service.

Council of Economic Advisers—Established in 1946 as an agency of the Executive Office of the President of the United States; responsibilities include advising the president on economic policies, providing objective empirical research, and preparing the annual Economic Report of the President.

Creative destruction—Made famous by Joseph Schumpeter, an economy's inability to protect goods, services, or industries whose resource allocation has become more costly than a newer, more efficient allocation of resources.

Credit bureau—A company that compiles a record of a consumer's borrowing and payment history; also known as a credit-reporting agency.

Credit card—Small plastic card, issued by a bank, financial institution, or merchant, that enables the cardholder to purchase goods and services with borrowed funds and repay the owed amount at a later date.

Credit check—Determines the applicant's ability to make the payments accumulated and due on a credit card.

Credit crunch—General economic condition in which financial institutions restrict lending practices for business loans, mortgages, and automobile lending.

Credit markets—A market for selling and buying interest-bearing investment instruments such as Treasury bonds, notes, and bills; also known as the bond market.

Crédit Mobilier—A company created in 1846 in a fraud to set the price of supply contracts for the railroads.

Credit-rating agencies—Agencies, such as Standard &Poor's and Moody's, that rate the bond universe based on the quality of the issuer; the ratings form the basis for the classification that Standard &Poor's and Moody's assigns to an issuer.

Credit ratings—A score determined by the financial strength of the debt issuer; also called debt ratings or bond ratings.

Credit report—A tool used by lending institutions such as banks to determine if a potential borrower is a good credit risk and will pay back the loan.

Credit union—A type of financial institution with services similar to a bank; the main organizational difference is that credit unions have a nonprofit status.

Cultural economics—The study of economics decision-making relative to and the influences of a society's culture; it is a field of economics that relates to the arts and heritage of cultural industries.

Currency—Term referring to the money used as a nation's medium of exchange, store of value, or standard of value.

Currency Act of 1764—Enacted by Great Britain at a time when the American colonies had low reserves of gold and silver; used to strengthen Britain's restriction on the printing of paper currency in the colonies.

Currency swaps—Used by companies whose revenue comes from multiple countries (that is, multiple currencies) in order to protect a company's exposure to various currency fluctuations.

Currency wars—Currency relationships between countries when one country attempts to create trade advantages for itself through the exchange rate.

Current account—One of the three Balance of Payments subaccounts that measures a nation's balance of trade (exports to imports) and net changes in earnings and transfer payments. (*See also* Balance of payments; Capital account; Financial account.)

Current Employment Statistics (CES)—Monthly program that surveys businesses and government agencies to provide industry data on employment and earnings.

Current Population Survey (CPS)—Survey conducted jointly by the U.S. Census Bureau and Bureau of Labor Statistics (BLS) to provide labor force data on the U.S. population.

Cyclical unemployment—The component of the unemployment rate determined by the economic growth or recession in the business cycle.

Daimler, Gottleib, and Karl Benz—First to use the gasoline-powered internal combustion engine in the production of the automobile.

Damages—In legal terms, an award issued in a legal suit; usually the award is monetary.

***Das Kapital*—**First published in 1867, Karl Marx' influential work on his critique of the political economy.

Dead capital—Any capital or land resources that do not have distinct ownership title.

Deadweight Loss—Costs created by an inefficient market; often used to explain society's economic loss due to such protectionist trade measures as tariffs.

Debt—The financial condition when revenues are less than expenses over a period of time (usually several years).

Debt ceiling—A congressionally declared limit on the amount of debt that the Department of the Treasury can accrue that is greater than its revenues; also known as the debt limit.

Deficit spending—When a governmental unit's spending more than its revenue during a fiscal year.

Debt to equity—The ratio of a company's debt to the company's equity.

Deferred annuity—This type of annuity has two phases: accumulation and withdrawal/distribution. *Accumulation* is the time period during which the annuity is funded. While the funds in the annuity are being accumulated, they grow tax-free and may be invested in a variety of financial assets. In the *withdrawal/distribution* phase, the annuitant can take income monthly or in a one-time lump sum payment.

Deferring income—When one is facing a potentially large tax bill, a common approach is to defer some of the taxable income into the future. The taxpayer can do this by delaying receipt of income or by accelerating tax-deductible expenses.

Defined benefit plan—An employer-sponsored retirement plan that promises the employee a specified monthly benefit at retirement; the benefit may be an exact dollar amount, such as $100 per month, or one calculated through a plan formula that considers such factors as salary and length of service.

Defined contribution plans; 401(k) and 403(b)—Retirement plans that do not promise a specific amount of benefits at retirement. The employee, employer, or both contribute to the employee's individual account, sometimes at a set rate—for example, 5 percent of earnings annually.

Deflation—A constant general decrease of the average price level of an economy over a period of time.

Deflationary spiral—The continued decreasing of the general price level of an economy over time, resulting in significant decreases in resource and investment values.

Delors Report—A 1989 report on the European Community's monetary and economic union.

Demand—A schedule reflecting a set of prices that consumers are willing and able to pay in order to purchase a good or service, other things being equal.

Demand curve—A graphical picture of a demand schedule reflecting the demand for a good or service, other things being equal.

Demand-pull inflation—Inflation caused by increases in aggregate demand that are not matched by comparable increases in aggregate supply.

Demand-side—The Keynesian idea of focusing fiscal policies on the behavior of the consumer in the product market (i.e., demand).

***Democracy in America*—**Alexis de Tocqueville's 1835 critique of the United States' political, social, and economic ideas.

Demographics—The population statistics reflected by data used to describe the gender, age, race, mobility, and employment characteristics of a population (from the Greek word *demos*, meaning "people").

Demur—In legal terms, to object or delay.

Dependent-care flexible spending account (FSA)—The ability of an individual or a family to set aside a portion of income pre-tax to cover dependent-care expenses.

Depository Institutions Deregulation and Monetary Control Act of 1980—Act of Congress that allowed savings and loan associations to issue credit cards, make consumer loans, invest in real estate, and offer interest-earning checking accounts—putting them in competition with commercial banks, but without many of the regulations that governed banking activity.

Depression—Term used to describe an extremely severe economic recession in negative economic growth, very high unemployment, and deflation over an extended period of time.

Deregulation—Freeing an industry from regulations imposed on it by government.

Derivative—A unique financial instrument whose value is received from an underlying asset, typically stocks, bonds, or loans. Investors in derivatives do not own the underlying assets, but they profit (or lose) from the movement up or down in the price of the underlying asset.

Derived demand—When the demand for inputs is dependent on the demand for the final products that the inputs are used to produce.

Detariffing—The act of removing tariff regulations by a country.

Developed countries—Nations with highly developed technological resources and an advanced economy.

Developing countries—Nations whose per capita income (GNI per capita) is $11,905 (U.S. dollars) or less.

Development economics—The branch of economics that studies the conditions and variables conducive to economic growth, especially for developing nations.

Diamond–Mirrlees efficiency theorem—A thesis—based on observations of market and government revenue-generating situations—that suggests there should be no taxes on intermediate goods and imports.

Digital currencies—Currencies (or crytocurrencies) such as bitcoin, that are created by a complex algorithm and stored electronically, without government control or monitoring.

Diminishing marginal returns (utility)—The principle that at some point, the returns or utility of a good or service consumed diminishes with each additional use during a given time period.

Direct investment (or foreign direct investment, FDI)—When an investor (a company) in one country buys or sells ownership within an overseas country, such as buying or building a factory.

Disability insurance—Insurance that protects a worker's current and future earnings.

Discount rate—Interest rate that the regional banks of the Federal Reserve System charge their member banks for overnight loans.

Discouraged workers—Individual of working age who are unemployed and are not pursuing a position in the current job market; usually these persons are willing and able to work but have given up finding gainful employment for a variety of reasons..

Discrimination—When individuals of different social, economic, or political groups are not treated equally.

Diseconomies of scale—Increases in the long-run average costs (per unit costs) as production increases.

Disincentive—A regulation or policy that deters companies or individuals from taking a particular action.

Disinflation—A lower rate of inflation from a previous inflation measure as opposed to the negative measure deflation.

Disintermediation—A failure on the part of the banking system that prevents savings from individuals being directed into business investment.

Diversification—Investing in unrelated equities to provide security to the investor.

Dividends—Cash payments that public corporations pay to their public investors as a return on their capital investment in the firm.

Division of labor—Division of labor occurs because human beings have a tendency to “truck, barter, and exchange one thing for another,” that is, to trade. This causes people to become dependent on one another.

Doctrine of secondary—Legal protection of an otherwise unprotected trademark that arises when advertising and time make that mark signify a particular product.

Dodd-Frank Wall Street Reform and Consumer Protection Act—Enacted in 2010 in response to the financial crisis that began in 2007.

Dollarization—When a country other than the United States uses the U.S. dollar as its domestic currency.

Domestic capital markets—Financial markets that focus on the economy of the home nation.

Double taxation—Corporate profits are taxed twice: the taxes are paid by the corporation as corporate profits, and are paid again when those already-taxed corporate profits are distributed to shareholders and the shareholders pay tax on the dividends (distributed from corporate profits) they receive.

Dow Jones—Company that publishes business and financial news through different media sources.

Due Process Clause of the Fifth and Fourteenth Amendments—Amendments to the U.S. Constitution that restrict states from violating a person’s right of due process.

Durable goods—Consumer goods with a life three years or longer, including a variety of goods from cookware to automobiles to airplanes.

Durable medical power of attorney—A document contained within an estate plan that names an individual to make medical decisions for an individual in the event that the individual is not able to make those decisions for him- or herself; also referred to as a health care proxy or health care surrogate.

Dust Bowl—In the 1930s, a decade-long series of dust storms, with winds blowing tons of plowed topsoil, created storm clouds of dust and destroyed agricultural resources across the North American Great Plains.

Dynamic economic view—A view of the economy's condition over time.

Earned Income Tax Credit (EITC)—When workers whose income is considered low or moderate file a tax return, they may qualify for this IRS tax credit to reduce their taxes or provide them a refund.

E-commerce—A business model in which individuals or companies buy and sell services or products electronically, usually over the Internet. E-commerce can have the advantages of convenience and selection.

***Econometrica*—**A prestigious academic journal of the Econometric Society that publishes articles highlighting the research of economic issues through econometrics.

Econometrics—A branch of economics that combines economics, mathematics, and statistics to develop quantitative and empirical analysis to economic theory and economic data.

Econometric Society—An international society to advance the study of economic theory through mathematics, statistics, and econometrics; publishes the journal *Econometrica*.

***Economic Consequences of the Peace*—**A book by John Maynard Keynes, written in 1919, regarding the British delegation to negotiate the peace following World War I; in it, Keynes reflects on his experiences and predicts the economic aftermath of the decisions taken.

Economic conservatism—An economic philosophy that promotes minimal government involvement and spending in the economy; a belief in free trade and a balanced federal budget with no national debt.

Economic demography—Applying economic concepts to the study of populations.

Economic development—A measure of an economy, usually attributed to growth in such major economic factors as manufacturing and agriculture; with regard to job growth, it deals with measurable improvements in people's quality of life.

Economic forecasting—The process of making economic predictions regarding future unemployment, inflation, economic growth activity, and other data for a specific time period.

Economic goods—An economic item for which the resources used to produce the item have opportunity costs.

Economic growth—Increases in real per capita GDP over a given period of time.

Economic history—The branch of economics that studies past events and people.

Economic index—A statistical measure of the economy that highlights changes in a specific group of individual data derived from numerous sources; Dow Jones, GDP deflator, and Consumer Price Index (CPAI) are examples of economic indices.

Economic institutions—Nonhuman entities of an economy, including businesses, governments, and unions.

Economic liberalism—An economic belief that the best economic decisions are those made by individuals in the marketplace and not collectively by institutions.

Economic model—A theoretical construct of a defined section of the economy for the purposes of studying economic behavior.

Economic Opportunity Act (EOA) of 1964—Key piece of legislation in President Lyndon Johnson's War on Poverty, it created the Office of Economic Opportunity, established Community Action Agencies, and provided for job training, adult education, and loans to small businesses to help address the causes of unemployment and poverty.

Economic philosophy—A normative economic ideology that defines the main structures of an economy, including its means to achieving specific ends or goals.

Economic planning—A central government's process of deciding what will be produced, how production will occur, and whether the goods and services will be available to the public or for private consumption.

Economic profit—Business profit that not only includes the explicit costs of the company but also recovers the opportunity costs of the resources used by the business.

Economic Recovery Tax Act of 1981—Allowed savings and loans to sell their mortgage loans to Wall Street firms and allowed losses to be offset against taxes.

Economic rent—A payment for the use of a resource above its opportunity cost.

Economic restructuring—When an economy's structure changes from labor-intensive industries to capital-intensive industries—that is, from a manufacturing economic base to a service sector one.

Economics—The science of the decision-making behind how individuals, institutions, and nations allocate their limited resources to satisfy their unlimited wants.

Economics of crime—A subgroup of economics that studies the economic effects and impacts of crime on an economy.

Economics of environment—A subgroup of economics that studies the economic effects and impacts of environmental policies and environmental conditions on an economy.

Economics of family—A subgroup of economics that studies the economic effects and impacts of a family culture in an economy.

Economics of government—A subgroup of economics that studies the economic effects and impacts of government and government policies on an economy.

Economics of health—A subgroup of economics that studies the economic effects and impacts of health-related issues and policies on an economy.

Economics of information—A subgroup of economics that studies the economic effects and impacts of information gathering and technology on an economy.

Economics of law—A subgroup of economics that studies the economic effects and impacts of a nation's laws on an economy.

Economics of the arts—Subgroup of cultural economics involving art, antiques, and collectibles.

Economics of war and peace—A subgroup of economics that studies the economic effects and impacts of a nation's conditions of war and peace on an economy.

Economic system—An economy's method of allocating its resources, goods, and services; which system a country uses is determined by who (markets, central authority, or some combination) answers the main economic questions (what to produce, how to produce, for whom to produce).

Economies of scale—Decreases long-run average costs (per unit costs) as output increases.

Edgeworth Box—Represents various combinations of resource distributions that can be achieved in an economy; often used in general equilibrium analysis; named for Francis Ysidro Edgeworth.

EE/E Bonds—Type of U.S. government savings bonds. EE/E bonds purchased between May 1997 and April 2005 earn a variable market-based rate of return, with the interest rate changing every six months; EE/E bonds issued after May 2005 earn a fixed rate of interest, determined at time of purchase.

Effective rate of protection—A measure of a country's net trade based on the level of the nation's trade protections, such as tariffs on imports or tariffs imposed on exports.

Efficiency—Using the least effort and energy in the production of goods and services.

Efficiency wage theory—Suggests that workers who are paid less for discriminatory reasons retaliate by working less hard, reducing their productivity.

Elasticity—The measure for the responsiveness of quantity demanded or quantity supplied to changes in price; if the percentage change in response (either demand or supply) is greater than the percentage change in price, the product is deemed elastic; if the percentage change is less, then the product is deemed inelastic; if the percentage change is equal, then the product is deemed unitary.

Elasticity of demand—A measure of how consumers' quantity demands respond to changes in price.

Elasticity of supply—A measure of how producers' quantity supplied responds to changes in price.

Electronic Funds Transfer Act (EFTA)—Banking through electronic means, such as direct-deposit paychecks and automated teller machines (ATMs).

Elementary and Secondary Education Act (ESEA) of 1965—Part of the War on Poverty legislation, it provided grade schools and high schools with federal funding for the first time.

Embargo—Prohibition on trade imposed on one country by another country.

Embezzlement—Theft of money or property from a company or an organization by a person who is in a position of power or authority.

Emergency Home Finance Act of 1970—Federal legislation that created the Federal Home Loan Mortgage Corporation (FHLMC, or Freddie Mac).

Eminent domain—Term to define government's right to require the sale of privately held property for a government-defined common good use.

Empirical economics—General term used to describe econometrics, mathematical economics, or experimental economics whose means to economic solutions is quantitative.

Employee—Person whose wages are paid by a second source such as another individual, business, or corporation.

Employee Retirement Income Security Act (ERISA)—Federal law that protects employees' benefit rights in private pensions.

Employee Stock Ownership Plan (ESOP)—Form of defined contribution plan in which the investments are primarily in employer stock, similar to a profit-sharing plan.

Employer—Individual, business, or corporation that hires employees.

Employer Excise Tax—From the Social Security Tax Act, a tax on employer-sponsored health care plans that applies to a failure to comply with specific coverage mandates and prohibitions.

Employer Shared Responsibility Payment (ESRP)—A tax payment that employers (applicable large employers, or ALEs) with least 50 full-time employees (or equivalents) would pay in place of meeting the Affordable Care Act requirement to offer health insurance coverage to their full-time employees (and their dependents).

Endowment effect—Attaching a higher value to a good in our possession that we intend to "consume" than the same good in our possession that we intend to "sell."

Enhancing Financial Institution Safety and Soundness Act of 2010—Title III of the Dodd-Frank Act; transfers oversight of savings and loan holding companies, federal savings associations, and state savings associations to the Board of Governors of the Federal Reserve System, and eliminates the Office of Thrift Supervision.

Enlightenment, Age of—An 18th-century cultural movement in Europe and the American colonies to create societal reforms through reason and science.

Entrepreneurship (Entrepreneurs)—A component of human resources; the willingness and ability of an individual to use productive resources (land, labor, capital) to raise financial capital, organize, take risks, manage, and otherwise combine resources to create a business or organization.

Environmental Defense Fund—U.S.-based nonprofit that advocates using science, economics, and law to find environmental solutions, and often advocates market-based solutions to environmental problems.

Environmental economics—A study of economics concerned with creating and promoting economic solutions to environmental issues.

Environmental Protection Agency—Federal agency whose mission is to protect the environment and promote environmental quality.

Equal Employment Opportunity Commission (EEOC)—Federal agency charged with the enforcement of federal laws that prohibit discrimination against a job applicant due to race, gender, age, or national origin.

Equal Pay Act—Amended the Fair Labor Standards Act to prohibit unequal pay based on gender.

Equation of Exchange—The equation of exchange identifies the relationship between an economy's money supply (M), price level (P), velocity of money (V), and value of its goods and services (Q) as $PQ = MV$; also known as the Quantity Theory of Money.

Equilibrium—The condition in which the quantity demanded and quantity supplied of a good or service is equal at a given price; equilibrium also describes the balance of an economy's aggregate demand and aggregate supply.

Equilibrium price—The price determined when quantity demanded equals quantity supplied.

Equity—A financial security that represents an ownership stake in a publicly listed corporation's equity. (*See also* Stock.)

Equity financing—A company or business selling equity or other equity means to generate capital.

Equity index annuities—A combination of fixed and variable annuities where the funds are invested in a broad stock market index and the annuity value is tied to the growth of the index with a set minimum payout.

Equity market—The aggregation of buyers and sellers exchanging stocks. (*See also* Stock market.)

Equity portfolios—Investing in many stocks at the same time to diversify investments and reduce the risk of holding one very volatile security.

Estate planning—A formal plan for distribution of one's financial and personal assets upon death.

Euler's theorem—A theorem in number theory sometimes used in economic theory named for Leonhard Euler.

Euro—The monetary unit of the European Union (€) first appearing in January 2002.

Euronext Exchange—The first equity market in Europe, including France, United Kingdom, Netherlands, and Portugal.

European Central Bank—The central bank responsible for the monetary policies of the Eurozone Monetary Union; located in Frankfurt, Germany.

European Debt Crisis—A debt crisis since 2009 in several member countries of the European Union.

European Economic Community—Organization created following the 1957 Treaty of Rome; creating a currency "snake in the tunnel" in 1972 where all currencies were held within tight limits; also known as the EEC or Common Market.

European Monetary Union (EMU)—The monetary union (also known as the eurozone) for those members of the European Union who chose to join; the euro is the monetary unit of the EMU.

European Recovery Plan—Known as the Marshall Plan; initiated by the United States in 1947 in the wake of World War II to provide grants rather than loans.

European Stability Mechanism (ESM)—A policy to provide financial stability and financial assistance to European Union members.

European Union—Group of European member-states, acting together as a political and economic union; formally established through the Maastricht Treaty in 1993.

Evolutionary economics—A subgroup of economics that focuses on interdependence, growth, competition, and economic structural changes.

Exchange, voluntary—Willingness of two individuals, organizations, or businesses to trade a good or service.

Exchange rate—The price of one nation's currency expressed in terms of another nation's currency.

Exchange rate system—Fixed (pegged), Flexible (floating), or Managed to identify the relationship between a domestic currency and a commodity or second currency.

Exchange traded fund (ETF)—Similar to a mutual fund, ETF index funds comprise a basket of underlying securities representing an index; but unlike a mutual fund, ETFs trade on a stock exchange throughout the day.

Exchequer—The British department responsible for collecting and managing the nation's revenue.

Exclusion principle—Key principle identifying public goods such national defense or police protection, where people cannot be denied use of the good.

Experimental economics—Applying experimental methods to the study of economic issues such as the functioning of markets or exchange structures.

Experimental Science Association (ESA)—A professional organization for scientists and educators who use controlled experiments to learn about economic behavior. The ESA started the journal *Experimental Economics*, which publishes high-quality papers to advance experimental research in economics and related disciplines.

Explicit cost—For a business or an organization, the costs that involve spending money, such as rent, production materials, and wages.

Export-Led Growth Industrialization—An economic approach focusing on exporting goods; often implemented by developing nations.

Export processing zone (EPZ)—Type of free-trade zone mostly specifically used by developing countries.

Exports—The outflow of goods and services from one nation to another nation.

Externality—The positive or negative consequence of an economic transaction that impacts a third party.

Extralegal markets—Term defining the markets in developing countries that poor people need since those people do not or cannot participate in the legal economic system; popularized by Peruvian economist Hernando de Soto.

Fabian Society—A British Socialist organization founded to advance democratic socialism through marginal means and not revolutionary action; the modern organization operates like a think tank.

Factors of production—Resources used to produce goods or services; the three main factors of production are natural resources, human resources, and capital goods.

Fair Debt Collection Practices Act (FDCPA)—Law that governs how debt is collected; the law was enacted to eliminate abusive debt collection practices.

Fair Employment Practices Agencies (FEPAs)—State or local equivalents of the federal Equal Employment Opportunities Commission.

Fair Labor Standards Act of 1938—Federal statute that established minimum wage.

Fair trade—The practice of a business buying goods directly from a producer in the developing world at a guaranteed price.

Fair Trade Movement—An economic movement that promotes higher export prices along with improved environmental and labor standards to enable developing countries to better participate in the global economy.

Fannie Mae—*See* Federal National Mortgage Association.

Fascism—A system of government where all authority is centralized, ruled by a dictator.

Fat tax program—Aims at raising the relative price of calorie-dense foods so as to create an incentive for switching to low-calorie alternatives. In particular, the program seeks to tax junk foods.

Federal Communications Commission (FCC)—Federal commission that regulates interstate and international communications of television, cable, satellite, radio, and wire in the 50 states, the District of Columbia, and U.S. territories.

Federal Deposit Insurance Corporation (FDIC)—An independent federal agency created in 1933 to ensure stability and confidence in the U.S. financial system by insuring deposits and providing regulatory and receivership oversight.

Federal Election Campaign Act of 1974 (FECA)—The primary U.S. federal law for regulating political campaign spending and fundraising; the law originally focused on increased disclosure of contributions for federal campaigns.

Federal Election Commission (FEC)—Federal commission to administer and enforce federal campaign finance statutes.

Federal Funds Rate—The overnight interest rate that banks charge each other when funds are needed to adhere to the Federal Reserve's reserve requirement for financial institutions. The rate is established by Fed actions of buying or selling Treasuries to regulate the money supply.

Federal Home Loan Bank System (FHLBS)—Created by Federal Home Loan Bank of 1932 to increase funding to financial institutions so they can increase mortgage funding.

Federal Home Loan Mortgage Corporation (FHLMC, or Freddie Mac)—A quasi-government-sponsored enterprise (GSE) created to support the housing mortgage market by purchasing mortgages from financial institutions, packaging them, and selling the packages of mortgages on the private investment market.

Federal Housing Administration (FHA)—Federal agency that provides mortgage insurance for loans on single-family homes and multifamily projects.

Federalism—A system of government that consists of a federal political unit and lower political units; the United States is a federalist system with a national government and lower state governments.

***Federalist Papers*—**A series of articles, essays, and pamphlets written by Alexander Hamilton, John Jay, and James Madison to promote ratification of the U.S. Constitution.

Federal Medical Assistance Percentage (FMAP)—The percentage rate used to determine matching funds allocation to U.S. social and medical programs; currently the rate is 57 percent, but it ranges from a low of 50 percent in wealthier states to 75 percent in states with lower revenues.

Federal National Mortgage Association (FNMA, or Fannie Mae)—A quasi-government-sponsored enterprise (GSE) created to support the housing mortgage market, supporting mortgage lenders to provide affordable mortgages.

Federal Open Market Committee (FOMC)—A body of the Federal Reserve System responsible for the decisions regarding interest rates and quantity of U.S. money supply through the buying and selling of U.S. securities (bills, notes, bonds).

Federal Poverty Level (FPL)—In 2016, the FPL for a family of four was $24,250; the level is changed annually. Many state minimum eligibility levels exceed the federal minimum.

Federal Reserve System—The central banking system of the United States since 1913; responsible for the monetary policies and money supply and regulation of the U.S. banking system.

Federal Savings and Loan Insurance Corporation (FSLIC)—The federal insurer of savings accounts at thrift institutions; the thrift industry's equivalent of the Federal Deposit Insurance Corporation (FDIC).

Federal Surplus Relief Corporation (FSRC)—Established during the Depression, this agency purchased six million pigs to stabilize prices as meat prices were falling and production costs were rising.

Federal Trade Commission (FTC)—Independent government agency established to protect consumers against identity theft and inappropriate business practices, and to protect markets from monopoly or cartel activity.

Federal Trade Commission Act of 1914—Act of Congress signed into law by President Woodrow Wilson that established the Federal Trade Commission.

Feudal system—An economic and political system of medieval Europe that emphasized the ownership of property by a peasant or vassal in return for labor or service to a lord or monarch.

Fiat money—Fiat money does not have the same intrinsic value as commodity-backed money. Its legality and value is based on the confidence of the government issuing the money. Fiat money is the most common type of money and monetary system in use by nations today. Real value of fiat money is based on the demand and supply of the fiat money, with the nominal value based on an economy's monetary policy.

Fiduciary money—When banks or financial institutions promise payment in a second form of money the monetary system is called fiduciary money. The payment by the institution could be gold, silver, checks, or other form of bank note.

Fifth Amendment—As part of the U.S. Constitution's Bill of Rights, the Fifth Amendment protects people from being compelled to be a witness against themselves in a criminal case. It allows witnesses to decline to answer questions where the answers might incriminate them, and generally without having to suffer a penalty for asserting the privilege.

Final goods—Goods and services produced to be sold in the product market and consumed by households; not used to produce other final goods.

Finance economics—The discipline of economics that studies the effects and impacts of the financial markets and financial institutions on an economy's functioning.

Financial account—One of the three Balance of Payments subaccounts that measures nation's financial assets, including gold, currency, special drawing rights, bonds, and derivatives. (*See also* Balance of Payments; Capital account; Current account.)

Financial crisis—Economic event in which investors and depositors create a financial run or panic, causing the asset values of financial institutions to decrease significantly.

Financial institutions—Private businesses or government-sponsored organizations that act as financial intermediaries between savers and borrowers; includes banks, credit unions, and mortgage intermediaries such as Fannie Mae or Freddie Mac.

Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA)—Congress-enacted legislation in response to the savings and loan crisis of the 1980s; among the changes enacted, the act abolished the Federal Savings Loan Insurance Corporation, and created the Resolution Trust Corporation (RTC) and the Savings Association Insurance Fund (SAIF).

Financial market—Marketplace of buyers (consumers) and sellers (producers) of financial products, including stocks, bonds, equities, and currencies.

Financial Planning Association (FPA)—Professional organization of Certified Financial Planners (CFPs) and other financial-planning professionals.

Financial Reform Act of 2010 (Dodd-Frank Wall Street Reform and Consumer Protection Act)—Signed into law in 2010 by President Barack Obama, the act called for significant changes to regulations of the financial markets resulting from the financial crisis of 2007–2009.

Financial Services Modernization Act of 1999—Repealed the Banking Act of 1933. Also known as the Gramm-Leach-Bliley Act (GLBA), this act allowed commercial banks, investment banks, securities firms, and insurance companies to consolidate.

Financial Stability Board (FSB)—Group of the world's central bankers and finance ministers that work together toward international financial stability.

Financial Stability Oversight Council—Established as part of the Dodd-Frank Act to create an oversight of financial markets and identify possible financial threats.

First Bank of the United States—Established in 1791 by Treasury Secretary Alexander Hamilton; located in Philadelphia, Pennsylvania.

Fiscal policy—The discretionary actions and policies of a government through taxation and spending to achieve the economic goals of a nation's economy.

Fixed costs (FC)—Short-run costs that are independent of the output produced. Examples include rent on property, rental agreements on equipment with a time restriction, and labor costs as part of a labor contract. In the long run, fixed costs do not exist, because the terms of any agreements and contracts eventually expire.

Fixed exchange rate—The exchange rate when the value of a nation's currency is pegged to a second currency or commodity, such as gold or silver. (*See also* Pegged exchange rate.)

Fixed income—Income that does not fluctuate with economic conditions or labor wage rates. Many retirees' annual income is a fixed income.

Flexible exchange rate system—System in place when the forces of supply and demand are mainly responsible for determining the exchange rate of a currency. Currencies are traded in the foreign exchange market in much the same way that equities are traded in the stock market. (*See also* Floating exchange rates.)

Flexible saving account—A workplace-provided account into which employees contribute money before federal income taxes to pay for specific items such as health insurance deductibles or child care; also called a flexible spending account.

Floating exchange rates—When the value of a nation's currency is based on the supply and demand of the currency relative to a second currency. (*See also* Flexible exchange rate system.)

Floating rate notes (FRNs)—A new addition to the government's portfolio of debt offerings. An FRN has a floating interest rate, or one that fluctuates.

Focal point—In game theory, the point at which both players believe they are most likely to reach a common agreement or understanding.

Fordney-McCumber Tariff Act of 1922—Federal tariff on many imported goods, implemented by the United States to protect U.S. factories and farms.

Foreign aid—Payments by developed nations to developing nations for which no repayment is required.

Foreign debt—When a nation's repayment loan obligations to another nation exceed its ability to repay the loan over time.

Foreign direct investment (FDI)—A controlling ownership in a business enterprise in one country by an entity based in another country. Creates opportunities by allowing firms from other countries to wholly own enterprises in many industries.

Foreign Exchange Market (forex)—Financial markets that focus on global currency markets; the buying, selling, exchanging, and speculating on currencies.

Foreign exchange peg—When one currency's value is fixed relative to a second currency or commodity.

Foreign exchange swap—A currency exchange between two foreign companies.

Foreign Investment and National Security Act of 2007—Law enacted to promote foreign investment and create jobs through national security.

Formal contract—A contract where the parties have signed formal documents.

Form 1040EZ—The most basic tax form used to pay taxes through the Internal Revenue Service (IRS).

Form W-2—The tax form that individuals receive from the U.S. Internal Revenue Service (IRS) reporting taxable income and amounts withheld for paying annual taxes.

Forward exchange rate—When a bank (or other financial intermediary) agrees to pay an agreed-upon exchange rate in the future.

Four horsemen in the American auto industry—In the 1970s, the four reasons behind increased imports of foreign-made cars: free trade, old plants and assets, global labor competition, and increases in the price of gasoline as a result of the energy crisis.

Fourteenth Amendment to the U.S. Constitution—Amendment giving citizenship rights and equal protection of the laws to all U.S. citizens regardless of race; includes the Due Process Clause and Equal Protection Clause.

Fractional reserve banking—A system of banking where financial institutions are required to maintain reserves that are only a percentage of total deposits.

Fraser Institute—A Canadian nonpartisan think tank that conducts research on the impacts of education, entrepreneurship, and economic government policies.

Frazier-Lemke Farm Bankruptcy Act—Enacted by Congress in 1934, a government attempt to limit the banking industry's ability to repossess farms.

Freddie Mac—*See* Federal Home Loan Mortgage Corporation.

Free banking—Agreement in which banks have no regulations, laws, or specifications.

Free market economy/free enterprise system—The economic system, also known as capitalism and the market economy, where the answers to the key economic questions (what to produce, how to produce, for whom to produce) are answered in the marketplace in the interaction between buyers and sellers.

Free-rider problem—A condition where the users of a public good assume that others will pay the costs of the public good; one example is a user of a city park who lives in another city and does not pay taxes in the city where the park is located to contribute to the park's maintenance and upkeep.

Free-trade agreements—Agreements by countries to provide open borders for free trade and population movements, creating a free-trade area; the North American Free Trade Agreement (NAFTA) is an example of a free-trade agreement.

Free-trade area—Geographic or political regions that create a trade bloc free from protectionist policies such as tariffs or quotas.

Frictional costs—Transaction costs or coordination costs.

Frictional unemployment—The component of the unemployment rate that is determined by the continual portion of the labor force that is actively looking for employment.

Full employment—When the unemployment rate is equal to the frictional unemployment.

Fuller court (1888–1910)—U.S. Supreme Court under Chief Justice Melville Fuller; Court's decision in *Adair v. United States* prohibits states from interfering with most employment contracts.

Futures—Different classes of assets that the market allows to be used for speculative purposes by individuals who are not directly involved (users or producers are those directly involved) in the commodities market, including agriculture futures such as coffee, wheat, corns, soybeans, lean hogs, and feeder cattle.

Future value—The opposite of present value. Rather than the present value of a future sum being calculated now, the future value of a sum invested now is calculated after a period of time.

Game theory—The study of interactive decision-making; game theory tries to understand the various probable outcomes when two or more individuals with limited knowledge of their situation try to calculate best outcomes.

General Agreement on Tariffs and Trade (GATT)—Established in 1947, an international agreement to reduce barriers of trade in world trade; was followed by the World Trade Organization (WTO).

General equilibrium theory—In macroeconomics, the study of consumer and producer behaviors that result in market equilibrium as an economy of the whole. *General equilibrium* is the condition in which aggregate supply is equal to aggregate demand.

Generally Accepted Accounting Principles (GAAP)—Accounting principles and procedures accepted by the accounting profession for creating financial and audit statements.

General partnership—An unincorporated business involving two or more individuals; the business is not taxed separately from the individuals.

***General Theory of Employment, Interest, and Money, The*—**Work by John Maynard Keynes (published in 1936) that changed the way government is viewed as a participant in the economy; considered the beginning of macroeconomics.

Giffen good—A good that violates the law of demand; as price increases, so does quantity demanded.

Gilded Age—Generally referring to the period from the 1870s to 1900, the term was derived from the novel *The Gilded Age: A Tale of Today* (1873), by Mark Twain and Charles Dudley Warner, which satirized greed and corruption of the time. The Gilded Age was a time of rapid industrialization and wage growth, but also severe poverty (especially for millions of immigrants) and high concentrations of wealth.

Gini Coefficient—An index measure of a nation's distribution of income based on household income or wealth, from perfect equality to maximum inequality.

Ginnie Mae—*See* Government National Mortgage Association.

Glass ceiling—A nontransparent barrier to entry into certain levels of leadership; term used when describing discrimination of women to top levels of corporate leadership.

Global economics—The study of the world economy (also known as the global economy) and how national economies interact with each other in a global marketplace.

Globalization—The process of integrating national economies into one global economy through improved technology in telecommunications, including the Internet, and transportation.

Gold standard—A fixed exchange rate system that uses gold as its standard of value.

Government Accountability Office (GAO)—Formerly the General Accounting Office; a government agency that works for Congress to ensure financial accountability of government policies, providing nonpartisan financial reports of government actions and government negligence and waste.

Government budget constraint—A relationship between monetary policy options and fiscal policy options at a point of time.

Government failure—Failure in which government program costs outweigh benefits, resulting in misallocation of resources; also known as nonmarket failure; similar to market failure.

Government National Mortgage Association (GNMA or Ginnie Mae)—Government-sponsored corporation to advance home ownership, based within the Department of Housing and Urban Development (HUD).

Government sponsored enterprises (GSEs)—Corporations created by the U.S. Congress as public-service entities but operating as privately held corporations; Fannie Mae and Freddie Mac are examples of GSEs.

Granger Laws of 1874—Series of laws passed in several Midwestern U.S. states to create a price ceiling for costs of freight shipment.

Great Depression—The worldwide economic depression of the 20th century, with significant decreases in wealth, employment, and industrial production; began in the United States in 1929, had spread to Europe by 1931, and lasted until the beginning of World War II.

Great Leap Forward—A 1958 effort by Chinese leader Mao Zedong to upgrade and modernize China; led to a national famine.

Greenbacks—Because the back of the note is printed in green, these were the first non-interest bearing notes printed by the U.S. government to pay for the war debt.

Greenhouse gas emissions (GHG)—Any of the atmospheric gases, such as carbon dioxide and methane, that contribute to the greenhouse effect and climate change.

Gresham's law—Commonly known as "bad money driving out good"; occurs when a government overvalues one money and undervalues the second money so that the undervalued money disappears and the overvalued or bad money overwhelms the economy.

Gross domestic income (GDI)—A measure of a nation's economy: the value of wages, profits, interest, and rents income within a nation's borders over a given period of time.

Gross domestic product (GDP)—A measure of a nation's economy: the final market value of goods and services produced by businesses, households, government, and the effects of net trade (exports minus imports) within a nation's borders over a given period of time.

Gross national product (GNP)—A measure of a nation's economy: the final market value of goods and services produced by the nation's businesses, households, government, and the effects of net trade (exports-imports) regardless of where geographically.

Group life insurance—A type of term life insurance that covers a group of people, usually employees of a company or members of a union or an association.

Group of Seventy-Seven (G77)—Loose association of developing nations, created in 1964 to preserve the nations' independence and sovereignty after they expressed fears of deteriorating terms of trade and lack of market access to the developed nations.

Harrod-Domar model—A measure of the growth rate of an economy through its savings and the productivity of its capital.

Hazardous waste—Materials that pose a public health threat to the environment.

Headline inflation—Inflation rate that includes all components of the Consumer Price Index, including food and energy.

Health care REITs—Real Estate Investment Trusts that invest in properties related to the health care industry, like senior housing communities, assisted living communities, medical offices, hospital buildings, research facilities, and skilled nursing facilities.

Health insurance—Type of insurance that provides the financial means to pay for products and services in the health care market.

Health insurance mandate—Requirement that an employer or an individual have private company insurance or participate in a national plan such as Medicaid or Medicare.

Health maintenance organization (HMO)—Frequently charges lower monthly premiums and out-of-pocket costs in exchange for allegiance to a predetermined group of medical providers. Normally, HMO participants have a primary care physician, and any referrals and treatment needed from specialists must go through the gatekeeper primary care physician.

Health savings account (HSA)—A tax-advantaged account (with special tax benefits regulated by the Treasury Department), available to participants with CDHP plans, that allows users to pay for medical care with pre-tax dollars. This type of plan may be offered in conjunction with an HMO or a PPO.

Heavily Indebted Poor Country (HIPC) Initiative—A debt relief program originally established in 1996 and co-sponsored by the International Monetary Fund (IMF) and the World Bank. Debt relief under the HIPC Initiative involves the reduction of certain external debts owed by poorer countries to foreign creditors.

Heckscher-Ohlin theory—A trade theory that predicts a country's ability to export goods and services based on abundant factors of production and predicts a country's import goods and services when the factors of production are relatively scarce.

Hedge funds—Private pooled funds that make investments in equities, bonds, and derivatives. Hedge funds are similar to mutual funds in that they are pools of capital collected from investors and the capital is invested on behalf of the investors.

Helms–Burton Act—The Cuban Liberty and Democratic Solidarity Act (also known as the Libertad Act); 1996 legislation that tightened existing trade sanctions with Cuba.

Heritage Foundation—A conservative think tank located in Washington, D.C., created to promote conservative public policies based on free enterprise, individual freedom, strong national defense, and limited government.

Heterogeneity—Differences across individuals in preferences and capabilities and across non-economics variables for understanding decision-making and outcomes.

Heterogeneous product—A product that is unique and does not have any notable substitutes.

Hidden economy—In the broadest sense, refers to economic activities that take place outside the official economy and are not declared for tax purposes. (*See also* Shadow economy; Underground economy.)

Higher Education Act—Federal law, first signed in 1965 as part of the Great Society agenda, that provides financial assistance to students wishing to attend college.

"History of the Standard Oil Company"—A series of 19 articles published in *McClure* magazine from 1902 until 1904 detailing the history of Standard Oil under John D. Rockefeller. In 1904, the articles were compiled in a book titled *The History of the Standard Oil Company*.

Homeowners insurance—Insurance policies that protect homeowners against damage from such perils as hail, wind, lightning, falling trees, tornadoes, vandals, water, theft, fire, explosion, vandalism, riot, and perhaps even a falling aircraft.

Homestead Act—A law signed in 1862 by President Abraham Lincoln to promote migration to the western United States.

Homogenous product—A product that is not unique and has many substitutes, none of them distinguishable from the others.

Hope Now Alliance—A cooperative of government personnel, housing counselors, and lenders to help struggling homeowners avoid foreclosure.

Hot-Hand Fallacy—Sometimes called the Gambler's Fallacy, a belief that future outcomes are biased in the *same* direction as a previous sequence.

Housing and Urban Development (HUD), Department of—Federal agency responsible for the Federal Housing Administration, Fannie Mae, and Freddie Mac.

***Human Action: A Treatise on Economics*—**The second and most popular work of Austrian economist Ludwig von Mises; the work, published in 1949, became the definitive explanation of Austrian economic thought.

Human capital—The productive resource of labor in the production of goods and services; human capital is based on several variables, including education, experience, and the market demand for education and experience in particular skills.

Human resources—The component factor of production that includes individuals in the production of goods and services; also known as human capital.

Human rights—Term used to define the fundamental rights of individuals simply by their being global human citizens.

Hyperinflation—Exceptionally swift growth of a nation's money supply, leading to immeasurable inflation rates.

Identity theft—Also identity fraud, terms used to refer to all types of crime in which an individual wrongfully obtains and uses another person's personally identifiable information in some way that involves fraud or deception, typically for economic gain.

IMF conditionality—Conditions placed on nations by the International Monetary Fund in order for those nations to receive funding assistance from the IMF.

Immediate annuity—The simplest type of annuity, in which investors pay a lump sum and receive guaranteed monthly payments for life or for a predetermined time period.

Immigrant—An individual who leaves a home country and comes to a new country for the purpose of establishing a new residence.

Immigration—The movement of people to a country or region where they are not native.

Immigration Reform and Control Act of 1986—The first major revisions of immigration laws aimed to preserve U.S. jobs for U.S. citizens and other qualified individuals.

Imperfect competition—A market condition where perfect competition characteristics are not fulfilled; forms of markets with imperfect competition include monopolistic competition, oligopoly, and monopoly.

Imperialism—Economic imperialism results when a nation's rates of consumption outpace production, forcing the country to export capital to foreign countries in order to exploit foreign markets and labor forces to supply its needs.

Implementation lag—The time between when a government passes a law or policy and when the law or policy can be put into effect.

Implicit cost—The opportunity costs of the resources being used by a business or an individual.

Import and Export Price Indices (IEPI)—Bureau of Labor Statistics (BLS) data reporting increases or decreases of price indices on imports and exports.

Imports—The inflow of goods and services from one nation to another nation.

Import substitution industrialization policies (ISI)—An economic theory implemented by developing economies or by government-dictated economies to decrease their reliance on goods and services imported from developed nations and/or to protect their domestic infant industries.

Incentives—Positive rewards for participating in an activity.

Income distribution—A measurement of different income levels in an economy and the percentage of income earners in each income level.

Income effect—When market changes create a change in the quantity demanded in a good or service, which alters the purchasing power of the consumer, either increasing or decreasing the consumer's ability to purchase goods and services.

Index (indices)—A statistical measure of an economy, such as a stock market index or consumer price index.

Index fund—A type of mutual fund or unit investment trust (UIT) whose investment objective typically is to achieve approximately the same return as a particular market index, such as the S&P 500 Composite Stock Price Index, the Russell 2000 Index, or the Wilshire 5000 Total Market Index.

Index of Openness—Ratio measure of an economy's willingness to engage in free trade, calculated by summing up its exports and imports and dividing that result by its gross domestic product (GDP).

Index of Sustainable Economic Welfare (ISEW)—Corrects a standard measure of per capita consumption for a wide array of social and environmental costs, suggesting the robust economic growth of the 1970s through the 2000s led to relatively little improvement in social welfare.

Indifference curve—A curve composed of a set of consumption alternatives that yield the same amount of utility (satisfaction).

Individual retirement accounts (IRA)—Retirement savings accounts that accumulate capital tax-deferred. Account-holders pay the tax when they receive the capital during retirement. Roth IRA, SEP (IRA), 401(K), and 403(b) are the most common retirement accounts.

Industrialization—The transformation of an economy from agrarian to industry-based.

Industrial Revolution—Period during the 18th and 19th centuries when many economies transitioned from being agricultural-based to being manufacturing-based; included improved transportation and communication technology.

Infant-industry argument—The idea that governments should impose tariffs to protect start-up industries from import competition.

Inferior goods—Economic goods whose demand decreases as income increases.

Inflation—A general rise in the price level of all goods and services (demand-pull) in an economy; the general rise in the costs of resources (supply-push) in an economy; when the quantity of the money supply exceeds the current price level of the quantity of goods and services produced (monetary inflation).

Inflation–unemployment rate trade-off—First proposed by A. W. H. Phillips, the idea that during times of economic growth a nation experiences either inflation with low unemployment or relative price stability with high unemployment.

Informal contract—A contract that is legal and binding, even if it has not been formally consummated.

Informal economy—Consists of business activity that is not reported to the government. (*See also* Shadow economy; Underground economy.)

Information economics—A branch of microeconomics that studies how information and information technology impact an economy.

Infrastructure—An economy's major public services, including roads, sewers, water, schools, medical facilities, and updated telecommunications.

Inheritance taxes—Taxes paid by a person who inherits money or property, or taxes levied on the estate (money and property) of a person who has died.

Initial public offering (IPO)—The primary market offering, orchestrated by investment bankers, of a company selling its stock for the first time.

Initial share price—Price of a company's stock at the time of the stock's initial public offering (IPO).

Injunction—Legal stop to an action.

Input-output (I-O) model (analysis)—A quantitative economic technique that studies, analyzes, and models the interdependence between the inputs (land, labor, capital) and the outputs (goods and services) of a national economy or between different regional economies; originally developed by Wassily Leontief (1905–1999).

Inputs—Land, labor, capital; natural resources, human resources, capital resources.

Insider trading—Trading of a company's stock by an individual who has access to information not available to the general trading public.

Installment loan—Type of loan that has a fixed loan amount, a fixed payment, and a fixed payoff date; examples are auto loans and mortgages.

Institutional economics—The study and analysis of the role of institutions in developing economic behavior.

Institutions—A formal or informal set of rules of behavior, limits, or constraints on an economic, social, and political society.

Insurance companies—Businesses used by individuals and companies to transfer risk of loss in life, property damage, injury, or hardship.

Insurance liability—Refers to fault or legal responsibility.

Intellectual property rights—Protecting artists' creative works, such as books, music, and movies, through copyright law.

Interdependence—The reliance of two resources or economies on each other.

Interest—The price/cost of money expressed in nominal terms (stated interest rate) or real (foundation interest rate) terms.

Interest groups—Groups assembled to promote and influence public policy and public opinion in their favor and create economic rents for their membership; also known as lobbies, campaigns, or special interest groups.

Intermediate goods—Goods produced to be used entirely in the production of final goods.

Internal Revenue Service (IRS)—U.S. government revenue collection agency of the Department of the Treasury.

International Bank for Reconstruction and Development (IBRD)—Established during the Bretton Woods Conference to enable reconstruction of war-torn Europe by loans and securities; the IBRD is now one of five institutions that constitute the World Bank.

International economics—A branch of economics that studies the interdependence of economic activity between nations and the economic development of nations, including resource movements, trade, and investment.

International finance—A branch of economic study concerned with the money flows between nations and the international monetary systems, including balance of payments, exchange rates, international trade, and foreign direct investment.

International Monetary Fund (IMF)—Founded during the Bretton Woods Conference to administer an international foreign exchange rate system and lend to member countries having balance-of-payments problems; lender of last resort for national governments and central banks.

International policy reform—A future state or condition determined by government action and policy to stimulate future international trade or development.

International trade—Trade between companies from different nations; the flow of goods, services, and productive resources between international boundaries.

International Trade Organization (ITO)—International pioneer that later became the World Trade Organization (WTO); also, parts of its charter were incorporated in the General Agreement on Tariffs and Trade (GATT).

Intrapreneurs—Individuals who adapt or improve existing products or introduce new product lines to the firm.

Investing—Act of purchasing economic goods (antiques, art, etc.) or using financial products (stocks, bonds, etc.) to create future wealth.

Investment—Use of today's resources to fund future production or future consumption.

Investment banking—The operations of a financial institution that focus on raising capital to accommodate transactions such as mergers, acquisitions, derivatives, foreign exchange, and the issuance of securities.

Investment risk—Involves both the chance of a financial loss and, unlike pure risk, the possibility of a financial gain on an investment.

Irrevocable trusts—Trusts in which the trustor is not allowed to revoke the trust or make changes to it once it has been created.

Isolationism—Protectionist policy in which a nation intentionally refuses to form alliances, treaties, or other economic partnerships.

Job Openings and Labor Turnover Survey (JOLTS)—Bureau of Labor Statistics (BLS) survey that generates data on job openings, separations, and hires.

John Bates Clark Medal—A prestigious award bestowed by the American Economic Association to an economist under 40 who has made significant contributions to economic knowledge and economic thought; considered second only to the Nobel Prize in Economics in prestige.

Joint-life with last survivor annuity—Annuity that makes a payment to the annuitant and, upon the annuitant's death, continues to make the payments to a second designated party, usually the annuitant's spouse, until that second person's death.

Journeyman—In some trades or professions, a middle-level position that includes both on-the-job and classroom training and education. A journeyman has completed the requirements for apprentice, and is at the level just prior to the master designation.

Judicial review—The prerogative of the courts to review the actions of the legislative and executive branches of government.

***The Jungle*—**Novel written by Upton Sinclair in 1906; this portrayal of the life of an immigrant working in the Chicago, Illinois, meat packing industry led to health, sanitation, and working reforms in the meat-packing industry.

Keynesianism—The school of economic thought influenced by the writings of John Maynard Keynes.

Knights of Labor—A labor union known for participating in an April 1894 strike that involved more than 200,000 miners nationwide; the two-month-long strike turned violent, and at least 11 miners were killed.

Knowledge-based economy/industry—An economy or industry whose resource advantage is in the advanced application of human capital through technology and advanced production and management operations.

Kyoto Protocol—An international treaty requiring binding greenhouse gas emissions limits; to date, the treaty has not been successful.

Labor—Contributions to a nation's economy by humans who work.

Labor economics—A branch of study in economics that focuses on the function of labor markets, including the interaction of workers and employers, the supply of labor, the demand for labor, and labor patterns of an economy.

Labor force participation rate—Ratio of the total number of people participating in a nation's labor market who are employed relative to the size of the total labor force.

Labor movement—A formal action by workers to organize into a labor union to call for improved working conditions, including better wages and benefits.

Labor theory of value (LTV)—Economic theory that submits that the value of a commodity or an economic good or service is based on the labor needed either to produce the commodity, good, or service or to acquire it.

Labor union—A formal organization of wage earners gathered for the express purpose of improving wages, benefits, and working conditions.

Laffer curve—Based on the ideas of supply-side economics, the Laffer curve supposes that government revenues will increase to a specific marginal tax rate, at which time the incentive to work supposedly will decrease, which in turn will decrease tax revenues.

Lagging indicators—Economic and financial measurement data points that describe economic or financial trends after changes in the economy have occurred, such as unemployment and per unit labor cost.

Laissez-faire—An economic term used to describe an economy that is free from government intervention in economic activity, including trade and market transactions; a French phrase for "let us do," generally translated as "let it be" or "to leave alone."

Land—The natural resources available from nature, including resources on the land, from the land, or located beneath the land.

Lausanne School of Economics—A neoclassical school of thought known for developing the general equilibrium theory; also known as the Mathematical School.

Law, John—Scottish banker and financier who created the French General Bank in 1716 and originated the "Mississippi Scheme." Using the bank and the newly formed Mississippi Company, he became wealthy committing fraud against many French investors in the French territories in the Mississippi Valley (the "Mississippi Bubble"). He died poor in Venice, Italy.

Law of Large Numbers—The belief that a sample randomly drawn from a population is highly representative; thus, each sample must be similar to each other sample and to the population.

Law of Small Numbers (the Gambler's Fallacy)—A bias judgment that assumes the characteristics of a sample population can be estimated from a small number of observations or data points.

Leading indicators—Economic and financial measurement data points that describe economic or financial trends that reflect economic changes to come in the future, such as bond yields and the stock market.

Least (or lesser) developed countries (LDCs)—Countries that have an inability to service their foreign debt; usually countries with a small per capita gross domesic product (GDP) and a less developed economy, infrastructure, and industrial base.

Legal tender—A currency that is recognized by law as legal and must be accepted in payment of debts.

Legal Tender Act—Enacted in 1862, the act permitted the use of paper money, took the government off the gold standard, and authorized the printing of more than $150 million in paper money, known as "greenbacks," without gold or silver backing. Such a rapid expansion of the currency created massive inflation.

Lender of last resort—The role of a central bank or financial institution that is willing and able to lend to a bank with temporary liquidity problems in order to keep the position from spreading to a general loss of confidence in other banks or financial institutions.

Liabilities—All obligations or amounts owed, including funds borrowed and formalized with a written contract; also known as debt.

Liability insurance—Insurance that protects the policyholder from a variety of personal and business risks.

Liability risk—When someone's actions result in a loss to another's property; can arise under statute law, common law, and the law of contract.

Libertarianism—A political philosophy that emphasizes freedom, voluntary association, and liberty of the individual, which includes small government.

Liberty of contracts—The freedom of individuals, organizations, and corporations to enter into formal legal contracts without government interference.

Life cycle—Stages of life, for person or product, from birth to death.

Life insurance—A product with various forms to protect family members from the loss of income due to the death of the insured person, who is usually the family's primary earner.

Limited liability company (LLC)—A hybrid legal business structure whose members have a limited liability as a corporation but receive the tax advantages of a partnership.

Limited liability partnership (LLP)—A business with partners whose personal liability is limited to their personal investment in the business.

Liquidity—Individual's or corporations' access to assets that can be quickly converted into cash.

Liquidity crisis—A financial crisis of a business or an economy based on a severely limited or negative cash flow.

Living wage—An income level essential for a wage earner to meet the basic needs of housing, clothing, and food; also known as a subsistence wage.

Living will—Advance health care directive addressing end-of-life medical treatment wishes.

Lobbyists—Individuals involved in the act of lobbying to promote and influence policy, laws, and regulations to benefit their constituencies.

Lockner Era—Named for the *Lockner v. New York Supreme Court* case, a time in American history when the Supreme Court struck down several laws interfering with personal property rights and individual economic liberties.

London School of Economics (LSE)—A public research university in London, England; founded by Sidney Webb, Beatrice Webb, and George Bernard Shaw in 1895 to conduct research and teaching in the social sciences, mathematics, and statistics.

Long-run equilibrium—A situation in which aggregate demand and aggregate supply are equal during a time period when all resources are variable.

Long-Term Disability—Insurance covering wages lost due to injuries and treatments, lasting for an extended period of time.

Lorenz curve—A graphical illustration of a nation's cumulative wealth distribution compared to a diagonal line representing perfect distribution.

Loss aversion—When investors don't like to lose money: people's tendency to prefer avoiding losses to acquiring equivalent gains.

Love Canal—A neighborhood in Niagara Falls, New York, that gained international fame when it was disclosed that the site was a formal major toxic waste site.

Maastricht Treaty—approved in 1991 by the European Council to discuss the implementation of a single currency and the three-stage plan outlined by the Delors Report. The approval of the treaty signified the start of transitioning to the euro. Also known as the Treaty on European Union (TEU).

Macroeconomics—The study of a nation's economy as a whole, measuring changes in unemployment, money supply, national income, and general price level.

Madison, James—Fourth president of the United States, "Father of the Constitution," and author of the Bill of Rights.

Magnuson-Stevens Fishery Conservation and Management Act—Individually transferable quota program that set the total catch based on biological assessment and divided the catch between resource users into shares that could be traded. Individually transferable quotas were used in only a handful of other U.S. fisheries but appeared to be successful in managing.

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)—Indian labor law enacted in 2005 and launched in 2006 to provide jobs to semi- and unskilled adults in rural areas of the country for at least 100 days each year.

Majority rule—Process of electing an alternative by receiving one vote more than half the population voting.

Malthus theory—The theory named after Thomas Malthus that predicted a return to subsistence living when food production cannot keep pace with population growth.

Managed float—Process for a central bank to manage its domestic currency exchange rate.

Management science—The interdisciplinary study of human organizations, strongly associated to economics.

Mandates—In law, a formal notice of a decision being made by an appeals court.

Mao Zedong—Powerful Chinese leader who initiated China's Great Leap Forward in the 1950s to modernize China's economy; also known as Mao Tse-Tung.

***Marbury v. Madison* (1803)—**A landmark Supreme Court decision that laid the foundation for judicial review under Article III of the U.S. Constitution.

Marconi, Guglielmo—Italian inventor and electrical engineer; his experimentation with wireless electricity in 1895 led to the discovery of the radio.

Margin—Several different meanings and applications from business profit to economics; adding one more unit.

Marginal benefit—The increase in total benefit when output increases by one unit. It can be calculated by dividing the change in total benefit by the change in quantity.

Marginal cost—The increase in total cost when output increases by one unit. It can be calculated by dividing the change in total cost by the change in quantity.

Marginal cost of production—Changes in total production costs from the addition of one more unit of labor, capital, or land to the production process.

Marginal cost pricing—Setting a product's price equal to the additional cost added to the production of one more unit.

Marginalism—Studying the economic impact on outputs by changing one input unit at a time.

Marginal physical product—The increased output (goods, services) created due to the addition of one additional input (land, labor, capital); also known as marginal product.

Marginal propensity to consume (MPC)—Ratios of consuming of the additional dollar, resulting in MPC + MPS = 1.

Marginal propensity to save (MPS)—Ratios of saving of the additional dollar, resulting in MPC + MPS = 1.

Marginal rate of substitution—The rate at which a consumer is willing and able to give up one good or service for a complementary good or service without forfeiting satisfaction (utility).

Marginal revenue product—The additional revenue from the additional of one additional input.

Marginal tax rate—The change in tax payment divided by the change in income; percentage of additional dollars to be paid in taxes.

Marginal utility—The change in utility (satisfaction) of an activity obtained by adding one more unit to the total consumed.

Mark-to-market accounting—Uses the fair value of the current market price of an asset or a liability for balance sheet valuation; also known as fair value accounting.

Market—The interaction of a buyer (consumer, household) and a seller (producer, business) exchanging goods or services in a variety of different settings.

Market distortions—Third-party (usually government) involvement to alter a market decision, such as a price ceiling or price floor.

Market economy—An economy where the key economic questions (what to produce, how to produce, for whom to produce) are addressed, answered, and implemented in the marketplace in the transactions between buyers and sellers.

Market failure—An economic situation or transaction in which too few or too many resources are going to a specific economic activity.

Market price—The price offered in the marketplace; also known as the economic price.

Market structure—Structure of a competitive industry or market, based on the number of firms, product differentiation, and barriers to entry; market structures include perfect competition, monopolistic competition, oligopoly, and monopoly.

Marshall, Alfred—Economist who first introduced the concept of efficiency wages in his *Principles of Economics* (published in 1890).

Marshall Plan—A massive U.S. and Canadian aid package designed to rebuild Europe after World War II.

Marxism—A worldview for social, political, and economic change based on the division between social classes and influenced by the writings of Karl Marx.

Mass Layoff Survey—A Bureau of Labor Statistics (BLS) monthly survey of wage earners who have been laid off by corporations for which more than 50 initial claims for unemployment insurance have been submitted during any five-week period.

Mathematical economics—The application of mathematical methods to study, analyze, and represent economic theories through such empirical approaches as statistics, econometrics, calculus, and differential equations.

Medicaid—Health insurance program for the poor, jointly funded by the federal and state governments.

Medicare—The federal government health insurance program for citizens aged 65 and older as well as the disabled.

Medium of exchange—A function of money in an economy to make transactions efficient and to avoid barter.

Mercantilism—The economic system of 16th-century Europe that stressed the importance of exports, and not imports, for accumulating trade surpluses to boost a nation's revenues; the modern mercantilism approach is to promote exports but stay closed to imports.

Microcredit loans—Small loans ($50 to $100) made to small businesses called microenterprises in developing countries; also known as microloans.

Microeconomics—The study of decision-making by individuals, firms, and organizations.

Microenterprises—Small businesses with 10 or fewer employees.

Microfinance—A term to describe financing services provided to low-income entrepreneurs who cannot access regular financial services.

Millennium Development Goals (MDGs)—Goals established by the United Nations in 2000, agreed to by all UN members and intended to be achieved by 2015; the eight goals are to eradicate extreme hunger and poverty; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat HIV/AIDS, malaria, and other diseases; ensure environmental sustainability; and develop a global partnership for development.

Minimum efficient scale—A scale to show a business where it achieves economies of scale and efficient operation.

Minimum wage—A legislated price floor set by a government to determine the lowest possible hourly wage rate that can be legally paid to workers.

Mixed economy—An economy in which the key economic questions (what to produce, how to produce, for whom to produce) are addressed, answered, and implemented through a combination of transactions between buyers and sellers and a central authority (government).

Modeling—Economic real world representations to explain and/or predict economic changes and conditions.

Molasses Act of 1733—An act of the Parliament of Great Britain that required merchants to submit customs forms; the law actually cut the tax rate on molasses in half for better compliance but also required stricter enforcement.

Monetarism—An ideology of economic thought most prominently held by Milton Friedman that views the money supply as the key variable in measuring a nation's economic output and measure of price level.

Monetary economics—A branch of economics that studies and analyzes the functions of money as a medium of exchange, store of value, and unit of account; studies the roles of central banks and the money in an economic system.

Monetary policy—Macroeconomic policies related to interest rates and money supply; usually determined by the nation's central bank.

Monetary unions—A currency trade bloc where a group of countries uses a common currency.

Money—The currency of a nation's economy used as a medium of exchange, a store of value, and a unit of account.

Money market account—A type of savings account that promises higher interest payments in exchange for a larger deposit; also known as a money market demand or deposit account (MMDA).

Money multiplier—Result of the Federal Reserve's fractional reserve banking system that reflects the mathematical growth of the money supply based on the Fed's reserve requirement (1/rr).

Money supply—The quantity of money circulating in an economy, measured by the Federal Reserve through several different measures (the base measures are M1 and M2).

Monopolistic competition—A market with fairly easy entry in which a large number of firms produce comparable but not the same products.

Monopoly—A one-firm industry that can determine the market price of a good.

Moody's Investors Service—One of the premier rating agencies; rates all types of debt instruments, including short-term government bonds, commercial paper, and bank deposits.

Moral hazard—The prospect of riskier behavior when borrowers know they may not have to be responsible for a loan; behavior that generates significant social costs.

Moral philosophy—The defining and defending of conduct that is considered right or wrong; also known as ethics.

Morgan, John Pierpont (J. P.)—Powerful early 20th-century banker and financier involved in many large mergers; also a key player in the founding of United States Steel.

Morse, Samuel F. B.—American inventor who invented the telegraph (1838) and soon thereafter a communications code, called Morse code, to speed communications.

Mortgage—A debt instrument by which a loan is made to a borrower who pledges their interest in property (real estate) to the lender as collateral to secure the repayment of the loan. Once the loan has been repaid in full, the lender no longer has a claim on the property.

Mortgage-backed securities (MBS)—Investments based on packaged mortgages of various risks offered to investors to receive rates of returns similar to bonds; can include collateralized mortgage obligations (CMOs) and collateralized debt obligations (CDOs).

Mortgage REITs—These differ from equity REITs as the investment is in real estate mortgages and real estate debt, both residential (housing-related) and commercial (non-residential property types).

Most favored nation (MFN)—Requires that trade concessions granted to one country automatically apply to other GATT/WTO members.

Muckraking—A term coined by Theodore Roosevelt in 1906, comparing journalists who expose corruption or scandal in business or politicians to John Bunyan's character in *Pilgrim's Progress*, whereby the man with the muck rake foregoes paradise to focus on the bad things.

Multilateral institutions—Organizations, formed by several nations, that act together to achieve a common goal.

Multilateral trade negotiations—Called trade rounds; negotiations by several nations simultaneously to promote fair and free trade among all the nations involved.

Multinational enterprise (MNE)—A company that operates globally.

Multiplier effect—Ratio reflecting results of fiscal policy changes of taxes or government spending on the aggregate economy; 1/(1 – MPC) (Marginal Propensity to Consume) or 1/MPS (Marginal Propensity to Save).

Mungbeans—A lesser-known commodity, also available in the futures market.

Municipal bond interest payments—Generally, these are tax-exempt and provide a tax advantage to investors; depending on the certainty around revenues associated with a municipal bond, most municipal bonds have lower interest rates than corporate bonds.

Municipal bonds—Often, an income tax–free investment instrument offered by municipalities such as states, cities, schools, or other public agencies; can be offered either for general obligation or for specific purposes such as building roads, bridges, or schools.

Muth, John—An Indiana University economist who is credited with the theory of rational expectations, which he introduced in the 1960s.

Mutual funds—Pooled investment vehicles used by investors to invest in a variety of asset classes. Instead of an individual investing in a specific stock or a bond, mutual funds collect a pool of capital from many investors and invest on behalf of these investors. Investors are charged a management fee for this service, referred to as the expense ratio.

Mutual savings banks—Financial institutions that obtain funds primarily from long-term, fixed-rate assets and rely principally on time and savings deposits for their funding. (*See also* Savings banks.)

NANA—A for-profit corporation owned by more than 14,000 Inupiat, indigenous people who inhabit northwest Alaska. NANA was created as a result of the Alaska Native Claims Settlement Act, which was signed into law in 1971. The Northwest Alaska Native Association, a nonprofit formed in 1966 to advocate for Native American issues, was the precursor to NANA. *Note*: NANA is not an acronym for Northwest Alaska Native Association and should not be referred to as such.

NASDAQ Stock Market—National Association of Securities Dealers Automatic Quotation System; the first electronic stock market; the largest U.S. stock exchange in volume of trading, specializing in technology and information companies.

Nash equilibrium—A game-theory solution where each player has a chosen strategy and no player can gain by changing strategy, such that none of the players change their strategies and the resulting choices and payoffs are accepted; named for John Nash.

National Academy of Sciences—A U.S.-based private, nonprofit organization of the country's leading researchers; its members, who are elected based on their original research achievements, serve as independent, objective scientific advisers to the United States.

National Ambient Air Quality Standards (NAAQS)—Established in 1970 to protect public health in polluted areas.

National Bureau of Economic Research (NBER)—The largest American private nonprofit research organization, providing unbiased research in economics for policymakers, businesses, and the academic community.

National Compensation Survey (NCS)—A Bureau of Labor Statistics (BLS) survey that provides comprehensive measures of occupational earnings, compensation cost trends, benefit incidence, and detailed plan provisions; its data is available through the Employment Cost Index (ECI) and Employer Costs for Employee Compensation (ECEC).

National Credit Union Association (NCUA)—Agency of the federal government that charters and provides supervision over federal credit unions and provides savings insurance to both federal and some state chartered credit unions.

National Credit Union Share Insurance Fund—Government insurance fund insuring credit union deposits operated by the National Credit Union Association.

National debt—Includes public debt of a nation, such as the Treasury securities (Treasury bonds, notes, and bills) issued by the government.

National Environmental Policy Act (NEPA)—Law that requires federal agencies to include environmental values and environmental impact studies in their decision-making when considering governmental actions.

National income accounting—An estimated measure of an economy's national income and its components, including wages, profits, rents, and interest income; one approach to measuring an economy's aggregate performance.

National Industrial Recovery Act—Enacted in 1933 during the Great Depression, this act authorized President Franklin Roosevelt to regulate industry in an effort to stimulate the economy through establishment of several governmental public works programs.

National Labor Relations Board (NLRB)—An independent U.S. government agency, located in Washington, D.C., that oversees elections of labor union representatives and investigates charges of unfair labor practices.

National Prohibition Act in 1920—Act that legislated the implementation of the prohibition of alcohol as directed by the 18th Amendment of the U.S. Constitution. Also known as the Volstead Act.

National Recovery Administration (NRA)—Established by President Franklin D. Roosevelt in 1933, had sweeping powers to control wages and prices; intended to reduce "destructive competition" and to help workers by setting minimum wages and maximum weekly hours as well as minimum prices at which products could be sold; in 1935, unanimously declared unconstitutional by the U.S. Supreme Court.

National War Labor Board (NWLB)—Government agency created by President Woodrow Wilson in 1918 to handle labor disputes in the war industries during World War I; it was terminated in 1919 and reinstated in 1942 by President Franklin D. Roosevelt for essentially the same purpose and terminated in 1945.

Natural rate of unemployment—The idea that there is always some level of unemployment in an economy, even when levels are considered to be at full-employment.

Natural Resource Conservation Service (NRCS)—Federal agency that works with private landowners, providing technical assistance and special programs to conserve, improve, and maintain natural resources.

Natural resources—Those resources that originate from the environment, such as air or water; are extracted from the ground or water, such as oil; or are taken from natural habitats, such as fish.

Natural rights, natural law—Components of a political order based on a social contract (rather than on divine right or monarchic rule); foundational elements of government during the Age of Enlightenment.

Navigation Acts—A series of English laws that restricted foreign shipping trade between foreign countries and British colonies.

Negative externality—A third-party effect from an economic exchange where the external costs of the exchange are greater than the external benefits.

Negative-sum game (exchange)—A game in which players as a group lose during the process of the game and are worse off at the game's conclusion than when the game began.

Neoclassical—A school of economic thought in microeconomics that posits that individuals and firms make decisions so as to maximize their utility or profits; emphasizes that people act independently based on varying amounts of information and make decisions based on rational calculation.

Neo-Keynesians—Economists such as Paul Samuelson who combined neoclassical economic models with new interpretations of Keynes's writings.

Neo-Ricardian—A modern interpretation, offered by Piero Sraffa, of David Ricardo's case against marginal theory of value.

Net profit margin—Measures profitability after subtracting taxes and interest expense resulting from debt incurred by a corporation, as well as the exclusions from gross and operating profit margins.

Net worth—The net worth of a business or an individual is determined by adding the total of the things the business owns (assets) and then subtracting from this amount the total of what the business owes (liabilities).

Net worth statement—A document that shows the financial worth of a business or an individual by showing assets minus liabilities.

Neuroeconomics—Interdisciplinary field of study that brings together neuroscience, economics, and psychology.

New Currency Act of 1871—In Japan, established a Japanese monetary system with a decimal account similar to the European one, hoping to stabilize Japan's economy.

New Deal—Economic programs in the United States during the 1930s, designed to combat the Great Depression.

New York Stock Exchange (NYSE)—The largest and oldest stock exchange market in the United States.

Nobel laureate—Title bestowed on a recipient of the Nobel Prize. (*See list in* "Nobel Laureates in Economics.")

Nobel Prize in Economics—Considered by many to be the most prestigious award for outstanding contributions to the field of economics; endowed in 1968 and first awarded in 1969; officially, the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel.

Non-Accelerating Inflation Rate of Unemployment (NAIRU)—A very low unemployment rate, so that the number of employed and their purchasing power places a demand that exceeds the current production of goods and services.

Non-exclusion principle—Principle that an individual cannot be excluded from receiving the benefits of such goods or services as national defense, public education, or local police or fire protection.

Non-performance risk—When financial losses occur as a result of one party agreeing to perform a certain service for another and then failing to perform this service completely.

Non-systematic or firm-specific risk—Measured by the company's volatility, which is commonly calculated as the standard deviation of historical returns.

Normal goods—Economic goods whose demand increases as consumer income increases.

Normative economics—Value-based economic statements; keywords of a normative economics statement are "should" and "ought to."

North American Free Trade Agreement (NAFTA)—Created on January 1, 1994, between the United States, Canada, and Mexico and signed by President Bill Clinton, Mexican President Carlos Salinas, and Canadian Prime Minister Jean Chretien. NAFTA created the largest free-trade area in the world, eliminating most tariffs on products traded among the three nations of 450 million people and producing $17 trillion worth of goods and services.

Office of Financial Research (OFR)—Established as part of the Dodd-Frank Wall Street Reform and Consumer Protection Act in 2010 to help promote financial stability through research, data-gathering, and risk-analysis of financial markets.

Office of Management and Budget (OMB)—The largest office within the executive office of the president of the United States; assists the president in the preparation, oversight, and administration of the federal budget.

Office of the Comptroller of the Currency—Created with the National Currency Act of 1863 as an independent government bureau to ensure safe operations of banks and federal savings banks.

Offshoring—The actions of individuals and businesses to conduct part of their transactions outside their domestic borders.

Oil Producing Exporting Countries (OPEC)—An organization of oil-producing nations with the goal of influencing and creating a stable global market price of oil; members include Algeria, Angola, Ecuador, Gabon, Iran, Iraq, Kuwait, Indonesia, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela; OPEC's headquarters are in Vienna, Austria.

Okun's law—The relationship between the unemployment rate and economic growth as measured by gross domestic product (GDP); a 1-percent decrease in the unemployment rate translates into a 3-percent increase in GDP; named for economist Arthur Okun.

Oligopoly—A market structure with few sellers in which each seller is aware that the other sellers will respond to any changes in prices, quantities, or qualities of products on the market.

Open debt—The least common among the types of debt; includes debts that must be paid in full every month.

Open economy—An economy that is free of such protectionist barriers as tariffs, quotas, and other, similar regulations.

Operating profit margin—Measures profitability after all overhead costs (such as rent and utilities), administrative costs (such as salaries), and selling expenses (such as vehicles and advertising) have been excluded.

Opportunity cost—The next best alternative cost (trade-off) of a decision; every decision has a cost, because every decision involves forgoing an alternative good, service, or activity.

Option contract—An agreement between a buyer and a seller that gives the buyer of the option the right to buy or sell a particular asset at a later date at an agreed upon price; these contracts fall into two categories: puts and calls.

Orderly Liquidation Authority—As part of the Dodd-Frank Act, a provision that oversees the sale of the assets of a business, with the proceeds being used to pay creditors and any leftovers distributed to shareholders.

Organisation of Economic Co-operation and Development (OECD)—Established in 1961, an international organization of developed nations committed to free trade and democracy, with the goal of stimulating global trade and global economic growth; the OECD's headquarters are in Paris, France.

Organizational behavior—Field of study on the behavior of humans within organizations, and the structures of organizations.

Otto, Nikolaus—Inventor of the gasoline-powered internal combustion engine in 1876.

Outputs—Goods and services.

Outsourcing—A firm's employing of resources, either domestic or foreign, outside the firm.

Outstanding debts—Debts that have not been paid off in full; examples are mortgages, car loans, student loans, and credit cards.

Over the counter (OTC)—Stock-trading that is conducted outside such formal stock exchanges as the New York Stock Exchange (NYSE) and the American Stock Exchange (AMEX).

Ownership—The process of possessing the rights to defined property, including the ability to defend and sell a property item as one wishes.

Panic of 1873—An international financial crisis; in some countries it lasted as long as a decade.

Paper notes—Paper money issued by the U.S. government without having intrinsic value or without being backed by gold or silver; also known as greenbacks. (*See also* Greenbacks.)

Paradox of thrift—First popularized by John Maynard Keynes, the notion that during times of economic slowdown and contraction people increase their savings, reducing economic activity further, when to help economic recovery they should be spending.

Paradox of value—An expression that stresses the dichotomy between "use" value and "exchange" value for a good or service.

Pareto optimality—A concept which holds that efficient economic allocation is achieved when no one can be made better off without someone else becoming worse off; named after the Italian engineer and economist Vilfredo Pareto.

Pareto principle—When 80 percent of the results are created by 20 percent of the sources; also known as the 80–20 rule.

Partial equilibrium analysis—Equilibrium analysis of just a single market within an economy.

Partnership—A non-incorporated business structure in which there are two or more owners and business profits are treated as ordinary income.

Patent—An exclusive right, granted by a government, that provides an inventor with private property protection for an invention for a specified period of time.

Patent and Trademark Office—A federal office responsible for granting patents and trademarks and for protecting the holders of patents and trademarks against infringement.

Pay discrimination—Differences in per-unit pay for time worked that cannot be explained by traditional variables such as education and work experience.

Payment history—A credit report showing whether payments have been made on time or 30 days late, 60 days late, or 90 days or more late.

Peer-to-peer (P2P)—A lending and investing platform in the United States where individuals can both borrow and lend money without using the traditional U.S. financial system; also known as social lending.

Pegged currencies—When the value of one country's currency is fixed to another country's currency in an effort to stabilize the value of the second currency in global markets.

Pegged exchange rate—The exchange rate when a domestic currency's value is set relative to a foreign currency. (*See also* Fixed exchange rate.)

Pension—A contract between an employer and an employee for a fixed sum of income to be paid to the employee after a defined term of service (usually in years), in a one-time payment upon the employee's retirement or regularly in set amounts during the employee's retirement.

Pension Benefit Guaranty Corporation (PBGC)—An independent federal insurance agency that protects employee benefits in most traditional defined benefit plans.

Pension plan—A type of retirement plan, usually tax-exempt, under which an employer makes contributions to a pool of funds that is invested on behalf of an employee and is set aside for an employee's future benefit; two main types of pension plans are (1) defined benefit plans and (2) defined contribution plans.

Per capita income—Measure of a nation's standard of living, based on a nation's total income divided by its population.

Perestroika—The economic restructuring of the Soviet economic system during the late 1980s, initiated by Soviet leader Mikhail Gorbachev.

Perfect competition—A market structure with many buyers and sellers, in which individual decisions do not affect market price.

Perfectly elastic—Price elasticity of demand measures how demand changes in response to changes in price for a particular good; demand is perfectly elastic when the change in demand by consumers is equal in percentage to the change in price.

Perfectly inelastic—Price elasticity of demand measures how demand changes in response to changes in price for a particular good; demand is perfectly inelastic if demand by consumers does not change when the price changes,

Permanent insurance—Life insurance policies that remain in effect for the life of the insured; popular forms are whole life and endowment policies.

Personal Consumption Expenditures (PCE)—A report of the Bureau of Economic Analysis (BEA), which reports changes in personal expenditures of households.

Peso—Official currency of Mexico; symbol MXN$.

Philanthropy—Promoting the welfare of others, often by donating money to nonprofit organizations, charities, and benevolent organizations.

Phillips curve—A curve that shows the trade-off or inverse relationship between unemployment and inflation; named for A. W. H. Phillips.

Physiocrats—A group of economists originating in France during the late 18th century whose economic theory was based on productive work as a source of national wealth.

Pigou effect—A term that defines the relationships among wealth, consumption, output, and employment; as wealth increases it leads to increases in consumption, which in turn stimulates output and employment; named for A. C. Pigou.

Planned economy—An economy where the three main questions (what to produce, how to produce, and for whom to produce) are addressed, answered, and implemented by a central authority (government); also known as a command economy.

Political economy—Early terminology from moral philosophy, used to describe the study of buying, selling, and producing, along with the related governmental laws and societal customs; used to describe the relationship between government and economy in a national context.

Pollution—A negative externality; contaminating the air, water, or ground environment

Ponzi scheme—An investment fraud scheme of promising and paying high returns on funds received from investors not by actually investing the funds but by taking them from funds received from newer investors; named after Charles Ponzi.

Portfolio management—Defining or identifying investment objectives, identifying resources and limitations, constructing an investment portfolio, and monitoring and revising the portfolio.

Portfolio theory—A mathematical approach to investing in which diversification (coordinated selection of diverse assets) plays a major role; the theory has been challenged in recent years by behavioral economists.

Positive economics—Analysis limited to factual statements or scientific predictions; economic analysis that aims to describe "what is" rather than "what ought to be."

Positive externality—A third-party effect from an economic exchange where the external benefits of the exchange are greater than the external costs.

Positive-sum game (exchange)—A game in which players as a group are better off at the end of the game than when the game began.

Post-Keynesian—A school of economic thought based on the writings of John Maynard Keynes, specifically his seminal work *The General Theory of Employment, Interest and Money*, in an effort to reestablish Keynesianism within economic theory; post-Keynesians include Joan Robinson, Michal Kalecki, and Nicholas Kaldor.

Pound Sterling—Official currency of the United Kingdom; symbol £.

Poverty—Defined in absolute terms as the inability to satisfy basic needs through income, or described in relative terms as a measure of income inequality, where an individual's or family's income is below a predetermined income level (this level differs from one society or nation to another).

Power of attorney—An agreement that legally gives one individual decision-making powers for another individual or party.

Predatory pricing—An illegal act of lowering prices in an attempt to force the competition out of business through mergers, acquisitions, or liquidation.

Preferential trading arrangement (PTA)—An agreement for preferential trade conditions that reduce protectionist policies between countries.

Preferred provider organization (PPO)—A health care network of member doctors, specialists, and hospitals; offers more flexibility than an HMO.

Preferred stockholders—Stockholders who have seniority over common stockholders in receiving dividend payments without voting rights and are paid first in case of bankruptcy or liquidation.

Present value—Calculation that determines today's value of a future amount of funds, to be received at a certain date in the future.

Price ceiling—A market distortion implemented by a government entity when it considers the market price too high for a particular market, such as rents; implementation can lead to a market shortage.

Price controls—Controls imposed by a government, establishing either minimum or maximum prices to be charged for goods or services.

Price discrimination—Occurs when the pricing by businesses is differentiated based on the ability to identify a specific market segment, such as children or senior citizens.

Price fixing—An agreement between businesses to set a common price on their good or service.

Price floor—A market distortion implemented by a government entity when it considers the market price too low for a particular market, such as minimum wage or agricultural price supports; implementation can lead to a market surplus.

Price maker—A monopoly, monopolistic competition, or oligopoly where a firm has the power to influence the price it charges, because there are no substitutes for the good(s) it produces.

Price searcher—A firm that can set or influence the price of the product, good, or service that it sells by the amount of units sold, often because there is a single price market for these commodities.

Price theory—A theory in economics in which market price, determined by supply and demand, is the key signal of future economic actions.

Prices—Signals the relative allocation of the distribution of productive resources to goods and services.

***Principles of Political Economy and Taxation*—**The major work on economics of the early 19th century authored by David Ricardo in 1817.

Prior restraint—Censorship imposed, usually by a government, on expression before the expression actually takes place, for example, on a speech before the speech can be delivered to an audience.

Prisoner's dilemma—Game of strategy in which both parties choose to protect themselves at the expense of the other, which then actually benefits neither; analogous to the situtation in which two prisoners, interrogated separately, have a choice between confessing and not confessing to a crime.

Private costs—Costs of production that are borne by a private individual or business.

Private goods—Goods that produced by privately owned businesses or by private individuals.

Private property—The ownership of an economy's productive resources (land, labor, capital) by the private sector of an economy.

Private property rights—Exclusive rights of ownership that allow the use, transfer, and exchange of property.

Probate—In the first part of probate, the will is submitted to the probate court in order to be proved valid. In the second part of the process, an estate administrator is appointed to collect and distribute the assets to the designated heirs.

Producer Price Index (PPI)—An index produced by the Bureau of Labor Statistics (BLS) that measures the average change of prices of output being charged by domestic producers during a specified period of time.

Producers—The buyers of the productive resources of land, labor, and capital (inputs) of an economy, who then use those resources to create and sell the goods and services produced (outputs).

Producer surplus—The difference between what producers would be willing and able to produce and the amount they receive from their market interaction with buyers.

Product differentiation—The process through which a firm differentiates its product from that of its competitors; variables for differentiation include quality, price, or design for a specified target market.

Production possibility curve (frontier)—A curve representing all possible combinations of maximum outputs being produced using a full complement of inputs, assuming a specific point in time, a fixed amount of productive resources, and fixed technology; also reflects the trade-offs a nation must make in order to change or alter a given allocation of resources for a specified output.

Productive capital—Financial assets that earn interest.

Productive resources—The land, labor, and capital of an economy used by producers to create goods and services.

Productivity—Measuring the economic growth of an economy through the relationships of inputs and outputs: increased outputs using the same inputs, or same outputs using fewer inputs.

Productivity report—A quarterly report of the Bureau of Labor Statistics (BLS) that measures the level of output per unit of labor.

Product standardization—Establishing consistent features for a good or service.

Profit—Difference between the cost of business and the total revenues received. (*See also* Accounting profit; Economic profit.)

Profit maximization—A microeconomic condition where a firm determines maximum price and production levels by measuring the relationship between the firm's marginal cost and marginal revenues.

Profit-sharing plan—A defined contribution plan under which the plan or the employer may determine, annually, how much will be contributed to the plan (out of profits or otherwise); also known as a stock bonus plan.

Progressive Era—Time period from the 1890s to the 1920s that saw some of the most aggressive reforms on trusts, the breaking-up of monopolies, laws passed to protect consumers, and the creation of the Federal Reserve System.

Prohibition Bureau—Inside the U.S. Treasury Department, a special agency that enforced the 18th Amendment on the prohibition of alcohol.

Prohibition Era—Period from 1920 to 1933 when the 18th Amendment to the U.S. Constitution made the sale or transport of alcoholic beverages illegal; repealed by the 21st Amendment in 1933.

Propensity to consume—The rate at which a consumer spends on goods and services.

Propensity to save—The rate at which a consumer saves.

Property rights—The rights of property owners to legally define their property, to protect their property, and to sell or use their property as they see fit.

Property risk—Risk that typically occurs when physical assets are stolen, damaged, or destroyed. Two types of property risks are direct property losses and indirect property losses.

Prospect theory—Theory that explains how an investor is influenced by how a scenario is framed; suggests that people are risk-averse in the domain of gains but are risk-seeking in the domain of losses; also called loss-aversion theory.

Protectionism—A nation's ability to limit imports (quotas) or tax imports in order to keep domestic industries competitive (tariffs).

***Protestant Ethic and the Spirit of Capitalism, The*—**Max Weber's classic 1904 work, in which he argued that the rise of the Protestant work ethic led to economic development of the Protestant regions of Europe starting in the 16th century.

Public choice theory—The use of economic analysis and economic tools to study the behavior of public officials and the behavior of citizens as voters; public choice theory often uses such tools as game theory or decision theory.

Public debit—All debt of governments and public institutions (public schools et al.) held by individuals, corporations, state and local governments, Federal Reserve Banks, foreign governments, and other entities outside of a government. Classified into two categories: debt held by the public and intragovernmental holdings. Public debt is created by the act of borrowing. In the United States, the federal government auctions Treasury securities such as bonds and treasury bills to foreign and domestic investors to raise money.

Public finance—Revenue generated through taxes, fees, fines, and levies, to be used by public institutions for the purpose of providing public goods.

Public goods—Goods and services offered by a public institution that are non-excludable (individuals cannot be prohibited from receiving the benefits of these goods); consumption of public goods and services is shared without diminishing the benefits to the users.

Public policy—A government law or regulation imposed by a governmental unit on its constituency.

Public utility pricing—A pricing scheme in which a government subsidy is necessary in order to maintain production because the price is equal to marginal costs and is below the average cost.

Purchasing power parity—When exchange rates are converted, an adjustment made to account for the differences in the true cost of living between countries.

Pure Food and Drug Act 1906—Beginning of major consumer protection initiatives by the federal government; led to the establishment of the Food and Drug Administration.

Pure risk—A risk with a certain negative outcome and no possible positive outcome.

Quantitative easing—A monetary policy of a central bank by which the bank purchases private market securities (primarily mortgages) to increase the money supply and lower interest rates.

Quantitative economics—The use of mathematical tools to address and analyze economic problems; includes calculus, differential equations, and econometrics; also known as mathematical economics.

Quantity demanded—A specific price along a demand curve at which a buyer is willing and able to purchase a good or service.

Quantity supplied—A specific price along a supply curve at which a seller is willing and able to produce a good or service.

Quantity Theory of Money—Identifies the relationship between an economy's money supply (M), price level (P), velocity of money (V), and value of its goods and services (Q) as $PQ = MV$; the number of monetary units (M) times the number of times each unit is spent (V) equals the quantity of goods and services sold (Q) times the prices paid for the goods and services (P); also known as the Equation of Exchange.

Quasi-banking entities—PayPal and peer-to-peer or social lending are two banking-related services that fill a banking need with nontraditional quasi-banking entities. PayPal provides payment transfer services for electronic money transfers; used to pay merchants and individuals online, this nonbank entity also links an individual's credit card and bank accounts to offer a myriad of payment transfer options.

Quid pro quo—A Latin phrase referring to doing something for someone or giving something to someone in exchange for receiving something or having something done in return.

Quota—A restriction that one nation imposes on another country on the quantity of an imported good.

Railway Act of 1864—Passed by Congress in 1864, the second Pacific Railway Act doubled the size of the land grants to railroad companies for the construction of the Transcontinental Railroad and allowed the railroads to sell their own bonds. After the railroad was completed, investigation revealed illegal profiteering and a system of corruption among speculators facilitated by the act.

Random choices—Along with erratic and whimsical behaviors, defined by Gary Becker as irrational.

Random walk—Investing theory that selecting stocks and equities without an investment plan can generate a rate of return as good as the selections made in a formal plan.

Rational expectations—A theory based on future policy changes and effects on economic variables founded on past experiences.

Rationality assumption (of rationality)—In economics, assumption that rational individuals make decisions to make them better off.

Rationing—Distributing scarce resources (land, labor, capital) or economic goods and services in a predetermined plan, as opposed to the market allocating the resources or goods.

Reaganomics—Term used to describe the economic policies of President Ronald Reagan, including low marginal tax rates, minimal government regulations, and reduced government spending.

Real Estate Investment Trust (REIT)—Financial security that combines the ownership of many real estate properties (shopping centers, office buildings, or even just the mortgages) and then sells off individual slices of ownership, or shares to individuals.

Rebalancing decision—Action that returns asset class percentages to their original proportions.

Recency effect—Causes individuals to assign a heavier weight to recent events than to events further in the past; also known as forecasting error or memory bias.

Recession—The declining economic growth portion of the business cycle, measured by two consecutive quarters of negative economic growth.

Reciprocal Trade Agreements Act (1934)—Law signed by President Franklin D. Roosevelt that promoted the United States entering into tariff agreements with other nations.

Recycling—Reusing materials such as paper, glass, plastic, and rubber from previously produced products to produce newer products.

Reducing Emissions from Deforestation and Forest Degradation (REDD)—An effort by the United Nations to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development.

Regional Clean Air Incentives Market (RECLAIM)—California emissions program to reduce urban air pollution; adopted in 1993, a federally approved cap-and-trade program.

Regional trade agreements—An agreement between groups of nations for the express purpose of granting special trade benefits and access to each domestic market; for example, NAFTA.

Regulation Q—Part of the Banking Act of 1933 (Glass-Steagall Act), regulating and prohibiting banks from paying interest on checking account deposits.

Reichsmark—German currency used from 1924 to 1948, replaced after World War II with the Deutsche Mark; symbol RM.

Renminbi—Official currency of China; symbol ¥.

Renter's insurance—Insurance for renters that provides the same coverage for household contents as homeowner's insurance; also known as tenant's insurance.

Rent-seeking—An action of lobbyists and special interest groups to increase the value of clients' or members' actions without increasing productivity; that is, receiving additional compensation without performing additional labor.

Representative heuristics—Explains how individuals can extrapolate too much information from small samples of data; individuals may conclude that if the price of a stock, house, or tulip has recently increased, it will continue to increase.

Required reserve—In a fractional reserve banking system, the fraction of daily deposits that a bank is required by law to keep on its books at the conclusion of each working day.

Reserve ratio—The percent of deposits a bank must keep as cash reserves as determined by the Federal Reserve policy.

Resolution Trust Corporation (RTC)—During the 1980s savings and loan crisis, a U.S. government–owned management company whose purpose was to liquidate assets of financial institutions, specifically savings and loan associations, that had been declared insolvent by the Office of Thrift Supervision.

Resource Conservation and Recovery Act (RCRA)—A 1976 law enacted with the goal of conserving natural resources and energy through recycling.

Restraining order—In law, a court order to a person or entity to either stop an action or prevent a party to pursue an act. A legal order issued against an individual to restrict or prohibit access or proximity to another specified individual.

Retained earnings—The part of earnings that a corporation keeps and does not pay out to shareholders.

Retirement account—A type of investment account allowing workers to invest today's dollars tax-deferred for use later in retirement; common types of retirement accounts include 401(k), 403(b), traditional IRA, and Roth IRA.

Return—A profit or rent earned by the owner of a factor of production (land, labor, capital).

Revenue—The amount received by a business through the sale of a good or service; a government total of taxes, fees, and fines received.

Revenue Act of 1921—Law that changed the tax treatment of capital gains and losses by dividing assets into short-term and long-term.

Revenue Act of 1942—Law that changed the treatment of capital losses and consolidated the tax treatment of short-term and long-term losses. A five-year carryforward was created so that net capital losses could be used to offset capital gains.

Revenue Act of 1964—Law that repealed the five-year loss carryover for capital losses and replaced it with an unlimited loss carryover.

Reversal test—Test based on imagining a change in the opposite direction as the deviation from the status quo.

Revocable trust—Trust that allows the trustor to retain control of all the assets in the trust and to revoke or change the terms of the trust at any time.

Revolving credit—When there is not a final end date for paying of the debt, and the credit holder is allowed to continually use the credit, pay it off, and then use it again.

Revolving debt—Gives the borrower, either a corporation or an individual, access to credit if it is needed in the future; also known as revolving credit or a line of credit.

Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994—Federal law allowing banks to open branch banks across state lines and purchase banks in other states, removing restrictions that had been in place since 1927.

Right to Work laws—Statutes ensuring that a worker cannot be ordered or forced to join a union as a condition of employment and cannot be forced to pay union dues.

Risk—The potential that an economic action (or lack of action) will leave a person worse off than before the action was taken.

Risk premium—The excess return an investor gets in order to compensate for the excess risk born by investing in any particular security other than the risk-free Treasury bill.

Rival consumption—A principle where the consumption of a good by one prevents the consumption of the good by another. Only one person can enjoy or benefit from the good, for example, food. Contrast with goods such as public parks, roads, golf courses (public or private), and theaters that have no consumption rivalry and several people can enjoy the benefits simultaneously without impeding others to enjoy the same benefit.

***Road to Serfdom, The*—**Work by Friedrich von Hayek (published in 1944) that expounds on the dangers of central planning as an economic system, leading to further state control and the loss of individual freedoms.

Rockefeller, John D. (1839–1937)—Founder of the Standard Oil Company; became one of the world's wealthiest people and most influential philanthropists.

Roosevelt, Theodore—The 26th president of the United States; known as the "trust-buster" for his efforts to break up the Standard Oil Trust.

Roth IRA—A retirement account distinct from the other types of retirement account in that the contributions are made after income taxes are paid, so that no tax is due when the Roth IRA contributions are withdrawn.

Royal Economic Society in London (U.K.)—One of the oldest professional associations promoting the study of economics (established in 1902); it is the publisher of *The Economics Journal* and *The Econometrics Journal*.

Royal Swedish Academy of Sciences—Founded in 1739; since 1969, the organization that awards the Sveriges Riksbank Prize in Memory of Alfred Nobel (the Nobel Prize in Economics).

Rule of law—System of laws where all people, public and private, are equal under a set of transparent laws administered fairly and efficiently.

Sarbanes-Oxley Act (SOX)—Law designed to protect shareholders from fraudulent accounting practices and to upgrade corporate disclosures; passed by the U.S. Congress in 2002 and signed into law by President George W. Bush.

Savings—The amount of current income that an individual has set aside for use at a later time.

Savings account—A very safe type of financial account that offers a low interest rate; savings accounts are protected against loss up to $250,000 for each Social Security number; bank savings accounts are insured by the Federal Deposit Insurance Corporation (FDIC) and credit union accounts are insured by the National Credit Union Share Insurance Fund (NCUSIF).

Savings and loan associations (S&Ls)—Financial institutions that obtain funds primarily from long-term, fixed-rate assets, and rely principally on time and savings deposits for their funding. (*See also* Mutual savings banks.)

Savings and loan crisis (S&L crisis)—A major event in modern money management in the 1980s and early 1990s that tested the entire financial system in a way not seen since the Great Depression (1929–1939).

Savings bond—Most popular U.S. Treasury note, available in denominations up to $5,000; offered by the Treasury in several varieties: EE/E bonds, HH/H bonds, and I bonds.

Savings–investment relationship—An identity relationship signaling that an economy's investment is dependent on the nation's savings.

Savings vehicles—Saving accounts, checking accounts, and certificates of deposit (CDs).

Say's law—An economic rule stating that supply creates its own demand; named for Jean-Baptiste Say.

Scarcity—The basic economic problem of allocating limited resources (land, labor, capital) to satisfy the unlimited desires for goods and services.

Seasonal unemployment—The component of the unemployment rate that is determined by jobs that are performed only during specific seasons of the year and jobs that are weather-dependent.

Second National Bank of the United States—Second federally authorized national bank; its charter was allowed to expire in 1836; in the absence of a national direction in banking, the states began regulating banks themselves.

Secondary effects—Consequences of a decision that was not anticipated, considered, or expected prior to the decision being made.

Secured debt—A loan, such as a mortgage, that requires the borrower to give the lender collateral or real goods or property (security) if the borrower fails to repay the debt.

Securities—Stocks and bonds.

Securities Act of 1933—After the 1929 stock market crash, legislation enacted to require more truthful financial statements and to establish laws against fraud in the securities stock markets.

Securities and Exchange Commission (SEC)—Government agency established to protect investors and to enforce rules and laws of the securities markets.

Securities Industry and Financial Markets Association (SIFMA)—Professional industry trade organization representing broker-dealers, asset managers, and banks.

Seligman, Edwin R. A.—Columbia University professor of political science and economics; co-founder of the American Economics Association (AEA).

Sequestration—In law, the seizure of property to be distributed to creditors.

Service Mark—A trademark such as a company logo, name, or slogan for a service or a nonprofit.

Shadow economy—Refers to both legal and illegal economic activities that take place outside the official economy and are not declared for tax purposes. (*See also* Hidden economy; Underground economy.)

Shared consumption—The concept that more than one individual can enjoy the benefits of a good or service simultaneously without diminishing the benefits received by other users; a key criteria of a public good.

Shays' Rebellion—An 1787 uprising of Massachusetts farmers and ex-soldiers who were overwhelmed by debt and by strict new laws being imposed by a new state government, reacting much as colonists had a decade earlier; named after Daniel Shays, a Continental Army veteran.

Shock therapy—The use of aggressive and dramatic fiscal and monetary policies to turn a state-controlled economy into a free-market economy.

Short run—Economic time period when one input (land, labor, and capital) cannot be altered.

Short-selling—A strategy where an investor believes the price of a security will go down, so the investor borrows the security and sells it at its current price, anticipating being able to buy it back at a lower price and earn a profit.

Short-term disability—Policies that have a waiting period of between 0 (zero) and 14 days before the benefit becomes available to the claimant, with a maximum benefit period of two to five years.

Signaling—A strategy adopted by individuals who have private information upon which they take actions that are costly to themselves but which individuals with different characteristics don't have an incentive to follow.

***Silent Spring*—**Best-selling book written by Rachel Carson in 1962 that helped begin the environmental movement in the United States.

Single European Act—Revised the 1957 Treaties of Rome to increase the pace of European integration to create one market.

Single life annuity—Annuity in which payment continues until the annuitant's death.

Sin taxes—Term used to identify taxes levied by governmental entities on goods deemed to be unhealthy; for example, taxes on smoking products and alcohol.

Sixteenth Amendment—The amendment to the U.S. Constitution that gave the federal government the power to levy and collect taxes, including the income tax; ratified in 1913.

Small Business Health Options Program (SHOP)—Health care marketplace that offers plans designed for small businesses and their employees; businesses with fewer than 25 employees may also qualify for tax credits if they buy insurance through SHOP.

Smith, Adam—Considered the "Father of Classical Economics"; wrote *An Inquiry into the Nature and Causes of The Wealth of Nations* (1776) and *Theory of Moral Sentiments* (1759).

Smithsonian Agreement—Adjusted the fixed exchange rates established during the Bretton Woods Conference; devalued the U.S. dollar, raising the price of gold to $38 per ounce.

Social accounting—The process of keeping corporations accountable for their environmental impacts.

Social choice theory—A framework for collective decision-making using individual values in the aggregate; combines the fundamentals of voting theory and welfare economics.

Social economics—A comprehensive term for a branch of economics that uses economic tools and analysis to study society, ethics, or philosophy.

Social institutions—A person's external environment, such as school, religious organization, family, and network of peers.

Social insurance—A government program that transfers risk to an organization that provides benefits to those who represent a defined population; such programs have defined eligibility requirements and are funded through taxes or shared public–private funding.

Socialism—An economic system, known as a command economy, where a central authority answers the key economic questions (what to produce, how to produce, for whom to produce).

Social liberalism—The view that the government has a social foundation, and that therefore the proper role of government includes addressing social issues like health and education, as well as defending the rule of law.

Socially responsible corporation—Corporation that has initiatives within its business plans that reflect sensitivity to and concern for environmental and social issues.

Social science—The academic disciplines of economics, history, sociology, political science, geography, and the like that involve studying human behavior (both individually and collectively), society, and social groups.

Social Security—A federal program of the Social Security Act of 1935 to provide income to qualifying retired individuals such as Old-Age, Survivors, and Disability Insurance (OADI); funded through Social Security tax (Federal Insurance Contributions Act, or FICA) paid by American workers and their employers.

Social Security Administration (SSA)—Initially called the Social Security Board (SSB); created in 1935 with the passage of the Social Security Act under President Franklin Roosevelt.

Social Security Disability Insurance—Initiated in 1957, provides monthly payments to disabled workers who cannot work due to a major disability that is expected to last at least a year or to result in death within a year.

Social Security Retirement Benefits—Funded through Social Security tax (Federal Insurance Contributions Act, or FICA); a qualifying retired worker receives retirement income at age 62 or later based on years participating and level of income earned while working.

Socrates (ca. 470–399 BCE)—A Greek philosopher who was influential in creating many of the philosophical foundations of Western thought.

Sole proprietorship—A business structure with only one owner.

Solicitor General—An appointee of the federal government, designated to represent the United States before the Supreme Court.

Sovereign debt—Money that a government owes its bondholders; U.S. debt (bonds) offered by the U.S. Treasury.

Special drawing rights (SDRs)—A reserve asset created by the International Monetary Fund (IMF) for countries, specifically developing countries, to use in settling international payments.

Specialization—Refers to economic resources when a worker performs only one component of the production process, or when businesses provide only one good or service.

Special-purpose vehicles (SPVs)—Legal entities created to make a company's obligations secure even if the company goes bankrupt; can also be used to hide debt by keeping loans off the company's balance sheet, allowing financial institutions to increase their debt levels even further; also called special purpose entities, or SPEs.

Specie currency/money—Money created (minted) from a precious metal such as gold, silver, or copper, with the amount in circulation based on government declaration; for example, many ancient Spanish or Roman coins were specie money.

Speculative risk—Risk that involves both the chance of a financial loss and the possibility of a financial gain; also known as investment risk.

Spillover benefits (spillover costs)—When people besides the buyer and seller benefit from (or bear some of the costs of) the production or consumption of a good; also known as an externality.

Spot exchange rate—The real-time value of a domestic currency in terms of a second currency.

Square Deal—Programs developed by President Theodore Roosevelt to address social issues during his presidency (1901–1909).

Stagflation—Term coined to describe an economy experiencing stagnant economic growth (lower real GDP) and inflation at the same time.

Stamp Act of 1765—During colonial hard times, the act directly taxed all printed materials moving within the colonies, including legal papers, deeds, newspapers, and playing cards.

Standard and Poor's—The first credit rating scale; the scale begins with AAA and grades downward to C and D; ratings below BBB are considered to be the riskiest and apply to speculative or junk bonds. Began over 100 years ago by Henry Varnum. On April 28, 2016, the name Standard & Poor's Ratings Services was changed to S&P Global Ratings.

Standard and Poor's 500 stock index—Measures the price movements of the 500 most important companies in the United States; widely duplicated by stock index mutual fund companies.

Standard of living—A term to describe a level of material well-being, including income, employment factors, poverty rate, affordable housing, gross domestic product, hours of work needed for living basics, access to health care, availability of education, infrastructure, safety, and other metrics related to a nation's quality of life.

State Children's Health Insurance Program (SCHIP)—A special type of health insurance for children; even if parents do not meet income thresholds for Medicaid, SCHIP ensures that children's medical needs are covered; also known as the Children's Health Insurance Program (CHIP).

State-owned enterprises (SOEs)—Government-owned companies, mostly in transportation, communications, and other key industries.

Static economic view—A view of the economy's condition at a specific point in time.

Statistical discrepancy—Concluding line item component of the Balance of Payments to insure that the Current Account + Capital Account – Financial Account equals zero; also used to balance the difference between gross domestic product (GDP) and gross domestic income (GDI).

Steel Tariff of 2002—To protect the domestic steel industry, the United States imposed temporary tariffs on imported European steel. Europe sued, and in 2003 the tariffs were ruled illegal.

Stock—Shares of ownership that companies offer in order to raise additional sources of capital; also known as equity shares. (*See also* Equity.)

Stockholm Convention— Meeting held on January 4, 1960, to establish the European Free Trade Association (EFTA), a regional trade organization and free trade area consisting of Iceland, Liechtenstein, Norway, and Switzerland.

Stockholm School of economics—A group of Scandinavian economists who influenced Swedish economic policy post–World War II; led by Knut Wicksell, Gunnar Myrdal, Eli Heckscher, and Bertil Ohlin.

Stock market—The aggregation of buyers and sellers exchanging stocks; also called equity market.

Stock market crash—A sudden and dramatic drop in stock prices across the market. On October 29, 1929, Black Tuesday, the U.S. stock market volume traded for a loss that is believed to have signalled the start of the Great Depression. October 19, 1987, Black Monday, was the first major financial catastrophe of the second half of the 20th century.

Stolper-Samuelson Theorem—A theory that states that changes in import or export prices of final goods lead to a change in the same direction of the income generated by the resources used in the production of those goods.

Strict construction doctrine—The idea of limiting the federal government's usurpation of state powers, a position held by President James Madison.

Structural unemployment/Cyclical unemployment—The component of the unemployment rate determined by the economic growth or recession in the business cycle.

Subprime mortgage—A mortgage that is financed based on below-normal lending standards.

Subprime mortgage crisis—An economic crisis that occurs when financial institutions finance too many mortgages below the normal or standard lending practices.

Subsidy—Government aid or payment to a domestic producer to encourage infant industries or to protect domestic industries, and make them more competitive with foreign competition.

Substitutes—Economic goods or services that are different from each other but have the same value to a consumer, so the consumer's satisfaction is met with either one.

Substitution effect—Economic concept that when the price of a good or a service rises, consumers will search for a substitute good or service.

Sugar Act of 1764—Act that placed import duties on sugar, wine, coffee, indigo, and textiles brought into the British colonies in America; also known as the American Revenue Act.

Sunday laws—Laws designed to restrict or ban some or all shopping on Sunday for religious reasons; also called blue laws.

Sunk cost—A cost that has already been incurred and cannot be recovered.

Sunk cost effect—Belief that paying for the right to use a good or service will increase the rate at which the good will be utilized; also the tendency of people to continue use a product or service despite it not meeting expectations because of the cost(s) already incurred.

Supply—The willingness and ability of producers to produce a good or service at a set of prices.

Supply curve—The graphical representation of a supplier's willingness and ability to produce a good or service at a set of prices.

Supply-side—A school of economic thought that contends that economic growth is best generated through low marginal income tax rates and low capital gains tax rates with reduced government regulation.

Supply-side economics—The proposition that incentives for producers will increase productivity, shifting the aggregate supply curve outward.

Suspicious activity report (SAR)—A document filing by a financial institution when money fraud or money laundering is suspected.

Swaps—Derivative instruments that allow for transfer of an asset or a liability between two counterparties. The most common types of swaps are interest rate swaps and currency swaps.

Swiss Franc—Official currency of Switzerland.

Switching test—Requires one to imagine the alternative option (opting out) as the status quo, and then to consider the arguments for changing back to the actual status quo.

Symmetric information—When everyone involved knows all applicable information before a decision is made.

Systematic risk—Risk applicable to the total market, and common to all stocks; refers to how a stock moves when the market fluctuates.

Tarbell, Ida—American teacher, author, and journalist; one of the leading "muckrakers" of the late 19th and early 20th centuries. Published a series of articles systematically chronicling the misdeeds of the Standard Oil Co. and John D. Rockefeller.

Tariff—A tax on imports, usually levied by developed nations to protect domestic industries and by developing nations to generate revenue.

Tariff Act of 1832—Legislation enacted by President Andrew Jackson in his second term to reduce high tariffs being imposed in 1828.

Tariff rate quota (TRQ)—A type of import quota that permits the import of a specific quantity of a product at a reduced tariff rate during a period of time.

Tax deferral—A financial strategy for putting off payment of tax until a future date.

Taxes—One form of revenue generated by governments, used to produce public goods or redistribute income.

Taxpayer Relief Act of 1997—Legislation that changed the capital gains tax treatment by lowering the maximum tax rate on long-term capital gains income to 20 percent (and creating a 10 percent maximum capital gains tax rate for individuals in the 15 percent tax bracket).

Tenth Amendment—Last amendment to the Bill of Rights in the U.S. Constitution; gave powers not assigned to the federal government to the states.

Term life (temporary) insurance—A life insurance policy for a set death benefit for a set number of years, after which the insurance is no longer in force.

Testamentary trust—Created by the terms of a will; goes into effect only after the person's death.

***Theory of Moral Sentiments, The*—**The first of Adam Smith's two major works, published in 1759, the other being *The Wealth of Nations* (published in 1776).

Theory of public choice—The study of how groups participate in decision-making.

Theory of the firm—A combination of economic theories intended to identify and explain the nature of firms, companies, and corporations and their structures.

Thrifts—A shortened term for savings and loan associations and savings banks that focus on making home mortgage loans and accepting savings deposits.

Time value of money—The idea that a dollar today is worth more than a dollar tomorrow, because a dollar today can earn interest into the future, whereas a dollar in the future will be reduced in value through inflation.

"Tin Lizzy"—The nickname of the Model T Ford automobile built by Henry Ford; considered the first affordable car for the average consumer, due to Ford's use of the assembly line.

Title VII of the Civil Rights Act of 1964—Federal law that identified as illegal the practice of discriminating on the basis of race, ethnicity, religion, gender, or national origin.

Title IX of the Education Act—Federal law that prohibits discrimination in educational institutions.

Tobin's q—The ratio between the market value and the replacement value of an economic good; the ratio can be used to identify a relationship between financial markets and the markets for goods and services; developed by James Tobin.

Tobin tax—A tax on the spot conversion of a currency to a second currency to penalize short-term currency transactions.

Tools of the Fed—The three tools the Federal Reserve System can use to achieve its monetary policy goals: discount rate, reserve requirement, and open market operations.

Total Cost (TC)—For a company, the sum of total variable costs and total fixed costs (TC = TFC + TVC).

Total Quality Management (TQM)—A holistic management approach to production and quality in business organizations; developed by William Deming.

Townshend Acts—Acts passed by Great Britain in 1767, taxing imported goods such as paper, glass, and tea to raise revenue in the colonies.

Toxic waste—A liquid, gas, or solid that can harm humans, animals, and/or the environment.

Trade—The voluntary exchange between two entities for the express purpose of improving the standard of living for both.

Trade agreements—Trade pacts between nations to promote free trade, or preferential trade, or to identify a tariff, quota, or other trade restriction.

Trade barriers—Protectionist policies implemented by domestic governments to protect domestic industries; the policies include tariffs, quotas, subsidies, or other, less transparent obstacles to trade.

Trademark—A unique or innovative logo, picture, phrase, or emblem to identify a business, corporation, or manufacturer; filed with the U.S. Patent and Trademark Office.

Trade-offs—Another term for opportunity costs.

Trade union—A formal organization of workers that share a common professional or semi-professional skill, such as electricians, plumbers, and airline pilots.

Trade war—When two or more nations create trade barriers or protectionist measures against each other as a retaliatory response to imposed protectionist measures.

Traditional economy—An economy based on culture and heritage.

Traditional IRA—Type of tax-advantaged retirement account where an individual and spouse (if filing joint tax returns) can contribute income on a tax-deferred basis if they have taxable compensation and are younger than age 70½.

Tragedy of the Commons—The overuse of public goods with no regard for the costs of use.

Tranche—Part of a larger unit, such as a group type of mortgages packaged in a mortgage-backed security or a partial payment for a loan to a nation by an international financing organization.

Transaction costs—The costs related to making, reaching, and enforcing agreements.

Transfer payments—Distribution of income from governments to individuals by way of money payments with no goods or services in return.

Transitional economy—Once-developing economies whose economic measures reflect significant growth yet are still too low to be considered a developed nation; the BRIC nations of Brazil, Russia, India, and China are examples of transitional economies.

Transportation Revolution—A wave of new and better modes of transportation experienced by the United States in the early 19th century; improvements included steamboats, canals, railroads, and better travel roads.

Treasury bills—Short-term U.S. Treasury obligations issued with a term of less than one year.

Treasury bonds—Long-term U.S. Treasury obligations with a term of 10 years or longer.

Treasury Inflation-Protected Securities (TIPS)—Government savings bonds introduced by the U.S. Treasury in 1997 as a hedge against inflation.

Treasury marketable securities—Debt securities issued by the U.S. government, similar to bond investments.

Treasury notes—Intermediate to long-term U.S. Treasury investments with maturities of typically 2, 3, 5, 7, and 10 years.

Treaty of Maastricht—Established the Treaty on European Union, or TEU, in 1993, replacing the Treaty of Rome.

Treaty of Rome—Established the European Economic Community (EEC) in 1957; was replaced by the Treaty of Maastricht in 1993.

Treaty of Versailles—Peace treaty that ended World War I and imposed heavy war reparations on Germany, ultimately leading to Germany hyperinflation.

TRICARE—Administers civilian health benefits for military personnel, retirees, and their dependents; managed by the Defense Health Agency (DHA).

TRIPS agreement—Officially called the Agreement on Trade-Related Aspects of Intellectual Property Rights; came into effect on January 1, 1995, negotiated during the Uruguay Round (1986–1994) of the General Agreement on Tariffs and Trade (GATT) trade talks; administered by the World Trade Organization (WTO).

Trotsky, Leon (1879–1940)—Marxist revolutionary and politician; a key figure in the early Communist Party in Russia and leader of the Bolshevik (Red Army) Russian Revolution.

Troubled Asset Relief Program (TARP)—A program created by the federal government and administered by the Treasury Department in an attempt to short-circuit the growing financial crisis of 2007–2008.

Truman, Harry S. (1884–1972)—The 33rd president of the United States (1945–1953); he initiated a broad legislative agenda known as the Fair Deal.

Trust—A new business arrangement, emerging in the early 1880s, in which shareholders assigned their shares in a company to trustees who held the decision-making power of the company.

Trustor or settlor—The person who creates a trust is known as the trustor or settlor, who in turn may name an individual to act as the trustee to oversee how the assets in the trust are managed.

Umbrella insurance policy—A broad protection against the cost of losing a lawsuit over a vehicle accident or an accident on one's property.

Underemployment—Status where employed participants in the labor force are in positions below their optimum experience and education level.

Underground economy—Economic activities that take place outside the official economy and are not declared for tax purposes. (*See also* Hidden economy; Shadow economy.)

Unemployment—The total number of adults age 16 and over who are not working but are willing and able to work and are actively looking for work.

Unemployment insurance—A transfer payment to those who are willing and able to work but currently are not working.

Unemployment rate—A measure of the number of people who are not working but are willing and able to do so.

Unfair trade practice—A trade practice that is considered to favor one party over another, giving one party an advantage within a trading partnership.

Unintended consequences—Effects of a decision that were not anticipated, considered, or expected prior to the decision being made.

United Auto Workers (UAW)—Founded in the 1930s as part of the Congress of Industrial Organizations; a unified labor union of the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America; most noted for its representation of labor in the automobile industry.

United Mine Workers—Labor union founded in 1890 that represents coal miners.

United Nations Conference on Trade and Development (UNCTAD)—Established in 1964 as a UN intergovernmental body; assists and serves developing nations with trade, investment, and development opportunities.

United Nations Framework Convention on Climate Change (UNFCCC)—International environmental treaty. In 1997, the Kyoto Protocol, a legally binding extension of the UNFCCC, was adopted to establish emissions limits for developed countries.

United Nations International Conference on Population and Development (ICPD)—Addresses population issues, adopting a 20-year Program of Action that creates a global blueprint for reducing the population growth rate and advancing social and human development.

United Nations Millennium Project (Goals)—An initiative to implement operational means to achieve the Millennium Development Goals (MDGs) developed by the United Nations in 2000 to address poverty reduction, hunger, disease, illiteracy, discrimination against women, and environmental degradation with a target date for achieving these goals of 2015.

United Nations Population Fund (UNFPA)—A UN organization that issued a progress report on the state of human population in the world with promising developments in integrating population policies with countries' development plans, expanding reproductive health programs and women's rights; formerly called the United Nations Fund for Population Activities.

Unit elasticity—Equal corresponding consumer response relative to a price increase; the percent change in quantity demanded is equal to the percent change in price.

Universal Declaration of Human Rights (UDHR)—Declaration that human rights are also legal entitlements; adopted and proclaimed by the UN General Assembly in 1948 and now endorsed by virtually all countries in the world.

Unlimited liability—The responsibility of business owners to pay debts and obligations has no financial limits.

***Unsafe at Any Speed*—**Best-selling book written by Ralph Nader in 1962; its major impact was the unanimous passage of the 1966 National Traffic and Motor Vehicle Safety Act.

Unsecured loan—Type of loan, such as credit card debt, that is not secured by an underlying asset such as real estate, jewelry, or other physical property; carries a higher risk than secured debt.

Unskilled labor—The component of the workforce characterized by jobs with low skill levels and low education levels, paying low wages and offering limited advancement.

Urban areas—Regions with high population density; sometimes also referred to as the inner city.

Urban planners—Land use designers who seek to increase the efficiency and effectiveness of urban areas relative to population and land specialization.

Uruguay Round—Multilateral trade round of negotiations of the General Agreement on Tariffs and Trade (GATT).

U.S. Department of Agriculture—A Cabinet-level department responsible for issues related to food, natural resources, and agriculture, including nutrition, agricultural science, and economics; made up of 29 separate agencies that provide research, consulting, and management leadership.

U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS)—The public health agency responsible for ensuring that the nation's commercial supply of meat, poultry, and egg products is safe, wholesome, and correctly labeled and packaged.

U.S. Department of Commerce—A Cabinet-level department responsible for promoting economic growth and creating jobs by collecting, analyzing, and reporting economic and demographic data.

U.S. Department of Commerce and Labor—A department of the federal government created in 1903; in 1913, it was divided into two separate departments: Department of Commerce and Department of Labor.

U.S. Department of Labor—A department of the federal government charged with promoting the welfare and working conditions of wage earners, job seekers, and retirees, especially, to administer the many programs intended to protect, educate, or provide access for the U.S. labor market.

U.S. Department of the Interior—A department of the federal government charged with protecting the country's natural resources and cultural heritage while also conducting scientific studies and providing information on the nation's resources.

U.S. Department of the Treasury—Established by Congress in 1789, this Cabinet-level department was created to manage government revenue, print paper currency, mint coins for circulation, collect federal taxes, and manage U.S. government debt instruments.

U.S. Department of Veterans Affairs (VA)—Cabinet-level agency charged with overseeing the benefit system for military veterans.

U.S. Energy Information Administration—Agency responsible for collecting, analyzing, and disseminating energy information to facilitate sound decision-making by policymakers and to enhance the public's understanding of energy and its interaction with the environment.

U.S. Food and Drug Administration (FDA)—Federal agency responsible for protecting the public health; regulates and approves the safety of many products and drugs, including food, dietary supplements, over-the-counter medications, vaccines, cosmetics, and tobacco products.

Usury—The charging of interest when loaning money.

Utilitarianism—An early theory of ethics, promoted by John Stuart Mill and Jeremy Bentham; utilitarianism promotes the idea that the good is whatever has the most utility in maximizing overall happiness.

Utility—A representation of the satisfaction one experiences, according to one's various preferences, when consuming a good or service.

Value (theory of)—A generic term that includes all economic theories regarding the value of prices for goods and services.

Value added—The price of a final good minus the value of intermediate inputs used to produce it.

Value of the marginal product—The value of additional revenue generated from a one-unit change in an input.

Variable cost (VC)—Variable costs are dependent on total output; they include a company's cost for commodities, raw materials used in the production process, and possibly some labor costs not determined by a union or other form of labor contract.

V-Chips—Devices that enable parents to keep their children from accessing offensive content on television or the computer.

Veblen goods—Goods with an upward-sloping (to the right) demand curve; as price rises, so does the quantity purchased; named after Thorstein Veblen.

Vector auto regression (VAR) model—A theoretical construct designed to test cause-and-effect relationships, such as the impact of increases in interest rates on the money supply or the consequences of tax cuts on growth and inflation.

Velocity of money—Measure of the number of times a currency revolves completely through the economy.

Vertical integration—Merger between businesses at different levels of the supply chain to increase production efficiency and effectiveness.

Vesting period—Period of time employees are required to work before they are eligible to receive benefits in a defined benefit plan, or to receive the employer's contribution of a defined contribution plan.

Veterans Health Administration (VHA)—Government agency charged with providing health care for veterans, overseen by the U.S. Department of Veterans Affairs.

Victorian Era—A period in British history named for Queen Victoria's reign, from 1837 to 1901.

Volcker Rule—A component of the Financial Reform Act of 2010 proposed by Paul Volcker to limit U.S. banks' ability to make certain speculative investments that do not profit their customers.

Voluntary exchange—Elective trade between a buyer and a seller in which both parties expect to be better off as a result of the exchange.

Voluntary export restraint (VER)—In this type of quota the exporting nation voluntarily limits an export to an importing nation.

Voluntary import expansion (VIE)—A bilateral agreement that requires one country to accept additional imports from a second country.

Wage and price controls—Income policies implemented to freeze wages and prices.

Wages—Compensation to the labor resource components in the production of intermediate capital resources or final goods and services.

Wall Street—Street in Lower Manhattan that is home to the New York Stock Exchange; often used as a nickname for the financial markets and financial system.

***Wealth of Nations: An Inquiry into the Nature and Causes of the Wealth of Nations, The*—**Written by Adam Smith in 1776, the work that altered the study of economics and changed economic thought from mercantilism; considered the beginning of classical economics.

Welfare economics—The branch of economics that uses microeconomic tools, methods, and theory to assess the economic well-being of individuals and their economic activities as groups, societies, and communities.

Welfare state—A political unit where a government has a major role in the protection and promotion of the individual through specific government economic and social organizations; modern welfare states include Iceland, Sweden, and Norway, where significant revenue transfer from individuals to the state funds such public services as education and health care.

Welfare theory—Field of economics that uses microeconomics to study aggregate social good.

Wetlands—Areas of land covered by water year-round or for a significant period of the year.

Will—A legal document in which a person states who should receive his or her possessions after the person dies.

Wilson, Woodrow (1856–1924)—The 28th president of the United States (1913–1921), and a leader of the Progressive Movement.

Woman's Christian Temperance Union (WCTU)—Organization led by Francis Willard, who argued that alcoholic beverages were the cause of many the country's social ills.

Workfare—A system of welfare in which adults are required to perform some form of work in order to receive aid.

Working poor—Individuals who work but whose income level is below the poverty level.

Workplace retirement savings plans—Retirement saving plan in which workers put a specific amount of their pay into the accounts, and in some cases the employer matches a portion of the money the workers contribute; also known as defined contribution plans.

Works Progress Administration (WPA)—Part of President Franklin D. Roosevelt's New Deal; the federal government directly hired several million unemployed Americans to do work ranging from raking leaves to building airports.

World Bank—A multinational agency whose purpose is to make loans to developing nations; the loans are to be used to build and improve a nation's schools, hospitals, sanitation, roads, and other infrastructure; established during the Bretton Woods Conference following World War II.

World Health Organization (WHO)—Agency of the United Nations charged with assessing, promoting, and monitoring global outbreaks of disease and determining the effectiveness of global health initiatives.

World Trade Organization (WTO)—An independent organization created during the GATT talks for the express purpose of serving as the main international body to promote international trade among developed and developing nations; also serves as the refereeing body for international trade disputes.

Writ of error—A writ issued by an appellate court, directing the court of record to send a trial record to the appellate court to be looked at for potential errors.

Yen—Official currency of Japan; symbol ¥.

Yield Curve—Graph relating interest rate and maturity of a bond.

Yom Kippur War—On October 6, 1973, Syria and Egypt launched a surprise attack on Israel; the United States began an airlift to supply Israel in response to the Soviet Union's supplying of Syria and Egypt; OPEC raised the price of oil to $5.11 a barrel.

Zero coupon CD—CD bought at a discount to the final redemption value; the CD does not pay annual interest and generally promises a higher interest rate.

Zero-sum game (exchange)—A game in which the players as a group have the same (equal) value at the conclusion of the game as they had at the beginning.

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Index

Boldface numbers refer to volume numbers.