Classical Macroeconomics

Some modern variations and distortions

James C.W. Ahiakpor

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Macroeconomics is easily the most unsettled area of modern economics. Conflicting explanations abound over why interest rates or prices on average rise or fall. Dispute continues over whether government tax policies should encourage consumer spending or saving. Similarly, it is unsettled whether government spending should be a principal instrument of economic growth promotion or rather be limited to the minimal role of national defence, the administration of justice, including the protection of private property and enforcement of contracts, and the enactment of laws to facilitate commercial enterprise.

The classical economists, especially Adam Smith, David Ricardo, J.-B.Say, and J.S.Mill, provided clarifications as well as answers to the above questions, which Alfred Marshall carried into the twentieth century. However, failing to interpret correctly economic concepts as employed by the classical economists, John Maynard Keynes dismissed the classical explanations and conclusions as being irrelevant to the world in which we live. The trauma of the Great Depression and Keynes's changed definition of economic concepts, aided by the work of Eugen Böhm-Bawerk, have made it difficult for modern economists to fully appreciate the classical insights. This book clarifies the classical explanations to help resolve the continuing theoretical and policy disputes. Key chapters include:

- On the definition of money
- Keynes's misinterpretation of the classical theory of interest
- The classical theory of growth and Keynes's paradox of thrift
- The mythology of the Keynesian multiplier.

Professor James C.W.Ahiakpor teaches economics at the California State University, Hayward, and was Department Chair, 1994–2000. His restatements of classical macroeconomics have appeared in the *History of Political Economy, Southern Economic Journal, Journal of the History of Economic Thought, American Journal of Economics and Sociology* and *Independent Review*. He contributed to and edited *Keynes and the Classics Reconsidered* (1998).

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To Michael, Andrew, and Daniel

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Preface

The seed for this book was sown in the summer of 1985 when I stumbled upon the fact that Keynes (appendix to chapter 14 of the *General Theory*) had misinterpreted the classical concept of "capital," and that such misinterpretation was the principal reason for his inability to recognize the validity of the classical theory of interest as restated in Marshall's *Principles of Economics,* I was then attempting to discover from Keynes's *General Theory* how he could have given to modern macroeconomics the view that a central banks' money creation would lower interest rates and promote investment and economic growth, quite contrary to what the classical economists, especially Adam Smith and David Ricardo, had emphasized. The inquiry was to enable me elaborate an argument in my 1985 paper, "On the Irrelevance of Neoclassical Economics to the LDCs," countering the views of some leading lights in the field of development economics who were claiming the irrelevance of neoclassical economics to the economies of the less developed countries (LDCs) because of its assumptions of (a) rationality of consumer choice, (b) perfect competition in markets, (c) its prescription of free trade policies, and (d) its prescription of monetary expansion to reduce interest rates and promote investment and growth (Todaro 1982, 1985; Streeten 1983).

I wanted to explain that the failure of monetary expansion policy to lower interest rates and promote investment and economic growth in the LDCs, instead of the inflation that engulfed them, was not a good indicator of the irrelevance of neoclassical economics but that of Keynesian economics. Neoclassical economics interpreted within its historical context, I argued, would rather explain the determination of interest rates by the supply and demand for savings, just as Alfred Marshall did, following the classical economists. I also argued the relevance of free-enterprise policies, including free trade (domestic and foreign), restraint on money (currency) creation, and non-control of interest rates, in place of the interventionist Keynesian policies embraced by development economists at the time. In the end, I was unable to persuade referees of my arguments to have the paper published.

Meanwhile, I searched the literature for evidence of someone else having recognized Keynes's misinterpretation of "capital" in the classical theory of interest. My failure to find such evidence led to my writing a short paper, "Keynes on the Classical Theory of Interest: A Misinterpretation with Significant Consequences,"

about thirteen pages of text, to publicize it. The paper had mixed reviews, mostly disbelief that Keynes could have made such a simple, but fatal error, from participants at the Canadian Economics Association Meetings (Winnipeg, Canada) and the History of Economics Society Meetings (New York City) in May and June, 1986, respectively. (The discussant in New York was quite supportive of my argument.) This was followed by several rejections by referees for some leading journals, some of whom made the argument that Keynes did not read the classicals themselves and that any blame for his misinterpreting classical economics, if that be true, should go to Alfred Marshall instead.

Some of the referees also did not appear to appreciate the significance of recognizing Keynes's misinterpretation of "capital" for modern macroeconomics and thus were inclined to recommend the article only to a history of economic thought journal. One of such recommendations was:

> This paper falls into two parts. The first part demonstrates that Keynes was very careless in interpreting the classical economists with whom he was quarrelling. So what else is new? The second part of the paper speculates about what Keynes might have written if he had taken the trouble to understand the classical economists (and perhaps become one of them?). I haven't the faintest idea of the criteria to be applied to judging this exercise of counterfactual history. It seems to me that the first part of this paper can, however, be salvaged if it is written up as an account of yet another example of Keynes' appalling scholarship. A journal such as the *History of Political Economy* would be the appropriate outlet for that paper, however.

Earlier, a referee for a history of economic thought journal who could not appreciate the validity of my argument advised the editor: "Do not publish. Do not encourage re-submission."

Anyhow, my efforts to respond to the referees' comments led to my recasting the paper to show that Marshall followed consistently the classical theory of interest from Adam Smith, David Ricardo, and John Stuart Mill, through extensive quotations from Marshall's *Principles* and the original texts. That effort more than doubled the manuscript's length by the time it was finally accepted for publication in 1989 (Ahiakpor 1990).

The resistance of the referees convinced me even more firmly of the need to publicize the extent of Keynes's distortions of classical macroeconomics. So I followed up the first paper with another, entitled: "Keynes on the Classical Theory of Interest: Why Hicks's Clarifications could not be Successful." After several failures to get it published, I transformed it into, "Keynes, Hicks, and the Inadequacies of the IS-LM Model," which also met with vigorous resistance from referees. The point of the latter version was to explain the inability of the IS-LM model to assist economists in understanding the extent of Keynes's misrepresentations of classical macroeconomics, in spite of the efforts of J.R.Hicks, Don Patinkin, and Axel Leijonhufvud to use the model as a medium for sorting out Keynes's disputes with the classics. Some of the earlier reasons for the paper's

rejection included the fact that it sought to do too much in too little space. Later the reasons included the fact that the paper had became too long for a journal article. Thus, an editor wrote in 1996:

> This manuscript strikes me…more as a piece of a monograph than as a freestanding paper…the manuscript is at least twice as long as anything I'd consider on the subject… I, too, see it as a 'refighting of the wars of the 1930s.' Moreover, I'd rather not play host, in the journal I edit, to Talmudic debates about Keynesian economics, whether the protagonist is a detractor or a defender of the faith, and whether the immediate subject is AS/AD or IS/LM.

Much of that paper is now incorporated in Chapter 11 of this book.

Concurrently with my efforts to publish the IS-LM paper was another attempting to explain that Keynes's paradox of thrift argument, claiming that increased saving causes economic decline by reducing aggregate demand, a proposition that until very recently has been taught to practically every introductory macroeconomics student, was founded on Keynes's misinterpretation of saving (the source of "capital") in classical economics. That paper also had a hard time with the referees for about three years. One referee considered it a "refighting of wars of the 1930s on slightly different ground," which some readers would find "not all that exciting or illuminating."

Another referee felt so sure of the insignificance of my argument as to write to an editor:

> Granted Keynes was careless with terms, and too preoccupied with hoarding, it must be remembered that he was trying desperately to rid himself of his classical training. If one starts at full employment with pure competition, etc., everyone is a classical economist.
>
> So in the end, I do not see much to be gained from resurrecting old arguments, and revisiting old territory. The analysis in Ahiakpor's paper does not add much to familiar themes, nor is it sufficient to warrant drawing attention to what is basically a puzzle. A useful paper in *(sic)* 1930 perhaps, but not in 1994. I do not recommend publication in the [journal], and would be not enthusiastic about it for any other journal.

Another referee first noted that the paper "is well-written and often cogently argued," but declared that "the main points of the paper are hardly new." The referee went on nevertheless to argue the condition under which the paradox of thrift argument would be valid. That is, the argument "shows what will happen *if* the interest mechanism totally fails to work"; the referee also refused to accept that "Keynes went wrong because he did not understand how his predecessors defined saving." The same referee also insisted that the classical theory of interest assumed full employment (but see Chapter 10), and that "*One* (not the only one!) of [Keynes's] problems was to do interest theory without that assumption" (italics in original).

The published version of the paper (Ahiakpor 1995) includes some of my responses to the referees. Much of the article is incorporated in Chapter 9. Naturally, my next paper was to show the error of accepting Keynes's attribution of the full-employment assumption to the classical theories of interest, the price level and inflation, the forced-saving doctrine, and Say's Law (Ahiakpor 1997a), incorporated in Chapter 10.

I also undertook to explain the confusion over classical macroeconomics created by the work of Eugen Böhm-Bawerk, Irving Fisher, Knut Wicksell, and F.A.Hayek through their Austrian capital and interest arguments. With the exception of the piece on Fisher, the papers on the Austrians and Wicksell's monetary analysis got published quickly (Ahiakpor 1997b, 1999b) and are incorporated in Chapters 6 and 7, while the paper on Fisher forms the basis of Chapter 8.

Because of the vigorous opposition I initially received to my papers explaining Keynes's misrepresentations of classical macroeconomics, I have had to comment fairly extensively on work by such modern authorities in macroeconomics as J.R.Hicks, Don Patinkin, Milton Friedman, and Axel Leijonhufvud, to show that they have not already clarified the points I am making.

In November 1997 I struck up the realization that Keynes's multiplier argument, still fervently taught in intermediate macroeconomics textbooks, is all a myth, while writing the concluding chapter to the book I edited on "Keynes and the Classics Reconsidered" (Ahiakpor 1998). I thought my argument was much too important to be left only as a comment in a paragraph (180–1), and so I wrote it up as a full-length article (Ahiakpor 2001b), which forms the basis of Chapter 12.

That paper also met with the failure of some referees to appreciate the significance for macroeconomic theorizing and policy formulation of recognizing that the Keynesian multiplier really doesn't exist. The following is an example of such rejections for a general-purpose journal:

> This paper is interesting, well-written and, I think, correct. The Keynesian multiplier story does a serious disservice to the important contribution of saving to national income and economic growth. However, as Keynes would perhaps be the first to point out, Keynes is dead, and from a research standpoint the Keynesian multiplier is dead too.
>
> While it clearly does still appear in elementary textbooks, the formalized simple Keynesian model is not used by professional researchers in macro. Given that the [journal] is not about economic education, the paper is not appropriate for publication in the… At the end of the day, the paper has nothing to say to a professional economist about how the economy works, how to conduct research, or how to do macroeconomics. It is better suited for a history of thought journal.

This in spite of my having referred to the work of Allen Sinai (1992), and the view still prevails among academics and politicians that it is consumption spending that drives an economy's growth, an argument that derives from the Keynesian multiplier story.

I signed the contract for this book in 1996 but completing the manuscript got delayed by my efforts to have almost all of the chapters first published in journals. I thought such publication would ensure that the message of the book is not easily dismissed as the work of someone who did not understand macroeconomics. Similarly, I did not take the suggestions of several textbook publisher's representatives since the mid-1980s to write my own textbook restating the correct version of classical macroeconomics against the erroneous ones contained in their textbooks. Having dealt with the reactions of mostly unbelieving referees and having got most of the articles published, I am now hopeful that the message of the book will not readily be dismissed.

I also hope that macroeconomists of all shades of policy orientation will reexamine classical macroeconomics from the leads I have provided in the book to better appreciate its message. Furthermore, I hope that textbook writers who do the more informative job of providing some historical context to the macroeconomic principles they discuss will take the trouble to state classical macroeconomics correctly rather than continuing to present Keynes's distorted version, which one finds in most textbooks. Students in my macroeconomics classes have frequently been frustrated with me for suggesting a textbook, even if only as a reference, which contains the Keynesian distortions of classical macroeconomics I explain to them. They are typically unimpressed with my suggesting that they are better educated by also knowing what numerous other students are being taught without contradiction. And they don't like the option of not having a reference text either.

Finally, I hope that a correct understanding of classical macroeconomics will assist in the better formulation of macroeconomic policies, especially in the LDCs. This would fulfill the initial motivation that led to my stumbling upon the Achilles heel to Keynes's misrepresentations of classical macroeconomics. It would also fulfill the primary goal of the classical economists themselves, namely, to point the way to the formulation of policies that would relieve poverty from humankind.

James C.W.Ahiakpor
August 2002

Acknowledgments

The preparation of this book has benefitted a great deal from several sources, for which I am grateful. I thank first my colleagues in the Department of Economics at Saint Mary's University, Halifax, NS, Canada, who served as the first sounding board for my claims about Keynes's misinterpretation of "capital" and the classical theory of interest. Significant among them were Kris Inwood, Javid Taheri, and Saleh Amirkhalkhali.

Next, I thank those of my colleagues at the California State University, Hayward, who gave generously of their time to provide critical, but sympathetic comments on several of my papers as well as some of the chapters in the book, since my joining that faculty in September 1991. Notable among them are Chuck Baird, Greg Christainsen, Steve Shmanske, Shyam Kamath, and Jim St Clair. I have also benefitted from discussions with Lall Ramrattan, who has occasionally been a colleague in the department.

Along the way, I have had some inspiring discussants for my papers upon which the book is based at the numerous conferences at which they were discussed. Their critical comments have helped me to elaborate arguments that may have been unclear. I have expressed in my published articles similar sentiments about the referees who were very resistant to sanctioning my arguments for publication. Although it was often hard not to feel disappointment at each rejection, I frequently took the position that I must only have failed in my exposition to convince them. (Of course, as George Shepherd shows in his 1990 edited book, *REJECTED,* not every rejection of a manuscript is based on well-founded reasons.) Their comments have provided incentives for me to document or express my arguments better. They thus have been a part of my writing the book. Needless to say, it has been a pleasure to receive the encouraging comments of those referees who finally sanctioned the papers for publication, for which I am equally grateful.

A three-month sabbatical leave in the fall of 1996 relieved me of the duties of department chair as well as teaching a course to focus on the research for the book, for which I am very grateful to the California State University, Hayward. Tina Copus was of tremendous assistance with drawing the graphs as well as my learning some of the word-processing skills while Leo Divinagracia helped with some technical aspects of the computer. Both deserve my hearty thanks. I would like to thank Blackwell Publishers for granting me permission to reproduce my

articles: "Wicksell on the Classical Theories of Money, Credit, Interest and the Price Level: Progress or Retrogression?" and "On the Mythology of the Keynesian Multiplier: Unmasking the Myth and the Inadequacies of Some Earlier Criticisms," in the *American Journal of Economics and Sociology* 58(3) July 1999:435–57; and 60(4) October 2001:745–73, respectively.

I would also like to thank the journals department at Carfax for granting me permission to reproduce the article: "Austrian Capital Theory: Help or Hindrance?" (1997) *Journal of the History of Economic Thought* 19(2):261–85 (http://www.tandf.co.uk). Duke University Press, and the Editor of the *Southern Economic Journal* have given me permission to draw freely on my articles previously published in their journals, in particular, the articles: "A Paradox of Thrift or Keynes's Misrepresentation of Saving in the Classical Theory of Growth?" (62(1) July 1995:16–33) and "Full Employment: A Classical Assumption or Keynes's Rhetorical Device?" (64(1) July 1997:56–74), both of which originally appeared in *The Southern Economic Journal*. I also thank Palgrave Macmillan for permission to take extensive quotations from the Eighth edition of Alfred Marshall's *Principles of Economics*.

Finally, I thank Routledge, particularly Mr Alan Jarvis, my first contact, for accepting my proposal for the book and for their enormous patience with my delay in submitting the manuscript. I believe they now have a much better product than I would have submitted earlier.

None of the above is responsible for any errors of argument contained in the book. They are mine alone.

1 Introduction

At least three reasons warrant a book focused on restating classical macroeconomics against its distortions in modern macroeconomics mainly through the work of John Maynard Keynes and the distorting influence of Eugen Böhm-Bawerk in spite of the numerous texts on the history of economics, including such general classics as Joseph Schumpeter's *History of Economic Analysis* (1954) and Mark Blaug's *Economic Theory in Retrospect* (1996), and more focused ones such as D.P.O'Brien's *The Classical Economists* (1975) and Samuel Hollander's *Classical Economics* (1987). The reasons include: (1) the discordant state of modern macroeconomics, as indicated by the multiplicity of textbooks competing with each other to explain more clearly the workings of the macroeconomy, but with rather limited success, (2) the increased number of camps in modern macroeconomics, reflecting different approaches to macroeconomic analysis and policy formulation since the 1970s, and (3) the rapid disappearance of courses in the history of economic thought from undergraduate and graduate instruction in economics. The general texts cover the life history and works of the principal contributors to the development of modern economics, from the pre-classical period to modern times–both micro and macro–but without the kind of focus needed to resolve the persistent theoretical disputes and misrepresentations of classical macroeconomics in modern macroeconomics. The texts on classical economics or the classical economists delve more into the motivations for their work and their contributions to economic theory and policy formulation, but not with the focus pursued in this book.

Indeed, Schumpeter's text is hardly of much help in understanding the extent of Keynes's misrepresentations of classical economics, being rather dismissive of the consistency of several classical arguments. In the specific chapter on "Keynes and Modern Macroeconomics," Schumpeter describes Keynes's "brilliance" in crafting his message in the style of the "Ricardian Vice" by the nature of its simplicity and how much Keynes promoted the development of macroeconomics, but hardly an acknowledgment of Keynes's misrepresentations of classical macroeconomics (1954:1170–84).[1] In an earlier evaluation of Keynes's treatment of the classical literature, Schumpeter in fact considers some of Keynes's distortions as merely his having emphasized points most economists already had accepted or should have known, for example, "that the Turgot-Smith-J.S.Mill theory of the saving and investment mechanism was inadequate and that, in particular, saving

and investment decisions were linked together too closely" (1951:285). Schumpeter also praises Keynes's mistaken focus on consumption spending as a determinant of economic growth rather than savings in classical macroeconomics as his brilliance in the "skillful use…of Kahn's multiplier" (287).[2]

Much of Hollander's (1987) focus is to correct some of the interpretations of classical economics by Schumpeter as well as the so-called Cambridge school in the tradition of Piero Sraffa. Hollander does not address the distorting influence of Böhm-Bawerk, Irving Fisher, and Knut Wicksell on Keynes's reading of classical macroeconomics. He notes that Keynes "had a totally distorted view of classical macroeconomics" (3), which he illustrates with Keynes's misrepresentation of the classical law of markets (260, 275). But restating classical macroeconomics directly to counter its pervasive misrepresentations in modern macroeconomics is not Hollander's principal focus as it is in this book. O'Brien's text is hardly concerned with Keynes's distortions of classical macroeconomics.

Blaug's text is not much different from Schumpeter's in terms of its contribution to understanding the classical literature against Keynes's distortions. Several of his assessments of the classical literature are in conflict with conclusions reached in this book, including his accusing Adam Smith of having neglected "fixed capital" (1996:35), that Smith "had no consistent theory of wages and no theory of profit or pure interest at all" (38), and that the classics "saw no relationship between utility…and demand" (39). Blaug also tends to side with Keynes's macroeconomic perspectives such as: (a) his praising Keynes's mistaken defense of the mercantilist policy of hoarding gold as Keynes's "intuitive recognition of the connection between plenty of money and low interest rates" (15), as if such intuition were helpful or always valid, (b) his judgment that "If Say's Law is meant to be applicable to the real world…it states the impossibility of an excess demand for money" (144), just as Keynes claimed, and (c) his assertion that "The forced-saving doctrine [is] restricted…to the case of full employment" (159), again just as Keynes falsely claimed. Even when Blaug characterizes Keynes's representations of some classical arguments as a "convenient straw man of Keynes's invention" (674), he goes on to judge Keynes as having been "right!" in contrast with Keynes's "orthodox contemporaries" (675). This because he accepts as correct, Keynes's mistaken indictment of Say's law, arguing: "The capitalist system is in fact a cornucopia that is forever tending to produce too much to be saleable at cost-covering prices. There is indeed in mature industrialised economies an everpresent danger of insufficient aggregate demand" (ibid.). Blaug (1997:235) repeats this claim, adding that such "insufficient effective demand…is indeed curable by standard [Keynesian] demand management."

The failure of these works to restate classical macroeconomics against Keynes's misrepresentations and Böhm-Bawerk's distorting influence and thus assist the resolution of conflicts in modern macroeconomics derives from their failure to pay sufficient (in some cases, any) attention to the principal source of the confusion, namely, the changed meaning of economic concepts Keynes successfully introduced through his *General Theory* (1936). Significant among these concepts are: (a) saving to mean non-spending or hoarding rather than the purchase of

interest- or dividend (profit)-earning assets, (b) "capital" to mean capital goods only rather than also savings or loanable funds, from the perspective of households, (c) investment to mean the purchase of producers' or capital goods only rather than also the purchase of financial assets by households, and (d) money to mean currency in the hands of the public plus the public's savings with depository institutions rather than only the currency supplied by a central bank.

The growth in the number of camps in modern macroeconomics from the principal two until the late 1970s, namely, Keynesians and Monetarists, to the current five,[3] including the Keynesians, the Post-Keynesians, the New Keynesians, the Monetarists, and the New Classicals, pretty much results from the failure of texts in the history of economic thought to identify the conceptual confusions introduced by Keynes's work. Thus, some of the schools overlap in their analytical perspectives and can be shown to belong still to two main camps: they are either (a) attempting to affirm Keynes's views on how the macroeconomy works or (b) attempting to counter Keynes's arguments. In their policy perspectives, the pro-Keynesians argue demand management through public sector spending and the manipulation of the quantity of money while the anti-Keynesians argue supply-side incentives and monetary stability as the most efficient means of promoting economic growth, trusting in the basic stabilizing forces inherent in a free-market economy. Yet the camps have the same basic trait, namely, their employment of the same definitions of economic variables introduced by Keynes in his successful overthrow of classical macroeconomics with his 1936 book.[4] Thus none in the anti-Keynesian camp is successful in restating clearly the classical arguments Keynes undermined. This is the sense in which Keynes's work constitutes a revolution in economic thought, contrary to the denial of such a revolution by Laidler (1999).[5]

The fast disappearance of the history of economic thought from the curriculum of economics education, by itself, may not be fatal to a correct understanding of classical macroeconomics, although it does constitute a hindrance. It may legitimately be argued that the existence of such courses in the past has made little difference to the persistence of the misrepresentations of classical macroeconomics. But the combination of the disappearance with the increasing tendency of textbooks in macroeconomics to treat an examination of the doctrinal disputes as wasteful "detours into the history of thought" (Frank and Bernanke 2002: xii), on the mistaken belief that the necessary resolution to such disputes has already been made, poses a problem for understanding classical macroeconomics. Indeed, Frank and Bernanke say nothing about classical economics or mention the classical economists, including David Hume, Adam Smith, David Ricardo, J.-B.Say, and John Stuart Mill, but they give a short biography of Keynes and teach the Keynesian model in the text.[6]

Bradord DeLong (2002) takes a similar position, arguing:

> It is more than three-quarters of a century since John Maynard Keynes wrote his *Tract on Monetary Reform,* which first linked inflation, production, employment, exchange rates, and policy together in a pattern that we can recognize as "macroeconomics." It is two-thirds of a century since John Hicks

> and Alvin Hansen drew their IS and LM curves. It is more than one-third of a century since Milton Friedman and Ned Phelps demolished the static Phillips curve, and since Robert Lucas, Thomas Sargent, and Robert Barro taught us what rational expectations could mean.
>
> (DeLong 2002: vii)

He proceeds to lay out macroeconomic analysis as synthesized in the Keynesian IS–LM model, without correcting Keynes's distortions of the classical concepts that allowed the Keynesian revolution to succeed.[7] He also does not mention any of the major classical economists listed above, but gives the Keynesian version of "classical economics."

The absence of any need for an historical context for understanding the confused state of modern macroeconomics also can be found among the presentations on a 1997 AEA panel discussing the "core of macroeconomics" to be believed or accepted.[8] It thus would appear that, without a clear restatement of macroeconomics as the classical economists themselves laid it out, to be distinguished from Keynes's distorted version, resolution of the confusion in modern macroeconomics may be long in coming, if at all.

The classical economists were concerned about explaining how an economy works and what are the determinants of economic growth. They did not assume that the economy was always in full employment equilibrium or that there were no obstacles to the attainment of full employment, contrary to Keynes's misrepresentation of them. Their work also was not founded on any notion of market prices adjusting according to the modern assumptions of perfectly competitive markets (Marshall 1920:448–9). They also did not assume the neutrality of money in the short run or that changes in the quantity of money affected only the price level and never the level of real output and employment in the short run, and neither did they dichotomize the pricing process, as Keynes alleges.

The classical explanations accounted for the prices of goods and services in different markets, using their theory of value. They used the same theory of value to explain wage rates in different labor markets, the price (cost) of loanable "capital" or interest rates at different degrees of risk associated with borrowers, as well as the value of money (currency) itself or the price level. The classical economists also believed that a correct application of the theory of value in such contexts better informs the formulation of policies to promote economic growth. Thus, understanding that interest rates are determined by the supply and demand for savings or "capital" may encourage policymakers to keep taxation of income low in order to encourage more savings out of disposable income–increased supply of loanable funds. The same understanding would encourage policymakers to refrain from attempting to engineer low interest rates by inflating the volume of currency through the central bank, which ultimately would only lower the value of the currency or raise the price level.

To facilitate informed policy formulation to assist economic growth, the classical economists also clarified the nature of certain economic variables. They explained

that saving is the investment of nonconsumed income in financial or income-earning assets. They carefully distinguished saving from the holding of income in cash or hoarding, which yields the security of cash as a ready means of purchasing goods and services, but not interest or dividends. Thus increased saving promotes economic growth because it releases the purchasing power of nonconsumed income to producers who borrow the funds, while hoarding withdraws the purchasing power of income from circulation.

Such an understanding of the role of saving in an economy also underlies the classical argument that, in the absence of increased hoarding, a mismatch or misalignment of supply and demand for goods in certain markets would soon be resolved by changes in relative prices and interest rates to clear the markets, and that there cannot be an over-supply of all goods, including money, at the same time–Say's Law of Markets. Even in the face of an increased demand for cash or hoarding, which would create an excess supply of goods and services (to match the excess demand for money) and raise the value of money, a quick response by the monetary authorities in increasing the money supply would prevent a persistent glut of the goods and services in the marketplace.

Another of the important economic concepts the classical economists defined differently from modern macroeconomics is money. Money was specie or coined precious metals. Paper money issued by banks substituted for specie in circulation, and for as long as free convertibility of paper into specie prevailed, prudent banks would not issue more notes than they could redeem on demand. The classical economists clarified the financial intermediation function of banks–receiving savings in order to extend loans–differently from the "money supply" process as now perceived in modern macroeconomics. That way it was easier to apply the theory of value to loans in explaining interest rates and to money or its paper substitute to explain the price level. Furthermore, the classicals could explain longterm economic growth by increases in savings or loans and not by increases in the supply of money. Increases in the supply of money may increase real output and employment in the short run, while prices are yet to adapt fully to the increased supply, a process the classical economists called forced saving. But ultimately, only the price level and nominal wages would rise in response to the increased supply of money.

Such understanding of the role of money in an economy also informed what we may call classical monetary policy. Where money was specie, there was no need to regulate its quantity, since the production of specie or receipts of money through payments for net exports would take care of the supply. But in a fiat money system, its supply by a central bank would have to be regulated in order to maintain the price level, the same mechanism inherent in the commodity or specie money system.

The classical economists, with a few exceptions, also recognized consumption as the ultimate goal of all production. But they were quick to point out that production provides both the means and the objects of consumption, and that without increased production, made possible by increased savings to enhance productive capacity, there could not be increased consumption over time. This is

why, instead of the modern Keynesian focus on consumption spending as the driving force of an economy's growth, via the so-called expenditure multiplier, the classics focused on savings to provide the funds for increased production.

Keynes's successful revolution overturned these classical insights, partly by changing the meaning of some key economic concepts under the influence of works by Böhm-Bawerk, Irving Fisher, and Knut Wicksell, and partly by attributing to the classical economists assumptions they did not make, such as full employment always, and no demand for money other than for transactions purposes.

Several of Keynes's contemporaries, particularly A.C.Pigou, R.G.Hawtrey, D.H.Robertson, Jacob Viner, and Frank Knight, recognized the fundamental errors he had made in his criticisms of classical macroeconomics, and tried to point them out. Most of the corrections took the form of restatements of classical propositions, but without focusing on Keynes's changed meaning of classical concepts. Few also made direct references to the classical literature Keynes had misrepresented. Keynes thus could not properly be directed to reread what he had misinterpreted. The younger generation at the time, being much less familiar with the classical literature, for example, J.R.Hicks, Richard Kahn, Joan Robinson, and Nicholas Kaldor, also could not appreciate the extent of Keynes's misrepresentations of the classics. The creation of the IS-LM model as a device through which the disputes between Keynes and his contemporary neoclassical defenders of classical macroeconomics could be resolved also has helped to mask Keynes's misrepresentations of classical concepts. In the end, the model has served only to convey Keynes's arguments, to the disadvantage of the classical alternative.

The following chapters, six of which are based on previously published articles, elaborate the forementioned claims. The state of modern macroeconomics, which is mostly Keynes's view of how a monetary economy works, very much dictates the approach I take in restating classical macroeconomics. I summarize the common themes that address the issues misrepresented in modern macroeconomics rather than discuss debates among the classical economists themselves, as typically done in texts on the history of economic thought or theory. I also rely very much on quotations from classical texts to make my points. Keynes's distortions of classical concepts have become accepted definitions to such an extent that only direct quotations from the classics themselves may assist readers to recognize the extent of his distortions. The concluding chapter highlights some of the benefits to the different schools of thought in modern macroeconomics from their recognizing Keynes's distortions of classical macroeconomics.

2 The classical theory of value

A foundation of macroeconomic analysis

Introduction

Classical macroeconomics involves applications of their theory of value—the determination of the exchange value of commodities by their supply and demand in the short run, and by their cost of production in the long run. Thus, to understand clearly classical macroeconomic analysis, it helps to understand their theory of value; getting their theory of value right is, in a sense, the modern equivalent of working out the "micro-foundations" of macroeconomics.

Value in the objective or measurable sense, according to the classics, is the quantity of other commodities that can be had in exchange for a unit of another. Where money is used as a generally accepted medium of exchange, the quantity of money given in exchange for a commodity, or its price, measures its value. Thus, although aggregation is involved when dealing with macroeconomic variables, it is with the application of the theory of value that the value of money (inverse of the price level), the rate of interest on loanable "capital," the wage rate, and rentals on land or capital goods may be accurately explained. Many a confusion in modern macroeconomic analysis has resulted from the failure to apply correctly the principles of supply and demand or the theory of value to the issues being discussed. Sometimes it is because a disputant of some classical macroeconomic principle has failed to recognize the application of the theory of value in its context that the theory is claimed to be erroneous, as, for example, the proposition that the value of money (not the rate of interest) is determined by the supply and demand for money (currency) or that the rate of interest is determined by the supply and demand for "capital." John Maynard Keynes (1936) had difficulties with both of these propositions while Eugen Böhm-Bawerk (1890) and Irving Fisher (1930) had difficulties with the latter. Subsequent chapters will elaborate, but Keynes's complaint against classical macroeconomics for not having employed the supply and demand framework when explaining the price level and inflation is worth quoting as an example:

> So long as economists are concerned with what is called the theory of value, they have been accustomed to teach that prices are governed by the conditions

> of supply and demand… But when they pass in volume II, or more often in a separate treatise, to the theory of money and prices, we hear no more of these homely but intelligible concepts and move into a world where prices are governed by the quantity of money, by its income-velocity, by the velocity of circulation relatively to the volume of transactions, by hoarding, by forced saving, by inflation and deflation *et hoc genus omne;* and little or no attempt is made to relate these vaguer phrases to our former notions of the elasticities of supply and demand.
>
> (Keynes 1936:292)

Keynes here shows his failure to recognize the various ways the demand for money and its changes may be described, including hoarding and the velocity of money. He also does not recognize that classical money (specie) supply does not have a zero elasticity, but modern currency does (Pigou 1917:53), and that the demand for money is supposed to have a unitary elasticity–a rectangular hyperbola (Marshall 1923:282–3), Pigou (1917:42). Of course, the classical economists did not explain prices by "forced saving, inflation and deflation" as Keynes alleges; see Chapter 4.

This chapter restates the classical theory of value from Adam Smith, David Ricardo, T.R.Malthus, and J.S.Mill as well as its reaffirmation by Alfred Marshall to counter the persistent accusation of some modern writers, including Austrians and Marxists, that the classical economists argued a confused or an inconsistent theory. Indeed, their theory of value is pretty much what modern price theory argues. Some of my restatements, particularly with respect to Adam Smith, are consistent with conclusions reached earlier by Luigi Pasinetti (1960), Samuel Hollander (1973, 1987), Will Mason (1982), and Glenn Hueckel (2000).

Adam Smith

Adam Smith laid out in elaborate detail the theory of value or "the principles which regulate the exchangeable value of commodities" (*WN,* 1:33), especially in book 1, chapter 7 of the *Wealth of Nations (WN),* which many subsequent developers of classical and neoclassical economics have followed. Relative scarcity or supply and demand determine the exchange value of commodities; the cost or difficulty entailed in bringing an item to market determines its supply while the utility or usefulness of the item to buyers determines its demand. In the short run, demand may be the more important determinant of exchangeable value or price since supply can hardly respond to changes in demand. In the long run, the cost of production is the more important regulator of value or price.

In developing this principle, Smith first lays aside the notion of "value" that is not subject to objective or observable analysis, namely, the appreciation that individuals have for commodities in their possession–subjective utility. It goes without saying that an item in anyone's possession may have some utility (usefulness) or value. But without the possessor declaring its degree of usefulness to him or her, no one else may know of it. One also may argue that to part with

money or some other useful object for another, one must have some use for the object taken in exchange. But such understanding of the relation between objects and individuals does not directly lead to a calculation of the magnitude of their usefulness or utility. And given the differences in peoples' tastes and preferences, it is hopelessly difficult to say anything meaningful in the aggregate from such knowledge about the relation between objects and their usefulness to different individuals.

To separate the unobservable value or utility from the observable exchange value or price and explain the determination of the latter, Adam Smith writes:

> The word VALUE…has two different meanings, and sometimes expresses the utility of some particular object, and sometimes the power of purchasing other goods which the possession of that object conveys. The one may be called "value in use;" the other "value in exchange." The things that have the greatest value in use have frequently little or no value in exchange; and on the contrary, those which have the greatest value in exchange have frequently little or no value in use. Nothing is more useful than water: but it will purchase scarce any thing; scarce any thing can be had in exchange for it. A diamond, on the contrary, has scarce any value in use; but a very great quantity of other goods may frequently be had in exchange for it.
>
> (Smith *WN,* 1:32–3)

Smith's designation of diamond as a commodity of "scarce any value in use" may have been an unhelpful choice of words. Diamond has beauty and certainly has a great deal of usefulness as ornament. That description by Smith is the source of what often has been referred to as Smith's water-diamond paradox of value. But, Smith's choice of words becomes less puzzling when interpreted in the proper context. By value in use, Smith was focusing on the "necessaries and conveniences of life" (*WN,* 1:1) or "commodities which are *indispensably necessary* for the *support of life*" (*WN,* 2:399; emphasis added), which he distinguished from luxuries (e.g. 399–400). Thus, no one needs diamonds to live, but life is impossible without water. Cleared of the ambiguity, Smith's theory of value is simply one of the determination of market prices by supply and demand. Thus, for example, John Winfrey's (1993) claim that Smith wanted to relate value-in-use to social usefulness, that is, goods "employed to sustain productive rather than unproductive labor" (316), is an unhelpful diversion from Smith's own analysis. Both productive and unproductive laborers have the same need for food and water to live.

Supply is determined by the labor and toil (costs) involved in bringing a product to market. For activities that require more than the use of human labor, costs in the short run include payments for the use of land, machinery, buildings, raw materials, and borrowed capital, besides wages. Undertakers of business enterprises expect some reward for their management skills as well as their entrepreneurship, which includes bearing the risk of being unable to pay the contracted costs to the hired factors of production. Thus, the failure of revenues to more than cover the costs and make it worthwhile for proprietors to continue with their enterprises in

the long run—when there are no longer any contractual obligations to the hired factors—may cause production to cease. Therefore, the cost of production in the long run must include profits to entrepreneurs, according to Smith.

But how much a product fetches in the marketplace depends more on buyers' demand than its cost of production. The demand depends on the perceived usefulness of the product to consumers, as reflected in how much money or some other commodities they are willing to give in exchange for it rather than go without the product. Such a decision determines consumers' demand price or marginal valuation. The market price is struck at the point where the marginal demand price is just equal to sellers' marginal supply price or the lowest value sellers are willing to accept rather than forego the trade—receipt of money in exchange for the commodity. The subjective valuations of both demanders and suppliers of the commodity act in the background to motivate the ultimate transaction.

The market price fluctuates up and down depending on the relative strengths of demand or the willingness to pay and the supply or the willingness to exchange the product for money. Where there is a greater willingness to offer products for sale than the willingness to buy, the market price falls. The market price rises where there is a greater willingness to buy than to sell. Such fluctuations of the market price are reflected in the rate of profit, profits being the residual income. (Some other income category, especially wages, may bear a part of the burden of income fluctuation where the contractual agreement is so specified, such as in the case of a profit-sharing arrangement.) Whatever the nature of the residual income arrangement, fluctuations in the market price lead also to fluctuations in subsequent market supplies. Subsequent quantities offered decline where there are significant reductions in the residual income (profits) or complete loss to the undertaker; they increase when there are significant increases in profits.

Where the market price pays the undertaker just enough to want to continue with the activity in the long run, Smith calls such a price the natural price. Thus "the natural price…is, as it were, the central price to which the prices of all commodities are continually gravitating" (*WN,* 1:65). It is also the lowest price that sellers would take under free competition rather than leave the industry, and it is therefore lower than the price that would be charged under a monopoly even in the long run in the same industry. As Smith explains:

> The price of monopoly is upon every occasion the highest which can be got. The natural price, or the price of free competition, on the contrary, is the lowest which can be taken, upon every occasion indeed, but for any considerable time altogether. The one is upon every occasion the highest which can be squeezed out of the buyers, or which, it is supposed, they will consent to give: The other is the lowest which the sellers can commonly afford to take, and at the same time continue their business.
>
> (Smith *WN,* 1:69)

In describing the theory of value, Smith also relies on the notion of opportunity costs—what is to be had in place of another—taking into account community

values of the worth of productive factors, including labor, "capital" (loanable funds out of savings), and land. Thus, Smith explains:

> There is in every society or neighbourhood an ordinary or average rate both of wages and profit in every different employment of labour and stock ["capital"]. This rate is naturally regulated,…, partly by the general circumstances of society, their riches or poverty, their advancing, stationary, or declining condition; and partly by the particular nature of each employment.
>
> There is likewise in every society or neighbourhood an ordinary or average rate of rent, which is regulated too,…, partly by the general circumstances of the society or neighbourhood in which the land is situated, and partly by the natural or improved fertility of the land.
>
> (Smith *WN,* 1:62)

And when "the market price of any commodity is neither more nor less than what is sufficient to pay the rent of the land, the wages of the labour, and the profits of the stock employed in raising, preparing, and bringing it to market, according to their natural rates, the commodity is sold for what may be called its natural price" (ibid.).[1]

From Smith's chapter, "Of the Natural and Market Price of Commodities" (ch. 7), we see that it is the interaction of the cost of production, by its regulation of supply, with consumers' demand, or the relative scarcity of commodities, that determines their prices in the marketplace. Smith also makes the same point clearly in book 1, chapter 11, part 2, when describing the determinants of the prices of precious metals, diamond, gold, and silver:

> The lowest price at which the precious metals can be sold, or the smallest quantity of other goods for which they can be exchanged during any considerable time, is regulated by the same principles which fix the lowest ordinary price of all other goods. The stock [investible funds] which must commonly be employed, the food, *(sic)* cloaths, and lodging which must commonly be consumed in bringing them from the mine to the market, determine it. It must at least be sufficient to replace that stock, with the ordinary profits.
>
> Their highest price, however, seems not to be necessarily determined by anything but the actual scarcity or plenty of those metals themselves… Increase the scarcity of gold to a certain degree, and the smallest bit of it may become more precious than diamond, and exchange for a greater quantity of other goods.
>
> (Smith *WN,* 1:191)

Such explanation notwithstanding, several commentators have attributed to Adam Smith a labor theory of value, which claims that it is only the quantity of labor employed in producing a commodity that determines its market price, and utility or demand plays no role. Such a mistaken interpretation of Smith's theory of

value appears to have arisen from two principal sources. One is Smith's description of the exchange values of beaver and deer "among a nation of hunters" in "the rude state of society which precedes both the accumulation of stock and the appropriation of land," and where "the *proportion* between the quantity of labour necessary for acquiring different objects seems to be the only circumstance which can afford any rule of exchanging them for one another" (*WN,* 1:53; emphasis added). Here Smith makes the logical argument that if "it usually costs twice the labour to kill a beaver which it does to kill a deer, one beaver should naturally exchange for or be worth two deer. It is natural that what is usually the produce of two days or two hours labour, should be worth double of what is usually the produce of one day's or one hour's labour" (ibid.).

But note that Smith is here talking about the relative costs of producing one item as compared with another where no rents are to be paid for land nor interest on borrowed "capital," in a chapter devoted to explaining the "component parts of the price of commodities" (*WN,* 1:53). In the long run, price must cover all costs of production, including profits, Smith argues. Thus, if labor is the only input whose cost–earlier defined as a person's foregone "ease, liberty, and happiness" (37)–must concern a hunter, then products must exchange in proportion to their labor costs or relative prices being proportional to relative costs in the long run. But Smith quickly extends the component parts of price to include wages, rent, and profits (interest) in the same chapter when land and "capital" are employed in production, besides labor. Thus, for example, "In the price of corn,…, one part pays the rent of the landlord, another pays the wages or the maintenance of the labourers and labouring cattle employed in producing it, and the third pays the profit of the farmer. These three parts seem either immediately or ultimately to make up the whole price of corn" (56–7). And where no land is involved in production, as in the case of fishing, rent may not constitute a part of the price of fish: "In the price of sea-fish, for example, one part [of the price] pays the labour of the fishermen, and the other the profits of the capital employed in the fishery. Rent very seldom makes any part of it, though it does sometimes…" (58).[2] Thus, we should read Smith in book 1, chapter 6 as accounting for the costs of production that must be covered by long-run price, rather than his explaining the determination of prices.

Furthermore, we also must note that in discussing the exchange values of beaver and deer being dependent on their relative labor costs of production, Smith presumes the existence of demand (utility) for the hunted animals, hence the purposiveness of hunting them. Smith, the author of the self-interest motive by which practically all human actions may be explained, could not have been arguing otherwise. The fact that Smith "does not even trouble to say that use value is a prerequisite of exchange value" (Blaug 1996:39) when discussing the beaver and deer example should not be held as proof that utility or usefulness of objects to purchasers plays no role in his theory of value. Thus, if there is a theory of value in Smith's explanation of the exchange value of beaver and deer, it is that of relative scarcity or cost theory rather than a simple labor quantity theory of value–commodities being priced according to their labor-embodied content.[3]

The second principal source of the modern confusion over Smith's theory of value seems to be his attempt to overcome the difficulty of measuring accurately the value of commodities by the market price or the quantity of money given in exchange for them, an argument developed in book 1, chapter 5, "Of the Real and Nominal Price of Commodities, or of their Price in Labour, and their Price in Money." As the title of the chapter shows, Smith there explains the relative merits of measuring value in labor time or in money Smith's argument is that the foregone leisure in producing a commodity may be a more accurate measure of its exchangeable value than the money price since the exchangeable value of money (specie) itself may vary, depending on the ease or difficulty of producing money. But the labor or toil exerted by an individual under the same condition of health and level of skill may be an invariable magnitude:

> Equal quantities of labour, at all times and places, may be said to be of equal value to the labourer. In his ordinary state of health, strength and spirits; in the ordinary degree of skill and dexterity, he must always lay down the same portion of his ease, his liberty and his happiness. The price which he pays [disutility] must always be the same, whatever may be the quantity of goods he receives in return for it.
>
> (Smith *WN,* 1:37)

Note that "value to the labourer" here refers to the disutility of work, not the reward, output, or wage paid. When the same exertion yields a higher output, Smith argues that it is the output that has fallen in its exchange value with labor whereas the value of output has risen when less is obtained from the same exertion of labor.[4] Labor thus is a constant magnitude by which commodities may be measured in place of money, Smith suggests. However, when more output is yielded by the same exertion of effort and we conclude that the value of output has fallen in terms of labor, it may be tempting to argue that the fallen value of output is due to a smaller amount of labor being required to produce a unit of the output. This is how the alleged labor theory of value in Smith's analysis seems logically to have been derived. But Smith's argument is about measuring value by labor's exertion or disutility.

In developing the argument, Smith also notes that the value of a commodity to anyone who "means not to use or consume it himself, but to exchange it for other commodities, is equal to the quantity of labour which it enables him to purchase or command" because labor–"the toil and trouble of" acquisition–is the real cost of a commodity (*WN,* 1:34). It is from this premise that Smith concludes "Labour, therefore, is the real measure of the exchangeable value of all commodities" (ibid.). In the stage of production when no other instruments than labor were used, Smith points out, "Labour was the first price, the original purchasemoney that was paid for all things" (35).

Smith also notes that, because of their common usage, certain precious metals (gold and silver) became acceptable as media of exchange (money) as well as the measure of value. But in the absence of money being used as a medium of

exchange, people estimated the value of one good in terms of other commodities: "Every commodity besides, is more frequently exchanged for, and thereby compared with, other commodities than with labour. It is more natural therefore, to estimate its exchangeable value by the quantity of some other commodity than that of the labour which it can purchase" (36). From the convenience of estimating the value of a commodity in terms of others rather than the abstract and technical notion of "labor"—which also requires standardizing for their different qualities—the use of money as the measure of value became a universal practice. As Smith explains, in a system of barter,

> The greater part of people too understand better what is meant by a quantity of a particular commodity, than a quantity of labour. The one is a plain palpable object; the other an abstract notion, which, though it can be made sufficiently intelligible, is not altogether so natural and obvious.
>
> But when barter ceases, and money has become the common instrument of commerce, every particular commodity is more frequently exchanged for money than for any other commodity…. Hence it came to pass, that the exchangeable value of every commodity is more frequently estimated by the quantity of money, than by the quantity of either of labour or of any other commodity which can be had in exchange for it.
>
> (Smith *WN,* 1:36)

Thus Smith concludes that "Labour alone, therefore, never varying in its own value, is alone the ultimate and real standard by which the value of all commodities can at all times and places be *estimated* and *compared*. It is their real price; money is their nominal price only" (*WN,* 1:37; emphasis added).[5]

Also note that labor is employed in the production of money (gold or silver), but not the other way around. Hence, with the ease of money's production, more money may be exchanged for the same unit of labor's exertion or disutility. Similarly, more of other commodities would be exchanged for the same specified unit of labor if technology permits greater quantities of their production, and they would fall in value estimated in units of labor.

Read in their proper contexts, Smith's chapters distinguishing value in use or utility from value in exchange (ch. 4), explaining the most reliable measure of value in exchange (ch. 5), explaining the component parts of price or the parts "into which prices are resolved" (ch. 6), and then explaining the determination of the long run or natural price, as distinct from the short run or market price (ch. 7), all make a consistent whole, comparable with modern price theory. The theory states that relative prices are determined by the relative scarcity of goods or demand and supply in the short run, but by the relative costs of production in the long run, as the elaborations by David Ricardo, Thomas Malthus, and John Stuart Mill confirm later. However, when some specific statements are read out of context, one may easily reach the wrong conclusions about Smith's theory of value.[6]

David Ricardo

David Ricardo agrees with Adam Smith's theory of value in which the relative scarcity or costs of production determine the exchange value of commodities. He also interprets the relative cost theory in terms of demand and supply as in Smith's analysis, especially for those commodities whose supply can be changed with human exertion and in markets open to competition. Following closely Smith's analytical scheme, Ricardo first reiterates in chapter 1 of his *Principles,* the primacy of utility or usefulness of objects for sustaining life as a basis for their acquiring exchange value in the marketplace. He points out that, "If a commodity were in no way useful–in other words, if it could in no way contribute to our gratification–it would be destitute of exchangeable value, however scarce it might be, or whatever quantity of labour might be necessary to procure it" (*Works,* 1:11). The statement contradicts some modern Marxist scholars' claim that the classical tradition argues that "use-value plays no role in determining [exchange] value" (Keen 1993a:108–9; 1993b:292).

Ricardo also follows Smith in basing utility on biological need rather than esthetics or mere desires. Thus he describes water and air as being "abundantly useful; they are indeed indispensable to existence," as compared to precious metals such as gold (*Works,* 1:11). "Gold, on the contrary," he notes, "though of little use compared with air or water, will exchange for a greater quantity of other goods" (ibid.), almost exactly as Smith stated the so-called diamond–water "paradox." Ricardo concludes: "Possessing utility, commodities derive their exchange value from two sources: from their scarcity, and from the quantity of labour required to obtain them" (12).

Ricardo's explanation of the determination of relative exchange values by the quantities of labor required follows closely Smith's analysis of exchangeable values in the early and rude state of nature where only the "toil and trouble" with human hands were required to obtain the desired objects. In his judgment,

> That [Smith's argument] is really the foundation of the exchangeable value of all things, excepting those which cannot be increased by human industry, is a doctrine of the utmost importance in political economy; for from no source do so many errors, and so much difference of opinion in that science proceed, as from the vague ideas which are attached to the word value.
>
> (Ricardo *Works,* 1:13)

The rest of the chapter shows a sophisticated analysis of relative values by the relative costs of production, including the employment of capital goods of varying durability or depreciation, as well as the delay in taking products to market. Ricardo argues that goods produced using capital goods of less durability or experiencing a greater depreciation will be priced higher than those produced with capital goods of greater durability. Similarly, goods that take a shorter time to get to market will sell for less than those that take longer, even when they employ the same amounts of labor. Ricardo's reasoning, consistent with Smith's, is that market prices have to return the cost of "capital" (funds) employed in

production plus profits in order to sustain the production of goods, a condition dictated by the competition or mobility of "capital" among sectors of the economy.

Ricardo's analysis of relative value determination in chapter 1, section 3, may suggest a labor theory of absolute value or price. But he explicitly rejects any such implied theory, stressing instead his attempt only to explain the exchangeable value of one commodity for another by the relative quantities of embodied labor. He points out that, "…the inquiry to which I wish to draw the reader's attention relates to the effect of the variations in the relative value of commodities, and not in their absolute value" (*Works,* 1:21). Ricardo further argues that, even when capital goods and land are considered as inputs in production, Smith's explanation of exchangeable values from the relative quantities of labor does not change since labor is also required to produce capital goods and prepare land. He notes that,

> …though Adam Smith fully recognized the principle, that the proportion between the quantities of labour necessary for acquiring different objects, is the only circumstance which can afford any rule for our exchanging them for one another, yet he limits its application to "that early and rude state of society, which precedes both the accumulation of stock and the appropriation of land;" as if, when profits and rent were to be paid, they would have some influence on the relative value of commodities, independent of the mere quantity of labour that was necessary to their production.
>
> (Ricardo *Works,* 1:22–3n)

Thus, Ricardo argues:

> Even in that early state to which Adam Smith refers, some capital, though possibly made and accumulated by the hunter himself, would be necessary to enable him to kill his game. Without some weapon, neither the beaver nor the deer could be destroyed, and therefore the value of these animals would be regulated, not solely by the time and labor necessary to their destruction, but also by the time and labour necessary for providing the hunter's capital, the weapon, by the aid of which their destruction was effected.
>
> (Ricardo *Works,* 1:22–3)

Ricardo by this argument is referring to both the direct and indirect relative labor costs of production or the "total quantity of labour necessary" (24) as the determinants of the exchangeable value of commodities. But he did not negate Smith's demand and supply theory of value in the marketplace. Indeed, a careful reading of Ricardo's extensive discussion of the value of stockings shows the role played by the varying costs or the quantities of labor required in the various processes entailed in turning cotton into the finished product sold in the market in determining the exchangeable value or relative price of stockings:

> …suppose any improvements to be made in the means of abridging labour in any one of the various processes through which the raw cotton must pass,

> before the manufactured stockings come to the market to be exchanged for other things… If fewer men were required to cultivate the raw cotton, or if fewer sailors were employed in navigating, or shipwrights in constructing the ship, in which it was conveyed to us; if fewer hands were employed in raising the buildings and machinery, or if these, when raised, were rendered more efficient, the stockings would inevitably fall in value, and consequently command less of other things. They would fall, because a less quantity of labour was necessary to their production, and would therefore exchange for a smaller quantity of those things in which no such abridgment of labour had been made.
>
> (Ricardo *Works,* 1:25)

That is, the supply of the things with the abridgment of labor would be greater than those without, hence the cheaper value (relative price) of the former.

Ricardo also affirms the validity of Adam Smith's demand and supply or relative scarcity theory of value in chapter 4 where he reiterates Smith's distinction between natural and market prices, the former being determined by long-run costs of production, including the rewards of labor, loanable "capital" as well as capital goods, and land. He there refers to "the 7th chap, of [Smith's] Wealth of Nations" as the place where "all that concerns this question is most ably treated" (*Works,* 1:91). He also reaffirms Smith's theory of market-value determination from demand and supply in chapter 30, arguing that it is ultimately the labor cost of production, both direct and indirect, that regulates the value of commodities: "the proportion between supply and demand may, indeed, for a time, affect the market value of a commodity, until it is supplied in greater or less abundance, according as the demand may have increased or decreased; but this effect will be only of temporary duration" (383). But in the long run, "the prices of commodities which are subject to competition, and whose quantity may be increased in any moderate degree, will ultimately depend, not on the state of demand and supply, but on the increased or diminished cost of their production" (385).

Ricardo did disagree with Smith's use of labor as an invariable measure of value. His disagreement turns on Smith's reasoning that labor does not vary "in its own value" whereas the exchangeable value of other commodities in terms of labor may vary due to the ease or difficulty of their production. Ricardo thus protests:

> It cannot…be correct, to say with Adam Smith, "that as labour may sometimes *purchase* [or command] a greater, and sometimes a smaller quantity of goods, it is their value which varies, not that of the labour which purchases them;" and therefore, "that labour *alone never varying in its own value,* is alone the ultimate and real standard by which the value of all commodities can at all times and places be estimated and compared."
>
> (Ricardo *Works,* 1:16–17; italics in original)

But Smith here uses labor's "own value" to mean the rate at which labor will exchange for itself, not in the sense of labor's "own price" or "the wage rate."

The value of a commodity is equal to its price only when the commodity is exchanged for money. Otherwise, "value" is the quantity of other goods that can be had in exchange for that commodity. Interpret Smith's use of "own value" to mean the foregone leisure or the quantity of labor time to be spent rather than the wage rate or the quantity of other goods to be given in exchange for labor's time, and Ricardo's objection loses its punch. Ricardo instead interprets Smith to have been talking of the wage rate, which of course is determined by the supply and demand for labor:

> …if labour fell considerably in value [the wage rate], relative to all other things, and if I found that its fall was in consequence of an abundant supply, encouraged by the great facility with which corn, and other necessaries of the labourer, were produced, it would, I apprehend be correct for me to say that corn and necessaries had fallen in value in consequence of less quantity of labour being necessary to produce them, and that this facility of providing for the support of the labourer had been followed by a fall in the value of labour.
> (Ricardo *Works,* 1:18)

But note that the abundance of labor has nothing to do with the value of labor, as Smith defines it–the foregone "ease, liberty, and happiness" of the laborer. And if less quantity of labor is needed to produce corn, more corn will exchange for the same quantity of labor, but the exchange ratio of labor for labor itself or the value of labor will not change. If other commodities required more quantity of labor in their production, their exchangeable value in terms of corn would rise as a result. Thus, employing Smith's measure of the value of labor, and not the value of labor in terms of other goods or the wage rate, we find much more consistency in his argument than Ricardo did.

When Smith means to speak of the wage rate or the money price of labor, he says so, for example, "The high price of provisions…has not in many parts of the kingdom been accompanied with any sensible rise in the *money price of labour*. It has, indeed, in some; owing probably more to the increase of the demand for labour than to the price of provisions" (*WN,* 1:83; emphasis added). In another elaborate explanation of the determination of the wage rate or price of labor by its demand and supply, and in which the wage rate is not constant, Smith says:

> The *money price of labor* is necessarily regulated by two circumstances; the demand for labour, and the price of the necessaries and conveniences of life. The demand for labour, according as it happens to be increasing, stationary, or declining, or to require an increasing, stationary, or declining population, determines the quantity of the necessaries and the conveniences of life which must be given to the labourer; and the *money price of labour* is determined by what is requisite for purchasing this quantity. Though the *money price of labour,* therefore, is sometimes high where the price of provisions is low, it would be still higher, the demand continuing the same, if the price of provisions is high.
> (Smith *WN,* 1:95; emphasis added)

Smith was thus consistent in explaining the wage rate by the demand and supply of labor, which is a different argument from using labor as a measure of value. Indeed, Smith's use of "labour command" as a measure of value often creates the impression that he meant the wage rate, which prompted Ricardo to "protest against [Smith's] language" (*Works,* 1:19).[7] But such a protest would appear to be unnecessary if we keep in mind Smith's own distinction between the value of labor in terms of labor itself (labor being the numeraire), thus invariable, and the exchange value of labor in terms of other commodities.

Thomas R.Malthus

Thomas Malthus also follows Adam Smith's explanation of the theory of value, almost as closely as David Ricardo did. In the explanation of the determination of market prices by demand and supply, Malthus's adherence to Smith's explanation appears to be even closer than Ricardo's. It is in the explanation of the exchange value of commodities by the relative quantities of labor time–foregone "ease, liberty and happiness"–expended on them that Malthus appears to differ from Smith and Ricardo. In chapter 2 of the *Principles,* "On the Nature, Causes, and Measures of Value," Malthus quotes Smith's authority at several places in explaining the determination of market prices by the supply and demand for commodities. His statements are comparable with modern price theory, for example, "…the value of commodities in money or their prices are determined by the demand for them, compared with the supply of them. And this law appears to be so general, that probably not a single instance of a change of price can be found, which may not be satisfactorily traced to some previous change in the state of the demand or supply," (1836:62), and "if a commodity were to be diminished one half in quantity, it is scarcely possible to suppose that a sufficient number of the former demanders would not be both willing and able to take off the diminished quantity, at a higher price; but if they really would not or could not do this, the price could not rise" (64). The latter says that a decrease of supply will raise the market price, unless demand also decreased at the same time.

Malthus also tries to make the point that the cost of production only affects the market price through its influence on quantities supplied in his attempt to question the view that costs determine value or price, even in the long run, that is, the natural price: "In the well known instance noticed by Adam Smith of the insufficient pay of curates, notwithstanding all the efforts of the legislature to raise it, a striking proof is afforded that the permanent price of an article is determined by the demand and supply, and not by the cost of production" (72). Malthus appeals to the approximation of the value of paper currency to that of specie (gold), simply by the expedient of limiting its supply, as a good illustration of his point:

> …the most striking instance which can be conceived to show that the cost of production only influences the prices of commodities, as it influences their supply compared with the demand, is continually before our eyes in the

> artificial value which is given to bank-notes by limiting their amount…if an article which costs comparatively nothing, though it performs the most important function of gold, can be kept to the value of gold, by being supplied in the same quantity; it is the clearest of all possible proofs that the value of gold itself no further depends upon the cost of its production, than as this cost influences the supply compared with the demand: and that if the cost were to cease, provided the supply were not increased compared with the demand, the value of gold in this country would still remain the same.
>
> (Malthus 1836:73)[8]

Unlike Ricardo, who endorses and extends Smith's explanation of the determination of value by the relative quantities of labor time expended in the production of commodities where labor is the only cost of production, Malthus goes to great lengths to deny the validity of the relative labor cost theory of value, but applauds Smith's use of labor command as a measure of value. Thus, in a reference to Ricardo's elaboration of Smith's argument, Malthus insists:

> It may be safely affirmed,…, that however curious and desirable it may be to know the exact quantity of labour, accumulated and immediate, which has been employed in the production of commodities, it is certainly not this labour alone which either determines or measures their relative values in exchange at the same place, and at the same time.
>
> (Malthus 1836:92)

Malthus clearly was presuming that both Smith and Ricardo equated the cost of labor with value or price. Thus, he argues that the Smith-Ricardo explanation of the theory of value would be correct only in the "rare case when labour alone is employed [in production], and the produce is brought to market immediately" (ibid.). But this was not Smith's or Ricardo's reasoning, as Ricardo's response to Malthus points out:

> Mr. Malthus accuses me of confounding the very important distinction between cost and value. If by cost, Mr. Malthus means the wages paid for labour, I do not confound cost and value, because I do not say that a commodity the labour on which cost a £1,000, will therefore sell for £1,000; it may sell for £1,100, £1,200, or £1,500,–but I say it will sell for the same as another commodity the labour on which also cost £1,000; that is to say, that commodities will be valuable in proportion to the quantity of labour expended on them. If by cost Mr. Malthus means cost of production, he must include profits, as well as labour; he must mean what Adam Smith calls natural price, which is synonymous with value.
>
> A commodity is at its natural value, when it repays by its price, all the expenses that have been bestowed, from first to last to produce it and bring it to market. If then my expression conveys the same meaning as cost of production, it is nearly what I wish it to do.
>
> (Ricardo *Works,* 2:34–5)

But on the whole, Malthus endorses Smith's demand and supply theory of value in the market period and reads Smith correctly as having used labor as a measure of value rather than as a determinant of value, contrary to the insistence of some modern interpreters.

John Stuart Mill

John Stuart Mill follows closely Adam Smith's statement of the classical theory of value as an explanation of the "exchangeable value" of one commodity for another in the marketplace, declaring that, "there is nothing in the laws of Value which remains for the present or any future writer to clear up; the theory of the subject is complete: the only difficulty to be overcome is that of so stating it as to solve by anticipation the chief perplexities which occur in applying it" (*Works,* 3:456).[9] Like Smith, Mill distinguishes value in use from value in exchange, but he avoids Smith's reference to "need" or "necessity" as being the basis for classifying commodities, as in Smith's water vs diamonds example. Mill explains that value in use or utility "is the extreme limit of value in exchange," since no one would "give, to possess a thing, more than the utmost value which they themselves put upon it as a means of gratifying their inclinations" (ibid.). Thus, the "exchange value of a thing may fall short, to any amount, of its value in use," but the reverse is not possible (ibid.). Again, Mill's reference to subjective utility here is noteworthy, especially given the claim by the Austrians that the classical economists did not recognize such a concept, let alone employ it in their theory of value. And, in the tradition of Smith, Mill defines price as the "quantity of money for which a thing will exchange," while value, or the "exchange value of a thing [is] its general power of purchasing; the command which its possession gives over purchaseable commodities in general" (457).

Almost in the language of David Ricardo, although relying more directly on the work of Thomas De Quincey's *Logic of Political Economy,* Mill explains that the exchange value of commodities depends on two conditions: (a) their utility or usefulness and (b) their cost of production or "difficulty in [their] attainment" (462).[10] In De Quincey's words,

> Any article whatever, to attain that artificial sort of value which is meant by exchange value, must begin by offering itself as a means to some desirable purpose; and secondly, even though possessing incontestably this preliminary advantage, it will never ascend to an exchange value in cases where it can be obtained gratuitously and without effort; of which last terms both are necessary as limitations.
>
> (Mill *Works,* 3:462)

Mill devotes a considerable amount of space to elaborating the principle that the value of any commodity is determined in the short run by its supply relative to the demand, emphasizing also that the case of a monopolized commodity "forms no exception…to the dependence of the value on supply and demand. The

monopolist can fix the value as high as he pleases, short of what the consumer either could not or would not pay; but he can only do so by limiting the supply" (468). The adjustment of the quantities demanded and supplied in Mill's analysis very much mirrors that of modern price theory:

> Whether the demand and supply are equalized by an increased demand, the result of cheapness, or by withdrawing a part of the supply, equalized they are in either case…
>
> …the proper mathematical analogy is that of an *equation*. Demand and supply, the quantity demanded and the quantity supplied, will be made equal. If unequal at any moment, competition equalizes them, and the manner in which this is done is by an adjustment of the value. If the demand increases, the value rises; if the demand diminishes, the value falls: again, if the supply falls off, the value rises; and falls if the supply is increased. The rise or fall continues until the demand and supply are again equal to one another.
>
> (Mill *Works,* 3:467–8; italics in original)

Mill also follows Smith, Ricardo, and Malthus in distinguishing the short-run market value or price from the long run or natural value, referring explicitly to Smith's and Ricardo's use of such terms: "Adam Smith and Ricardo have called that value of a thing which is proportional to its cost of production, its Natural Value (or its Natural Price)" (472). While the short-run market value is determined by supply and demand, the long-run value is determined by the cost of production, including normal profits:

> if a value different from the natural value be necessary to make the demand equal to the supply, the market value will deviate from the natural value; but only for a time; for the permanent tendency of supply is to conform itself to the demand which is found by experience to exist for the commodity when selling at its natural value. If the supply is either more or less than this, it is so accidentally, and affords either more or less than the ordinary rate of profit; which, under free and active competition, cannot long continue to be the case.
>
> (Mill *Works,* 3:475)

Mill (582–4) describes a significant exception to the above analysis in the case of commodities that are jointly produced. Because of the difficulty of uniquely assigning costs to these products, he explains, it is their relative demands that determine their values in the long run: "When, therefore, two or more commodities have a joint cost of production, their natural values relatively to each other are those which will create a demand for each, in the ratio of the quantities in which they are sent forth by the productive process" (584). Total output of these products will be determined by the principle that the revenue from their sale together assures a normal return on the capital invested in the joint production. More of the total revenue is contributed by the commodity in relatively more demand.

Mill also follows Ricardo's analysis of the costs of production, costs that include those of the "tools, materials, and perhaps buildings" required for production but that may be "resolvable into labour" (477), since all these factors require labor and capital (equipment) for their production. However, Mill denies that value is determined by the "absolute quantity of labour" expended in the production of commodities (481), that is, the so-called labor theory of value. Differential rates of profit, time over which profits are earned, and differential rates of taxes, all affect the exchange value of commodities, Mill maintains, just as Ricardo did.

On the question of the measure of value, Mill takes the same position as Ricardo's, arguing that an invariable measure does not exist: "not only is this not true of money, or of any other commodity, but we cannot even suppose any state of circumstances in which" such a commodity could be found (578). And while he recognizes Smith's definition of the value of labor as "one day's ordinary muscular exertion of one man, [and which] may be looked upon as always, to him, the same amount of effort or sacrifice," Mill also reads Smith as sometimes having defined the value of labor as "wages," just as Ricardo did. But wages do vary, and thus could not be used as a "constant measure of cost,…what political economists have generally meant by a measure of value" (579). Therefore, Mill sides with Ricardo in rejecting labor as a measure of value.

However, in concluding his discussion on the measure of value, Mill gives us a useful contrast between labor as a measure of value and labor as the regulator of value, a contrast that should absolve Smith of the perennial charge of his having argued a labor theory of value:

> The idea of a Measure of Value must not be confounded with the idea of the regulator, or determining principle, of value. When it is said by Ricardo and others, that the value of a thing is regulated by quantity of labour, they do not mean the quantity of labour for which the thing will exchange, but the quantity required for producing it. This, they mean to affirm, determines its [exchange] value; causes it to be of the value it is, and of no other. But when Adam Smith and Malthus say that labour is a measure of value, they do not mean the labour by which the thing was or can be made, but the quantity of labour which it will exchange for, or purchase; in other words the value of the thing, estimated in labour. And they do not mean that this *regulates* the general exchange value of the thing, but only ascertains what it is, and whether and how much it varies from time to time and from place to place. To confound these two ideas, would be much the same thing as to overlook the distinction between the thermometer and the fire.
>
> (Mill *Works,* 3:580–1; italics in original)

Here we have from Mill a clear affirmation of Smith's use of labor as a measure of value, not its determinant, as several other interpreters have noted. Remarkably, they include Schumpeter, who observes: "A.Smith and Malthus… used labor as a standard of value" (1954:1087). However, since costs determine long-run value or the natural price, and labor more accurately measures value, according to

Smith, Ricardo's method is not entirely inconsistent with Smith's. As noted above, it is with such similarity between Ricardo's analysis and Smith's that Malthus found grounds to disagree, for example, Malthus (1836:72, 92).

In Mill's work, we see clarifications and elaborations of the classical theory of value, which states that the value (price) of a commodity is determined in the short run by its supply and demand, and in the long run by its cost of production. The long-run cost includes all normal or long-run expected returns to the factors of production, including wages, interest, profits, and rents, which are to be covered by the product's price. The quantities supplied and demanded or the supply and demand schedules are themselves dependent on the market values of commodities. The reactions of producers and buyers in the short run constitute a search process to find the long-run equilibrium value for the product. Thus, the placement of price on the y-axis and quantities supplied and demanded on the x-axis in modern analysis of price determination follows in the tradition of the classical theory of value. It is this theory of value that Alfred Marshall inherited and further refined in his *Principles.*

Karl Marx's problem

None of the above clarifications of Adam Smith's statement of the theory of value appeared clear to Karl Marx who only saw confusion and inconsistencies in Smith's work. Thus, instead of the determination of the value of commodities by their supply and demand in the short run or relative costs in the long run, and the measurement of the value of a commodity by labor command, Marx argues that Smith

> …sometimes confuses, and at other times substitutes, the determination of the value of *commodities* by the quantity of labour required for their production, with its determination by the quantity of living labour with which commodities can be bought, or, what is the same thing, the quantity of commodities with which a definite quantity of living labour can be bought. Here [Smith] makes the exchange-value of labour the measure for the value of commodities. In fact, he makes *wages* the measure…
>
> (Marx 1975:70; italics in original)

From this firm belief that Smith was confused in his statement of the theory of value, Marx builds upon Ricardo's and Malthus's disagreements with aspects of Smith's statements of the theory of value, as noted above, and convicts all the classical writers of having been confused or attempted merely to rationalize the exploitation of labor. Labor is exploited, according to Marx, by the fact that it is paid less than the value of labor time rendered in the production process, the difference going to pay rent, interest, and profits:

> Like industrial profit proper, rent on land is only a part of the labour which is added by the labourer to the materials and *which he gives up,* hands over to the

> owner of the land without being paid for it; hence, only a part of the surplus-labour performed by him over and above the part of the labour-time which he works to pay his wages or to return an equivalent for the labour-time contained in his wages…
>
> Another form in which surplus-value appears is interest on *capital,* interest on money.
>
> (Marx 1975:82; italics in original)

And from his perception of a theory of surplus value in Smith's work, Marx could never recognize the validity of Smith's use of labor as a measure of the value of commodities since commodities contain more labor-time (value) than the value of labor (wages). Subsequent writers in the Marxian tradition continue to argue the same contradiction in the classical theory of value, for example, Mattick, Jr (1991–92). But they fail to interpret Adam Smith correctly.

Some modern variations and distortions

Alfred Marshall represents most consistently as well as refines the classical theory of value in his *Principles of Economics,* including distinguishing Smith's apparent constant average costs industry analysis from the cases of increasing or decreasing average costs analysis. Marshall first summarizes Smith's discussion of the theory of value by noting his distinction between value in use and value in exchange, pointing out that "experience has shown that it is not well to use the word in the former sense" (1920:51)—utility having replaced "value in use" in common usage. He repeats the classical designation of value as a relative concept, namely, "of one thing in terms of another at any place and time," and price as the exchange value of a commodity in terms of money (ibid.). Marshall also distinguishes the short-run value or market price from long-run value, along the lines of Smith, Ricardo, and Mill; the short-run value being regulated by the forces of demand and supply while the long run or "natural value" is regulated by the "real cost of production" or "the efforts and sacrifices which have been directly devoted to…production" of a commodity, including the "gross earnings of management" (289). As in the classical tradition, Marshall describes the movement of short-run market prices toward their long-run values as a process of competitive sellers and buyers searching for the equilibrium values at which the quantities desired to be sold or purchased are equal or when both the supply and demand prices are equal (287–90).

Against the criticisms of the classics by some, including Stanley Jevons, that they ignored the role of utility in the determination of value both in the short run and long run, Marshall presents an extensive defense. The classics, especially Ricardo, Marshall insists, may have been guilty of "careless brevity" (1920:290, 673) in stating their theory of value, but not that they had no role for utility. Their carelessness may have been in terms of having emphasized mainly the cost of production, assuming that the prerequisite of utility or demand would already

have been obvious to the reader. Thus, using the analogy of the blades of a pair of scissors, Marshall points out that:

> We might as reasonably dispute whether it is the upper or the under blade of a pair of scissors that cuts a piece of paper, as whether value is governed by utility or cost of production. It is true that when one blade is held still, and the cutting is effected by moving the other, we may say with careless brevity that the cutting is done by the second; but the statement is not strictly accurate, and is to be excused only so long as it claims to be merely a popular and not a strictly scientific account of what happens.
>
> (Marshall 1920:290)

Similarly, Marshall restates and defends Ricardo's cost of production theory of value against its interpretation by Rodbertus and Karl Marx, "and even those German economists who most strenuously combat the conclusions of these writers," who claim that, according to Ricardo, "the natural value of things consists solely of labour spent on them" (672). Marshall here seems to have in mind the German-speaking economists, but who are Austrians, including Carl Menger, Friedrich von Wieser, and Eugen Böhm-Bawerk, whom he mentions in appendix I, devoted to the defense of Ricardo's theory of value (676). Indeed Böhm-Bawerk accused Adam Smith and David Ricardo of having "pronounced labour to be the only source of value…Thus with them interest forms an unexplained and contradictory exception to their rule" (Böhm-Bawerk 1890:269).

Against the alleged labor-only theory of value interpretation, Marshall restates Ricardo's cost of production as being dependent on "the quality as well as quantity of…labour; together with the amount of stored up capital needed to aid labour, and the length of time during which such aid was invoked" (417). Thus, when Karl Marx and his sympathizers claim that there is no justification for the existence of interest because the value of output, besides the allowance for the wear and tear of capital goods, belongs to labor, Marshall declares their proposition to be false:

> It is not true that the spinning of yarn in a factory, after allowance has been made for the wear-and-tear of the factory, is the product of the operatives. It is the product of their labour, together with that of their employer and subordinate managers, and of the capital employed; and that capital itself is the product of labour and waiting: and therefore the spinning is the product of labour of many kinds, and of waiting.
>
> (Marshall 1920:487)

Yet, in spite of Marshall's clarifications, Joan Robinson insists on the labor-only theory of value interpretation of Ricardo's analysis and justifies Marx's reading of Ricardo as such: "[Marx's] conflation of the idea of labour as the measure of *value* and labour as the cause of *value* was taken from Ricardo…it was not a misunderstanding; it was very close to the way Ricardo saw it himself" (1962:38;

italics in original). Robinson also sees in Smith's analysis, a "mythical labour theory of value," which is simply a primitive version of a "wage theory of value," by which the difference "in price between a tea-cup and a motor-car" may be explained (42). Indeed, Robinson appears to read the classics from a rather peculiar perspective, which may explain why she asks, "Is it *value* that determines prices or prices that determine *values*?" (47; italics in original). But value, according to the classics, is the quantity of other commodities to be had in exchange for a unit of another, or price when a commodity exchanges for money.

Another significant modern source of the distortion of classical value theory is Paul Douglas (1928). He claims that "Smith's formulation of the problems of exchange value and of the distribution of the national product among the factors of production was such as almost inevitably gave rise to the doctrines of the post-Ricardian socialists and to the labor theory of value and the exploitation theory of Karl Marx" (77). Remarkably, Douglas exempts David Ricardo from having argued a labor theory of value. According to him, "whereas Adam Smith had taught that labor *caused* value, Ricardo merely held that commodities exchanged in proportion to the relative amounts of labor embodied in them… Labor is thus, in the Ricardian analysis, the measure of value rather than the cause of value" (98–9; italics in original). This is the exact opposite of Mill's summary (*Works,* 3:580–1) of the difference in usage of the term "measure of value" between Ricardo and Smith.

Douglas appears to hold the forementioned claim about Adam Smith because, in his reading of the *Wealth of Nations,* Smith "discarded utility, save in so far as it helped to determine temporary market price,…[and] turned to labor as both the measure and the source of value" (81). Thus, according to Douglas, utility is "not even a necessary prerequisite" in Smith's theory of exchange value (78), a point also repeated by Blaug (1996:39). This in spite of Smith's explicit reference to "utility, and partly from…beauty" in accounting for the demand for diamond and gold, and the "qualities of utility, beauty, and scarcity [being] the original foundation of the high price of those metals" (Smith *WN,* 1:192).

Douglas also attempts to provide an explanation for his perceived analytical transgressions of Smith and his followers in their alleged abandonment of utility as a determinant of value by suggesting that they "were comparing the total utilities yielded by varying types of objects rather than their marginal utilities" (1928:78).[11] But the classical economists defined value as the quantity of other goods exchanged for a unit of another, for example, Smith (*WN,* 1:37) and Mill (*Works,* 3:457), which must connote the marginal value (or worth in the marketplace) of the good being exchanged. Thus the classical theory of exchange value is not about the total utilities yielded by commodities but the ratio in which various units exchange for one another. Yet, by such a misrepresentation of Smith's theory of value, Douglas concludes that "Smith helped to divert the writers of the English Classical school into a cul-de-sac from which they did not emerge, in so far as their value theory was concerned, for nearly a century" (1928:80).

Another major source of the modern distortion of the classical theory of value is Emil Kauder (1953, 1965). He also sees in Smith's *Wealth of Nations* a neglect of

utility in the determination of value. Thus Kauder argues that "the father of our economic science wrote that water has a great utility and a small value. With these few words Adam Smith had made waste and rubbish out of the thinking of 2,000 years" (1953:650). Furthermore, Kauder claims that Smith argued both a labor theory and a "costs" theory of value (1965:168), which are inconsistent with what Smith taught in the *Lectures:* "It is generally known that Adam Smith wrote down his paradox of value in the *Wealth of Nations,* but it is less known that in his lectures he taught that scarcity *and* utility are the determinants of the market price! He gave his students the right explanation, but in the *Wealth of Nations* he misled several generations of readers" (28; italics in original).

In Kauder's view, "the author of the *Wealth of Nations* mistook utility for value in his value paradox" (1965:40) and neither Nassau Senior nor John Stuart Mill "improved the situation when they tried to glue together a value concept with the divergent elements: costs and utility" (56–7). Only the Austrians, beginning with Carl Menger, had the correct idea of the determination of value by marginal utility, according to Kauder (81–9). And in contrast with Alfred Marshall's own claim to have merely restated the classical theory of value, which includes a role for product demand or utility, Kauder insists that "Marshall's approach was to reconcile classicism [cost theory of value] with the new ideas," that is, marginal utility analysis of Austrian origin (1965:168).

But as we have seen earlier, these claims are all in error. Emil Kauder frequently confuses value as utility with value as price or the ratio of two commodities in his discussions. Yet his claims have had a considerable influence, especially among the modern generation of Austrian economists, who, relying on the claims of Paul Douglas and Emil Kauder, besides the earlier claims of Carl Menger, von Wieser, and Böhm-Bawerk, indict the classical economists of having argued a faulty, labor theory of value, for example, Murray Rothbard (1995).[12]

The misrepresentations of the classical theory of value by Austrians, Marxists, and other modern writers such as Paul Douglas and Emil Kauder appear to have had such a strong influence that efforts by several earlier writers, including Alfred Marshal (1920), to restate the classical theory seem not yet to have been completely successful in countering them. For example, Luigi Pasinetti writes that the classical theory of value "is fundamentally based on the cost of production *measured* in terms of the quantity of labour. *Utility* is considered to be *absolutely essential* to, but not a measure of exchangeable value" (1960:79; emphasis added). As noted in the introduction, others, including Samuel Hollander, Will Mason, Mark Blaug, and Glenn Hueckel, also have argued against the labor-only theory of value. This chapter's restatement of the classical theory of value from Adam Smith, David Ricardo, Thomas Malthus, and John Stuart Mill is aimed at helping to set the record straight. It is with the classical demand and supply or relative scarcity theory of value that we are most able to understand their macroeconomics.

3 On the definition of money

Classical vs modern

Introduction[1]

Monetary matters, including inflation, recession/deflation, and the level of interest rates, are among the most significant in modern macroeconomics. Yet, unlike in the classical period, just what properly is the "*thing* which answers to the description" of money (Keynes 1930, 1:4; italics in original) continues to be a matter of debate. It is important to decide what properly to call money. A clear definition of money helps to understand the source of its supply, how best to regulate the supply, the nature of money's demand, and how to apply the classical theory of value outlined in Chapter 2 to explaining the consequences of variations in the demand and supply of money.

The classical economists on the whole tended to define money as that particular commodity used as a measure of the value of other commodities, that is, gold or silver, and which also serves as a medium of exchange. Other media of exchange such as bank notes, checks, bank drafts, or bills of exchange were designated as claims on money or money substitutes, although the classics also referred to the sum of money (specie) and paper money (legal-tender bank notes) as "currency," for example, Smith (*WN,* 1:343, 503), Ricardo (*Works,* 1:352–72), and Mill (*Works.,* 3:552–3; 556–69). These money substitutes derive their values from the quantity of money into which they may be redeemed. On the other hand, the modern approach to the definition of money tends to focus on the medium of exchange function of an asset. Thus bank notes, traveler's checks, and drafts readily acceptable as media of exchange are called money, although a credit card that also serves as a ready medium of exchange is not. The difference in the definitions of money by the classics and moderns translates into a difference in the nature of monetary analysis.

Classical money is neither private sector credit nor debt, whereas the modern definition of money allows some instruments of private sector credit or debt—personal checks or bank deposits, traveler's checks, and mutual fund shares—to be called money. The possessor of classical money, and who is not a borrower, owes no repayment obligations because the private issuer of classical money immediately settles a debt thereby. The issuer of a check, on the other hand, offers only a promise in the form of an order to pay a certain amount of money owed to the recipient. The same mechanism is entailed when a traveler's check is

issued. As Mill (*Works,* 3:553) observes while discussing whether private bank notes may be called money, "An instrument which would be deprived of all value by the insolvency of a corporation, cannot be money in any sense in which money is opposed to credit." Furthermore, the private sector has the ability to change the volume of such credit instruments, as people extend credit on a short- or longterm basis, whereas the quantity of classical money is not liable to such private sector variation of its quantity Thus, it matters for sound macroeconomic analysis whether or not both credit and noncredit (cash) instruments of exchange are included in the definition of money.

As argued in the conclusion to this chapter, the classical definition provides a clearer framework for explaining the determination of the price level and inflation, the rate of interest, and the role of money and savings in the growth of output, income, and employment. The interminable debate in modern macroeconomics over these topics, on the other hand, is a reflection of the muddle that the modern definition of money encourages by its primary focus on the medium of exchange function of assets. Some modern monetary analysts attempt to conduct macroeconomics in the classical tradition, in contrast with the Keynesian (anti-classical macroeconomics) tradition, but without adhering to the classical definition of money, for example, Milton Friedman who employs the credit-inclusive or broad definition of money (Friedman and Schwartz 1963, 1970). Such efforts rather have been a source of much confusion in modern macroeconomics, particularly regarding the determinants of income, inflation, and interest rates (see Tobin (1970, 1978) and Friedman (1972)).

Classical money

The period of classical economics is usually started with Adam Smith's *Wealth of Nations,* 1776, but David Hume's monetary analysis appears to be an appropriate reference point, especially since Smith himself takes some cues from Hume. In Hume's treatise on money, we find the definition of money as that particular commodity that serves as a *measure of value* or a unit of account and also serves as a means of payment. It is because the values of other commodities are reckoned in a particular commodity that such a commodity becomes the bridge between the ultimate exchange that could have been achieved through barter. Thus, Hume notes that:

> It was a shrewd observation of ANACHARSIS the SCYTHIAN, who has never seen money in his own country, that gold and silver seemed to him of no use to the GREEKS, but to assist them in *numeration and arithmetic.* It is indeed evident, that money is nothing but the *representation* of labour and commodities, and serves only as a method of *rating* or *estimating* them. Where coin is in greater plenty; as a greater quantity of it is required to represent the same quantity of goods; it can have no effect, either good or bad, taking a nation within itself; anymore than it would make an alteration on a merchant's books, if, instead of the ARABIAN method of notation, which

> requires few characters, he should make use of the ROMAN, which requires a great many.
>
> (Hume 1752:37; emphasis added)

Hume also describes the medium of exchange character of money, which is distinguishable from credit or "capital," when he notes that "Money is not, properly speaking, one of the subjects of commerce; but only the instrument which men have agreed upon to facilitate the exchange of one commodity for another. It is none of the wheels of trade: It is the oil which renders the motion of the wheels more smooth and easy" (33). Hume recognizes the substitutability of credit or paper money for specie in transactions as well as the benefits to commerce from the discounting of bills (70). But the inflationary consequences of paper credit leave him doubtful of its overall benefit:

> I scarcely know any method of sinking money below its level, but those institutions of banks, funds, and paper-credit, which are so much practised in this kingdom. These render paper equivalent to money, circulate it throughout the whole state, make it supply the place of gold and silver, raise proportionably the price of labour and commodities, and by that means either banish a great part of those precious metals, or prevent their farther encrease *(sic)*. What can be more short-sighted than our reasonings on this head?
>
> (Hume 1752:67–8)

Hume is led to "entertain [the] doubt concerning the benefit of *banks* and *papercredit,* which are so generally esteemed advantageous to every nation" (35; italics in original) partly because such "counterfeit money" is not accepted "in any payment" by foreigners, whereas an increase in prices due to an increase of money (specie) would lead to the export of specie and a return inflow of imported goods (ibid.).

Adam Smith is more elaborate in describing money as the particular commodity that measures the value of others and that, because of its general acceptability in trade following the division of labor, is kept by most people to facilitate the ready acquisition of those goods they need besides their own products.

> In order to avoid the inconveniency of [barter], every prudent man in every period of society, after the first establishment of the division of labour, must naturally have endeavoured to manage his affairs in such a manner, as to have at all times by him, besides the peculiar produce of his own industry, a certain quantity of some one commodity or other, such as he imagined few people would be likely to refuse in exchange for the produce of their industry.
>
> (Smith *WN,* 1:26–7)

Thus, "when barter ceases, and money has become the common instrument of commerce, every particular commodity is more frequently exchanged for money than for any other commodity…it is more natural and obvious…therefore to

estimate their value by the quantity of money" for which they are exchanged (*WN,* 1:36; emphasis added). And "At the same time and place, …money is the *exact measure* of the *exchangeable value* of all commodities" (42; emphasis added). Smith makes the point while explaining why money conveniently has become the measure of value. Labor, according to Smith, is properly the most accurate measure because of the invariability of the value of labor, measured in itself, while the value of money may vary from the greater difficulty or ease of money's production. However, generalizing the argument to the period of coinage, Smith notes that the "money of any particular country is, at any particular time and place, more or less *an accurate measure of value* according as the current coin is exactly agreeable to its standard, or contains more or less exactly the quantity of pure gold or pure silver which it ought to contain" (52; emphasis added).

In his *Lectures* Adam Smith also gives importance to the measure of value function of money over the medium of exchange function: "In treating of opulence I shall consider:… Money as 1st The measure by which we compute the value of commodities (as a measure of value), [and] 2nd The common instrument of commerce or exchange," and "Money as I observed now serves two *(sic)* several purposes. It is first the measure of value. Every one tells you that the goods he has to sell are worth so many pounds, shillings, etc., believing you know this as a measure. It is also the instrument of commerce, or medium of exchange and permutation" (1978:353, 368).

Smith consistently distinguishes money (specie) from its paper substitute issued by banks. Such notes are issued as a means of extending loans or discounting bills. Where the notes have attained the status of general acceptability out of the "confidence in the fortune, probity, and prudence of" their issuers, they also serve as a medium of exchange or part of the circulating media, acquiring "the same currency as gold and silver money" (*WN,* 1:310). However, Smith emphasizes that where the notes are readily redeemable into specie on demand, they do not add to the general circulating medium or currency of the country, but only substitute for a part of the circulating money. Bankers will hold a certain amount of money (specie) as reserve against their own "promissory notes," which are serving "all the purposes of money" (ibid.), while the rest is sent abroad to pay for imports. The bankers' paper money or promissory notes do not go abroad "because at a distance from the banks which issue [them], and from the country in which payment of [them in specie] can be exacted by law, [they] will not be received in common payments" (311). Thus, Smith explains, the "whole paper money of every kind which can easily circulate in any country never can exceed the value of the gold and silver, of which it supplies the place, or which (the commerce being supposed the same) would circulate there, if there was no paper money" (318).

Should the banks issue more paper money than the value of money (gold and silver) for which they were supposed to substitute, there "would immediately…be a run upon the banks to the whole extent of [the] superfluous paper, and, if they *(sic)* shewed any difficulty or backwardness in payment, to a much greater extent; the alarm, which this will occasion, necessarily increasing the run" (319). Smith's

explanation is that pressing both money and its paper substitute into circulation at the existing rate of production would cause the value of money to fall or the price level to rise. But since only specie is acceptable abroad, holders of paper money would seek to redeem them in specie from the banks in order to make purchases abroad at cheaper prices. By this process, the superfluous paper would be returned to the issuing banks. Thus, only where the redemption of paper money into specie is prohibited or is not readily possible would the circulating medium or currency be enlarged by the issuing of paper money. The value of paper money would fall below that of specie "according as the difficulty or uncertainty of obtaining immediate payment was supposed to be greater or less" (Smith *WN,* 1:346; see also 347–50).

Smith also carefully distinguishes money from credit,[2] the latter being the facility to acquire a good or an asset without first having earned income to purchase it. Thus, credit may substitute for money in facilitating the exchange of commodities when money is scare:

> …if money is wanted, barter will supply its place, though with a good deal of inconveniency. Buying and selling upon credit, and the different dealers compensating their credits with one another, once a month or once a year, will supply it with less inconveniency. A well regulated paper money will supply it, not only without any inconveniency, but, in some cases, with some advantages.
>
> (Smith *WN,* 1:458)

Of course, credit may be extended to a borrower in the form of money. But in that case, money is merely the form in which the earned purchasing power or income is transferred from the lender to the borrower. The lender of money must first have purchased it with income earned from production. As Smith explains,

> Almost all loans are made in money, either of paper, or of gold and silver. But what the borrower really wants, and what the lender really supplies him with, is not the money, but the money's worth, or the goods which it can purchase. If he wants it as a stock for immediate consumption, it is those goods only which he can place in that stock. If he wants it as a capital for employing industry, it is from those goods only that the industrious can be furnished with the tools, materials, and maintenance, necessary for carrying on their work. By means of the loan, the lender, as it were, assigns to the borrower his right to a certain portion of the annual produce of the land and labour of the country, to be employed as the borrower pleases.
>
> (Smith *WN,* 1:373)

Moreover, the same quantity of money may serve to convey credit worth many times its value over a period of time between lenders and borrowers. Smith's distinction between money and credit or "capital" may be further illustrated thus: "Money, like wine, must always be scarce with those who have neither wherewithal

to buy it, nor credit to borrow it. Those who have either, will seldom be in want either of the money, or of the wine which they have occasion for" (458–9).

Some regard Henry Thornton as "By far the brightest light among the classical monetary theorists" (Ekelund and Hébert 1997:137) mainly because of his book, *An Enquiry into the Mature and Effect of the Paper Credit of Great Britain.* In that book, Thornton disputes some views of David Hume and Adam Smith on money and the consequences of credit creation by banks, and also defends the Bank of England against the charge that its over-issue of paper money was responsible for inflation in Britain, following the suspension of specie payment in 1797 (Thornton 1802:223–5).[3] Blaug (1996:155) similarly regards Thornton's *Paper Credit* as "the greatest single work on monetary theory produced in the classical period." F.A.Hayek elaborates Thornton's praise:

> It is not too much to say that the appearance of *Paper Credit* in 1802 marks the beginning of a new epoch in the development of monetary theory. Although Thornton's merits have long been overshadowed by the greater fame of Ricardo, it has now come to be recognized [referring to Jacob Viner's 1924 work] that in the field of money the main achievement of the classical period is due to Thornton, and even the modifications of his theories by his better-known successors were not always improvements…And the treatment of money in the *Wealth of Nations,* which has dominated opinion on these matters in the last quarter of the century, contains comparatively little of theoretical interest…even the descriptive parts of the *Wealth of Nations* were no longer adequate by the end of the century.
>
> (Hayek 1939:36–8)

But in his book Thornton affirms Hume's and Smith's description of money as a measure of value, besides being a medium of exchange. Thus, Thornton observes, "Barter being soon felt to be inconvenient, the precious metals are resorted to as a *measure of value,* they being, at once, portable, steady in their price, and capable of subdivision" (1802:81; emphasis added). Furthermore, "when converted into money [the precious metals] are to be considered merely as a *measure* of other articles" (ibid.; emphasis added).

Thornton also maintains the distinction between money and paper money issued by banks, and discountable bills, which he emphasizes also do circulate. In describing, in effect, the process of fractional reserve banking and the substitution of notes for money in circulation, Thornton uses language very similar to Smith's (*WN,* 1:310):

> When confidence rises to a certain height in a country, it occurs to some persons, that profit may be obtained by issuing notes, which purport to be exchangeable for money; and which, through the facility of thus exchanging them may circulate in its stead; a part only of the money, of which the notes supply the place, being kept in store as a provision for the current payments.
>
> (Thornton 1802:90)

Thornton's distinction between money, Bank of England notes, and country bank notes also may be recognized in the following statement: "The country banker, in case of an alarm, turns a part of the government securities, bills of exchange, or other property which he has in London, into Bank of England notes, and those notes into money; and thus discharges many of his own circulating notes, as well as enlarges the fund of gold in his coffers" (180). Thornton also argues that the exchange value of money (specie) provides the standard by which the proper regulation of the supply of paper money and bills may be determined: "gold coin is to be viewed chiefly as a standard by which all bills and paper money should have their value regulated as exactly as possible; and that the main, and, indeed, the only, point is to take all reasonable care that money shall in fact serve as that standard" (111).

Thornton's principal difference with Hume and Smith lies in the definition of the "circulating medium" and the benefits of "paper credit." Thornton argues for the inclusion of "paper credit" or bills of exchange, which circulate in the business community but not among the general public, while Hume and Smith appear to exclude them from the circulating medium.[4] According to Thornton, "A multitude of bills pass between trader and trader in the country…; and they evidently form, in the strictest sense, a part of the circulating medium of the kingdom" (92). Indeed, Thornton is also inclined to include "stocks" among the circulating medium because they are "at all times a saleable article and ready money article, [and] are, to a certain degree, held by persons in London on the same principle as bills, and serve…to spare the use of bank notes" (94). Thus, against Smith's argument that "The whole paper money of every kind which can easily circulate in any country, never can exceed the value of the gold and silver of which it supplies the place, or which (the commerce being supposed the same) would circulate there, if there was no paper money" (Smith *WN,* 1:318), Thornton retorts: "if *all* the bills of exchange of a country are to be added to the bank notes which circulate, it becomes then so manifest, that the whole of the paper must be more than equal to the amount of the money which would circulate if there were no paper, that we feel surprised that the erroneousness of [Smith's] position did not strike Dr. Smith himself" (95; italics in original).

This in spite of Smith's explanation that bank notes come into being mainly from the discounting of bills, thus the notes are better regarded as substitutes for bills in circulation:

> It is chiefly by discounting bills of exchange, that is, by advancing money upon them before they are due, that the greater part of banks and bankers issue promissory notes… The banker who advances to the merchant whose bill he discounts, not gold and silver, but his own promissory notes, has the advantage of being able to discount to a greater amount by the whole value of his promissory notes, which he finds by experience, are commonly in circulation.
>
> (Smith *WN,* 1:316)

Furthermore, Smith bases his judgment of the required amount of "the whole paper money…which can easily circulate" on the state of commerce, which must include the demand for money or its paper substitutes for transactions purposes. Smith also acknowledges that there are "several different sorts of paper money; but the circulating notes of banks and bankers are the species which is best known" (310), hence his focus on discussing the impact of bank notes.

Smith also notes the existence of "circulating bills of exchange" or "fictitious bills" issued by projectors, which draw upon the capitals of banks through the discounting process without the bankers being readily aware of their true form and effect. It is in such circumstances that the value of paper issued would be "over and above the value of gold and silver which would have circulated in the country, had there been no paper money" (331). But in the absence of a law prohibiting the redemption of paper money into specie, banks would quickly be faced with demands to exchange their notes for gold and silver, and thereby eliminating the effect of superfluous bills. Thus, Smith did not recognize bills of exchange as being in a permanent competition with bank notes and specie for transaction purposes, and thus their deserving to be included in the circulating medium as Thornton insists.

Thornton yet acknowledges that no sooner is a bill of exchange issued than it is discounted for ready cash (84–6). In his description of the re-discounting process, Thornton also appears to neglect the fact that every discounter of a bill is a new lender who first must have earned an income to be able to lend. This neglect appears to lead Thornton to the conclusion that issuers of bills of exchange may cause an endless expansion of bank notes and rising prices. Thornton's treatment of bills of exchange as being on par with bank notes in their effect on prices also seems to be at variance with his own recognition that because bills earn interest, their discounters have a strong interest to detain them (93). It is because of the same interest-yielding advantage of bills in contrast with paper money that Thornton estimates that a "number of country bank notes, amounting to 100*l.*, may, for instance, effect on an average one payment in three days; while a bill of 100*l.*, may through the disposition of each holder to detain it, effect only one payment in nine days" (94).

Thornton's treatment of bank credit and "capital" gives the impression that he disagrees with Smith's explanation that "capital" arises from savings and thus is not created by bank lending. Bank lending only assigns to borrowers a claim on the "capitals" of savers or portions of "the annual produce of the land and labour of the country" (*WN,* 1:373). Instead, Thornton argues that "Country banks… as well as the Bank of England, have been highly beneficial, by *adding,* through the issue of their paper, to the productive capital of the country" (1802:176; emphasis added). He also argues that Smith's description of bank lending as converting "Dead stock…into active and productive stock" amounts to the same thing as the banks "*adding* to the stock of the country" (176n; italics in original). And yet Thornton also argues that "Commercial capital…consists not in paper, and is not augmented by the multiplication of this medium of payment" (79), and that "the vast *(sic)* encrease of [Bank of England paper]…cannot possibly create

such a new capital as shall furnish the new paper with employment" (241). Furthermore, "capital, by which *bonâ fide* property was intended, cannot be suddenly and materially *(sic)* encreased by any emission of paper" (255). Thornton would have been more consistent by accepting Smith's distinction between credit and "capital."[5]

David Ricardo follows closely Adam Smith's definition of money, distinguishing specie from paper money. He separates paper money from "capital," and also excludes bills of exchange from the circulating medium. Indeed, Ricardo's treatment of money in his letters and pamphlets as well as in the *Principles* relies very much on quotations from Smith's *Wealth of Nations.* Thus, Ricardo recognizes money as a standard measure of value and points out that the adoption of both gold and silver money as legal tender would cause variations in the standard of value: "It appears…that whilst each of the metals was equally a legal tender for debts of any amount, we were subject to a constant change in the principal *standard measure of value.* It would sometimes be gold, sometimes silver, depending entirely on the variations in the relative value of the two metals…" (*Works,* 1:369; emphasis added). Like Thornton, Ricardo argues that where paper money is issued, its value could be made equal "to the value of the metal which is declared to be the Standard" if the quantity of paper money were properly regulated (354). Further on money's use as a measure of value, Ricardo explains that "Commodities measure the value of money in the same manner as money measures the value of commodities" (*Works,* 3:104).

Ricardo also follows closely Smith's reasoning on the substitution of paper money for specie in circulation where redemption is permitted: "If, whilst the Bank paid their notes on demand in specie, they were to increase their quantity, they would produce little permanent effect on the value of the currency, because nearly an equal quantity of the coin would be withdrawn from circulation and exported" (90). It is from the application of this principle that Ricardo reaches his fundamental conclusion that inflation and the high price of bullion in England during the suspension of paper's redemption into specie were due to the excessive printing of bank notes or paper money, also quoting Adam Smith's authority (151). And, contrary to Thornton's claim that "paper credit…enhances the prices not of that single spot in which it passes, but of the adjoining places, and of the world" (Thornton 1802:270), Ricardo argues that "The circulation can never be over-full. If it be one of gold and silver, any increase in its quantity will be spread over the world. If it be one of paper, it will diffuse itself *only in the country* where it is issued. Its effects on prices will then be only local and nominal, as a compensation by means of the exchange will be made to foreign purchasers" (*Works,* 3:91–2; emphasis added), exactly along similar lines as Adam Smith and David Hume. Furthermore, Ricardo argues, in the absence of paper's redemption into specie, the state loses control over the supply of currency as well as the ability to support its value: "The currency may as effectually be increased by paper as by coin; so that if a State were to debase its money, and limit its quantity, it could not support its value, because the Banks would have an equal power of adding to the whole quantity of circulation" (*Works,* 1:354).

Contrary to Thornton, Ricardo does not regard bills of exchange as a part of the circulating medium concurrently with money or paper money, but rather that paper money comes into being frequently from the issuing of bills of exchange. Following Smith, Ricardo explains that bills of exchange

> may be considered as the cause of the increase of paper issues, as it is on these securities that money is generally borrowed from Banks. It may therefore be affirmed that prices are raised in consequence of the increase of these bills, because the paper money would never be called into existence if bills did not precede them. The distinction in the effects of the two sorts of paper is not apparent to me.
>
> (Ricardo *Works,* 3:323)

Ricardo also emphasizes the point that bills are a substitute for money (specie), quoting Adam Smith: "the whole paper money of *every kind* which can easily circulate in any country, never can exceed the value of the gold and silver, of which *it supplies the place,* or which (the commerce being supposed the same) would circulate there if there were *no paper money*" (151; emphasis added).

Ricardo follows Smith's distinction between credit and "capital," insisting that credit "does not create Capital, it determines only by whom that Capital should be employed" (*Works,* 5:436–7). It is from such firm understanding that interest is the cost of borrowed "capital" that Ricardo forcefully argues that banks cannot lower the rate of interest permanently by printing excessive notes to lend. They would only depreciate the value of their notes thereby:

> …with respect to the interest for money; it is not regulated by the rate at which the Bank will lend, whether it be 5, 4, or 3 per cent, but by the rate of profit which can be made by the employment of capital, and which is totally independent of the quantity, or of the value of money. Whether a Bank lent one million, ten millions, or a hundred millions, they would not permanently alter the market rate of interest; they would alter only the value of the money which they thus issued. In one case, 10 or 20 times more money might be required to carry on the same business, than what might be required in the other.
>
> (Ricardo *Works,* 1:363–4)[6]

John Stuart Mill follows the earlier tradition of defining money as specie and separates money from paper money, bills of exchange, and other instruments of credit. Like his predecessors, including Nassau Senior,[7] Mill cites the standard of value as a fundamental characteristic of money. Thus, money being a "common measure for values of different sorts" is the *"first and most obvious"* among the "principal inconveniences" alleviated by money's use also as a circulating medium (*Works,* 3:502; emphasis added). Without money, "there would be no current price, or regular expression of value" (ibid.). In Mill's estimation, "This advantage of having a common language in which values may be expressed, is, even by

itself, so important, that some such mode of expressing and computing them would probably be used even if a pound or a shilling did not express any real thing, but a mere unit of calculation" (ibid.). Thus, Mill notes, "To serve as a convenient measure of value is one of the functions of the commodity selected as a medium of exchange. It is in that commodity that the values of all other things are habitually estimated" (577).

Mill is quite explicit in treating the various means of extending credit, including bank notes, bills of exchange (real and fictitious), promissory notes, and checks drawn on bank deposits as substitutes for money in transactions (ch. 11). "A bill of exchange," Mill writes,

> when merely discounted, and kept in the portfolio of the discounter until it falls due, does not perform the functions or supply the place of money, but is itself bought and sold for money. It is no more currency than the public funds, or any other securities. But when a bill drawn upon one person is paid to another (or even to the same person) in discharge of a debt or a pecuniary claim, it does something for which, if the bill did not exist, money would be required: it performs the function of currency. This is the use to which bills of exchange are often applied.
>
> (Mill *Works,* 3:534)

Mill thus appears to straddle the positions of Smith and Thornton on the treatment of bills of exchange. On the one hand, he recognizes bills as a form of extending credit to those upon whom they are drawn. And for as long as the bills are held by the creditors, they do not perform the transactions function of money. On the other hand, Mill quotes Thornton approvingly that, because bills of exchange are often passed between "trader and trader in the country," they "evidently form, in the strictest sense, a part of the circulating medium of the kingdom" (ibid.).

Mill also describes promissory notes as a "substitute for currency," and because they are often accepted in purchases on the credit of their issuers, these notes "perform all the functions of currency, and render an equivalent amount of money which was previously in circulation, unnecessary" (535). Furthermore, the issuers of these notes, "on pain of bankruptcy," always must keep some amount of money on hand to redeem the notes when they are unexpectedly presented for redemption (ibid.). Thus, the extent to which "money may be very completely superseded" in circulation by checks exceeds that by promissory notes, especially because of the facility of the Clearing House in whose operations the Bank of England notes were used to settle claims between other banks (536).

On the distinction between credit and "capital," Mill's position appears closer to that of Smith and Ricardo than Thornton's, namely, that credit only transfers but does not create "capital." Mill considers claims to the contrary as arising from a confusion:

> As a specimen of the confused notions entertained respecting the notion of credit, we may advert to the exaggerated language so often used respecting its

> national importance. Credit has a great, but not, as many people seem to suppose, a magical power; it cannot make something out of nothing. How often is an extension of credit talked of as equivalent to the creation of capital, or as if credit actually were capital. It seems strange that there should be any need to point out, that credit being only permission to use the capital of another person, the means of production cannot be increased by it, but only transferred.
>
> (Mill *Works,* 3:527)

However, as in the pre-classical and earlier classical literature (Richard Cantillon, Hume, Smith, and Ricardo) tradition, Mill notes the temporary exception to the argument in terms of the forced-saving mechanism. Were new money or "an addition…to the circulating medium" in the form of "bank notes, or other instruments of exchange" to go first into the hands of producers who use them to acquire resources for increased production, there would arise a temporary increase of real capital (528n). But the process "ceases, and a counter-process [of capital contraction] takes place, when the additional credit is stopped, and the notes are called in" (ibid.).

Finally, on money not being "capital," Mill's position is quite clear: "Capital, by persons wholly unused to reflect on the subject, is supposed to be synonymous with money…Money is no more synonymous with capital than it is with wealth. Money cannot in itself perform any part of the office of capital, since it can afford no assistance to production. To do so, it must be exchanged for other things" (*Works,* 2:55).

Such was the consensus on the definition of money in classical economics, that Francis Walker (1878:275) writes: "It has been rather the fashion with political economists to refuse the name Money to any medium of exchange which is not 'a material recompense or equivalent.'" But somewhat in anticipation of the modern practice of extending the term, money, to other media of exchange, Walker adds: "It is, however, fairly to be questioned whether anything is hereby gained in scientific precision, or for the popular understanding of the subject" by such a restriction on the use of the term "money" (ibid.). However, the continuing debate over the appropriate definition of money would appear to affirm the wisdom of the classical approach.

The modern definition of money

A significant change in the definition of money in the neoclassical period, from the 1870s onwards, is the prime focus on the medium of exchange function of money rather than money being the particular commodity that measures the value of others. The change in focus appears to have been motivated by the emergence of fiat or legal-tender money, lacking intrinsic value, and the increased use of paper money relative to gold and silver coins. The belief seems to have been that, if money itself does not represent embodied labor cost of production, it could not measure the relative worth of other commodities. Thus, for example,

Francis Walker (1878) rejects the primacy of the measure of value function of money in the earlier literature in favor of the medium of exchange function, arguing instead that money be regarded only as a "common denominator":

> There is to be observed…an unfortunate confusion of the function of a common denominator and of a common measure of value. And I make bold to say that the failure of nearly all writers on this subject [including J.S.Mill, Stanley Jevons, Professors Bowen and Rogers], to discriminate between the two offices, has caused no small part of the contradiction and confusion of the popular, and even scientific discussion of the subject.
>
> (Walker 1878:7)

He insists, "That which is to measure value must…be of a kind with the thing measured; of a kind, that is, in the respect of which the comparison is made… So to measure value, an article must possess value" (8). Furthermore, he argues, "this notion of money serving as a common measure of value is wholly fanciful; indeed the very phrase seems to indicate a misconception" (288).

Walker also prefers that the term money be applied to coins and paper money, rather than "currency," as was the practice during the classical period. He argues,

> I see no valid objection to the scientific acceptance of the popular term, Paper Money. The presence of the word paper so far qualifies and explains the word money, as to show that a material recompense or equivalent is not meant. No one is likely to be misled by the use of the term; nor am I confident that this use of the term does not conform to the highest conception of the Money-function. Certainly, the word Currency has proved a most disastrous substitute, inducing infinite confusion and contradiction.
>
> (Walker 1878:275–6)

In favor of calling bank notes money, Walker explains:

> A bank-note, so long as its currency remains, serves as the medium of exchange: it serves as the standard for deferred payments, precisely as the piece of gold which it replaces in circulation: and if anything serves as a common measure of value, it is the paper that does so, and not the thing promised by the paper. For these reasons I see no objection to the use of the word Money, as applied to bank-notes or convertible paper.
>
> (Walker 1878:398)

However, Walker follows the classical tradition of recognizing credit instruments, such as checks and bills of exchange, as substitutes for money, and not deserving to be called "money." With respect to checks not being "money," it is "because checks are a form of credit, both between the holder and the issuer and between the buyer and the seller; while, between the buyer and the seller, the bank-note…is, in effect, final payment" (398–9). He excludes bank deposits, bills of exchange,

and Exchequer bills or Treasury Notes, particularly in large denominations, from "money" or "medium of exchange" because these do not circulate from hand to hand among the general public. Thus, regarding bank deposits, he argues:

> Money is that which passes from hand to hand in final discharge of debts and full payment for goods. The bank-deposit system allows the mutual cancellation of vast bodies of indebtedness which would, without this agency, require the intervention of an actual medium of exchange; but deposits, like every other form of credit, save the use of money; they do not perform the functions of money. *Money is what money does*.[8]
>
> (Walker 1878:405; italics in original)

Focusing on the medium of exchange function of money, Walker also endorses J.R.McCulloch's criticism of earlier descriptions of bills of exchange as money "in the same sense as bank-notes" (Walker 1878:401) because such bills "pass only, with few exceptions, among persons engaged in business, who are fully aware of the risk they run in taking them" (402). Similarly, "treasury notes or exchequer bills bear interest, [and] that fact, in a considerable degree, retards their circulation. As the weight of interest accumulates towards maturity, they gradually sink out of circulation, dropping to the level of ordinary investments yielding interest. Such notes or bills, when in large denominations, are commonly not money at all" (406).

Walker also follows the classical distinction between money, credit, and "capital," the latter arising from savings or loanable funds, not money. Connecting "capital" with interest rates, he notes that, "Interest is compensation for the use of capital; not necessarily money [also making a reference to J.S.Mill's argument in the *Principles*]. Money is only one of many forms of capital; and in loans is commonly but the agent for the transfer, from lender to borrower, of other special forms of capital. In any philosophical view, it is not the money but the capital, in its special forms, which is borrowed" (94–5). Thus, with the exception of his greater focus on the medium of exchange characteristic of money, Walker's treatment of money is very much in line with that of the classics, including Adam Smith, David Ricardo, and J.S.Mill.

W.Stanley Jevons despairs from providing a working definition of money because he does not think any single definition will assist in a sound monetary analysis. In his view, it is a mistake to suppose that "we can by laying down a single definition solve the complexities of a complicated subject" (1905:71). He adds:

> People want to know exactly, What is money? or what is cash? Now money in its vague and wide meaning embraces a great variety of coins, tokens, pieces of metal, pieces of paper with various legal obligations. No single definition can co-ordinate or subordinate so many different things with their relations. I am satisfied that the attempt to treat a complex subject as if it were a simple one is the source of much of the prevalent perplexity and fallacy.
>
> (Jevons 1905:71)

Jevons's attitude toward the definition of money has been rather unhelpful to the development of macroeconomics and monetary theory in the modern era.

In the *Principles,* Alfred Marshall follows the classical tradition of defining money as specie (or its paper substitute) and also recognizes money as a measure of value: "Civilized countries generally adopt gold or silver or both as money. Instead of expressing the values of lead and tin, and wood, and corn and other things in terms of one another, we express them in terms of money in the first instance; and call the value of each thing thus expressed its *price*" (1920:51). However, Marshall designates the measure of value function of money as secondary to the medium of exchange function in his *Money, Credit and Commerce:*

> Money is, firstly, a *medium of exchange* for bargains that are completed almost as soon as they are begun; it is a "currency"; it is a material thing carried in purses, and "current" from hand to hand, because its value is read at a glance. This first function of money is admirably discharged by gold and silver and paper based on them.
>
> The second function of money is to act as a *standard of value,* or *standard for deferred payments*–that is, to indicate the amount of general purchasing power, the payment of which is sufficient to discharge a contract, or other commercial obligation, that extends over a considerable period of time.
>
> (Marshall 1923:16; italics in original)

Marshall's description of "currency" is consistent with his 1887 testimony before the Gold and Silver Commission, in which he includes "everything which passes from hand to hand as a means of purchasing, without requiring any special or trade knowledge on the part of those who handle it," namely, "gold, silver, and paper money" (Marshall [1887] 1926:35). Thus, Marshall excludes checks from his definition of currency, "because a cheque requires the receiver to have formed some opinion for himself as to the individual from whom he receives it" (ibid.). He similarly draws a distinction between checks and currency (money) when he observes that "In England a large purchase is generally effected, not by transfer of currency itself, but by transfer of a cheque (or other document) that gives command over currency" (43). Marshall further illustrates the substitution of checks for currency in transactions when he notes that "the total value of currency needed by the business of England is relatively small [because] her middle and upper classes discharge most of their obligations by cheques; and few of these cheques are presented for payment in cash: most of them merely transfer command over currency from one banking account to another" (46).

Marshall maintains the distinction between money, paper money, and their substitutes even as he argues for a "greater elasticity in the use of the term 'money,'" noting that there are "some inquiries in which it may with advantage be used narrowly, and others in which a broad use of it is appropriate" (1923:13). Thus, he explains:

> There is…a general, though not universal agreement that, when nothing is implied to the contrary, "money" is taken to be convertible with "currency,"

> and therefore to consist of all those things which are (at any time and place) generally "current," without doubt or special inquiry, as means of purchasing commodities and services, and of defraying commercial obligations. Thus, in an advanced modern society, it includes all the coin and notes issued by Government.
>
> (Marshall 1923:13)

Following F.A.Walker's 1878 argument urging the acceptance of notes issued by banks in the definition of money, Marshall also includes among "currency," the notes "issued by banks that are in good repute: for such notes are in fact accepted at their full value, at all events locally, without hesitation under all ordinary circumstances" (ibid.).[9] But he includes such notes in the constituents of money only in times of sound business confidence, when they circulate easily side by side with the notes printed on the authority of government:

> When credit is good, people generally are in no hurry to call in all the money that is owing to them, and they are not very critical of the manner in which payments are made: a private cheque, as well as a note of an ordinary bank, is commonly accepted. But when credit is disturbed, they scan with some care payments in other forms than currency and legal tender notes. That is to say, the effective stock of the means of discharging monetary obligations are in danger of being curtailed at those times, at which the amount of work set for them is greatest.
>
> (Marshall 1923:12–13)

Marshall also excludes bills of exchange from his definition of "currency," even as some such bills in the past "had a hundred names on their backs by the time they became due" and they were the "chief means of payment (sometimes even spoken of as 'currency') in English manufacturing districts early in the [nineteenth] century" (14). His basis for excluding bills from money is that "a bill of exchange cannot pass freely from hand to hand, unless everyone to whom it is tendered, knows at least one of the signatures on it; and since there is no easy means of ascertaining whether this condition is satisfied in any particular case, even such bills of exchange are better described as *substitutes for currency* than as money or currency" (15; emphasis added).

Marshall follows the classical tradition of distinguishing money from credit or "capital," money being only a form in which loans of "capital" may be extended. Thus he argues that the rate of interest on "capital" may be altered by changes in the quantity of money in the short run, but it is the supply and demand for "capital" that are the permanent determinants of the rate of interest or discount:

> Speaking generally then, it may be said that a rise in the rate of discount is caused by an increase in the desire of some of those who use capital to borrow; or by a decrease in the willingness of some of those, who are in control of

> capital, to lend. The first commonly indicates increased confidence, and perhaps increased prosperity; the latter generally indicates the opposite. Looking at the special case of the effect of an increase in currency on the rate of discount in the western world, the cycle seems to be this. The new currency, or the increase of currency, goes, not to private persons, but to the banking centres; and, therefore, it increases the willingness of lenders to lend in the first instance, and lowers the rate of discount. But it afterwards raises prices: and therefore it tends to increase discount. This latter movement is cumulative…Thus, a fall in the purchasing power of money tends, after a while, to raise the rate of discount and the rate of interest on long investments.
>
> (Marshall 1923:256–7)

Marshall underscores the point of saving being the source of "capital," not money, by noting that the "*supply* of capital is controlled by the fact that, in order to accumulate it, men must act prospectively: they must 'wait' and 'save,' they must sacrifice the present for the future" (1920:69; italics in original). Similarly, he prefers "to talk of currency giving a command over real capital, and bank money as giving a command over currency, and therefore giving a command over real capital in a second degree," when asked if he "viewed capital as being the command over currency?" ([1887] 1926:307).

Knut Wicksell who studied the classics on money and Marshall's testimony before the Gold and Silver Commission (Wicksell 1898:76), employs both the classical specie and the pure credit definitions of money. He argues that the specie definition of money does not adequately explain the behavior of money, credit, interest rates, and the price level as the classical quantity theory of money attempts to do. Thus, commingling money with credit, Wicksell argues:

> Money is continually becoming more fluid, and the supply of money is more and more inclined to accommodate itself to the level of demand…No matter what amount of money may be demanded from the banks, that is the amount which they are in a position to lend (so long as the security of the borrower is adequate)…The "supply of money" is thus furnished by the demand itself.
>
> (Wicksell 1898:110)

By this process, Wicksell suggests the possibility that "banks can raise the general level of prices to any desired height" simply through their credit creation policy (111), an argument that has influenced particularly the work of Irving Fisher (1922) and J.M.Keynes (1930). Wicksell's argument also minimizes the role of savings in the form of bank deposits in determining the supply of loanable funds or "capital" and its role in the determination of interest rates. He declares, "we have not…come across anything which corresponds to the customary method of explaining how the rate of interest is determined by the supply and demand of 'capital.' It would appear rather that the rate of interest…is completely subject to the discretion of the Bank" (1898:75). Wicksell (1906) later modifies some of these claims, see Ahiakpor (1999b) and Chapter 7.

Irving Fisher defines money in the *Elementary Principles of Economics* as *"goods generally acceptable in exchange for other goods"* and emphasizes the "facility with which [a commodity] may…be exchanged, or its general acceptability [as] the chief characteristic of money" (1912:147). Alternatively, Fisher simply defines money as "Any property right which is generally acceptable in exchange" or *"what is generally acceptable in exchange for goods"* (1922:5, 8; italics in original). He initially regarded bank deposits transferable by check as a medium of exchange but does not include them in his definition of money. However, he includes bank notes in his definition of money: "although a bank deposit transferable by check is included in circulating media, it is not money. A bank *note,* on the other hand, is both circulating medium and money" (1912:148; italics in original). This because "while a bank note is *generally* acceptable in exchange, a check is acceptable only by a special consent of the payee. Real money is what a payee accepts without question, because he is induced to do so by legal tender' laws or by well-established custom" (149; italics in original). He excludes bills of exchange and checks drawn on bank deposits from his definition of money on the basis of their not being readily acceptable in exchange: "One degree more exchangeable than a government bond is a time bill of exchange; one degree more exchangeable than a time bill of exchange is a sight draft; while a check is almost as exchangeable as money itself. Yet no one of these is really money, for none of them is 'generally acceptable.'" (148).

Departing from the previous usage of the term currency, Fisher extends its definition to include bank deposits or the circulating media, that is, "any kind of goods which, whether generally acceptable or not, do actually, for their chief purpose and use, serve as a means of payment…[Thus] currency consists of…(1) money [and] (2) bank deposits" (ibid.). He includes among the circulating media or currency in the United States, (a) "primary" money or gold coins and (b) fiduciary money, namely, "silver dollars, fractional silver, minor coins, silver certificates, gold certificates, government notes (nicknamed 'greenbacks') and bank notes," and (c) bank deposits (150). Thus Fisher estimates the "circulating media" at the time as, "about eight and one half billions, of which about seven billions are bank deposits subject to check, and one and one half billions, money; and that of this one and one half billions of money one billion is fiduciary money and only about half a billion primary money" (150–1).

In distinguishing between money and bank deposits or the "circulating credit," Fisher recognizes the difference between money and transferable savings, noting that the "phenomenon of credit means nothing more or less than a specific form of divided ownership of wealth. Credit merely enables one man temporarily to *control* more wealth or property than he *owns,* i.e., some part of the wealth or property of others" (57; italics in original). However, with the displacement of private bank notes by book entries upon which checks may be drawn, he subsequently includes checkable bank deposits in his definition of money, distinguishing them as "check-book money," for example, Fisher (1935:3–8), and refers to central bank money as "bearer" or "pocket-book" money (ibid.); he previously called bank deposits, "deposit currency" (1912, 1922). Yet, Fisher also writes, "Federal Reserve…notes are real money…the [bank] deposits are not real

money and everyday someone needs to substitute real money for them, as in 'cashing a check' for a payroll" (1935:49–50).[10]

Unlike Francis Walker, Fisher recognizes money as a "measure of value," although the measure of value characteristic is secondary to the medium of exchange function. He explains that money is "not only a *medium of exchange,* but…also…a *measure of value.* It serves as a means of comparing values of different things by expressing them both in a common denominator" (1912:18; italics in original). Also, "money is that particular kind of wealth in terms of which the value of all other kinds of wealth is *measured*" (5; italics in original).

A.C.Pigou defines money in his 1917 restatement of the quantity theory of money in reaction to Fisher's 1911 exposition of the equation of exchange alternative as "legal-tender money," the value of whose unit, "like the value of everything else," is determined by the "general conditions of [its] demand and supply" (1917:39, 40), very much in line with Marshall's definition. In discussing the supply of money, Pigou refers to "currency" as well as "inconvertible paper notes" issued on the authority of government, and whose "supply curve…is obviously a vertical line fixed in whatever position the government may choose" (53–5). He also describes "bank notes and bank balances against which checks can be drawn" as "titles to legal tender" or "bank money" (42, 47, 60). Similarly, Pigou (1927) retains the distinction between legal-tender money (or currency) and bank money or checkable deposits, although sometimes applying the title money liberally to both, as in his claim that people hold their store of value "in the form of money–mainly, of course, bank-money" (121).

Pigou later expands his definition of money to include other assets that may serve as media of exchange, reflecting elements of Fisher's definition. Thus, he describes money as having "two divisions, current money and bank money," where his "current money" includes Fisher's "primary" and "fiduciary" monies, namely, "gold coins, token coins and Bank of England notes" (1949:6). But his "bank money" includes "bank balances…*plus* overdraft facilities" (ibid.; italics in original). The latter reflects Keynes's (1930, 1:236) advocacy for including overdraft facilities in the constituents of money. However, Pigou is undecided where to place notes issued by banks other than the central bank, suggesting that "convenience" would favor their being considered "current money" while "logic" recommends their being treated as "bank money" (ibid.). Instead of the quantity of "money" being fixed by government as in his 1917 article, Pigou allows the stock of money "in circulation" to be changed by banks; and whereas bank deposits were people's claims to legal-tender money, they become a form in which people "desire to hold their money" (1949:9). He also makes the "stock of money in circulation…an increasing function of the rate of interest" (84). But like Marshall and Fisher, Pigou excludes checks from being called money since "they are tickets used for arranging the transfer of money from one person to another" (6). He also excludes "postal orders, bills of exchange, Treasury bills or Bearer bonds of any kind" (ibid.) from the constituents of money.

Pigou's liberal application of the term money to bank balances appears sometimes to blur the classical distinction between money, credit, and "capital."

He at times makes the ability of banks to extend credit depend on the deposits of currency by the public, and in which case bank lending does not cause prices to rise. But he also often asserts that the banking system creates credit "without having first received any corresponding currency deposits, thus in a sense 'creating' the money it hands over," thereby causing prices to rise (1927:123–4). Similarly, he argues that "In ordinary times,…, large bank loans mean large expenditure and, therefore, a rise in prices" (268).

In his 1927 work, Pigou also distinguishes money from the "floating capital," which businessmen borrow from the public in the form of money, noting that "the money acts,…, as a mere ticket conveying a right to things" (121), just as the classics argued. However, Pigou (1949) departs from the classical tradition with his inclusion of hoarding in the act of saving when he argues that the representative man may save by "putting currency into a *stocking* or by transferring [bank] balances that have hitherto been active into savings deposits," and that such savings deposits would not cause "an addition to real capital but…a cut in money income" (44; emphasis added).

Ludwig von Mises focuses most exclusively on the medium of exchange description of money. He finds any discussion of other functions of money as misconceived since they are all variations on the medium of exchange function. Thus he argues:

> Many investigators imagine that insufficient attention is devoted to the remarkable part played by money in economic life if it is merely credited with the function of being a medium of exchange; they do not think that due regard has been paid to the significance of money until they have enumerated half a dozen further "functions"–as if, in an economic order founded on the exchange of goods, there could be a more important function than that of the common medium of exchange.
>
> (Mises 1934:34)

He goes on to designate the use of money in extending credit or serving as a standard of deferred payment simply as money facilitating the "exchange of present goods against future goods" (35). Citing Carl Menger's authority, he finds no meaningful basis for regarding money as a means or "medium of payment" other than its being the common "medium of exchange" (36).

Mises does not recognize the classical and neoclassical usage of "value" to mean value in exchange or price, and focuses instead on the Austrian subjective value concept. Thus, he also argues against the notion of money being a measure of value. He thinks it is "unscientific" to attribute to money "the function of acting as a measure of price or even of value," insisting that the "problem of the measurement of objective use-value is not an economic problem at all" (47). But it is not value-in-use that is supposed to be measured by money in classical or neoclassical economics.

Mises is perhaps most unique in his exclusive focus on gold or silver as being money. He insists that legal or "juristic" proclamations should not be the basis of

determining what is to be called money, but rather the "economic nature of things" (54). Thus, following the historical emergence of gold and silver as money, Mises designates all other media of exchange only as money substitutes. He explains that German "token coins merely constituted drafts on the national treasury" and were not money because the Coinage Act of 1909 "obliged the Bundesrat…[to] pay out gold coins in return for not less than 200 marks 'worth of silver coins or 50 marks' worth of nickel and copper coins" (ibid.). Mises also treats the Reich Treasury notes as claims on money, and although the German thaler was "undoubtedly legal tender" and was "employed in commerce as a medium of exchange," it was not money but a claim "to something that really was money" (55). Similarly, he argues that "the notes of the Austro-Hungarian Bank were in fact nothing but money-substitutes. The money of the country, as of other European countries, was gold" (59).

Regarding the distinction between money, credit and "capital," Mises is very much in line with the classical tradition. He treats credit as the act of granting to a borrower the privilege of an early use of a commodity. Thus, a credit transaction "imposes a sacrifice on that party who performs his part of the bargain before the other does–the foregoing of immediate power of disposal over the exchanged good" (264). It is for the lender's sacrifice of immediate consumption that interest is paid. He has the same principle clearly in mind when considering the extension of credit by banks:

> The activity of the banks as negotiators of credit is characterized by the lending of other people's, i.e., of borrowed money… Banking is negotiation between granters of credit and grantees of credit. Only those who lend the money of others are bankers; those who merely lend their own capital are capitalists, but not bankers. Our use of this definition of the Classical School should not furnish any ground for terminological controversy. The expression *banking* may be extended or contracted as one likes, although there seems little reason for departing from a terminology that has been used since Smith and Ricardo.
>
> (Mises 1934:262–3; italics in original)

Mises further emphasizes the dependence of banks on their customers' deposits/savings as the basis of their lending when he argues:

> The activity carried on here by the bank is merely that of an intermediary, concerning which the English definition of a banker as a man who lends other people's money is perfectly apt… A bank which neither possesses the right of note issue nor carries on current-account business for its customers can never lend out more money than the sums of its own resources and the resources that other persons have entrusted to it.
>
> (Mises 1934:270–1)

Only banks of issue, whose notes are readily accepted in commercial transactions, may lend more than the deposits they receive from their customers, he argues.

Mises's position is very much in contrast with the modern prevalent notion that commercial banks "create money" simply by the stroke of a pen, as if they do not have to rely on deposits received from their customers to be able to lend.

Mises also regards Böhm-Bawerk's definition of "the concept of capital," in which money may be regarded as capital or a producer good (and interest being the reward for the ensuing increased productivity of labor), as "the best guide for any serious attempt to study the problem of interest" (86, 87). Nevertheless, he denies that money is either private or social capital: "Money cannot be included among capital goods, [and] neither can it be included in social capital," that is, the "aggregate of the products intended for employment in further production" (90). For money to serve as capital, it must be exchanged for "capital goods," he insists, very much in line with the classical economists. Indeed, Mises (266, 275) praises the language of the "Classical School" as serving clearly to explain the differences between money, credit, and "capital."

John Maynard Keynes appears to have employed the most varied definition of money. In the *Monetary Reform,* Keynes follows Alfred Marshall (1923) and A.C.Pigou (1917) and defines money variously as "currency," "legal-tender money," and a "standard of value," and discusses the Quantity Theory of money in terms of currency supply and its demand by the nonbank public and banks (1924: vi, 3, 12, 13, 56, 81–95). In the *Treatise,* Keynes starts with the definition of money as the standard of value or "money-of-account," namely, the units "in which Debts and Prices and General Purchasing Power are *expressed*" (1930, 1:3; italics in original). He notes that the state determines which particular commodity serves "the *description* or *title*" (4; italics in original) of the money of account. Thus, legal-tender money is "Money-Proper," to be distinguished from its substitutes, such as bank deposits or "Bank-Money—not forgetting, however, that they are not Money-Proper" (6). Following Irving Fisher (1911), Keynes also defines "Current Money" as "State-Money" or "money-proper" plus "bank money" (1930, 1:9), emphasizing that most of the current money consists of bank deposits or bank money. Sometimes, Keynes also uses "cash" interchangeably with "cheques," as in, "…the amount of the cash-transactions (payment by cheque as well as by cash, being, of course, included in this expression)" (77).

Keynes sets the stage for considering whatever assists in the settlement of debts as money when he later restates his definition of money thus: "the Money-of-Account is the term in which units of Purchasing Power are *expressed.* Money is the form in which units of Purchasing Power are *held*" (1930:55–6; italics in original). He follows up this definition of money in the *General Theory* with his inclusion of "income-deposits, business-deposits, and savings-deposits" among the forms in which money may be held besides cash (1936:194–5). Yet, while discussing the demand for money or "incentives to liquidity" and the Quantity Theory, Keynes refers primarily to "cash" (194–209). He also suggests that "It is often convenient in practice to include in *money* time-deposits with banks and, occasionally, even such instruments as (e.g.) treasury bills. As a rule, I shall, as in my *Treatise on Money,* assume that money is co-extensive with bank deposits" (167n). The modern tendency to include various forms of the public's savings or

financial assets in M2, M3, and L thus appears to follow after Keynes's lead.[11] Keynes's list of financial assets to be included in money goes beyond, for example, that of Fisher (1935:79–85) who sought to insulate the "circulating medium" from fluctuations in savings or time deposits by including only demand deposits or "check-book money" in his definition of money.

Keynes also goes a step further than previous analysts and argues for the inclusion of bank overdraft facilities since these provide the public with "the ready command over money which is required for the convenient transaction of current payments" over and above their own deposits with the banks (1930:41). He laments the absence of data on such accounts, which he regards as bank money, and discounts the significance of savings deposits:

> the Cash Facilities, which are truly cash for the purposes of the Theory of the Value of Money, by no means correspond to the Bank Deposits which are published. The latter include an important portion of something which is scarcely money at all (not much more than e.g. a Treasury Bill is), namely the savings-deposits; whilst, on the other hand, they take no account of something which is a Cash Facility, in the fullest sense of the term, namely unused overdraft facilities.
>
> (Keynes 1930, 1:43)

Indeed, Keynes criticizes living Fisher for having omitted the role of overdraft facilities in determining the price level in Fisher's version of the quantity theory (236). Such facilities help the public to economize on the use of cash, hence affect the velocity of money's circulation, Keynes argues.

In line with the views of Wicksell, Fisher, and Pigou, Keynes minimizes the role of savings in supplying loanable funds through banks. He recognizes that banks receive deposits (savings) from the public, which they lend, but argues that bank deposits are created by the banks, not their customers: "the bank creates the deposit; for only the bank itself can authorise the creation of a deposit in its books entitling the customer to draw cash or to transfer his claim to the order of someone else" (24). Furthermore, he claims that by his time, the banks had ceased to depend on the public's savings for their credit creation. Rather, the banks generate new cash deposits by their own lending: "…a bank may have been evolved from a business which…borrowed the savings of the public on the security of its reputation and then invested them at its own discretion and at its own risk" (23), but

> …the rate at which a bank passively creates deposits partly depends on the rate at which it is actively creating them [lending]. For although the borrowing customers will probably pay away promptly the proceeds of their loans, some of those to whom they pay them may be depositor-customers of the same bank. To the extent that this occurs, so far from the actively-created deposits [loans] being the offspring of the passively-created deposits [savings], it is the other way around. This illustrates…what is happening to the banking system

> as a whole…So that a part of its passively-created deposits, even when they are not the offspring of its own actively-created deposits, is nevertheless the offspring of the actively created-deposits of the other banks.
>
> (Keynes 1930, 1:25–6)

It is with this reasoning that Keynes dismisses the views of "Practical bankers, like Dr. Walter Leaf," that banks depend on their customers' deposits to lend, insisting that "economists cannot accept this as being the commonsense which it pretends to be" (25). Keynes later emphasizes this view of the negligible role of savings in supplying loanable funds when he declares: "The investment market can become congested through the shortage of cash. It can never become congested through the shortage of saving" (1937c:669).

Dennis Robertson also adopts a rather loose definition of money, very much as we now find in the literature. He first acknowledges the desirability of "an early understanding of what we mean by money," and declares: "There is no very general agreement upon this point; but as with so many other economic terms, it does not matter very much what meaning we adopt as long as we stick to it, or at any rate do not change it without being aware that we are doing so" (1957:2).[12] Robertson then provides an open-ended definition, one whose meaning may easily change, namely, "money…denote[s] anything which is widely accepted in payment for goods, or in discharge of other kinds of business obligation" (ibid.). Under such a definition, it is hard to exclude credit cards in the constituents of money as most monetary analysts insist they should.

Robertson also dispenses with the classical and Marshallian distinction of money as a commodity that serves as a measure or standard of value, and argues only for "the property of [its] being expressed in units, in terms of which it is common to reckon the value of all those goods and services which men are in the habit of exchanging with one another" (2). He illustrates the point by noting that checks and Bank of England five-pound notes serve as a medium of change in England, and are therefore money, although "nobody reckons his income or conducts his business dealings in terms of…cheques or even of Bank of England notes" (ibid.). But the argument misses the point of the classical distinction. A check is only an instrument of credit that gives "command over currency" (Marshall 1923:43), whereas a checking account is someone's wealth or financial asset. Both the check and the account are measured in units of money (currency); the five-pound note is a multiple of the pound sterling, and is also acceptable in the discharge of commercial obligations "without doubt or special inquiry" (13).

Robertson also designates central bank money as "definitive money" and deposits with banks upon which checks are written as "bank money," and thus retains a difference between money (currency or notes) and credit (loans). But like Fisher and Keynes, he includes both monies in his accounting of the total money stock. He also follows Fisher's treatment of bank deposits as money but not checks:

> …it is clearly the deposits themselves, and not the cheques drawn against them, which must be treated as forming part of [the money] stock. A deposit

> which is not being drawn against is idling bank money, just as the shilling in my pocket is idling common money: and the passage of a cheque is a kind of transitory manifestation of bank money, as the passage of a bank note is a transitory manifestation of common money.
>
> (Robertson 1957:41–2)

Robertson's description of banks as intermediaries between savers and borrowers (investors) does not appear to be consistent. He frequently treats banks as institutions capable of extending credit (loans) without relying on the deposits of savers, just as Wicksell (1898), Fisher (1912:1935), Pigou (1927:123–4), and Keynes (1930, 1:25–30). Thus, Robertson asserts that "Bank money,…is created not by the public but by the bankers, when they accord the holders of cheque-books the right to draw cheques" (1957:42), as if it is not from having made deposits with banks that check-book holders, who are not borrowers, acquire the right to draw funds. Robertson also asserts that "it is not necessary that every time [a] bank makes a loan a new act of saving should be performed by the public," and "Supposing therefore [a bank] receives…an accession to its reserves, we can be pretty sure that it will expand its loans by an amount *several times as great* as the increase in its reserves" (73, 75). Thus, he declares as "not true" bankers' claim that "they can only lend what the public has entrusted to them" (76). These claims seem to buttress the modern textbook treatment of banks as creators of "money" or deposits by their loan creation, especially through the deposit multiplier process, with hardly any hint that income earners must make, in effect, new deposits (savings) with banks in cash for the multiplier process to work. Even if a recipient of a check drawn on a bank loan redeposits the whole amount with a bank, the action is equivalent to making a redeposit of the cash to which the recipient of the check was entitled to draw. Fisher's (1922:33–9) illustration of the process of deposit expansion confirms this point, although he himself appears to show it is otherwise.

Robertson's statements dwarf his otherwise correct explanation that a constantly revolving loan fund must initially have been supplied by saving, and not created through the magic of a bank:

> …even though the individual recipients of loans were constantly varying, [it] would require only that a single act of new saving should have been performed in the dim and distant past by depositors of the bank…the making of a bank loan is seen as the act not…of a fraudulent magician, but of a faithful steward, administering to the best of its ability a fund of congealed saving which has been built up in the past.
>
> (Robertson 1957:74)

Of course, the argument does not emphasize that when the "congealed saving" is loaned out and spent, and it becomes someone else's income, it must be redeposited with that bank (or in the banking system) in order for new lending to take place.

Such has been the evolution of the modern definition of money that, by the 1940s, describing money as currency plus demand deposits became the standard, *M*=*C*+*D*=*H*+BC, instead of simply currency or high-powered money, *H,* following mostly the inspiration of Wicksell, Fisher, and Keynes. For example, R.G.Hawtrey abandons the classical distinction between money (currency) and its substitutes in earlier editions of his *Currency and Credit* and criticizes Edwin Cannan for having written of money as a commodity, adding, "if the banks lend, a fresh supply of money is created" (Hawtrey 1950:44). By the 1960s debate was over which other types of deposits with financial institutions may be included in the definition of money (Laidler 1969). In the process, the classical distinction between money (currency), credit, and "capital" significantly became blurred. It is noteworthy that Keynes, Wicksell, and Fisher all had difficulty in interpreting correctly the classical "capital" supply and demand theory of interest; Chapters 5, 7, and 8 elaborate.

Some problems with the modern definition of money

The evolution in the definition of money has not improved the quality of monetary analysis, particularly the explanation of inflation and interest rate determination, as well as the conduct of monetary policy. Were money defined in the classical tradition as high-powered money or currency *(H)* only, attempts to explain changes in the price level or the value of money from the supply and demand for money, would focus on high-powered money *(H),* as in the classical quantity theory of money, rather than on *M*=*C*+*D,* that is, currency *(C)* in the hands of the nonbank public (*C*=*H*–*R,* where *R*=bank reserves) plus bank deposits (*D*=*R*+BC, where BC=bank credit or assets) as in *M*1, *M*2, or any other variant of the modern money supply. Defining money in the classical tradition might have helped a ready appreciation of Milton Friedman's famous declaration that "inflation is always and everywhere a monetary phenomenon, produced in the first instance by an unduly rapid growth in the quantity of money" (1968:18). Instead, observations of increased growth of *M*2 without inflation in the industrialized countries, with more highly developed banking systems than in the less developed countries, has led some analysts to question legitimately whether inflation arises from excessive money creation rather than from an excessive consumer demand (demand pull) or wage increases (cost push).

Second, the modern definition of money encourages the notion that it is the supply and demand for money *(M)* rather than savings ("capital") or loanable funds that determine the rate of interest. The modern definition blurs recognition of the fact that most of what is now called money is private sector savings–nonconsumed income–channeled through depository institutions as BC, that is, *M*=*H*+BC. As Keynes makes the argument, "The quantity of money determines the supply of liquid resources, and hence the rate of interest…" (1936: xxxv). Thus, the modern definition encourages the impression that a central bank can engineer lower interest rates in a country simply by a high rate of currency *(H)* creation. It is against such a mistaken notion that Friedman, for example, pleads:

"Much of the misunderstanding about the relationship between money and interest rates comes from a failure to keep [the] three senses of the term 'money' distinct, in particular to keep 'credit' distinct from the 'quantity of money,'" the three senses being "income," "credit," and "currency" (1972:200). Yet, Friedman himself does not employ the classical definition of money as currency, which avoids the confusion.

The modern definition also encourages the notion that a central bank can and appropriately must control the growth of the money supply, be it *M*1, *M*2, and so on, rather than *H*. This even when the advocates, for example, Friedman (1968, 1970:10–11), recognize that changes in the composition of the public's portfolio of financial assets, including bank deposits, mutual fund shares, bonds, and stocks, as well as changes in banks' reserves–deposit ratio do affect the money supply as currently defined (*M*1, *M*2, etc.). A greater preference for bonds, corporate paper, and stocks causes *M* to contract, and vice versa, although the total supply of loanable savings or "capital" does not change. The same effect arises from banks' preference for a high reserves–deposit ratio. Central bankers appear to recognize the significant influence of the nonbank public on the stock of modern money, *M*1, *M*2, and so on. Yet Milton Friedman's failure to persuade the US Federal Reserve System that it is practical to control the growth of *M*1 or *M*2 precisely has led to his advocating that "the quantity of high-powered money…be frozen at a fixed amount" as a way of stabilizing the growth of the money supply (Friedman 1987:376), a recommendation so far appropriately ignored. The demand that a central bank must control the growth of *M* rather than *H* also ignores the fact that the growth of BC included in *M*=*H*+BC is favorable to investment and output growth without inflation, whereas it is the excessive growth of *H* that is inflationary.

The modern definition of money also has led to a confused interpretation of monetary policy in the United States during the Great Depression. Was monetary policy expansionary or contractionary? Milton Friedman (1968), for example, argues the contractionary view and blames the Federal Reserve for having caused a decline in the stock of money by a third between 1930 and 1933. But as Fisher (1935:5–6) shows, high-powered money increased by 25 percent, from 4 to 5 billion between 1930 and 1933 while bank deposits (his "check-book money") declined by 8 billion as a result of the thousands of bank failures at the time. Thus, on the basis of its own liabilities *(H),* Federal Reserve policy was expansionary, not the contractionary view canvassed by Friedman. The classical definition of money would have helped to recognize the contraction in *M*2 as a fall in savings with depository institutions when the public increased its demand for cash balances following the bank failures ($S = Y(1-t) - C - \Delta H_h = \Delta FA^d$). And, of course, the increase in the reserves-deposit ratio of these institutions also contracted the bank credit (BC) element of the modern money supply, *M*=*H*+BC. That is, it was rather the significant contraction in the money supply multiplier {$M = m \cdot H$, where m, the multiplier for $M1 = (cu + 1)/(cu + r_d + r_e)$, cu=currency-deposit ratio, r_d= legal reserves-deposit ratio, and r_e=economic or excess reserves-deposit ratio}, which caused the "money stock" to decline, not a reduction in the Fed's own liabilities *(H)*.

The classical distinction between money and savings or "capital" is also more

helpful than the modern commingling of the two in another sense. Friedman attempts to use the episode of the Great Depression as confirming evidence of the potency of changes in the quantity of money in determining changes in income and employment growth rather than fiscal policy, and thus confirming the validity of classical analysis over Keynes's undermining of it. He employs turning points between money and income, for example, Friedman and Schwartz (1963) and Friedman and Meiselman (1963), to that end, but leaves many analysts rather unimpressed. As Tobin (1978) legitimately asks, "Post hoc, ergo propter hoc?" The appropriate classical argument should have been this. Savings supply the funds for investment spending, hence income and employment creation. The significant contraction in GDP during the Great Depression is consistent with the significant contraction in savings or loanable funds as the demand for money (cash) increased significantly to outweigh its supply by the central bank. Thus the Great Depression confirms the classical savings theory of growth and shows the error of Keynes's paradox of thrift (see Chapter 9). In the absence of a more convincing explanation in the classical tradition, modern macroeconomics employs the IS-LM framework to give almost the same weight to the effectiveness of fiscal policy as to monetary policy in determining changes in income and employment, at least in the short run.[13]

Yet another implication of the modern commingling of currency with BC in the definition of money is the confusion entailed in explaining as well as estimating the demand for money. From the stock perspective, the demand for currency is a demand for an asset to hold, for example, Baumol (1952) and Tobin (1956, 1998), whereas the demand for bank credit is for funds to spend. And whereas an excess demand for currency should lower the price level, an excess demand for bank credit must raise the rate of interest. On the other hand, an increase in the demand for bank financial assets by the public should lower the rate of interest without necessarily affecting the price level, as it increases the flow of bank credit. The price level would be affected only if the demand for currency falls at the same time as the demand for bank financial assets increases. The classical definition of money facilitates an easy recognition of these points. Moreover, estimating the demand for money in the classical tradition entails estimating the demand for currency, *H,* not a host of financial assets that are imperfect substitutes, requiring the use of Divisia indexes for their appropriate aggregation (Laidler 1969, 1993 and Barnett, Fisher, and Serletis 1992).

The commingling of money (currency) with savings (bank deposits) in the modern definition of money also blurs easy recognition of the fact that high growth rates of *M*2 or "broad money" in the more developed countries signifies increased savings, and not the dearth of it. Thus, many analysts reached the conclusion that the US savings rate had turned negative during the late 1990s, whiles the average annual growth rate of *M*2 between 1995 and 2000 was more than 7 percent. The classical definition of money would have avoided the erroneous claim. The period is also one in which real output growth in the United States was over 4 percent, with low inflation and low unemployment, just as classical macroeconomics would predict Subsequent chapters elaborate the analytical superiority of defining money in the classical tradition.

4 The classical theories of interest, the price level, and inflation

Introduction

The classical theories of interest, the price level, and inflation were the direct applications of their theory of value discussed in Chapter 2. But as we noted in Chapter 3, the modern definition of money, by commingling money and credit (savings), has encouraged much confusion in the explanation of interest rate determination, the price level, and inflation. Thus, whereas the classical economists were very much at pains to explain that equilibrium interest rates are determined by the supply and demand for "capital" or savings, and not money, many modern analysts continue to argue, and many textbooks teach, the view that the supply and demand for money determine the rate of interest.

The modern belief in the money supply and demand theory of interest stems mainly from the work of J.M.Keynes (1936) who explicitly traces the view to the mercantilists. In asserting this view of interest rate determination, Keynes declares: "I am here returning to the doctrine of the older, pre-nineteenth century economists. Montesquieu, for example, saw this truth with considerable clarity…" (1936:xxxiv). To Keynes, the "quantity of money determines the supply of liquid resources, and hence the rate of interest, and in conjunction with other factors (particularly that of confidence) the inducement to invest" (xxxv). Keynes also turns the classical explanation of the price level and inflation by the supply and demand for money (currency) on its head, arguing instead that "the price level as a whole [is] determined precisely the same way as individual prices; that is under the influence of supply and demand" for output (ibid.), not the supply and demand for money. By increasing the "supply of liquid resources," the relative abundance of money, according to Keynes, promotes the production of real output, hence his claim that he had pushed "monetary theory back to becoming a theory of output as a whole" (xxii). In somewhat of a concession to the classical theory of the price level determination, Keynes grants that the relative abundance of money would cause the price level to rise if the economy were in the condition of full employment of production capacity and labor. But all of Keynes's claims stem from his misunderstandings of the classical theories.[1]

This chapter restates the classical theories of interest, the price level, and inflation. We shall endeavor to explain why the logic of the classical theories is

often missed by those who canvass the modern alternatives, particularly in the short run. In the case of the theory of interest, the explanation entails distinguishing "capital" from credit and money. Explaining the price level and inflation requires an understanding of the classical forced-saving doctrine, besides the distinction between credit and money.

The classical theory of interest

The classical theory of interest simply states that the rate of interest is determined by the supply and demand for "capital," which transaction may be effected through the medium of money (specie or currency), checks, or other money substitutes. Thus, it is "capital" that is offered and taken in a loan on the basis of the borrower's credit worthiness or the probability of the borrower being able to pay back on the specified terms of the loan. The loan transaction also may be described as an extension of credit by a lender of "capital," hence interest also being described as the cost of credit–the facility of acquiring the use of real goods and services without first having earned the income to purchase them. The classical theory of interest thus turns very much on the meaning of "capital."

"Capital" in the classical language refers to the part of money income devoted to earning interest or profits, the other part being consumed *(C)* or held (hoarded) in cash (ΔH_h). Thus "capital" derives from savings, $S_c = Y(1 - t) - C - \Delta H_h$, and saving does not including hoarded cash or money.[2] If "capital" is employed directly in "raising [agricultural produce], manufacturing, or purchasing goods, and selling then again," it may yield profits (Smith *WN,* 1:294). If loaned out, the lender receives a compensation in the form of interest. For the community as a whole then, the volume of "capital" given in loans is the sum of individual savings. As Adam Smith explains: "Capitals are increased by parsimony…Whatever a person *saves* from his revenue [income] he adds to his capital, and either employs it himself in maintaining an additional number of productive hands, or enables some other person to do so, by lending it to him for an *interest,* that is, for a share of the *profits*" (*WN,* 1:358; emphasis added).

The act of accumulating "capital" entails a sacrifice of present consumption of income, or abstinence, which Nassau Senior describes as *"that agent, distinct from labour and the agency of nature, the occurrence of which is necessary to the existence of Capital, and which stands in the same relation to Profit [or interest] as Labour does to wages"* (1836:59; italics in original). Senior also notes that "To abstain from the enjoyment which is in our power, or to seek distant rather than immediate results, are among the most painful exertions of the human will," hence requiring a compensation in terms of profits or interest, just as direct labor requires wages in compensation (60). J.S.Mill makes the same point thus:

> The savings by which an addition is made to the national capital, usually emanate from the desire of persons to improve what is termed their condition in life, or to make a provision for children or others, independent of their exertions. Now, to the strength of these inclinations it makes a very material difference how much of the desired object can be effected by a

> given amount and duration of *self-denial;* which again depends on the rate of profit. And there is in every country some rate of profit, below which persons in general will not find sufficient motive to save for the mere purpose of growing richer, or of leaving others better off than themselves. Any accumulation, therefore, by which the general capital is increased, requires as its *necessary condition* a certain rate of profit; a rate which an average person will deem to be an equivalent for *abstinence,* with the addition of a sufficient insurance against risk.
>
> (Mill *Works,* 3:737; emphasis added)

Both Mill and Senior associate abstinence with profits and not directly with interest because they are considering the material form of "capital" rather than money in which loans may be made. As Mill also notes, "Loanable capital is all of it in the form of money. Capital destined directly for production exists in many forms; but capital destined for lending exists normally in that form alone" (*Works,* 3:655). Borrowed "capital" may be used to purchase buildings, equipment, and machinery (fixed-capital) as well as materials for further processing or finished goods for resale (circulating-capital), and in which case the return to such capital goods is profits (e.g. Smith *WN,* 1:294–301). Nevertheless, the borrower of "capital" in the form of money pays interest, typically out of the profits earned;[3] hence the classical argument that interest rates and profit rates would tend to move together: "According, therefore, as the usual market rate of interest varies in any country, we may be assured that the ordinary profits of stock must vary with it, must sink as it sinks, and rise as it rises. The progress of interest, therefore, may lead us to form some notion of the progress of profit" (Smith *WN,* 1:99).

From their understanding of the sources of loanable "capital," namely, income and the willingness to postpone its current consumption or abstinence, the classics reasoned that the supply of "capital" must be a positive function of the rate of interest. For a closed economy, the "capital" supply function may be represented thus: $S_c = Y(1-t) - C - \Delta H_h$, where $Y(1-t)$ = net or disposable income, C=consumption, and ΔH_h=households' additions to cash balances.[4] The demand for "capital," on the other hand, must be a negative function of the rate of interest; interest being a cost to the borrower. The demand also depends on borrower's expectation of profits to be made from the employment of "capital." Thus, Smith declares: "It may be laid down as a maxim, that wherever a great deal can be made by the use of [borrowed] money, a great deal will commonly be given for the use of it; and that wherever little can be made by it, less will be given for it" (ibid.). Where "capital" is borrowed for immediate consumption, the borrower must have the expectation of earning a much greater amount of income in the future with which to pay both the loan principal and interest than in the present—the trading of a greater expected future income for a smaller or nonexistent present income. That is, the condition, $Y^e_{t+1}/Y_t \geq (1+i)$, where i=the rate of interest, must hold for borrowing to take place. Alternatively, the borrower for consumption may be characterized as having a greater than average (positive) time preference or degree of impatience. However, both types of borrowers would like to pay as

little interest (cost) as possible while the lenders would like to receive as high a compensation as they can get.

It is from such contrary tendencies on the part of borrowers and lenders that interest rates in different loan or "capital" markets are determined, according to the classics. As J.S.Mill succinctly makes the point,

> The rate of interest will be such as to equalize the demand for loans with the supply of them. It will be such, that exactly as much as some people are desirous to borrow at that rate, others shall be willing to lend. If there is more offered than demanded, interest will fall; if more is demanded than offered, it will rise; and in both cases, to the point at which the equation of supply and demand is re-established.
>
> (Mill *Works,* 3:647)

The following pattern predictions may be derived from the classical theory of interest: (a) an increase in the level of income ($\Delta Y > 0$), a decrease in the demand for cash balances or hoarding ($\Delta H_h < 0$), and a decrease in the rate of taxation ($\Delta t < 0$) will increase the supply of "capital" and decrease the equilibrium rate of interest, given the demand for "capital," and vice versa; (b) an increase in the expectation of profits or easier income earning opportunities will increase the demand for "capital" and raise the equilibrium rate of interest, given the supply of "capital," and vice versa. These pattern predictions may be illustrated as in Figures 4.1 (a) and (b). Also note that the rate of interest determined by the supply and demand for "capital" is the nominal or market rate, not the real rate–the nominal rate adjusted for the rate of inflation. Where the market rate is one that prevails in the long run, the classics, consistent with their theory of value, called it the natural rate of interest: "…there must be, as in other cases of value, some rate which (in the language of Adam Smith and Ricardo) may be called the natural rate, some rate about which the market rate oscillates, and to which it tends to return" (648).

The classical "capital" supply and demand theory of interest may also be explained in terms of the supply and demand for financial assets. Savers acquire receipts, loan notes or IOUs from borrowers, including depository institutions, which are savers' financial assets. Thus the supply of "capital" constitutes savers' demand for financial assets, $S_c = Y(1 - t) - C - \Delta H_h = \Delta FA^d$, while borrowers' demand for "capital" constitutes their supply of financial assets, $D_c = \Delta FA^s$.[5] The supply of financial assets will be a positive function of their price–inverse of the rate of interest, $P_{FA} = \$X/i$, where X takes on different numerical values; the more people are willing to pay for units of loan notes or IOUs, the more notes will be supplied. On the other hand, the demand for financial assets will be a negative function of their price; the cheaper the financial assets, the more would be demanded.

The same pattern predictions derived from the "capital" supply and demand framework may be derived from an analysis of the supply and demand for financial assets: (a) an increase in the level of income ($\Delta Y > 0$), a decrease in the

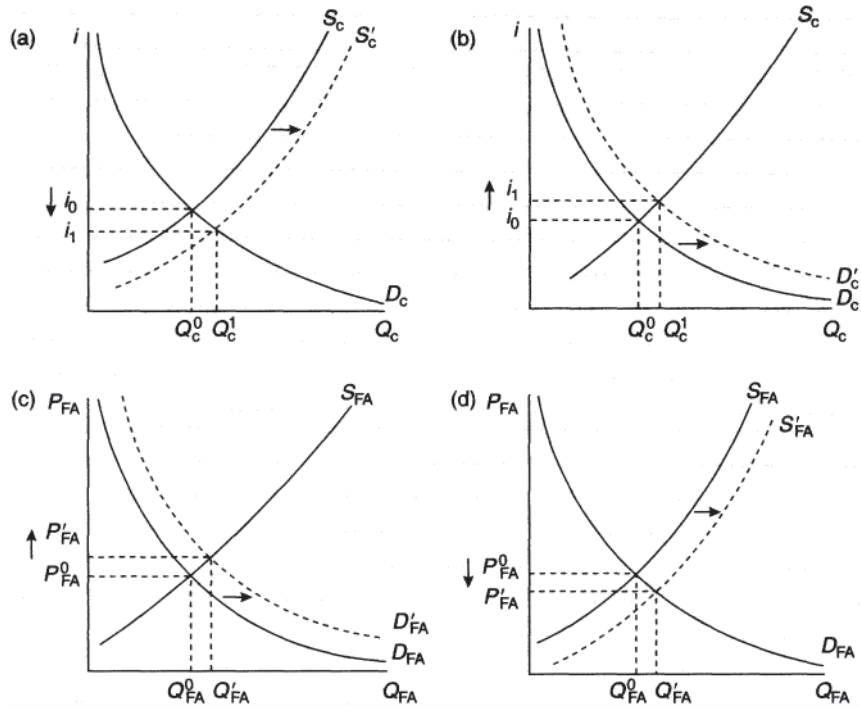

Figure 4.1 (a) An increased supply of "capital" lowers the rate of interest, (b) An increased demand for "capital" raises the rate of interest, (c) An increased demand for financial assets raises their price and lowers the rate of interest: $P_{FA}=\$X/i$. (d) An increased supply of financial assets lowers their price and raises the rate of interest: $i=\$X/P_{FA}$.

demand for cash balances or hoarding by households ($\Delta H_h < 0$), and a decrease in the rate of taxation ($\Delta t < 0$) or government budget deficits will increase the demand for financial assets and increase their equilibrium price (decreased interest rate), given the supply of financial assets, and vice versa; (b) an increase in the expectation of profits or easier income earning opportunities, or increased government budget deficits will increase the supply of financial assets and lower their equilibrium price (increased interest rate), given the demand, and vice versa. These pattern predictions are illustrated in Figures 4.1 (c) and (d).

These pattern predictions of equilibrium interest rate determination do not refer to any particular credit or loan market but to the economy as a whole. That is, the supply of "capital" may be offered on loans in the bond market (private and government), corporate finance market, or indirectly through banks and other depository institutions. Thus the financial assets acquired by savers may be bank or nonbank financial assets ($FA=FA_B+FA_{NB}$), and interest rates determined on the loans according to the degrees of risk and illiquidity involved. For example,

interest rates on loans granted by banks are determined by the supply and demand for bank credit or bank financial assets, where bank credit is equal to bank deposits less reserves (BC=*D–R*). An increase in the reservedeposit ratio of banks reduces the supply of bank credit (loanable "capital"), which will raise the equilibrium rate of interest on bank loans. Introduction of government deficit spending, financed by noncentral bank borrowing, increases the demand for "capital," which will raise the equilibrium rate of interest on government bonds.

A significant characteristic of the classical theory of interest is the fact that it does not depend on the supply of money or currency. The classics made it clear that the rate of interest may be affected temporarily by changes in the quantity of money, be it specie or bank notes, but permanently only by the supply and demand for "capital" or savings. This because although loans may be given in the form of money, the real substance of a loan is the purchasing power of income earned from production that the income earner thereby transfers to the borrower. As Smith explains:

> Almost all loans at interest are made in money…But what the borrower really wants, and what the lender really provides him with, is not the money, but the money's worth, or the goods which it can purchase…By means of the loan, the lender, as it were, assigns the borrower his right to a certain portion of the annual produce of the land and labour of the country, to be employed as the borrower pleases.
>
> (Smith *WN,* 1:373)

A modern equivalent of Smith's statement would be, "almost all loans are made by checks or electronic transfers…" J.S.Mill reiterates the point: "When one person lends to another,…, what he transfers is not the mere money, but a right to a certain value of the produce of the country, to be selected at pleasure; the lender having first bought this right, by giving for it a portion of his capital. What he really lends is so much capital; the money is the mere instrument of transfer" (*Works,* 3:508). Thus, the mere increase of the quantity of money, not real income, cannot increase the quantity of real goods and services that the borrower seeks and to which the loan provides access.

The immediate effect of a change in the quantity of money (an increase or decrease) is on the supply of loanable funds or the willingness of lenders to lend. An inflow of money–gold or silver in classical times or central bank currency in modern times–will be deposited with banks and other depository institutions, which will increase their willingness to lend through the issuing of more bank notes or discounting of bills (purchasing commercial paper, treasury bills, and other IOUs), and thereby reducing the rate of interest. Total purchasing power will be increased by the additional money ($Y + \Delta H^s$), and the flow of loanable funds or credit will exceed the supply of "capital," $S_{CR} = S_c + \Delta H$. With total spending thus in excess of real output, prices must rise. In the short run, fixed or contractual income earners (wages, rent, and interest) will lose their real purchasing power to residual income (profit) earners whose costs of production lag behind

the rise of prices. This is the process the classics called forced saving–the process whereby investors acquire more investment "capital" (out of profits) without having to induce increased savings through higher interest rates.[6]

But sooner or later, contracts will be revised so that wages, rents, and interest rates on loans will be revised upward to reflect the increased price level. Indeed, the decrease in the rate of interest induced by the increased supply of money will cause the quantity of "capital" or savings supplied to fall. This is because people will be inclined to spend more on goods and services in the immediate period rather than on financial assets, which would thereby postpone their consumption to a future time when prices will be higher. Moreover, the rise of prices will cause people to hold a higher quantity of money (cash balances) for their transactions and precautionary purposes, which, more likely than not, will be at the expense of savings or purchase of financial assets, that is, $S_c = Y(1-t) - C - \Delta H_h = \Delta FA^d$, declines as ΔH_h increases.

As Alfred Marshall affirms the point, "…a rise of prices requires people to use more currency for retail transactions, and, other things being equal, an increase in the amount of precious metals [money] seems to me to raise proportionately the uses of them for all purposes" (Marshall [1887] 1926:39). The increased holding of cash balances may also cause a drain on the cash reserves of banks and other lending institutions, which will put a brake on their willingness to lend the same proportion of new deposits they receive from savers.[7] This is why the fall in the rate of interest may not fully reflect the increased supply of credit induced by the increased supply of money (see Figure 4.2(a)).

Furthermore, the increased demand for raw materials to supply finished goods by producers will raise their prices. Thus, to acquire the same real quantity of materials, firms will increase their demand for loanable funds or "capital," which also will put pressure on interest rates to rise (see Figure 4.2(b)); the increase in

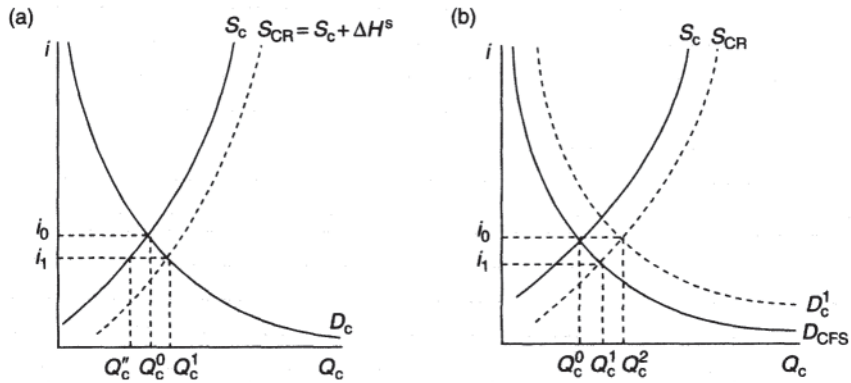

Figure 4.2 (a) Increased supply of money reduces the rate of interest and the quantity of "capital" supplied by savers, $Q_c^s = Q_c'' < Q_c^0$. (b) Increased demand for "capital" as prices rise, restores the level of interest and voluntary supply of "capital," $Q_c^s = Q_c^0$.

the nominal value of "capital" compensates for the increased price level.[8] This is why the classics emphasized the point that increases in the supply of money, by increasing the supply of credit, may decrease the rate of interest in the short run. But in the long run, the rate of interest (whether high or low) will be determined by the supply and demand for "capital" or savings, which is independent of the quantity of money.

David Hume makes these points thus:

> High interest rate arises from *three* circumstances: A great demand for borrowing; little riches to supply that demand; and great profits arising from commerce: And these circumstances are a clear proof of the small advance of commerce and industry, not of the scarcity of gold and silver [money]. Low interest, on the other hand, proceeds from the three opposite circumstances: A small demand for borrowing; great riches to supply that demand; and small profits arising from commerce: And these circumstances are all connected together, and proceed from the *(sic)* encrease of industry and commerce, not of gold and silver.
>
> (Hume 1752:177; italics in original)

Smith considers Hume's explanation to be a valid and clear refutation of the contrary views of "Mr. Locke, Mr. Law, and Mr. Montesquieu, as well as many other writers" on the determination of interest rates as to be "unnecessary to say any thing more about it" (*WN,* 1:376). But before reaching his endorsement of Hume's conclusion, Smith lays a clear basis for accepting it:

> When we compute the quantity of industry which the circulating capital of any society can employ, we must always have regard to those parts of it only, which consist in provisions, materials, and finished work: the other, which consists of money, and which serves only to circulate these three, must always be deducted. In order to put industry into motion, three things are requisite; materials to work upon, tools to work with, and the wages or recompence for the sake of which the work is done. Money is neither a material to work upon, tools to work with; and though the wages of the workman are commonly paid to him in money, his real revenue, like that of all other men, consists, not in the money, but in the money's worth; not in the metal pieces, but in what can be got for them.
>
> (Smith *WN,* 1:313)

David Ricardo quotes this passage and more, including Smith's endorsement of Hume's argument in the *Wealth of Motions,* regarding the determination of interest rates and strongly argues the futility of a central bank's attempts to lower interest rates by the artificial inflation of credit:

> To suppose that any increased issues of the Bank can have the effect of permanently lowering the rate of interest, and satisfying the demands of all borrowers, so that there will be none to apply for new loans, or that a productive gold or silver mine can have such an effect, is to attribute a power to the

> circulating medium which it can never possess. Banks would, if this were possible, become powerful engines indeed. By creating paper money, and lending it at three or two per cent under the present market rate of interest, the Bank would reduce the profits on trade in the same proportion; and if they were sufficiently patriotic to lend their notes at an interest no higher than necessary to pay the expences of their establishment, profits would be still further reduced; no nation, but by similar means, could enter into competition with us, we should engross the trade of the world. To what absurdities would not such a theory lead us! Profits can only be lowered by a competition of capitals not consisting of circulating medium. As the increase of Bank-notes does not add to this species of capital, as it neither increases our exportable commodities, our machinery, or our raw materials, it cannot add to our profits nor lower interest [in the long run].[9]
>
> (Ricardo *Works,* 3:92)

Ricardo reiterates the point in his *Principles* thus:

> …the interest for money…is not regulated by the rate at which the Bank [of England] will lend, whether it be 5, 4, or 3 per cent, but by the rate of profits which can be made by the employment of capital, and which is totally independent of the quantity, or of the value of money. Whether a Bank lent one million, ten millions, or a hundred millions, they would not permanently alter the market rate of interest; they would alter only the value of the money which they thus issued. In one case, 10 or 20 times more money might be required to carry the same business, than what might be required in the other. The applications to the Bank for money, then, depend on the comparison between the rate of profits that may be made by the employment of it, and the rate at which they are willing to lend. If they charge less than the market rate of interest, there is no amount of money which they might not lend,–if they charge more than that rate, none but spendthrifts and prodigals would be found to borrow of them.
>
> (Ricardo *Works,* 1:363–4)

There would be "no amount of money which [the Bank] might not lend" if they charged an interest rate below the market rate because the Bank's lending, especially when there is no redemption of their notes into specie, would tend to raise prices, diminish the real value of the loans, and cause borrowers subsequently to demand even more amounts.

J.S.Mill also makes the same points extensively. He declares that "The rate of interest bears no necessary relation to the quantity or value of money in circulation. The permanent amount of the circulating medium, whether great or small, affects only prices; not the rate of interest" (Mill *Works,* 3:655). On the temporary effect of new money on the rate of interest, Mill explains:

> In England, and in most other commercial countries, the paper currency in common use, being a currency provided by bankers, is all issued in the way

> of loans, except the part employed in the purchase of gold and silver. The same operation, therefore, which adds to the currency also adds to the loans: the whole increase of currency in the first instance swells the loan market. Considered as an addition to loans it tends to lower interest, more than in its character of depreciation it tends to raise it; for the former effect depends on the ratio which the new money bears to the money lent, while the latter depends on its ratio to all the money in circulation. A similar effect is produced by the increase of money arising from the gold discoveries; almost the whole of which…is, when brought to Europe, added to the deposits in banks, and consequently to the amount of loans; and when drawn out and invested in securities, liberates an equivalent amount of other loanable capital. The newly-arrived gold can only get itself invested, in any given state of business, by lowering the rate of interest; and as long as the influx continues, it cannot fail to keep interest lower than, all other circumstances being supposed the same, would otherwise have been the case.
>
> (Mill *Works,* 3:656–7)

Mill also explains the process of interest rate reversal as prices rise thus:

> Suppose money to be in process of depreciation by means of an inconvertible currency, issued by government in payment of its expenses. This fact will in no way diminish the demand for real capital on loan; but it will diminish the real capital loanable, because, this existing only in the form of money, the increase of quantity depreciates it. Estimated in capital, the amount offered is less, while the amount required is the same as before. Estimated in currency, the amount offered is only the same as before, while the amount required, owing to the rise of prices, is greater. Either way, the rate of interest must rise. So that in this case increase of currency really affects the rate of interest, but in the contrary way to that which is generally supposed; by raising, not by lowering it….
>
> We thus see that depreciation, merely as such, while in process of taking place, tends to raise the rate of interest: and the expectation of further depreciation adds to this effect; because lenders who expect that their interest will be paid and the principal perhaps redeemed, in less valuable currency than they lent, of course require a rate of interest sufficient to cover this contingent loss.
>
> (Mill *Works,* 3:656)

Mill develops the argument in the opposite direction as well, that is, the temporary increase in the rate of interest from a contraction of the quantity of money, and the subsequent decline in the rate of interest as prices fall: "The money in the hands of lenders, in common with all other money, will be enhanced in value, that is, there will be a greater amount of real capital seeking borrowers; while the real capital wanted by borrowers will be only the same as

before, and the money amount less: the rate of interest, therefore, will tend to fall" (ibid.).

The classical account of interest rate determination by the supply and demand for "capital" is thus quite clear when one understands the meaning of "capital" in their explanation as funds, not as capital goods. Alfred Marshall acknowledges the validity of the classical theory in his *Principles,* adding:

> Adam Smith appears to have seen indistinctly, and Ricardo to have seen distinctly, almost everything of primary importance in the theory [of interest], very much as it is known now: and though one writer has preferred to emphasize one of its many sides, and another another, there seems no good reason for believing that any great economist since Adam Smith has ever completely overlooked any side; and especially is it certain that nothing which would be familiar to men of business was overlooked by the practical financial genius of Ricardo. But there has been progress; almost everyone has improved some part, and given it a sharper and clearer outline; or else has helped to explain the complex relations of its different parts. Scarcely anything done by any great thinker has had to be undone, but something new has constantly been added.
>
> (Marshall 1920:484)[10]

In his *Money, Credit and Commerce,* Marshall states the theory of interest consistent with the classical view, as he previously had presented it in testimonies during the 1880s and 1890s, including that, "As a general rule, interest rises in consequence of a greater willingness of borrowers to borrow, or of a greater unwillingness of lenders to lend: the first generally indicates increased confidence, and perhaps increased prosperity; the latter generally indicates the opposite…a fall in the purchasing power of money tends, after a while, to raise the rate of interest on investments, whether for long periods, or short" (1923:73; also see similar statements on pp. 254–8).

On the basis of the textual evidence cited, we can reject as invalid several modern claims alleging the inadequacy of the classical "capital" supply and demand theory of interest. For example, Patinkin (1965:367) declares that "there was no precise attempt in the classical literature to distinguish between savings and the supply of loans, on the one hand, and between investment and the demand for loans, on the other." Leijonhufvud (1968:214) also claims that "the pre-Keynesian guardians of the Neoclassical heritage," including Marshall, had left incomplete a resolution of the problem of "capital and interest–the major lacuna which must be filled before the capstone could be put on the grand structure of value theory on which all major theorists since Adam Smith had labored." It is also from a failure to understand the classical explanation that Jörg Bibow (1995, 2000) declares the loanable-funds theory of interest to be flawed. The misinterpretations of the classical theory of interest by Eugen Böhm-Bawerk, Knut Wicksell, and J.M.Keynes are discussed in subsequent chapters.

The price level and inflation

Like the theory of interest, the classical theory of the price level is also a direct application of their theory of value: the price level (inverse of the value of money) is determined by the supply and demand for money (currency). As J.S.Mill declares,

> The introduction of money does not interfere with the operation of any of the Laws of Value… The reasons which make the temporary or market value of things depend on the demand and supply, and their average and permanent values upon their cost of production, are as applicable to a money system as to a system of barter. Things which by barter would exchange for one another, will, if sold for money, sell for an equal amount of it, and so will exchange for one another still, though the process of exchanging them will consist of two operations instead of one… Money is a commodity, and its value is determined like that of other commodities, temporarily by demand and supply, permanently and on the average by cost of production [of specie].
>
> (Mill *Works,* 3:506–7)

The value of a commodity, as the classics explained (see Chapter 2), is the quantity of other commodities to be had in exchange for it, while the commodity's price is the quantity of money for which it will exchange. Thus, while all prices may be falling or rising in terms of money, the exchange value of commodities with one another may remain unchanged. This is why the introduction of money does not alter the laws of value–determination of exchange values by supply and demand.

However, unlike the value or price of other goods and services or the rate of interest, the price level is not determined on any particular market, but must be estimated as the weighted average of all prices ($P = \sum_{i=1}^{n-1} w_i p_i$, where W_i=weights of the n–1 commodities produced, the nth commodity being money itself, and p_i=individual prices) or what Ricardo calls, the "mass of prices" (*Works,* 1:169, 228, 423; 3:299–301, 311), and Mill calls, "general prices" (*Works,* 3:508, 511, 514). The price level also defines the value of money, $V_m = 1/P$, since the higher the level of prices, the fewer quantity of goods and services for which a unit of currency will exchange. Hence, the classics frequently discussed the determination of the price level in terms of the value of money.

The classical theory of the price level may be explained from the perspective of either (a) the stock demand and supply of money or (b) flow demand and supply. From the stock perspective, we note that people spend a part of their income to purchase money as an asset in which temporarily to store their purchasing power, while the rest of income goes to purchase goods and services, and financial assets (IOUs). The issuers of financial assets, including firms and government, also spend the purchasing power of borrowed funds on goods and services not bought by the lenders (buyers of financial assets) as well as hold a

fraction of such funds in the form of money (cash). For the community as a whole then, total spending is on goods and services ($\mathcal{Y}(1-k)$) and on money ($k\mathcal{Y}$).[11] The proportion of income spent on holding money ($k\mathcal{Y} = kPy$) thus withholds some purchasing power from affecting the prices of goods and services, hence the price level. As Mill notes, "money hoarded does not act on prices. Money kept in reserve by individuals to meet contingencies which do not occur, does not act on prices. The money in the coffers of the Bank, or retained as a reserve by private bankers, does not act on prices until drawn out, nor even then unless drawn out to be expended" (515).

The nominal quantity of money held is desired to command a certain real purchasing power. As Adam Smith explains, "In other to avoid the inconveniency of [barter], every prudent man in every period of society, [endeavors] to manage his affairs in such a manner, as to have at all times by him, besides the peculiar produce of his own industry, a certain quantity of some one commodity or other, such as he imagined few people would be likely to refuse in exchange for the produce of their industry" (*WN,* 1:26–7), which is money, and bankers reserve "in their different coffers [money] for answering occasional demands" (311). Therefore, a greater quantity would be demanded to effect the same real quantity of purchases when prices rise, and vice versa. As Marshall also makes the point, "A country's demand [for money] is not for a certain amount of metallic (or other) currency; but for an amount of currency which has a certain purchasing power" (1923:39).

Thus, the demand curve for money is a rectangular hyperbola (Marshall 1923:282–3; Pigou 1917:42). The quantity of money actually held depends on the level of income; it is with income that one purchases money. Furthermore, the demand for money depends on people's expectations of the need to use money for purchasing goods and services, rather than with checks or other instruments of credit. Thus, the greater the opportunity for using other media of exchange or economizing on the use of money, the less will be the demand for money.

In the classical system, the supply of money originates from the import of gold or silver in return for the net export of goods and services, for example, Smith (*WN,* 1:453, 456), or from domestic production of the precious metals, or the printing of central bank notes in substitution for specie (in the absence of convertibility). The supply of classical money responds to changes in its value. An increase in the value of money (a fall in the price level), may cause domestic producers to export more goods in return for specie. Where gold or silver mining at home is feasible, it also becomes more profitable to increase their production since a unit of the metals will exchange for more goods and services when prices fall. The reverse is also true. A decrease in the value of money (increase of domestic prices) will cause specie to be exported in return for cheaper foreign goods and services. Thus the classical money supply curve is upward sloping. Modern fiat money, on the other hand, originates only from a country's central bank, and thus the supply does not respond to changes in its value or the price level. As A.C.Pigou notes, fiat money's "supply curve…is obviously a vertical line fixed in whatever position the government may choose" (1917:53).

The classical stock demand and supply explanation of the price level is what has been formalized as the Cambridge equation ($H^s = H^d = k^d Y = k^d Py$), from which we derive the price-level equation as, $P = H/ky$, where y=real income or output of goods and services. The price level will be lower, and the value of money higher, the greater the proportion of income ($\Delta k > 0$) the community desires to hold as money, given the quantity of money ($H^d = k^d Py > H^s$);[12] see Figure 4.3(a). The desire for a greater proportion of income to hold as money must manifest itself in the community spending less on goods and services than before. On the other hand, the price level will rise, and the value of money fall, if the community desires to reduce the proportion of income it holds as money ($\Delta k < 0$), since that desire must take the form of increased spending on goods and services out of income than before; see Figure 4.3(b).

Similarly, a reduction in the stock of money, relative to its demand, will lower the price level, and raise the value of money; people must curb their spending on

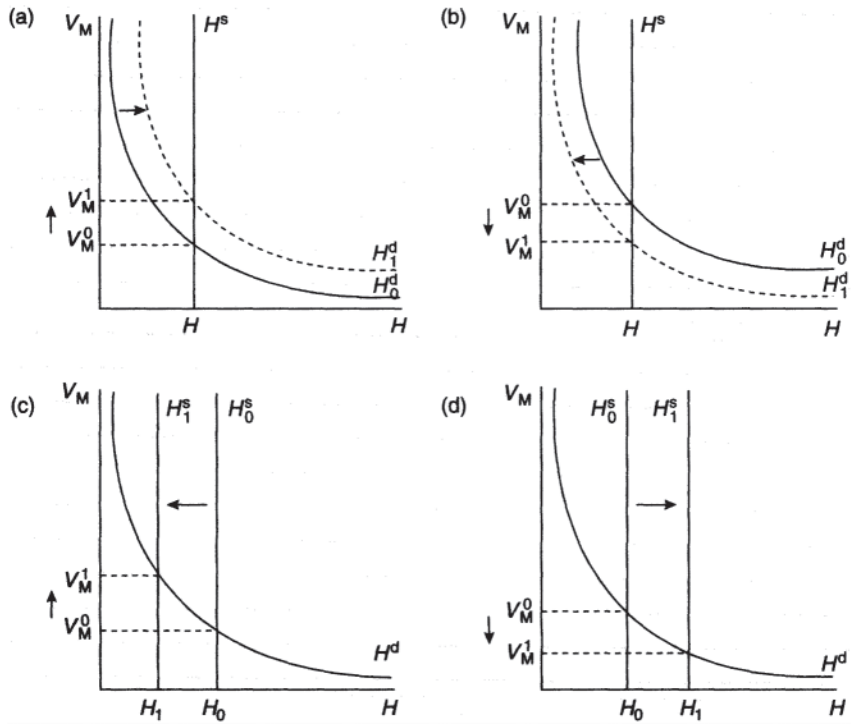

Figure 4.3 (a) An increased demand for money raises the value of money (price level falls), (b) A fall in the demand for money lowers the value of money (price level rises), (c) A decrease in the quantity of money raises the value of money (price level falls), (d) An increase in the quantity of money lowers the value of money (price level rises).

goods and services in order to devote more of their income to acquiring money (Figure 4.3(c)). On the other hand, an increase in the stock of money, relative to the demand, will raise the price level, and lower the value of money, as people attempt to maintain their desired proportion of income held as money by spending the additional money on goods and services (Figure 4.3(d)). It is during the process of price level adjustment to the new money and spending that the forcedsaving mechanism operates–falling real incomes of wage, interest, and rental earners, and increased production of goods and services until all contracts are revised: "…it is only in this interval or intermediate situation, between the acquisition of money and rise of prices, that the increasing quantity of gold and silver is favourable to industry…it must first quicken the diligence of every individual, before it increase the price of labour" (Hume 1752:170).[13]

Alfred Marshall states the above stock demand and supply of money theory of the price level precisely when he writes,

> …whatever the state of society, there is a certain volume of their resources which people of different classes, taken one with another, care to keep in the form of currency; and, if everything else remains the same, then there is this direct relation between the volume of currency and the level of prices, that, if one is increased by ten per cent, the other also will be increased by ten per cent. Of course, the less the proportion of their resources which people care to keep in the form of currency, the lower will be the aggregate value of the currency, that is, the higher will prices be with a given volume of currency.
>
> (Marshall 1923:45)

The equilibrium points in Figures 4.3(c) and (d) omit some temporary, short-run equilibrium positions. A decrease in the quantity of money, creating an excess demand for currency, would reduce total spending as well as production and real income as the price level falls and real wages increase. Thus, the demand for money itself would decrease somewhat (a leftward shift the money demand curve). But the money demand curve would move back to its original position as nominal wages decrease to restore the level of real wages and the rate of production and real income increase. Similarly, an increase in the quantity of money, creating an excess supply of currency, would increase the demand for money somewhat as the price level rises and reduces the level of real wages, causing real output and income to rise (a shift of the money demand curve to the right). But the money demand curve shifts back to its initial position when nominal wages rise to restore the level of real wages and the rate of production and real income fall back to the pre-inflationary position.

From the flow perspective, the value of money (inverse of the price level) is determined by the relative quantity of money devoted to purchasing goods and services in the marketplace, or as some of the classics put it, "the ratio of money to goods." In this perspective, the supply of money is the quantity offered in exchange for goods and services, while the demand for money is the

volume of goods and services offered in exchange for money. Thus, were more money to be offered in exchange for goods per unit of transaction period than there are goods to be had, the price level would rise, and the value of money fall. On the other hand, were less money offered in exchange for goods and services on sale than the quantity available, the price level would fall, and the value of money rise.

David Hume lays out the classical flow demand and supply theory of the value of money or the price level thus:

> It seems a maxim almost self-evident, that the prices of everything depend on the proportion between commodities and money, and that any considerable alteration on either has the same effect, either of heightening or lowering the price. Increase the commodities, they become cheaper; increase the money, they [commodities] rise in their value. As, on the other hand, a diminution of the former, and that of the latter, have contrary tendencies.
>
> It is also evident, that the prices do not so much depend on the absolute quantity of commodities and that of money which are in a nation, as on that of the commodities which come or may come to market, and of the money which circulates. If the coin be locked up in chests, it is the same thing with regard to prices, as if it were annihilated; if the commodities be hoarded in magazines and granaries, a like effect follows. As the money and commodities, in these cases, never meet, they cannot affect each other. Were we, at any time, to form conjectures concerning the price of provisions, the corn, which the farmer must reserve for seed, and for the maintenance of himself and family, ought never to enter into the estimation. It is only the overplus, compared to the demand, that determines the value.
>
> (Hume 1752:172–3)

Adam Smith so integrated the flow demand and supply theory of the price level or value of money into different aspects of his analysis in the *Wealth of Nations* that the argument may appear to some readers as fragmentary and "incomplete" (Laidler 1981:188). Several readers of Smith, in fact, have failed to recognize his explanation of price level changes in connection with changes in the quantity of money. For example, Lloyd Mints writes, "Adam Smith…tacitly assumed that the aggregate circulating medium of the community, no matter how defined, had no influence upon the price level" (1945:99), while Douglas Vickers declares that "Smith's doctrinal stance inhibited any adequate treatment of…the possible price-level…effects of an increased, or temporarily excessive, monetary circulation" (1975:502).

But when Smith's scattered comments on the relation between the price level and the supply of money relative to its demand, are read in their proper contexts, the comments make a consistent theory of the price level, just as outlined previously. They include, "An increase of paper money,…, by augmenting the [currency], and consequently diminishing the value of the whole currency, necessarily augments the money price of commodities" (*WN,* 1:345), "Any

increase in the quantity of commodities annually circulated within the country, while that of the money which circulated them remained the same, would,…, produce many other important effects, besides that of raising the value of the money" (378), and

> When the quantity of gold and silver imported into any country exceeds the effectual demand, no vigilance of government can prevent their exportation …The continual *importations* from Peru and Brazil [into Spain and Portugal] *exceed the effectual demand* of those countries, and *sink the price of those metals* there below that in the neighbouring countries. If, on the contrary, in any particular country their *quantity fell short of the effectual demand,* so as to *raise their price* above that of the neighbouring countries, the government would have no occasion to take any pains to import them.
>
> (Smith *WN,* 1:457; emphasis added)

We also find Smith's employment of the demand and supply theory of the value of money in the following statements: "It is not by the importation of gold and silver, that the discovery of America has enriched Europe. By the *abundance* of the American mines, those metals have become *cheaper*" (469; emphasis added), and "The value of money is in proportion to the quantity of the necessaries of life which it will purchase" (*WN,* 2:416).[14]

Henry Thornton's explanation of the price level also follows the flow demand and supply of money or currency framework:

> The principle which has been laid down as governing the price of goods, must be considered as also regulating that of the paper for which they are sold; for it may as properly be said, on the occasion of a sale of goods, the paper is sold for goods, as that goods are sold for paper:…the price at which the exchange (or sale) [of a commodity] takes place depends on two factors; on the proportion between the supply of the particular commodity and the demand for it, which is one question; and on the proportion, also, between the state of the general supply of the circulating medium and that of the demand for it, which is another.
>
> (Thornton 1802:194)

Thornton illustrates the principle with an account of the fall of prices in 1795 as arising from the contraction of money:

> Much of the circulating medium being withdrawn, the demand for it was in those places far greater than the supply; and the few persons, therefore, who were in possession of cash, or of what would pass as cash, having command of the market, obliged the farmers to sell at a price thus greatly reduced. It was a new and sudden scarcity of cash, not any new plenty of corn, which caused the price of corn to drop.
>
> (Thornton 1802:196)

Thornton later concludes:

> I shall…consider the doctrine which has been laid down, as being sufficiently established, namely, that, paper [money] fluctuates in price [value] on the same principles as any other article, its value rising as its quantity sinks, and *vice versâ:* or, in other words, that an augmentation of it has a general tendency to raise, and a diminished issue to lower, the nominal cost of commodities…
>
> (Thornton 1802:197)

David Ricardo adopts the same explanation of the value of money or the price level from the relative proportions of commodities and money: that "commodities would rise or fall in price, in proportion to the increase or diminution of money, I assume as a fact which is incontrovertible" (*Works,* 3:193n). He elaborates:

> The value of the circulating medium of every country bears some proportion to the value of the commodities which it circulates. In some countries this proportion is much greater than in others, and varies, on some occasions, in the same country. It depends upon the rapidity of circulation, upon the degree of confidence and credit existing between traders, and above all, on the judicious operations of banking. In England so many means of economizing the use of the circulating medium have been adopted, that its value, compared with the value of the commodities it circulates, is probably (during a period of confidence) reduced to as small a proportion as is practicable.
>
> (Ricardo *Works,* 3:90)

J.S.Mill gives the flow demand and supply account of the determination of money's value as follows:

> If we assume the quantity of goods on sale, and the number of times those goods are resold, to be fixed quantities, the value of money will depend upon its quantity, together with the average number of times that each piece changes hands in the process. The whole of the goods sold (counting each sale of the same goods as so much added to the goods) have been exchanged for the whole of the money, multiplied by the number of purchases made on the average by each piece. Consequently, the amount of goods and of transactions being the same, the value of money is inversely as its quantity multiplied by what is called the rapidity of circulation. And the quantity of money in circulation, is equal to the money value of all the goods sold, divided by the number which expresses the rapidity of circulation.
>
> (Mill *Works,* 3:512–3)

The classical flow of money demand and supply theory of the value of money or the price level is what Irving Fisher (1911) has formalized into his famous equation of exchange, $MV=PT$, where M=quantity of money (currency), V=velocity of

circulation, P=average price of goods and services sold, and T=volume of transactions. Indeed, Fisher (1922:25–6, n. 2) argues that "Ricardo probably deserves chief credit for launching the [quantity] theory" which explains the price level by "the amount of money, rapidity of circulation, and the amount of trade." And in the Fisherian formulation, the price level $(P=HV/T)$ rises, and the value of money falls, if more money is offered in transactions than there are goods and services to be purchased, and vice versa. However, as A.C.Pigou (1917) has pointed out, both the flow and stock demand and supply approaches say essentially the same thing. To demand a quantity of money to hold is to abstain from spending some portion of income on goods and services. Moreover, for as long as some unit of money is held, its rate of turnover–velocity–or ability to assist in the purchase of goods and services is diminished. Thus, $\Delta k > 0$ implies $\Delta V < 0$, and yields the same directional effect on the price level from either the Cambridge price level equation, $P=H/ky$, or the Fisherian alternative, $P=HV/T$.

Once again, Marshall recognizes the similarity of the two approaches when he argues that "the value of a unit of a currency varies, other things being equal, inversely with the number of the units and their average rapidity of circulation," and

> It is almost a truism: for, if one column of a ledger recorded accurately all the transactions for money in a year with their values; while another column specified the number of the units of money employed in each transaction; the two columns when added up would balance. The second column would of course represent the aggregate value of the total number of changes of ownership of all the units of money: and that is the same thing in other words as the total value of the money multiplied by the average changes of ownership (otherwise than by free gift, theft, etc.) of each unit.
>
> (Marshall 1923:48)

From the classical theory of the price level or the value of money, we readily derive their theory of inflation–growth of the price level–as a time derivative of the natural log of the Cambridge price-level equation, that is, $(dP/dt)(1/P) = (dH/dt)(1/H) - (dk/dt)(1/k) - (dy/dt)(1/y)$ or $\dot{P} = \dot{H} - \dot{k} - \dot{y}$. Increases in the supply of currency in excess of its demand cause increases in the rate of inflation, and vice versa. From the Fisherian equation, we similarly derive the rate of inflation as, $(dP/dt)(1/P) = (dH/dt)(1/H) + (dV/dt)(1/V) - (dT/dt)(1/T)$ or $\dot{P} = \dot{H} + \dot{V} - \dot{T}$, where the growth of money's velocity $(\dot{V})$ replaces the growth of the proportion of income desired to be held as cash $(\dot{k})$, with an opposite effect on the rate of inflation, and the growth of transactions $(\dot{T})$ replaces the growth of real income $(\dot{y})$. Were money's velocity (inverse of the demand for money to hold) to be constant and increases in the money supply to equal only the needs of transactions, the rate of inflation would be zero, as J.S.Mill notes:

> If there be, at any time, an increase in the number of money transactions, a thing continually liable to happen from differences in the activity of speculation, and even in the time of year (since certain kinds of business are transacted

> only at particular seasons); an increase of the currency which is only proportional to this increase of transactions, and is of no longer duration, has no tendency to raise prices.
>
> (Mill *Works,* 3:515)

In the classical regime of specie and convertible paper money, the long-run tendency of the rate of inflation was zero. A positive rate of inflation would cause specie to be exported in return for cheaper foreign goods, and thus lower domestic prices. Increased domestic production that lowers the price level would cause an increase in the rate of commodity exports in return for specie, which would raise the level of prices. This is the familiar Hume price-specie-flow mechanism, which is also reflected in Smith's comment, "money necessarily runs after goods" (*WN,* 1:460). However, in a nonconvertible paper currency regime, the growth of the money supply is not self-adjusting to the growth of real output or domestic prices, and persistent inflation could and did occur from excessive increases in the supply of currency–excessive in relation to the demand for money.

This was the basis of Ricardo's explanation of inflation in Britain during the restriction on convertibility of bank notes into specie: "…an excess of [Bank] notes, of that quantity which adds to our circulation without effecting any corresponding exportation of coin, and which, therefore, degrades the notes below the value of the bullion contained in the coin which they represent" (*Works,* 3:92n). A positive rate of inflation in modern economies using fiat monies also may be explained by excessive increases in the supply of such monies. In the case of declining real output or increases in money's velocity, a contraction in the rate of currency creation to balance these changes would produce a zero rate of inflation.[15]

Some modern variations

Modern variations on the classical theory of interest, in the form of the loanablefunds or credit theory, can be found most notably in the works of D.H.Robertson and Milton Friedman. Robertson (1937) employs the loanable-funds theory to defend Alfred Marshall's restatement of the classical "capital" supply and demand theory of interest against J.M.Keynes's attack in the *General Theory* (1936). Robertson also identifies the loanable-funds theory and the Marshallian version thus:

> …the rate of interest [is] the market price of the hire of something which Marshall called "free or floating capital," which others have called "capital disposal" or "command over capital," and which recent writers seem to have settled down into calling "loanable" or "investible funds." This price, like other market prices, can be conceived as emerging from the interaction of schedules of supply and demand, showing the amount of loanable funds which, at given hiring-prices, people are respectively willing to put on to, and to take off, the market during the slice of time selected for observation.
>
> (Robertson 1966:151)

Friedman (1972) pleads for an understanding that it is credit supply and demand, rather than money, which determine the rate of interest, also pointing to the fact that countries "which have had very rapid increase in the quantity of money" have high interest rates (201). Friedman refers to such high money-growth and high inflation countries as Argentina, Brazil, and Chile in the 1960s and 1970s in contrast with Switzerland, a low money-growth and low inflation country, to illustrate the point.[16]

But the failure to interpret "capital" in the classical theory as savings or non-central bank credit in the modern literature has made it almost impossible for many analysts to appreciate the classical heritage of the loanable-funds theory, let alone the superiority of the classical theory. The classical version is superior because it avoids the confusion between money and credit which Friedman correctly notes as plaguing the Keynesian monetary or liquidity-preference theory of interest. Furthermore, both Robertson and Friedman define money to include savings with financial institutions, as noted in Chapter 3. Such definition of money makes it hard not to regard increases in the money supply, especially *M*2, as the principal determinant of low interest rates since 90 percent or more of *M*2 in several high income countries, such as the United States, Japan, Canada, Switzerland, Australia, the United Kingdom, and New Zealand, is the public's savings with banks and other depository institutions.

Friedman is also the most notable modern proponent of the classical theory of the price level and inflation. Employing both the Cambridge and Fisherian versions of the quantity theory of money as well as data from several countries, Friedman frequently explains inflation as arising from an excessive money creation, for example, "inflation is always and everywhere a monetary phenomenon, produced in the first instance by an unduly rapid growth in the quantity of money" (Friedman 1968:18), and "Inflation over any substantial period is always and everywhere a monetary phenomenon, arising from a more rapid growth in the quantity of money than in output" (1980:1).[17]

However, the *M*2 data Friedman prefers to use to illustrate the argument do not always appear convincing. For most high income countries, with a well-developed banking system and where the public employs bank deposits (savings) as a means of settling transactions rather than currency, changes in the growth of *M*2 do not consistently match changes in the rate of inflation, particularly in periods of low inflation. The data may be more convincing for high inflation, less developed countries with poorly developed banking sectors, and where the use of bank transfers as a means of payment is limited. Furthermore, a good test of the classical theory of inflation is complicated by the fact that the lag between changes in the quantity of currency and their effect on the rate of inflation may be long and variable, for example, Friedman (1964). It is also within the lag that real output responds to changes in the quantity of money (currency), according to the classical forced-saving mechanism or what modern analysts explain as the output response to an unanticipated change in the quantity of money. Thus there are lingering doubts over the validity of the classical theory of the price level and inflation for all countries, and the persistence, however muted, of such alternative

theories of inflation as wage or cost-push, demand-pull, tight labor market condition, and exchange rate depreciation.

These alternative theories of inflation tend to be couched in the Keynesian aggregate supply and demand for goods and services framework, as if such a framework were legitimate. Clearly, in the absence of an increase in real output or income, or the excess supply of money, there could not be an increase in the demand for all goods and services. Thus, the so-called aggregate demand function is not independent of the aggregate supply function, and neither can a change in the price level be due to a shift in the aggregate demand. However, with an unchanged rate of real output, prices may rise or fall from changes in the excess demand for money (currency). But instead of shifting an alleged aggregate demand curve for goods and services, a change in the price level can legitimately be shown by shifting the demand curve for money, as illustrated for the classical theory.

Defining money as currency, rather than currency and savings with financial institutions, and applying the classical theory of value to money in order to explain the price level may help to counter successfully the alternative theories of the price level and inflation in modern macroeconomics. Similarly, applying the classical theory of value to "capital" (savings) or loanable funds in order to explain the determination of interest rates would help to counter the misleading Keynesian alternative money supply and demand theory of interest.

5 Keynes's misinterpretation of the classical theory of interest

Introduction [1]

Easily the greatest source of the demise of the classical theory of interest (explained in Chapter 4) is Keynes's attack on it in the *General Theory*. Instead of the supply and demand for "capital" or savings explanation, Keynes offered the cash- or liquidity-preference theory, which he regarded to be his principal or novel contribution to economics (1937b:249, 250). Keynes came to this conclusion on two main grounds. First, he misinterpreted "capital" in the classical theory to mean capital goods. Second, he adopted a definition of saving that practically means only the hoarding of cash. The latter definition prevented Keynes from accepting his critics' claim that his liquidity-preference theory was simply an elaboration of the neoclassical loanable-funds supply and demand theory of interest, mostly argued by Dennis Robertson. The loanable-funds theory recognizes savings as the principal source of funds besides a central bank, while Keynes's definition of saving to mean or include the hoarding of cash places saving on the side of the demand for liquidity (cash). Rather, according to Keynes, a central bank supplies the liquidity, with the commercial banks somewhat playing a supporting role with their lending activities. These two bases of Keynes's reading of the classical theory of interest in the works of contemporary writers rendered the theory invalid for him. By their failure to focus especially on Keynes's misinterpretation of "capital" in the classical theory, his contemporary critics, including R.G.Hawtrey, Roy Harrod, A.C.Pigou, Bertil Ohlin, Dennis Robertson, Frank Knight, and Jacob Viner were unable to convince him of his errors of interpretation. This chapter elaborates.

Keynes's misreading of the classical theory of interest

Keynes (1936) sought restatements of the classical theory of interest mainly from Marshall's *Principles,* supplementing his search with restatements from the writings of Professors Cassel, Carver, Knight, Pigou, and Taussig, as well as from Alfred Flux and Leon Walras. Declaring first that he found it "difficult to state [the classical theory] precisely or to discover an explicit account of it in the leading

treatises of the modern classical school," Keynes summarizes the classical theory of interest thus:

> It is fairly clear…that this tradition has regarded the rate of interest as the factor which brings the demand for investment and the willingness to save into equilibrium with one another. Investment represents the demand for investible resources and saving represents the supply, whilst the rate of interest is the "price" of investible resources at which the two are equated. Just as the price of a commodity is necessarily fixed at that point where the demand for it is equal to the supply, so the rate of interest necessarily comes to rest under the play of market forces at the point where the amount of investment at that rate of interest is equal to the amount of saving at that rate.
>
> (Keynes 1936:175)

Substituting "capital" for "investible resources" in the quoted statement yields an accurate statement of the classical theory of interest.

In fact there were such substitutions of "capital" for "investible resources" in several sources Keynes searched for statements of the classical theory of interest, including Marshall's *Principles,* but which he failed to understand. Nevertheless, he says this summary of the classical theory "is not to be found in Marshall's *Principles* in so many words" (ibid.). And to show the contrast between his summary of the classical theory and its statement by Marshall, Keynes offers as an example the following statement from Marshall's *Principles:* "Interest, being the price paid for the use of capital in any market, tends towards an equilibrium level such that the aggregate demand for capital in that market, at that rate of interest, is equal to the aggregate stock forthcoming at that rate" (175–6).

Keynes also summarizes statements of the classical theory by other contemporary writers employing the classical concept of "capital," such as, "If there is justice in the contentions of our general discussion, it must be admitted that an automatic adjustment takes place between saving and the opportunities for employing capital profitably…Saving will not have exceeded its possibilities of usefulness…so long as the rate of net interest is in excess of zero" from Alfred Flux's *Economic Principles* (176). Similarly, Keynes reports Professor Taussig as having drawn "a supply curve of saving and a demand curve representing 'the diminishing productiveness of the several instalments of capital,' having previously stated that 'the rate of interest settles at a point where the marginal productivity of capital suffices to bring out the marginal instalment of saving'" (ibid.). Keynes also recognizes Taussig's statement of the classical theory of interest as being similar to the argument in Frank Knight's 1934 *Economica* article, "precisely in the traditional, classical mould," explaining that "Equilibrium in the field of capital production means…such a rate of interest that savings flow into the market at precisely the same time-rate or speed as they flow into investment producing the same net rate of return as that which is paid savers for their use" (Keynes 1936:176, n. 3). Keynes further interprets Leon Walras as having argued

> expressly that, corresponding to each possible rate of interest, there is a *sum* which individuals will *save* and also a *sum* which they *will invest* in new capital assets, that these two aggregates tend to equality with one another, and that the rate of interest is the variable which brings them to equality; so that the rate of interest is fixed at the point where saving, which represents the supply of new capital, is equal to the demand for it. Thus [Walras] is strictly in the classical tradition.
>
> (Keynes 1936:177; emphasis added)

As explained in Chapter 4, one must abstain from current consumption of income in order to save, hence the classics sometimes explained the determination of the rate of interest in terms of the supply and demand for abstinence or waiting. Keynes finds in Professor Cassel's *Nature and Necessity of Interest* such a statement of the theory of interest, explaining that "investment constitutes the 'demand for waiting' and saving the 'supply of waiting', whilst interest is a 'price' which serves, it is implied, to equate the two…" (1936:176). Similarly, Keynes notes that "Professor Carver's *Distribution of Wealth* clearly envisages interest as the factor which brings into equilibrium the marginal disutility of waiting with the marginal productivity of capital" (ibid.). These two statements of the abstinence theory of interest are consistent with the classical supply and demand for "capital" theory, properly interpreted.

However, from the quotations, Keynes got the impression that the classical theory of interest is one which claims that the supply and demand for capital goods determine the equilibrium rate of interest without the intervention of money. Thus, according to him, the classical theory asserts that

> …whenever an individual performs an act of saving he has done something which automatically brings down the rate of interest, and this automatically *stimulates the output of capital,* and that the fall of in the rate of interest is just so much as is necessary to stimulate the output of capital to an extent which is equal to the increment of saving; and, further, that this is a self-regulatory process of adjustment which takes place *without* the *necessity for any special intervention or grandmotherly care* on the part of the *monetary authority*. Similarly…an additional act of investment will necessarily raise the rate of interest, if it is not offset by a change in the readiness to save.
>
> (Keynes 1936:177; emphasis added)

Keynes then goes on to declare the above renditions of the classical theory of interest as "erroneous" (ibid.), a judgment that must appear strange to anyone who understands "capital" in the versions of the classical theory quoted earlier to mean loanable funds, as it did to several of Keynes's critics, particularly Pigou (1936), Robertson (1936, 1937, 1940, 1966), Viner (1936), Hawtrey (1937), and Knight (1937). Keynes also reveals the completeness of his misunderstanding of the above quotes in a letter dated 10 September 1935 inviting Roy Harrod to "Look through again my various quotations from classical economists and tell

me which of them is not nonsense" (Keynes 1973, 13:559). Harrod must have disappointed Keynes with his 20 September 1935 reply: "I don't find the long passage from Marshall…nonsense. I find it harder to understand some of your criticisms…Subject to the ordinary difficulties of expressing any of these things in language, the M[arshall] passage seems to me crystal clear and your criticism in the text comparatively difficult to follow" (Keynes 1973, 13:560–61). However, the critics, including Harrod, did not focus on Keynes's misinterpretation of "capital" in the statements of the classical theory of interest he quoted.

Keynes himself provides clear evidence of his misinterpretation of "capital" in his detailed comments on quotes from Marshall's *Principles* in the appendix to chapter 14 (Keynes 1936:186–90). Against Marshall's explanation that "Interest, being the price paid for the use of capital in any market, tends towards an equilibrium level such that the aggregate demand for capital in that market, at the rate of interest, is equal to the aggregate stock forthcoming there at that rate," Keynes remarks:

> It is to be noticed that Marshall uses the word "capital" not "money" and the word "stock" not "loans"; yet interest is a payment for borrowing *money,* and "demand for capital" in this context should mean "demand for loans of money for the purpose of buying a stock of capital-goods." But the equality between the stock of capital-goods offered and the stock demanded will be brought about by the *prices* of capital-goods, not by the rate of interest. It is equality between the demand and supply of loans of money, i.e. of debts, which is brought about by the rate of interest.
>
> (Keynes 1936:186n; italics in original)

This in spite of Marshall's earlier association of "capital" with "loan" and "money" in relation to the rate of interest:

> The payment made by a borrower for the use of [a] loan for, say, a year is expressed as the ratio which that payment bears to the loan, and is called *interest*. And this is also used more broadly to represent the money equivalent of the whole income which is derived from *capital*. It is commonly expressed as a certain percentage on the "capital" sum of loan. Whenever this is done the *capital must not be regarded* as a stock of *things in general*. It must be regarded as stock of one particular thing, *money* which is taken to represent them. Thus £100 may be lent at four per cent, that is for an interest of £4 yearly.
>
> (Marshall 1920:61–2; emphasis added, except for "interest.")[2]

That is, the rate of interest, $i = \$X/L$, where L=loan principal, and $\$X$=interest income.

Marshall also explains that the rate of interest is

> a ratio: and the two things which it connects are both *sums of money*. So long as capital is 'free', and the sum of money or general purchasing power over which it gives command is known, the net money income, expected to be derived from it, can be represented at once as bearing a given ratio (four or five or ten per cent) to that sum.
>
> (Marshall 1920:341; emphasis added)

In using "capital" to refer to loans of money, Marshall was keeping "harmony with…the language of the market-place," which "commonly regards a man's *capital* as that part of his wealth which he devotes to acquiring an income *in the form of money,…* It may be convenient sometimes to speak of this as his *trade capital*" (60; emphasis added, except for "trade capital"). Marshall further argues that "economists have no choice but to follow well-established customs as regards the use of the term capital in ordinary business, i.e. trade capital" (647).

Marshall employs this definition of "capital" in explaining the determination of interest rates by supply and demand, also linking the supply with abstinence or waiting and the demand with expected gains from employing or investing "capital." Thus, "the *supply* of capital is controlled by the fact that, in order to accumulate it, men must act purposefully: they must 'wait' and 'save,' they must sacrifice the present to the future" (69; italics in original). On the demand side, Marshall explains that "everyone is aware that no payment would be offered for the use of capital unless some gain were expected from the use" (482), and that "the chief *demand* for capital arises from its productiveness, from the services it renders, for instance, in enabling wool to be spun and woven more easily than by the unaided hand, or in causing water to flow freely whenever it is wanted instead of being carried labouriously in pails" (68; italics in original). The equipment that enables wool to be spun and woven more easily, and that enables water to flow freely, must be purchased with borrowed funds or "capital." The equipment themselves are "capital-goods," whose costs are their prices, not the rate of interest.

But failing to understand clearly Marshall's statements regarding "capital" and interest, Keynes continued with his criticism. Marshall explains the adjustment of the aggregate quantity of "capital" supplied in response to an increased demand in the short run thus:

> …if we are considering the whole world, or even the whole of a large country, as one market for capital, we cannot regard the aggregate supply of it as altered quickly and to a considerable extent by a change in the rate of interest. For the general *fund of capital* is the product of labour and waiting; and the extra work, and the extra waiting, to which a rise in the rate of interest would act as an incentive, would not quickly amount to much, as compared with the work and waiting, of which the total existing stock of capital is the result An extensive increase in the demand for capital in general will therefore be

> met for a time not so much by an increase of supply, as by a rise in the rate of interest, which will cause capital to withdraw itself partially from those uses in which its marginal utility is lowest. It is only slowly and gradually that the rise in the rate of interest will increase the total stock of capital.
>
> (Quoted in Keynes 1936:186–7; emphasis added)

Instead of understanding this statement as a movement along the aggregate supply curve of "capital" when the rate of interest rises, following an increased demand for "capital," Keynes retorts: "Why not by a rise in the supply price of capital-goods? Suppose, for example, that the 'extensive increase in the demand for capital in general' is due to a *fall* in the rate of interest" (187, n. 2; italics in original).

On the basis of his misunderstanding, Keynes offers a restatement of Marshall's explanation, inserting "capital-goods" in place of "capital" and "price" in place of "the rate of interest":

> In so far, therefore, as the extensive increase in the demand for capital-goods cannot be immediately met by a rise in the total stock, it will have to be held in check for the time being by a rise in the supply price of capital-goods sufficient to keep the marginal efficiency of capital in equilibrium with the rate of interest without there being any material change in the scale of investment; meanwhile (as always) the factors of production adapted for the output of capital-goods will be used in producing those capital-goods of which the marginal efficiency is greatest in the new conditions.
>
> (Keynes 1936:187, n. 2)

Keynes further reveals his failure to understand Marshall's statements of the theory of interest he quoted when he declares:

> The perplexity which I find in Marshall's account of the matter [of interest rate determination] is fundamentally due, I think, to the incursion of the concept of 'interest', which belongs to a monetary economy, into a treatise which takes no account of money. 'Interest' has really no business to turn up at all in Marshall's *Principles of Economics,*–it belongs to another branch of the subject.
>
> (Keynes 1936:189)

That branch of economics is monetary analysis or "the theory of money" (182). As editor of Marshall's *Official Papers* (1926), which includes Marshall's testimonies before the Gold and Silver Commission in which Marshall explains the effects of changes in the quantity of money on interest rates, Keynes is here crediting Marshall with an understanding of the monetary influence on interest rates.

Keynes also was aware of Marshall's *Money, Credit, and Commerce,* which is devoted to monetary analysis, including the price level and interest rates, and to which Keynes (1924) refers. But even in that text, Marshall refers to "capital" in

the context of savings or loanable funds, and the rate of interest as being the reward to savers:

> "Interest" in the strict sense of the term is the payment, which any one receives during a given period, in return for a loan: whether to a private person, or to a Government, for example, when buying Consols; or to business undertakings, for example, when buying the debentures of a railway… In stagnant districts even of this world, a man rarely borrows in order to spend either for personal consumption, or for business purposes: and a supply of *loanable capital* in such a district might fail to earn any considerable interest beyond a mere insurance against the risk of loss of the *capital*.
>
> (Marshall 1923:73; emphasis added)

That is, the market supply of "capital" derives from the purchase of financial assets with funds from savings, $S_c = Y(1 - t) - C - \Delta H_h = \Delta FA$, as explained in Chapters 3 and 4, and the yield on such assets is the rate of interest.

Furthermore, Marshall also argues, "We are justified in speaking of *interest on capital* as the commercial reward of the sacrifice involved in the waiting for the enjoyment of material resources, only because few people would save much without reward; just as we speak of wages as the commercial reward of labour, because few people would work hard without reward" (290; emphasis added). In fact, Marshall repeats the latter argument–interest being the reward for saving or waiting–in the *Principles,* also explaining his preference for the term "waiting" instead of "abstinence":

> [Abstinence] has been misunderstood: for the greatest accumulators of wealth are very rich persons, some of whom live in luxury, and certainly do not practise abstinence in that sense of the term in which it is convertible with abstemiousness…we may with advantage avoid its use, and say that the accumulation of wealth is generally the result of a postponement of enjoyment, or of *waiting* for it.
>
> (Marshall 1920:193; italics in original)

However, Keynes credits David Ricardo with an understanding of the theory of interest when he finds Ricardo arguing that, "The interest of *money* is not regulated by the rate at which the Bank [of England] will lend, whether it be 5, 3, or 2 per cent, but by the rate of profit which can be made by the employment of capital, and which is totally independent of the quantity or of the value of money" (*Works,* 1:363, quoted in Keynes 1936:190; emphasis added). Ricardo here may appear to be arguing a money supply and demand theory of interest. But as we noted in Chapter 4, Ricardo was arguing precisely the opposite, emphasizing that were the Bank's lending to exceed the "capital" or savings deposited with it, "they would [ultimately] alter only the value of the money which they thus issued," in the very next sentence after the one quoted earlier. Yet Keynes finds this seemingly monetary theory of the rate of interest by Ricardo to be "so clear-cut that it

affords a better starting-point for a discussion [of the theory of interest] than the phrases of later writers, who, without really departing from the essence of the Ricardian doctrine, are nevertheless sufficiently uncomfortable about it to seek refuge in haziness" (1936:190). Keynes's main problem with Ricardo's argument is that he thinks Ricardo was assuming "there is always full employment" (191), but which Ricardo was not.[3]

Such was Keynes's confusion over the meaning of "capital" in the classical theory of interest that he was unable to find agreement with the classics on his own proposed test that, with a clearer understanding on his part, should have led him to an agreement:

> …a proposition which the classical school would accept and I should not dispute; namely, that, if the level of income is assumed to be given, we can infer that the current rate of interest must lie at the point where the demand curve for capital corresponding to different rates of interest cuts the curve of the amounts saved out of the given income corresponding to different rates of interest.
>
> (Keynes 1936:178)

The "demand curve for capital" here should mean the demand for savings or loanable funds, or the marginal efficiency of "capital," in the language of Marshall. However, having failed to interpret the statement that way, Keynes declares, "But this is the point at which definite error creeps into the classical theory" (ibid.), mainly because the classical demand and supply of "capital" theory of interest, according to Keynes, says nothing about the state of liquidity preference (180–1). Yet from the supply of "capital" function, $S_c = Y(1-t) - C - \Delta H_h = \Delta FA^d$, one can see that the greater is the liquidity (cash) preference of households (ΔH_h), the less amount of savings or "capital" they will supply, and vice versa, if consumption spending remains the same. Thus, the classical theory of interest embodies the effect of changes in the demand for money (cash), except that Keynes did not recognize it that way.

Keynes's money (cash) theory of interest

For Keynes, interest is "strictly a monetary phenomenon" (1936:223, 1937b: 245). Thus the rate of interest is determined by the supply and demand for money (cash) or what he frequently calls "liquidity." Keynes gives various definitions of "liquidity," but the one most consistent with his theory of interest is that of cash.[4] Financial assets such as bank deposits, commercial paper, or bonds typically are more "liquid"–the ease of being converted into cash–than cars or houses, but Keynes does not include them in his liquidity-preference theory of interest The demand for liquidity depends, according to Keynes, on the proportion of people's incomes or wealth they choose to hold in "the form of immediate, liquid command (i.e. in money or its equivalent)" (166)[5] or the "propensity to hoard" (174, 208).

It is the interaction of these two forces–supply and demand for liquidity–which Keynes argues to be the determinants of the rate of interest:

> …the rate of interest at any time, being the reward for parting with liquidity [cash], is a measure of the unwillingness of those who possess *money* to part with their liquid control over it. The rate of interest is not the 'price' which brings into equilibrium the demand for resources to invest with the readiness to abstain from present consumption. It is the 'price' which equilibrates the desire to hold wealth in the *form of cash* with the available *quantity of cash;*–which implies that if the rate of interest were lower, i.e. if the reward for parting with cash were diminished, the aggregate amount of cash which the public would wish to hold would exceed the available supply, and that if the rate of interest were raised, there would be a surplus of cash which no one would be willing to hold.
>
> (Keynes 1936:169; emphasis added)

Thus, if a central bank supplies more liquidity (cash) than the public wants to hold at current interest rates, the rates must fall to establish a new equilibrium. On the other hand, should the public demand more liquidity (cash) than the quantity supplied by the central bank, interest rates must rise to establish equilibrium between the quantity supplied and demanded.

Keynes was convinced of the validity of this money (cash) supply and demand theory of interest rates partly because it appears to fit the ordinary notion that interest is paid on "borrowed money." The classical clarification that money is simply the deed of assignment, and what is borrowed is really the nonconsumed income of the lender, seems to have been lost on Keynes. So is the classical explanation that the amount of loans given over a period of, say, one year is typically greater than the quantity of money (cash) in an economy:

> money, is as it were, but the deed of assignment, which conveys from one hand to another those capitals which the owners do not care to employ themselves. Those capitals may be greater in almost any proportion, than the amount of the money which serves as the instrument of their conveyance, the same pieces of money successively serving for many different loans, as well as for many different purchases.
>
> (Smith *WN,* 1:374)

Another fundamental reason for Keynes's belief in the validity of his money supply and demand theory of interest is that the supply and demand for "capital" logically should determine the price of capital goods, not the rate of interest. The demand for "capital," in Keynes's understanding, depends on the prospective yield from purchased capital goods–Keynes's "marginal efficiency of capital" (1936:135–6). And to him, investment means only the purchase of capital goods, not the purchase of financial assets (bank liabilities, corporate paper, bonds, and equities) as understood in the language of the marketplace. Hence "investment

demand" means only the demand for capital goods (135–7). This also underlies Keynes's assertion in the *Treatise* that "the increase or decrease of capital depends on the amount of investment and not on the amount of saving" (1930, 1:173).

The more capital goods acquired for production, the less return earned at the margin, partly from the falling price of the final goods produced, and partly from the rising cost of the capital goods themselves as more of them are demanded by investors. This is how Keynes arrives at his argument that it is rather the supply and demand for money that determine the rate of interest, while the actual amount of "investment" or the quantity of capital goods purchased depends on the equation of the rate of interest with the marginal efficiency of capital schedule in production. Thus changes in the marginal efficiency of capital, in Keynes's reasoning, do not affect the rate of interest, but only the rate of investment (1936:142). And believing that Marshall's "marginal net efficiency" or the "marginal utility of capital" meant the same thing as his own concept of the "marginal efficiency of capital," Keynes judged Marshall to have been confused or "involved in a circular argument" in the latter's supply and demand for "capital" theory of interest (139–40).[6] But it was Keynes who was confused.

Keynes (139) cites Marshall's reference to "the investors of capital pushing it into every occupation in which it seems likely to gain a high reward" (Marshall 1920:430) partly to support his view that Marshall was confused. But Marshall's reference was directly to borrowed funds, not capital goods or machinery. This is why Marshall also continues to argue:

> Suppose that the rate of interest is 4 per cent per annum on perfectly good security; and that the hat-making trade absorbs a capital of one million pounds. This implies that the hat-making trade can turn the whole million pounds' worth of capital to so good account that they would pay 4 per cent per annum *net* for the use of it rather than go without any of it.
>
> (Marshall 1920:430–1; italics in original)

Only funds could easily be "absorbed" into one line of production or another. But once used to purchase capital goods, the funds would have to be "disentangled" through the sale of those capital goods or gradually through depreciation allowances.

Indeed, Marshall may not have been very careful in adopting von Thünen's words in referring to capital goods as "capital" in his own discussion of the "marginal efficiency of capital" in the *Principles:* "the efficiency of capital must be the measure of its earnings, since if the labour of capital were cheaper than that of men, the undertaker would dismiss some of the workmen, and in the opposite case he would increase their number" (1920:433). But Marshall's very next statement distinguishing machinery from "capital in general" shows the different meanings of "capital," one which is the fund to hire labor and purchase capital goods, and another which is machinery, and that may displace labor in production:

> But, of course, the increased competition of capital in general for employment is of a different character from the competition of machinery for employment

> in any single trade. The latter may push a particular kind of labour out of employment altogether; the former *cannot displace labour in general,* for it must cause an *increased employment* of the makers of those things which are used as capital.
>
> (Marshall 1920:433; emphasis added)

Thus Marshall's "marginal efficiency of capital" refers to the net rate of return on borrowed funds invested in production or what Robertson (1936:178), for example, calls "the schedule of profitability of funds directed to investment." And perceived changes in such returns translate into changes in the demand for investment funds, and which change the rate of interest.

Keynes also reasoned that consumption expenditures release cash from income earners into the economy, while savings withhold it. This was the basis of his claim:

> It should be obvious that the rate of interest is not a return to saving or waiting as such. For if a man hoards his savings in cash, he earns no interest, though he saves just as much as before [i.e., when he purchases a debt instrument]. On the contrary, the mere definition of the rate of interest tells us in so many words that the rate of interest is the reward for parting with liquidity [cash] for a specified period.
>
> (Keynes 1936:166–7)

Keynes later reiterates the argument: "The investment market can become congested through the shortage of cash. It can never become congested through the shortage of saving. This is the most fundamental of my conclusions within this field" (1937c:669), and "Saving has no special efficacy as compared with consumption, in releasing cash and restoring liquidity" needed to finance investment (1938:321).

With his conception of saving as being equivalent to the hoarding of cash, it was not possible for Keynes to recognize the logic of the classical theory of interest, which credits savings with supplying the funds for investment. Rather saving, which Keynes defines merely as the "excess of income over what is spent on consumption" (1936:74) or the "negative act of refraining from spending the whole of [one's] income on consumption" (1930, 1:172), leaves some currently produced goods unpurchased for consumption. But since, according to Keynes, savings also entail the hoarding of cash, the means with which investors could purchase the nonconsumed goods, savings play no positive role in the investment process. Thus Keynes's conclusion regarding the classical supply and demand for "capital" or savings theory of interest is that the

> traditional analysis is faulty because it has failed to isolate correctly the independent variables of the system. Saving and investment are the determinates of the system, not the determinants. They are the twin results of the system's determinants, namely, the propensity to consume, the schedule

> of the marginal efficiency of capital, and the rate of interest [determined by the supply and demand for money].
>
> (Keynes 1936:183)

Some ineffective criticisms of Keynes's money theory

Several of Keynes's contemporaries, including Roy Harrod, R.G.Hawtrey, Bertil Ohlin, Frank Knight, A.C.Pigou, D.H.Robertson, and Jacob Viner criticized his rejection of the classical theory of interest. But the criticisms fell short of getting Keynes to recognize his misinterpretation of the classical theory mainly because they did not focus on his misreading of "capital" in the theory of interest, and they also did not dispute his inclusion of hoarding in the definition of saving. Hicks (1936, 1946), for example, came close to recognizing Keynes's misinterpretation of "capital" in the classical theory of interest. He notes that in the debate over the theory of interest "it makes a great deal of difference which interpretation" we put on "capital": "the 'real capital' in the sense of concrete goods…or 'money capital.' This division of opinion is serious; it is a real dispute, in which one side must be right and the other wrong" (1946:153). However, Hicks missed the chance to resolve matters when he failed to ascertain the relevant meaning of "capital" in the classical theory of interest.[7] Instead, he dismissed the debate between Keynes and his critics, particularly Hawtrey, Ohlin, Pigou, and Robertson, as a "sham dispute," which could easily be resolved by deciding which one of two equations among those describing an economy to eliminate: the "equation for the demand and supply of money" or the "demand and supply for loans" (Hicks 1936:246; see also 1946:151, 161).[8] Indeed, Hicks regarded it "a great strength of Mr. Keynes's theory of interest" to have made it "from the outset, a money rate" since interest is "a specifically monetary problem" (1936:245).

Having understood that "capital" in Marshall's restatements of the classical theory of interest means savings or loanable funds, Robertson (1937:431) considered it "something of a mystery" that Keynes would not "admit the validity" of the classical theory. Robertson comes close to directly confronting Keynes's misinterpretation of "capital" in Marshall's *Principles,* when he notes that "the rate of interest [is] the market price of the hire of something which Marshall called 'free or floating capital,' which others have called 'capital disposal' or 'command over capital,' and which recent writers seem to have settled down into calling 'loanable' or 'investible funds'" (1966:151). But the clarification apparently was not enough to persuade Keynes of his misinterpretation of "capital" in the classical theory of interest. Rather Keynes held on to his view that Robertson, along with the other neoclassicals, was attempting to build a bridge between two inconsistent theories: the classical capital-goods supply and demand theory of interest and the neoclassical loanable-funds supply and demand theory (Keynes 1936:183). In a similar vein, Keynes distances the neoclassicals from the classicals, saying:

> I must apologise…if I have led any reader to suppose that… I regard Mr. Hawtrey and Mr. Robertson as classical economists! On the contrary, they

> strayed from the fold sooner than I did. I regard Mr. Hawtrey as my grandparent and Mr. Robertson as my parent in the paths of errancy, and I have been greatly influenced by them.
>
> (Keynes 1937b:241, n. 2)

There also was no serious disputing of Keynes's inclusion of hoarding in the act of saving, contrary to the classical definition of saving, as J.S.Mill, for example, explains:

> The word saving does not imply that what is saved is not consumed, nor even necessarily that the consumption is deferred: but only that, if consumed immediately, it is not consumed by the person who saves it. If merely laid by for future use, it is said to be hoarded; and while hoarded, is not consumed at all. But if employed as capital, it is all consumed; though not by the capitalist.
>
> (Mill *Works,* 2:70)

Mill talks about saving being consumed because the borrowers of savings for investment purposes do pay labor and owners of capital goods who spend the proceeds.[9]

Marshall also uses a similar language in describing money laid by for future use as an alternative to investing it in an interest earning asset, which some analysts interpret as his including hoarding in the act of saving, for example, Dalziel (1998:50). But a careful reading of Marshall's statements rather leads to a recognition of his dividing the spending of income into three categories: consumption, investment, and hoarding, $Y(1-t) = C + \Delta\mathrm{FA} + \Delta H_{\mathrm{h}}$. For example,

> A prudent person who thought that he would derive equal gratifications from equal means at all stages of his life, would perhaps endeavour to distribute his means equally over his whole life: and if he thought that there was a danger that his power of earning income at a future date would run short, he would certainly save some of his means for a future date…If he did not see his way to investing his earnings in trade or on loan, so as to derive interest or profit from them, he would follow the example of some of our own forefathers who accumulated small stores of guineas which they carried into the country, when they retired from active life.
>
> (Marshall 1920:192)

See also Marshall (1923:46) for a similar explanation of the investment of income in financial assets (savings), separately from its hoarding in cash.

Marshall's consistent explanation of interest as the reward for saving also should caution against including hoarding in his definition of saving, for example, "human nature being what it is, we are justified in speaking of interest on capital as the reward for the sacrifice involved in the waiting for the enjoyment of material resources, because few people would save much without reward" (1920:193). No one receives a monetary reward for hoarding cash. And when Marshall meant

to talk about hoarding, he used that term. Without separating the distribution of income into the three categories, we miss the three margins of analyzing individual spending in classical analysis, namely, the marginal utility of consumption, interest or profit income, and hoarding cash (e.g. Knight 1937:113; Robertson 1940:16).[10]

However, all the important critics of Keynes's work agreed with his inclusion of hoarding in the act of saving. Pigou wrote, "Saving *may* take the form of hoarding" (1936:125; italics in original). Pigou's only criticism was that Keynes went too far in implying that all saving is hoarding. The greater part of saving, Pigou noted, is intended "presently to buy a house or a motor car, or to invest in interest-bearing securities" (126). Jacob Viner (1936:157) regarded it a "fatal flaw" of Keynes's argument to have attributed a "grossly exaggerated importance" to hoarding, but he did not directly reject Keynes's inclusion of hoarding in the definition of saving. Indeed, by claiming that "Without saving there can be no liquidity to surrender. The saver who has no concern about liquidity gets the same reward as the person who saved with liquidity as his initial objective but is persuaded by the interest rate to lend…The rate of interest is the return for saving without liquidity," Viner (ibid.) appears to endorse Keynes's inclusion of hoarding in the act of saving. Ohlin (1937) presents an excellent contrast of the supply and demand for savings or credit theory of interest against Keynes's supply and demand for money (cash) theory. But by arguing that "It is possible to plan to save and to increase the quantity of cash instead of lending" (425), Ohlin also appears not to distinguish clearly the act of saving from the hoarding of cash.

R.G.Hawtrey very much understood and employed the classical "capital" terminology. He could thus relate to the proposition that savings create "capital" or that saving constitutes investment. However, in seeking to explain the classical theory in language consistent with Keynes's new definitions, Hawtrey's explanations failed to show clearly the error of Keynes's reasoning. For example, Hawtrey argues that "savings are directed to…two alternative uses, idle balances and active investment" (1937:441), and that "the action of withholding savings from active investment and accumulating them in idle balances is simply the outward manifestation of [Keynes's] liquidity preference" (438). However, Hawtrey was still sufficiently in the "classical" frame of analysis to also have pointed out that when "the sums added to the idle balances are diverted from the investment market, [this must] check capital outlay and presumably [raise] the long-term rate of interest; and that there ensues deflation till the consumers' income is adjusted to the reduced amount of active balances" (441).

Hawtrey above restates the classical proposition that an increased demand for cash balances at the expense of financial assets must raise the rate of interest and lower the price level, as explained in Chapter 4, although Hawtrey here focuses on the long-term rate of interest. Hawtrey further emphasizes the price level effect, in line with the classical quantity theory, when he argues that "It makes a good deal of difference to the practical importance of the conclusion whether the deflationary effect is to be measured by a transfer of, say 20 per cent of the active balances to the idle balances, or of a fraction of 1 per cent, but the formal reasoning is the same in either case" (441). However, Keynes (1936) had

abandoned the logic of the quantity theory of money, and could not be dissuaded from his new line of argument without a clear separation of hoarding or idle balances from savings and directly pointing out his misconception of "capital" as capital goods only.

In his review of the *General Theory,* Frank Knight finds Keynes's "new-fangled definitions of investment and saving" (1937:111) unhelpful and his theory of interest basically flawed. Knight highlights Keynes's inconsistent claims thus:

> In the capital market, saving has no influence on the interest rate…Men get control of capital through borrowing money, but there is never any connection between saving money and the offer of funds in the loan market. It almost seems as if the money which is saved is completely distinct from the money which is lent and borrowed, and that the former, if it ever reaches a bank, or any lending agency, is still kept entirely separate. The theory of interest is the most difficult part of the whole construction to take seriously.
>
> (Knight 1937:112)

Knight's remarks evidently had little effect on Keynes, and also on the subsequent acceptance of Keynes's new theory of interest by the economics profession, mainly because they did not directly confront Keynes's misinterpretations of the classical theory. Keynes's definition of saving as hoarding was to insulate the funds saved from reaching the loans market, just as Knight well understood Keynes to be arguing, for example, Knight (110, 111). However, Knight himself appears to grant validity to Keynes's definition of saving as hoarding when he writes: "saving money is treated as 'investing' in money, which is *logically correct* from the point of view of the saver" (107; emphasis added). Knight could have pointed out the inaccuracy of describing saving as hoarding when dealing with the classical "capital" supply and demand theory of interest.

Dennis Robertson's attempts to counter Keynes's criticisms of the classical theory of interest were equally ineffective because he also accepted the inclusion of hoarding in saving. Robertson (1933) writes: "if [a man] spends £8 on consumption goods and leaves £2 unspent, he is hoarding as well as saving" (400), or "suppose the public decides to save, in the form of an addition to its money stock…" (401), or suppose the public's "Saving takes…the form of purchasing… securities and not of adding to its money stock" (403).11 In his review of the *General Theory,* Robertson asks, "Will an increased rate of saving *which is not itself hoarding* (e.g. which takes the form of an increased demand for securities), but which involves an actual diminution in the rate of expenditure on consumable goods, lead to a progressive shrinkage in total money income?" (1936:187; emphasis added). In exploring the answer from Keynes's and the classical perspectives (the latter interpreting a fall in the rate of interest as a rise in the price of securities), Robertson does not clearly separate hoarding from saving. He says:

> if there exists for the community as a whole a negatively inclined curve of 'liquidity preference proper'…, some part of the additional savings devoted

> by individuals to the purchase of securities will come to rest in the banking accounts of those who, at the higher price of securities, desire to hold an *increased quantity of money*.
>
> (Robertson 1936:188; emphasis added)

The argument leaves the impression that "some part of the additional savings" may be devoted to the hoarding of cash, thus validating Keynes's inclusion of hoarding in the act of saving. In his *Banking Policy and the Price Level* Robertson also argues that a man who "simply adds…to his existing money stock,…is from his own point of view saving, but is taking no steps to ensure the creation of Capital" (1949:46).

Roy Harrod was another persistent critic of Keynes's attacks on the classical theory of interest, both before and after the publication of the *General Theory,* but not because he recognized that Keynes misunderstood the meaning of "capital" or misrepresented the concept of saving. Rather Harrod sought to have Keynes recognize that he was only stating the classical theory in more precise terms, but not having said anything really new: "In my judgement Mr. Keynes has not effected a revolution in fundamental economic theory but a re-adjustment and a shift of emphasis" (1937:85). Thus, Harrod wrote to Keynes on various occasions that his criticisms of the classical theory of interest were "a confusion, … guerilla skirmishing, …fussy, irrelevant, dubious, hair-splitting and hair-raising" (Keynes 1973, 13:530, 534, 556). He believed that Keynes could not substantiate his criticisms of Marshall's statements of the theory of interest "on the basis of passages torn from their context" (546).

However, Harrod also conceded that the classical theory "makes perfectly good sense, but is open to the charge of being incorrect" (1973, 13:530), mainly on his belief that the classical theory did not take explicitly into account the fact that income is a more important determinant of saving than the rate of interest and that the classics inappropriately assumed income to be constant while explaining the determination of interest rates (554). Harrod argues that "Saving essentially entails growth…[and] No theory regarding the equilibrium amount of saving can be valid, which assumes that within the period in which equilibrium is established, other things, such as the level of income, do not grow but remain constant" (1937:86). Furthermore, Harrod concedes: "'Without bringing in liquidity preference the position of equilibrium [of the rate of interest] is entirely indeterminate.' I agree" (Keynes 1973, 13:554) and "The propensity to save and the schedule of marg[inal] efficiency are two curves which do not intersect anywhere because they are not in *pari materia*.' Agreed" (555).[12] Harrod's concessions betray a significant weakness in his own understanding of the classical theory of interest.

To accommodate the role of income changes in the classical supply and demand for savings theory of interest, Harrod suggested to Keynes a diagram including a "family of supply curves" by which he could recognize the determination of equilibrium interest rates along the same lines as the classics.[13] Keynes (1936:180–1) rather used the diagram to firm up his own criticism of me classical theory of

interest apparently because Harrod did not dispute his fundamental misrepresentation of saving in classical economics. Moreover, Harrod also had endorsed Keynes's liquidity (cash) theory of interest argument. Such was the ineffectiveness of Harrod's attempts to dissuade Keynes from his criticisms of the classical theory of interest before the publication of the *General Theory* that he wrote to Robertson on 7 October 1935: "I share your feeling entirely about [Keynes's] attacks [on the classical theory of interest]. I have attacked him for them, but have only succeeded in getting the most offending chapter printed in smaller type as an appendix" (quoted in Besomi 2000:370).[14]

Conclusion

As Keynes himself argues, the attempt to convince an opponent of his errors may be frustrated if "there is a defect in your own powers of persuasion and exposition or if his mind is already so filled with contrary notions that he cannot catch the clues to your thought which you are trying to throw to him," even when you are correct (quoted in Moggridge 1976:29). Without directly confronting Keynes with his misinterpretation of "capital" and the illegitimacy of including hoarding in the classical definition of saving, it proved impossible for his critics to persuade him of his erroneous criticisms of the classical theory of interest. Harrod also violated a correct application of the classical theory of value to the determination of interest rates when he conceded to Keynes that the classics "were wrong to take [income] as constant" (Keynes 1973, 13:554), instead of pointing out to him that income is a shift factor in the savings supply function, and that more or less could be saved from the same level of income at different rates of interest.

The failure of Keynes's contemporary critics to dispute his identification of saving with hoarding or non-spending has allowed the prevalence of that notion in modern macroeconomics. Thus Joan Robinson, for example, argues that "If private saving is going on, there is a leakage of notes [cash] out of circulation into hoards" (1960:27). Patinkin (1965) claims that "savings and dissavings may also express themselves in changes in money holdings" (63), and that "an act of saving is not necessarily an act of demanding bonds; for the funds withdrawn from consumption might be added instead to cash balances" (272). But hoarding is not saving; hoarding rather contracts the supply of savings or "capital" or loanable funds.

Keynes declared to Harrod that "the classical theory of the rate of interest has to be discarded in toto, [it] is incapable of rehabilitation in any shape or form" and that "the classical theory of interest…makes no sense on any assumptions whatever" (1973, 13:552, 557). These declarations were founded on Keynes's confusion and misrepresentations of classical arguments.[15] The classical theory of interest makes very good sense, correctly interpreted. It is rather Keynes's money (cash) supply and demand theory of interest that is misleading and might very well be discarded from modern macroeconomics to assist better monetary policy formulation.

6 The Austrians, "capital," and the classical theory of interest

Introduction[1]

Keynes's failure to recognize the validity of the classical "capital" supply and demand theory of interest was partly influenced by his acquaintance with the Austrian criticisms of the classical theory of interest, a criticism that appears to have started with the work of Eugen von Böhm-Bawerk (1890). The Austrians hold that the classical theory of interest is invalid because it attributes the emergence of interest rates to the productivity of capital goods, when the correct theory should be that of the trading of future against present consumption goods–a reflection of the degree of time preference or impatience to consume (Kirzner 1993).[2] The Austrians also developed a theory of the structure of production whereby variations in the rate of interest cause changes in the production of producers' vs consumption goods: more producers' goods when interest rates fall, and more consumption goods when interest rates rise. Furthermore, the Austrians claim that lower interest rates indicate a greater willingness of people to save (lower degree of impatience), which allows production to take a more lengthy process, while high interest rates, reflecting a greater degree of impatience to consume, encourage the use of shorter production processes. Many modern Austrian economists still employ the Austrian Theory of Capital as an analytical construct with which to interpret policy-induced business cycles and suggest appropriate remedy, namely, restraint of central bank credit creation. The analytical framework, development mainly at the hands of Hayek,[3] nevertheless fails to recognize Böhm-Bawerk's error in attributing the capital-goods meaning to "capital" in the classical theory of interest.

Hayek pitted the Austrian capital theory arguments against Frank Knight in a series of exchanges in the 1930s. Keynes was less impressed with the Austrian claims than Knight's rebuttals. Thus, Keynes (1936:176, n. 2) regarded Knight's (1934) response to Hayek as containing "many interesting and profound observations on the nature of capital, and confirms the soundness of the Marshallian tradition as to the uselessness of the Böhm-Bawerkian analysis." Repeating one of Knight's observations, Keynes also questioned the usefulness of the Austrian period of analysis:

> It is true that some lengthy or roundabout processes are physically efficient. But so are some short processes. Lengthy processes are not physically efficient

> because they are long. Some, probably most, lengthy processes would be physically very inefficient, for there are such things as spoiling or wasting with time.
>
> (Keynes 1936:214)

The debate between Hayek and Knight gave Keynes two erroneous impressions. One, that "capital" in the theory of interest means capital goods, and two, that his cash or liquidity-preference theory of interest was a novel and valid contribution to economics since the extant, competing theories did not focus on money. Besides Keynes, the Austrian criticisms of the classical "capital" supply and demand theory of interest also affected living Fisher's appreciation of the validity of the classical theory.

It may appear incredible that a long-standing debate between writers in the classical tradition and Austrians over the "theory of capital and interest" could have been sustained by different meanings assigned to the word "capital" by several of the participants, including Böhm-Bawerk, Irving Fisher, F.A.Hayek, Ludwig von Mises, L.M.Lachmann, and Israel Kirzner. Similarly, several other commentators, including Ekelund and Hébert (1997), Rima (1986), Blaug (1996), and Leijonhufvud (1968), have missed the significance of the definitions aspect of the debate; Hicks (1977:149–65), in fact, confuses the definitions. But such is the case, as I document with extensive quotations from original sources. These help to show the extent to which the usual paraphrasing of arguments has been less than helpful in clarifying issues.

My thesis contrasts with the high praise accorded the Austrian theory of capital and interest, over the classical alternative, such as that "classical economic theory treated capital as subservient to labor because it was itself the product of labor…[an] idea [which] proved to be a major stumbling block to meaningful analytical progress in the theory of interest" (Ekelund and Hébert 1997:312). I argue that the Austrian criticisms and theory arise mainly from a misconception. This chapter restates the Austrian criticisms and how they have hindered the appreciation of the classical theory of interest by Keynes, some non-Keynesians, and the Austrians themselves.

"Capital" in the classical theory of interest and production

To illustrate the extent of the Austrian misrepresentation of "capital" in the classical theory of interest, I briefly restate the classical concepts of capital in the theory of interest and in the realm of production. Following the language of the marketplace, the classics defined capital in the theory of interest as that portion of nonconsumed income that an individual devotes to earning interest or profits (dividends), and thus is a fund, for example, Smith (*WN,* 1:294). The source of "capital" is thus savings, hence the supply may be defined as $S_c = \Upsilon - C - \Delta H_h = \Delta FA$, where $\Upsilon =$ income, C=consumption, ΔH_h=addition to cash balances by households, and ΔFA =purchased financial assets. The portion of "capital" devoted to lending

or the purchase of bonds and bank financial assets (or deposits), relative to its demand, directly determines the rate of interest. The portion employed directly to earn profits or dividends relieves pressure on the demand for loanable funds, and thus only indirectly affects the determination of interest rates.

As Adam Smith explains, "Capitals are increased by parsimony…Whatever a person saves from his revenue he adds to his capital, and either employs it himself in maintaining an additional number of productive hands, or enables some other person to do so, by *lending it to him for an interest,* that is, for a share of the profits" (*WN,* 1:358; emphasis added). And "By what a frugal man annually saves, he not only affords maintenance to an additional number of productive hands, but… establishes as it were a *perpetual fund* for the maintenance of an equal number in all times to come" (359–60; emphasis added). Furthermore, says Smith: "The *stock* which is *lent at interest* is always considered as a *capital by the lender*" (372; emphasis added). David Ricardo (*Works,* 1:363; 2:331; 3:89–94), T.R.Malthus (1836:314), and J.S.Mill (*Works,* 3: ch. 23) all follow in this usage of the term "capital" as funds. Note that Smith, along with other classics, uses "stock" to refer to loanable funds, a flow variable, and not the modern conception by which a "stock" refers to an item of fixed quantity, having no time dimension (e.g. Fisher 1906:52–3; 1922:7).

Alfred Marshall affirms this classical usage of "capital" and "stock" in the theory of interest, arguing:

> Adam Smith said that a person's capital is *that part of his stock from which he expects to derive an income*. And almost every use of the term capital, which is known to history, has corresponded more or less closely to a parallel use of the term Income: in almost every use, capital has been that part of a man's stock from which he expects to derive an income.
>
> (Marshall 1920:66; italics in original)

See also Marshall (60, 647). Other early neoclassical, including A.C.Pigou (1927:120–2, 131–4), J.B.Clark (1893, 1899:116–56), Knut Wicksell (1906:144–7), and F.H.Knight (1935, 1951:113–7), retain the same definition of "capital" in the theory of interest.

However, loans may be made through the medium of money (cash), hence, consistent with the language of the marketplace, the classics sometimes talked about interest being the reward for lending "money." But they were also at great pains to point out that money is merely a medium through which "capital" may be lent, and should not be confused with the substance of the loan. Thus Smith explains that

> money, is as it were, but the deed of assignment, which conveys from one hand to another those capitals which the owners do not care to employ themselves. Those capitals may be greater in almost any proportion, than the amount of the money which serves as the instrument of their conveyance;

> the same pieces of money successively serving for many different loans, as well as for many different purchases.
>
> (Smith *WN,* 1:374)

David Hume (1752:177), Ricardo (*Works,* 3:89–93), and Mill (*Works,* 2:55; 3:655–8) all affirm the same point.

In the sphere of production, borrowed "capital" takes on concrete forms: fixed capital-goods–"useful machines and instruments of trade or…things as yield a revenue or profit without changing masters" (Smith *WN,* 1:295)–and circulating capital, that is, materials that yield profits only by their circulation, including "provisions…and finished work of all kinds that are in the hands of their respective dealers, *and of the money* that is necessary for circulating and distributing them…" (299; emphasis added). Mill (*Works,* 2: ch. 6) also follows this manner of defining capital in production by designating the period over which "materials" return a profit to producers as the dividing line between fixed and circulating capital. Marshall follows Mill: "We may follow Mill in distinguishing *circulating capital* 'which fulfils the whole of its office in the production in which it is engaged, by a single use,' *from fixed capital* 'which exists in a durable shape and the return to which is spread over a period of corresponding duration'" (1920:63; italics in original).

The key point to note about the classics' use of the term "capital" is that in their theory of distribution or interest rate determination, "capital" is a fund or money whereas in the realm of production, "capital" refers to producers' goods as well as funds used to rent the services of land and labor, the latter however often being a small proportion of total "capital." Thus borrowed "capital" is of a larger magnitude than the value of capital goods in production. Mill (*Works,* 3:655) affirms the point thus: "Loanable capital is all of it in the form of money. Capital destined directly for production exists in many forms; but capital destined for lending exists normally in that form [i.e., money] alone." Furthermore, the classics did not claim that interest is paid on capital goods, but rather that the employment of capital goods in production yields profits. The reward for lending capital goods is a rental or "quasi-rent," a term later suggested by Marshall (1920:63, 341).

It may appear to a reader not very conscious of the context in which the classics employed the term "capital" that they were not being consistent in its usage. But there is little inconsistency on their part when one keeps the contexts clearly in mind, as I illustrate with arguments by Marshall, Clark, and Knight in reaction to Austrian criticisms of the classics.

Böhm-Bawerk's capital theory

Böhm-Bawerk's theory of capital is mainly about explaining the source of interest payment, which he believed comes from the creation of "surplus value" over and above what can be got from the employment of labor alone in production (1890:116). This argument is besides the explanation of interest from the time preference or impatience of borrowers to consume now rather than later, hence

their willingness to "pay an 'agio' or premium" in the form of interest on money (1891:286). Thus, fundamental to his efforts in stating his theory of capital in relation to interest was his belief that existing explanations for the payment of interest were inadequate because they only assert the need for such payment but do not explain the source of interest. Besides, Böhm-Bawerk also thought that existing theories of interest confused capital in a theory of production with capital in a theory of distribution, but the confusion was his own rather than that of the theories he criticized.

Böhm-Bawerk lays out his criticisms of existing theories of interest in the first of his triad of books on the subject, *Capital and Interest* (1890). In these books he classifies the theories of interest into five categories, namely (a) "Colourless," (b) Productivity, (c) Abstinence, (d) "Labour," and (e) Exploitation theories (72–3). He has the least regard for the labor and exploitation theories of interest because they tend to deny the legitimacy of interest payments. His main criticism of the other three theories is, in his view, their failure to point out that interest arises from "surplus value" generated from the adoption of roundabout processes of production. Thus, according to him, "*Whence* and why…the capitalist, without personally exerting himself, obtains [the] endless flow of [interest income]" constitutes the "theoretical problem of interest" or "why there is interest on capital" (2; emphasis added).

Böhm-Bawerk classifies the theory of interest advanced by A.R.P.Turgot, Adam Smith, David Ricardo, and lesser-known writers such as J.E.Lotz, R.Eiselen, and K.H.Rau among the "Colorless theories" because they only argue that interest is paid from the surplus or profits created by capital that would not have been accumulated and loaned out without the expectation of such reward. But, he argues, such explanation "throws no light on the primary theoretical question" (1890:87). An example of such explanation of interest payment, which makes very good sense when read in the proper context (i.e. "capital" as fund) but which Böhm-Bawerk found to be inadequate, is a quote from Rau:

> If he (the capitalist) is to resolve to save wealth, accumulate it, and make it into capital, he must get an advantage of [a] sort; viz. a yearly income lasting as long as his capital lasts. In this way the possession of a capital becomes to individuals…the source of an income which is called rent of capital, rent of stock, or interest.
>
> (Böhm-Bawerk 1890:86–7)

Böhm-Bawerk similarly fails to appreciate Count Cancrin's analogy between profits as the reward to "real capital" and interest as the reward for loaned money, which he describes as "naive." Yet the Count's argument, which he quotes, is that:

> Every one knows that money bears interest, but why? If two owners of real capital wish to exchange their products, each of them is disposed to demand for the labour of storing, and as profit, as much over the intrinsic value of the product as the other will grant him; necessity, however, makes them meet

> each other half way. But money represents real capital: with real capital a profit can be made; and hence interest.
>
> (Böhm-Bawerk 1890:81)

Böhm-Bawerk (116) also takes issue with what he calls the "Naive Productivity theory" of interest on "capital" because its proponents, including J.-B.Say, T.R.Malthus, E.Riedel, and W.Roscher, do not prove that "capital" has the power to create "surplus value" but only assert it. (Listed among those Böhm-Bawerk also calls "indirect Naive Productivity theorists" are Adam Smith and David Ricardo.) Moreover, one must also argue that the surplus value is conferred on goods by (consumer) market demand–"wants and satisfactions of the economic world" (134). Thus, he argues that the productivity theorists give "a great many proofs of physical productivity, but almost nothing that could be interpreted as an attempt to prove that there is a direct value-creating power in capital" (133), but a power he also asserts can never be produced by capital: "Literally to ascribe to capital a power of producing value is thoroughly to misunderstand the essential nature of value, and thoroughly to misunderstand the essential nature of production. Value is not produced, and cannot be produced" (ibid.).

If there appears to be a contradiction here, it belongs with Böhm-Bawerk's own argument. It is he who also argues that

> Whenever capital is employed in production, experience shows that, in the normal course of things, the return, or share in the return, which the capital creates for its owner, has a greater value than the sum of the objects of capital consumed in obtaining it…Hence an excess of value–a 'surplus value'–which remains in the hands of the owner of the capital, and constitutes his natural interest…The theorist, then, who professes to explain interest must explain the emergence of Surplus Value. The problem, more exactly stated, will therefore run thus: Why is the gross return to capital invariably of more value than the portions of capital consumed in its attainment? Or…Why is there a constant difference in value between the capital expended and its return?
>
> (Böhm-Bawerk 1890:116–17)

But the productivity theorists' argument is that because capital goods enhance the productivity of labor and yield profits, producers are willing to pay interest to borrow "capital" in order to purchase the capital goods. Interest thus is a sharing in the anticipated profits (e.g. Smith *WN,* 1:358).

In the case of Nassau Senior's abstinence theory of interest, Böhm-Bawerk (1890:270) first gives it high praise over what he describes as the "restless and barren surging of opinions" over interest rates promoted principally by arguments of Smith and Ricardo. His other serious criticism of Smith and Ricardo is that they "had pronounced labour to be the only source of value…Thus with them interest forms an unexplained and contradictory exception to their rule" (269). But as explained in Chapter 2, the charge is invalid. He judges Senior as having

argued a "positive" theory of interest for suggesting that interest is the reward for something, "the capitalist's Abstinence" (270), not just a necessary payment without which the capitalist would not accumulate loanable "capital."[4] He also links Senior's argument to the creation of high value, something he denies that "Productivity theorists" recognized, declaring:

> I believe that there is a core of truth in Senior's doctrine. It cannot be denied that the making, as well as the preservation of every capital, does demand an abstinence from or postponement of the gratification of the moment; and it appears to me to admit of as little doubt that this postponement is considered in, and *enhances the value* of those products that, under capitalist production, cannot be obtained without more or less of such postponement.
>
> (Böhm-Bawerk 1890:276; emphasis added)

Nevertheless, Böhm-Bawerk also finds fault with Senior's theory of interest on two main grounds. First, he attributes to Senior a belief in the equality of marginal disutility of saving for a domestic servant and a millionaire, even as the domestic servant purchases a short-term bank financial asset (savings account) and the latter purchases long-term debt (debentures and mortgage loans) (277). Second, he interprets Senior as having argued that interest is the payment directly for the use of capital goods or equipment. Thus, he considers it "a logical blunder [for Senior] to represent the renunciation or postponement of gratification, or abstinence, as a second independent sacrifice in addition to the labour sacrificed in production" (278). Furthermore, Böhm-Bawerk interprets Senior's argument as erroneously implying that if one chooses to go fishing instead of growing wheat or planting fruit trees, the choice involves some abstinence beyond what would be considered the opportunity cost of the choice made.[5] But Senior's argument implies none of such conclusions.

Böhm-Bawerk's confusion of "capital"

Böhm-Bawerk's fundamental problem with the classical theories of interest he criticized was his expectation that they should give the same value productivity of physical capital explanation for the payment of interest as would be relevant in a theory of "capital" supply and demand in the determination of interest rates. But the classics in their theories of interest were explaining the rental price of "capital" or funds saved out of income. The meaning of "capital" that earns interest thus correctly understood should not lead one to demand that a theory of interest dwell on the "surplus value" productivity of physical capital as the source from which interest is paid, as Böhm-Bawerk does. Rather, the theory only needs to explain what constitutes the demand and supply of "capital" (savings) in order to explain the level of interest rates.

The irony of Böhm-Bawerk's criticism of the classical "capital" demand and supply theory of interest is that he himself was aware that different meanings were assigned to the word "capital" in different contexts. Thus, in his *Positive*

Theory of Capital (1891:1), he notes that in the context of production, "capital is represented as a factor or tool of production: as an instrument which men use to extort from nature the various forms of wealth unattainable by simple labour." And in the theory of distribution, he notes that "capital appears as a source of income or a ren*t fund*…in a word, as the source of Interest" (ibid.; emphasis added). He also laments the confusion caused by the different meanings attached to the word "capital" in economics:

> It is certainly very unfortunate when a science already earnestly, even acrimoniously engaged on the solution of questions which affect society to its depths—questions which all the world knows, ponders, and discusses as the great "problem of capital,"—is struck, as it were, by a second *confusion of tongues,* and becomes involved in an endless wrangle as to what kind of thing it is that properly is called capital! Such a controversy at such a point is more than embarrassing; it is a calamity; and has been found so in the history of Political Economy.
>
> (Böhm-Bawerk, 1891:23; emphasis added)

But instead of noting that it is funds rather than the material conception of "capital" that is employed in the classical theories of interest, Böhm-Bawerk thought it was more important just to deal with what he called "the real problems connected with the name of capital than the cataloguing of controversies as to the proper use of the word" (23). Thus, he suggests as the "most adequate solution to the controversy" over the meaning of "capital" simply to call it "*a group of Products* which serve as means to the Acquisition of Goods" (38; emphasis added). Similarly, Böhm-Bawerk adopts the material-goods definition of capital even as he lays the basis for criticizing the extant theories of interest:

> Of the many meanings which, in the unfortunate and incongruous terminologies of our science, have been given to the word Capital, I shall confine myself…to that in which capital signifies *a complex of produced means of production*—that is a complex of goods that originate in a previous process of production, and destined not for immediate consumption, but to serve as means of acquiring further goods.
>
> (Böhm-Bawerk 1890:6; emphasis added)

He also believed his chosen definition of "capital" to be consistent with that of other theorists, including Smith's (39), and expected that it would assure "a certain harmony, so far, at least, as terminology is concerned in discussions of interest on capital" (6). He was wrong.

It is noteworthy that Irving Fisher (1906:53–65), who later followed Böhm-Bawerk's theorizing on interest, adopts a less hostile attitude toward the problem of multiple meanings of "capital." He carefully notes the different uses of the term, but says "It is idle to attempt any reconciliation between concepts of 'capital' so conflicting, and yet there are elements of truth in all" (57).

One must not be misled, as was an anonymous reader of a previous version of the article upon which this chapter is based, by Böhm-Bawerk's (5) claim, "I, too, believe that capital is a 'fund' or 'quantum' of matter." The claim is in an article whose sole purpose was to dispute J.B.dark's (1893, 1899) distinction between "true capital" or permanent fund and capital goods in which the funds may be temporarily embodied. As Clark points out in his criticism of Böhm-Bawerk, which partly provoked the latter's 1906 response:

> The basing of interest on a comparison that is not actually made in life, is, perhaps, traceable to a *definition.* The acute author of the theory that we are criticising [i.e., Böhm-Bawerk] has determined at the outset to treat capital and capital goods, or concrete instruments of production, as, for scientific purposes, *identical.* Capital is always "mediate goods," or those that, in the series of phenomenon by which goods for direct consumption are created, stand between labor and such goods. For the common and practical conception of *capital as a permanent fund*[6] or amount of wealth expressible in money,–though not actually embodied in money,–there is *substituted* the conception of *concrete goods,* distinguishable from others by reason of the place that they occupy in the order of industrial production…. This course has entailed *confusion* in the writings of each one who has adopted it, and it has caused *needless controversies* between different writers.
>
> (Clark 1893:306; emphasis added)

Böhm-Bawerk's response includes describing dark's distinction between "capital" and capital goods as being "as full of inconsistencies as of obscure mystical rhetoric" (1906:10), and rejecting its validity.

Indeed, in his preface to *The Distribution of Wealth,* Clark also notes the difference between his work and those of "the Austrian economists, Karl Menger and Friedrich von Wieser…von Böhm-Bawerk," which is based on "a recognition of the *difference* between *permanent capital, or an abiding fund* of productive wealth, and *particular capital-goods,* or instruments of production, which perish in the using" (1899:viii–ix; emphasis added). Clark (1893:306) also distinguishes "capital as a permanent fund" from "capital goods, or concrete instruments of production." Yet the same anonymous reader disputes my denial that the classics and writers in their tradition claimed the existence of "homogeneous capital goods" that have a permanent life, by arguing that "the concept of a permanent, homogeneous capital stock is Clark's," without identifying "capital stock" as fund.[7]

Besides Böhm-Bawerk's difficulties in correctly interpreting the classical "capital" theories of interest, his adoption of the material-goods conception of "capital" also accounts for the impasse he reaches early in his *Positive Theory of Interest* (1891) while attempting to develop his value productivity of capital-goods theory of interest. He says, "If, in the sphere of distribution, the conception of capital thus embraces objects which are not capital in the sphere of production, this alone is sufficient to show that the bearing of interest cannot by itself be an indication of the productive power of capital" (1891:2). And he mistakenly

demands that David Hume use a more consistent language in explaining interest rates, instead of arguing that "the rate of interest altogether depends, not on the amount of money, but on the amount of riches or stocks available" (25). According to him, Hume "should have formally called these riches or stocks 'real capital' [or capital goods]" (ibid.).

Marshall, who wrote the first edition of his *Principles of Economics* about the same time that Böhm-Bawerk wrote his triad of books on "capital and interest," shows the benefits of interpreting "capital" correctly in the classical theories of interest and the possibility of avoiding the sorts of confusion about which Böhm-Bawerk complains. Marshall (1920:62) notes that in the theory of interest, "capital must *not* be regarded as a stock of *things in general*. It must be regarded as a stock of one particular thing, *money* which is taken to represent them" (ibid.; emphasis added). He also implores economists to "follow well-established customs as regards the use of the term capital in ordinary business, i.e. trade-capital" (647), referring to the same usage in Smith's *Wealth of Motions* (66).

Thus, Böhm-Bawerk may be credited with elaborating the value productivity of capital goods, which enables investors to pay interest on borrowed "capital" (funds), and arguing that interest payment is not a withholding of income that otherwise properly belongs to labor. This explanation suits his intent to counter the "sharp critical attacks that have been directed against [the productivity theory of interest] from the side of the socialistic and 'socio-political' school" (1890:132). But he failed to recognize the proper meaning of "capital" in the classical theories of interest he criticized and underrated the "acumen of his predecessors in their writing on capital and interest," as Marshall (1920:484, n. 2) correctly points out. Marshall is also correct in noting that

> The connection between the productiveness of capital with the demand for it, and of its prospectiveness with the supply of it has long been latent in men's minds; though it has been much overlaid by other considerations, many of which appear now to be based on misconceptions. Some writers have laid more stress on the supply side and others on the demand side: but the difference between them has often been little more than a difference of emphasis. Those who have laid stress on the productivity of capital, have not been ignorant of man's unwillingness to save and sacrifice the present to the future. And on the other hand, those who have given their thought mainly to the nature and extent of the sacrifice involved in the postponement, have regarded as obvious such facts as that a store of the implements of production gives mankind a largely increased power of satisfying their wants. In short there is no reason to believe that the accounts which Prof. Böhm-Bawerk has given of the "naive productivity theories," the "use theories" etc. of capital and interest would have been accepted by the older writers themselves as well-balanced and complete presentations of their several positions. Nor does he seem to have succeeded in finding a definition [of capital] that is clear and consistent.
>
> (Marshall 1920:650, n. 2)

However, through elaborations of Böhm-Bawerk's work, especially by F.A.Hayek and Ludwig von Mises, the view that there does not exist a valid classical theory of interest based on the supply and demand for "capital" or that interest is a return on "capital," not capital goods, continues to linger. Irving Fisher's definition of "capital" as "A *stock of goods,* whether wealth or property, existing at an instant of time" (1922:7), his warning that "The student should…try to forget all former notions concerning the so-called *supply and demand of capital* as the causes of interest," and his denial that interest is "a separate branch of income in addition to rent, wages and profits" (1930:32; emphasis added) have also contributed to this view.

Hayek and the Austrian theory of capital and interest

Hayek's main concern was to

> discuss…what type of equipment it will be most profitable to create under various conditions, and how the equipment existing at any moment will be used, rather than to explain the factors which determine the value of a given stock of productive equipment and of the income that will be derived from it.
> (Hayek 1941:3)

Thus, he extends Böhm-Bawerk's roundaboutness in the process of production into an analysis of "periods of production" in relation to different rates of interest. He argues that the use of greater quantities of capital [capital goods, by his definition] involves longer amounts of time in production. And since it takes time to create capital, and lower interest rates indicate a greater willingness of people to save and postpone current consumption, lower interest rates are conducive to a lengthening of the production process or greater capital intensity in an economy.

However, if one defines "capital" as fund, there is no time involved in its creation (e.g. Clark 1893). Such "capital" is created in an instant. One makes the decision either to save or to consume all income. This is why in one of his responses to Hayek, Frank Knight points out that

> It is extremely difficult to give any intelligible meaning to a 'period of production,' and it certainly has no meaning of the sort assumed in the Böhm-Bawerk-Hayek theory of capital. The production period for consumed services, if the expression is to be used at all, is zero, while the production period for the capital equipment of society is all past economic history.
> (Knight 1935:88)

To this criticism, Hayek responds by redefining the period of production so it refers rather to the period from when "individual factors have been invested and the product [consumer goods] derived from them" (1936:218). (How meaningful is it to talk about "individual factors having been invested" instead of funds being

invested in producer's goods?) But he does not concede that no real time is involved in the creation of capital, if "capital" means funds. Besides, this redefinition of the period of production renders its measurement difficult.[8]

Indeed, Hayek's (1936) response to Knight and the subsequent exchanges very much illustrate how a determined refusal to interpret words as meant by others leads to wasteful debate. For example, Knight (1935:81) queries Hayek's treatment of increased "capital" as amounting to the lengthening of the "production cycle" by pointing out that "the *addition* to total production of new varieties of *shorter* growth, say yielding two harvests per year instead of one, will involve an increase in the capital [i.e. funds], while *shortening* the average cycle" (italics in original). Hayek (1936:212) fails to understand the point and charges that Knight "has again neglected to state why this should only become possible if additional capital becomes available." But high-yielding varieties cost more, and the scale of production increases in Knight's example.

What is even more perplexing is that, like Böhm-Bawerk, Hayek recognizes that confusion surrounds uses of the term "capital," and almost endorses discarding the term altogether from scientific discourse. He says: "The…ambiguity of the term capital has been the source of *unending confusion,* and the suggestion has often been made [e.g. by Schumpeter]…that the term should be *banned entirely* from scientific usage" (1941:9; emphasis added).

Yet, like Böhm-Bawerk, Hayek exhibits the irony of someone who appreciates the need for carefully sorting out first principles, but nevertheless fails to do so in the most crucial respect. Thus he declares, "I have become definitely convinced that nothing holds up real progress so much as…impatience [with clarification of 'the abstract groundwork'] which disregards the necessity of first getting the foundations clearly laid out" (1941:vi). But instead of recognizing their disagreement as arising principally from their different uses of the term "capital," he chooses to stick with using "capital" to mean materials or producers' goods, in line with Böhm-Bawerk's usage. He argues:

> …much as there may be to be said in favour of [banning the term "capital" from scientific usage], it seems on the whole preferable to use the expression as a technical term for one of the magnitudes, without, however, ignoring the other magnitudes which are sometimes denoted by this term…[W]e shall use the term capital as a name for the total stock of the non-permanent factors of production.
>
> (Hayek 1941:9)

Hayek (1936:200, 221, 222) also refers to the classical fund concept of "capital" as "misleading" and a "noxious mythology." This after quoting Knight (1935) who explains that:

> The basic issue is the old and familiar one of choice between *two conceptions of capital.* In one view, it consists of *'things'* of limited life which are periodically worn out or used up and reproduced; in the other, it is a *'fond'* which is

> maintained intact *[sic]* tho the things in which it is invested may come and go to any extent.
>
> (Hayek 1936:218, n. 4; emphasis added)

The distinction could hardly be any clearer, yet Hayek (204) even denies that their dispute had anything to do "about words."[9] (Kirzner 1966: esp. 1–2, is another excellent illustration of how some modern Austrians recognize the significance of definitions and yet refuse to pay attention to the classical definition of "capital" as fund.)

Having decided on "capital" to mean only capital goods, Hayek recognizes that it is misleading to conduct analyses of capital and interest as if capital goods were homogeneous and could be dealt with "in terms of some single magnitude" (1941:6). And like Böhm-Bawerk, he relies on his chosen capital-goods definition of "capital" to accuse other theorists of misunderstanding. Thus, he says, "… those unending discussions about the 'nature' of capital [in respect to the theory of interest]…are among the least edifying chapters of economics science" (5).

Some legacies of the Austrian capital controversy

The refusal of Böhm-Bawerk and his followers, particularly Hayek, to interpret "capital" as fund in the context of the theory of interest has led to much confusion. Böhm-Bawerk's argument that interest is a premium borrowers are willing to pay for their impatience for present consumption, and that roundabout processes of production are typically more productive than the direct employment of hands, are not inconsistent with classical explanations of interest rate determination. Indeed, Hayek (1936:201) gives Frank Knight high praise for his "masterly expositions of the relationship between the productivity and the 'time-preference' element in the determination of the rate of interest," which very much is in the Smith-Ricardo-Mill-Marshall tradition.[10] But instead of complementing the classical tradition, the Austrians create an unnecessary conflict by focusing on capital goods or their values as the only legitimate meaning of "capital," thus sustaining a long-lasting debate.

Perhaps none other has been more damaging for economics than the impression Keynes got from such debate that neither side—the Austrians and early neoclassicals—understood well the determination of interest rates. Like the Austrians, Keynes read the classical theory of interest as arguing that the demand and supply of capital goods determine the rate of interest, an argument he declares to be "nonsensical" and "absurd" (1936:179, 187, n. 1).[11] He correctly notes that the supply and demand for capital goods should determine their prices, not the rate of interest (187, n. 2). In the Austrian theory of "capital and interest" no explicit account is given of a "monetary" determination of interest rates, a theory for which Keynes was searching. Thus, even though Keynes (176n) sides with Knight's clarification of "capital" and time in interest rate determination, which "confirms the soundness of the Marshallian tradition as to the uselessness of the Böhm-Bawerkian analysis," he still could not recognize the validity of the classical interest theory.

Keynes (1936:192–3) is also not persuaded by Hayek's connection between variations in the rate of interest and changes in the "structure of production," especially since the argument suggests that an increase in saving will lower interest rates and encourage an increase in the degree of capital-intensity in the economy. By Keynes's reasoning, an increase in saving should reduce the "marginal efficiency of particular capital assets" (193) as prices of consumer goods fall, and this has the exact opposite effect of the Austrians' claim.[12] Keynes thus sees his way clear to propose his cash or liquidity-preference theory of interest, a misleading mercantilist theory that still pervades modern macroeconomics.[13]

It is beside the point that, using classical arguments, one can show why Keynes's criticism of Hayek's association of a fall in interest rates with increased savings and investment (though not necessarily increased capital intensity or roundaboutness in production) is mistaken. The problem is with the Austrian story itself not being convincing. Even Hayek himself realizes the difficulty of its persuasiveness, offering the following weak explanation:

> I am deliberately discussing here the "strong case" where saving implies a reduction in the demand for *all* consumers' goods, although this is a highly unlikely case to occur in practice, since it is in this case that many people find it so difficult to understand how a general decrease in the demand for consumers' goods should lead to an increase of investment. Where, as will regularly be the case, the reduction in the demand for consumers' goods *(sic)* affect only a few kinds of such goods, these special difficulties would, of course, be absent.
>
> (Hayek 1935:50n; italics in original)

This is hardly a clear explanation by which to persuade skeptics. But define saving as the supply of "capital" or the purchase of financial assets ($S_c = Y - C - \Delta H_h = \Delta FA^d$), and it is easy to see why increased savings makes more loanable funds available, lowers the rate of interest, and increases investment spending.

Moreover, the demarcation of output into producers' and consumers' goods as Hayek and the Austrians do is not very helpful or legitimate. It is the use to which products are put that defines which they are. Thus the output of a General Motors plant may be bought by households or by firms, the latter as investment. Similarly, flour from a General Mills plant may be bought for household use or by bakeries; again the latter being a producer good. Furthermore, the classical definition of saving also shows that increased saving may come from a reduction in the demand for cash balances ($\Delta H_h < 0$), which need not entail a reduction in consumption spending.[14] Thus Hayek could have found some support for his argument regarding increased savings, lower interest rates, and increased investment in the classical "capital" demand and supply theory of interest if he had been inclined to recognize "capital" as funds.

The impact of the Austrian use of "capital" to refer only to capital goods or their values goes beyond having encouraged Keynes's belief in his perceived error of the classical theory of interest. All of modern macroeconomics now adopts

the capital-goods definition of "capital," having to qualify it by "financial" in order to refer to what people in the marketplace readily mean by the word, namely, funds. Hicks also is unable to affirm the validity of the classical "capital" theory of interest. He (1946:153) asks: "What determines the rate of interest?" and responds, "Until very lately, economists would have replied unanimously that it is determined by the demand and supply for 'capital'; but since they were not very certain exactly what they meant by 'capital,' their unanimity was more apparent than real," He notes the "real capital" meaning in the tradition of Böhm-Bawerk and the "money capital" meaning by the modern loanable-funds theorists. He nevertheless defends Keynes's money (cash) theory of interest against arguments by Bertil Ohlin, Dennis Robertson, and Ralph Hawtrey, which are in the classical demand and supply of "capital" tradition.[15] Similarly, Hicks (1983:113–28) is unable to decide whether the rate of interest is "the price of a factor of production." But clearly, the rate of interest is the cost (price) of borrowed "capital."

A recent exchange among some Austrians also illustrates the persistence of this confusion over the relation between interest and capital. One of the participants finally summarizes the Austrian position thus:

> it is important to claim that interest is *not* the return to capital. Capital earns profits (in disequilibrium). Interest is not the return to any factor. Interest is an expression of time preference…To think of interest as the return to capital (or any other factor) is very misleading, for both theory and policy. Interest would exist in the absence of capital.
>
> (Peter Lewin, Austrian Economics Network, 3 December 1995; italics in original)

Now if one interprets "capital" as capital goods, this declaration may appear to have some merit, although one might still ask, is interest not even a return for "waiting" or abstinence to create "capital"?

Of course, the Austrians are not alone in asserting the claim. Hirshleifer and Glazer (1992:348), for example, also assert: "Interest is not the return to a particular factor called *capital*" (italics in original). And yet in chapter 14 they discuss yields on financial assets such that they correctly represent returns to savings or "capitals" (in private communication, Hirshleifer explains that he bases the claim on Fisher 1930: esp. 58). Such confusion of language justifies Leijonhufvud's observation:

> The theory of interest rate mechanism is the center of the confusion in modern macroeconomics. Not all issues in contention originate there. But the *inconclusive* quarrels—the ill-focused, frustrating ones that drag on because the contending parties cannot agree what the issue is—do largely stem from this source.
>
> (Leijonhufvud 1981:131; italics in original)

Another regrettable legacy of the Austrian theory of capital is the erroneous attribution to writers in the classical tradition of a belief in the homogeneity of

capital goods, hence the existence of a "homogeneous capital stock," which also has a permanent life. Hayek may not be totally responsible for this view, but his statements such as, "in what sense [can] different capital goods…be said to have a common quality, a common characteristic, which entitles us to regard them as parts of one factor, one 'fund,' or which makes them to some extent substitutable for each other [?]" (1935:215), or "the supply of capital can *not* be treated as a single quantity" of non-permanent resource (1941:294; italics in original), have contributed to the belief.[16]

Thus, in the so-called Cambridge capital controversies, questions about capital homogeneity have been raised in relation to the classical claim of a predictable association between the rate of interest and the quantity of "capital." For example, Blaug (1996:506) quotes without criticism, Samuelson's offer of the Surrogate Production Function as "*some* rationalization for the validity of the simple J.B.Clark parables which pretend there is a single thing called capital" (italics in original). Blaug also quotes Samuelson's dilemma in the "double-switching" argument, saying, "it is impossible to draw a demand function for 'capital' as an inverse function of the rate of interest because we literally do not know what to write on the horizontal axis of the [trade-off] diagram" (507). Geoffrey Harcourt (1972) provides little help in getting to the definitional roots of this confused debate.

However, it is not difficult to sum all "capitals" as fund; we simply add the amounts of savings. But there are problems with attempting to estimate the value of capital goods in production, especially since the process of capitalization is itself dependent on the rate of interest. Moreover, it is not hard to envision that if more people want to save at current rates of interest, the rates would fall, given the demand schedule for savings or "capital." Also, funds invested in capital goods can be retrieved through their sale under normal market conditions, a point Knight (1935: esp. 89–94) repeatedly makes, but that Hayek fails to appreciate. Besides recovering "capital" through a depreciation fund, J.B.Clark's (1899:278) "sinking fund," it is through such sale or disinvestments that "capitals" flow between industries. But define "capital" as capital goods, and the difficulty of its mobility becomes evident. As Knight (1935:91) so aptly observes, "Obviously, mobility has no meaning in connection, say, with a part of a machine, apart from the machine as a whole." All this makes Schumpeter's observation on "capital" so apt: "What a mass of confused, futile, and downright silly controversies it could have saved us, if economists had had the sense to stick to those monetary and accounting meanings of the term instead of trying to 'deepen' them!" (1954:323).

Finally, both the Austrians and economists in the classical tradition prescribe the control of central-bank credit (currency) creation as a remedy for business fluctuations and bouts of unemployment. For example, Marshall argues:

> the only effective remedy for unemployment is a continuous adjustment of means to ends, in such way that credit can be based on the solid foundation of fairly accurate forecasts; and the *reckless inflations of credit*–the *chief cause* of all economic malaise–may be kept within narrow limits.
>
> (Marshall 1920:591; emphasis added)

The classical explanation is through the "forced-saving" doctrine whereby easy credit first lowers interest rates and subsequently raises the level of prices, output, and employment. The upsurge in employment is due to a reduction in real wages (as well as real interest and rentals), to the benefit of profits. The subsequent fall in employment is due to an upward revision of nominal wages to restore real wages (Ahiakpor 1985: esp. 22–5; Blaug 1996:158–9).

Hayek's extension of the Austrian theory of capital and interest to explain the business cycle by an over-investment in capital goods or their production during the expansionary phase of the cycle and the inability of labor to be quickly reabsorbed into the consumer-goods sector when the credit inflation stops and interest rates rise however does not appear as convincing.[17] Hayek's (1935:37) varied definitions of "capital" or "producers' goods" such that they range from "original means of production [to] instrumental goods and all kinds of unfinished goods," also hardly lend precision to his argument. Indeed, several interpreters of his argument have had to focus only on circulating capital or intermediate goods to make it consistent, for example, Blaug (1996:482), Rima (1986:245), and Screpanti and Zamagni (1995:195). However, some modern Austrians include fixed capital in their narrative of the adjustment process, for example, Garrison (1985), Salerno (1989), and Murray Rothbard (cited in Salerno 1989).

In the face of such unconvincing argument, the Austrians' prescription of a return to gold money in order to restrain central-bank credit creation and stabilize business cycles gets little favorable hearing. Against Keynes's (1936:xxii) claim to have restored "monetary theory…to…a theory of output as a whole" rather than explaining the price level, the Austrian prescription appears to be more a yearning for a relic of monetary control but for which a sound argument has yet to be made. Smith's (*WN,* 1:309) praise of the "substitution of paper in the room of gold and silver money" also appears to undermine the Austrian preference for a metallic monetary system. However, the transitory nature of an unanticipated inflation from currency expansion, the modern equivalent of the classical "forced-saving" doctrine, is more and more being appreciated by economists. The Austrian capital theory-based alternative thus appears to have hindered continued acceptance of this classical principle, following Hayek's loss of his debate with Keynes and his followers on the business cycle in the 1930s; see, for example, Caldwell (1995:ch. 1).

Summary and conclusions

"Capital" as fund is the source from which capital goods may be purchased or rented for production, and it is also the means by which the services of land and labor may be hired. Thus "capital" is a larger magnitude than the value of capital goods in production. Interest is paid on borrowed "capital," but rentals are paid on land and capital equipment. Owners of capital goods who employ them directly in production earn profits (or losses). If people want to save more at current interest rates, a greater quantity of "capital" (funds) will be available for borrowers at lower interest rates. But the employment of these funds does not necessarily

lead to a greater capital intensity in production. Increases in the supply of central-bank credit (currency) may in the short run lower interest rates, increase the supply of funds for investment (not all employed to acquire capital goods), and increase real output and employment, but ultimately will raise only the price level, nominal wages and rentals, and restore the level of interest rates. The only source of investment funds that can promote lasting economic growth without inflation is savings or "capital," in the language of the marketplace.

Austrian economists' refusal to recognize the meaningfulness of the classical fund concept of "capital" as well as their insistence on the legitimacy of only the capital-goods concept has led them to incorrectly criticize the classical "capital" theory of interest and frustrate the teaching of the classical principles. Thus, the legacies of the Austrian criticisms and their alternative theory of capital and interest, in the main, have not been helpful for modern macroeconomics. The influence of Böhm-Bawerk on Irving Fisher, and indirectly on Keynes in defining "capital" only as capital goods has been perhaps the most damaging.

7 Wicksell on the classical theories of money, credit, interest, and the price level

Introduction[1]

Many analysts accord Knut Wicksell the reputation of having advanced classical monetary theory and developed the "cumulative process" by which deviations between the market and "natural" rates of interest cause the price level to change persistently. The reputation is due partly to Wicksell's (1898) own claims to have found gaps in the classical quantity theory of money in its explanation of changes in the price level and inflation. To fill the alleged gaps, Wicksell offers a theory of inflation based on banks' credit policy causing deviations between the market and "natural" rates of interest. The price level rises while the market rate is below the natural rate, and falls while the market rate is above it. Irving Fisher's (1912, 1922) patterning of his theorizing about the movement of bank discount rates and prices also lends much support to the reputation enjoyed by Wicksell. His reputation as a monetary theorist also derives partly from J.M.Keynes's acknowledgment of his influence on the latter's thinking on monetary matters, especially in the *Treatise* (1930),[2] and the price-level determination from aggregate demand and supply of commodities in the *General Theory* (1936).

But the apparent novelty of Wicksell's monetary analysis stems from his having set aside the application of classical value theory to the determination of the price level and interest rates. Indeed, the cumulative process argument typically attributed to him is part and parcel of classical monetary analysis, as entailed in the forced-saving doctrine, except that the classical version is not as open-ended as Wicksell's. The tendency of commentators not to contrast Wicksell's monetary analysis directly with that of the classics appears to have obscured recognition of this fact By such contrasting, Don Patinkin (1965:631–2; 1976:46–7) affirms the precedence of both the classical writers and Alfred Marshall over Wicksell in explaining the cumulative process, and Thomas Humphrey (1990) establishes the precedence of Henry Thornton, David Ricardo, and Thomas Joplin. Lionel Robins (1934:xvi–xviii) notes that Wicksell is at best accorded credit for having "rediscovered" the cumulative-process argument from the classics but not having originated it. However, since Alfred Marshall's ([1887] 1926, 1920, 1923) work already carries that classical analysis, Robins's credit to Wicksell may be rather generous.

A correct understanding of the classical theories of interest and the price level requires a careful distinction of money from and credit, and credit from "capital" and capital goods, distinctions Wicksell was not careful to make. Wicksell's failure to make these distinctions may have been driven by his futile attempt to integrate the inconsistent traditions of classical monetary analysis and Böhm-Bawerk's theories of capital and interest, but there is also evidence of his having incorrectly interpreted the classical quantity theory, as I will illustrate. The failure of such notable commentators as Bertil Ohlin (1936), John Hicks (1946), Erik Lindahl (1958), J.A.Schumpeter (1954), Don Patinkin (1965),[3] Axel Leijonhufvud (1968, 1981), Roger Backhouse (1985), Thomas Humphrey (1990, 1997), David Laidler (1991),[4] Mark Blaug (1996), and Robert Ekelund and Robert Hébert (1997) to recognize Wicksell's misinterpretations of the classical theories appears to have encouraged the notion that his work was an advance on classical monetary analysis.

Arthur Marget comes close to this recognition but not enough. He suggests that the "Wicksellian natural rate theory" represents:

> 'two streams of thought'–the one…by 'the cash-balance analysis' and the other by those aspects of 'capital analysis' that are summarized by the concept of a 'natural rate of interest'–each of which, in its own way, represents an attempt to tie up the theory of money with 'the general theory of prices,' or Value theory.'
>
> (Marget 1938:177)

But Marget (ibid.) also notes that Wicksell's attempt was not successful. In a recent review of Wicksell's monetary analysis, Claes-Henric Siven (1997) also notes some difficulties in his arguments, observing that

> It is not always easy to find the most sensible interpretation of Wicksell's theory of money. Contrary to Wicksell's theory of value and capital, his representation of the theory of money is merely verbal. This makes it difficult to evaluate the level of his discussion: In some places it seems to be pure theory, at other places empirical applications or pedagogical simplifications. His discussion is inconsistent. One can find different opinions at different places.
>
> (Siven 1997:215–6)

This chapter contrasts the classical and Wicksell's theories of interest and the price level, especially as developed in his *Interest and Prices* (1898), to argue that his work was hardly an advance on classical monetary analysis. Wicksell's later essays moderated some of his arguments, almost conceding the classical positions. His *Interest and Prices* is the source from which to make the most revealing contrasts.

Wicksell's reactions to the classical theories

Wicksell reacted most seriously to the classical quantity theory of money's explanation of changes in the price level. Although sharing the theory's premise

that changes in the quantity of money (specie) affect the price level, he believed that several assumptions underlying the quantity theory bear no relation to reality: "The Theory provides a real explanation of this subject matter, and in a manner that is logically incontestable; but only on assumptions that unfortunately have little relation to practice, and in some respects none whatever" (Wicksell 1898:41). These assumptions, according to him, include:

(a) "an almost completely individualistic system of holding cash balances. In fact,…, the individual balance has become…replaced by a kind of collective holding of balances, out of the acceptances of banks of deposits";
(b) that "the *velocity of circulation* of money is, as it were, a fixed, inflexible magnitude, fluctuating about a constant average level; whereas in practice it expands and contracts quite automatically and at the same time is capable… of almost any desired increase, while in theory its elasticity is unlimited";
(c) that "an almost constant *proportion* of all the business of exchange, even if not the whole of it, is transacted by means of money in the sense of coin or notes"; and
(d) that "the proportion of the total stock of metal which is employed in actual circulation can be sharply differentiated from the portion which is kept in the form of hoards against future needs or which, in the form of ornaments and jewellery, is withdrawn from use as money."

(Wicksell 1898:41–2; italics in original)

But none of these bases for Wicksell's criticism of the classical quantity theory is valid. The classics and Marshall, of whose testimonies to the Royal Commission on the Depression of Trade and Industry and before the Gold and Silver Commission Wicksell was aware (Wicksell 1898:46, 76), wrote about an economy in which other media of exchange existed, including private bank notes besides those of the Bank of England, checks, and bills of exchange. However, from the beliefs about the classical quantity theory, Wicksell arrives at the conclusion that "It is consequently impossible to decide *a priori* whether the Quantity Theory is *in actual fact* true–in other words, whether prices and the quantity of money move together in practice" (42; italics in original).

Wicksell was also sympathetic to criticisms of the quantity theory by Thomas Tooke and others, particularly with their claim that the theory could not account for the fact that nominal interest rates rise with rising prices and fall with falling prices. The seeming contradiction is that prices are supposed to rise with increases in the quantity of money and fall with decreases; on the other hand, interest rates are supposed to fall with increases in the quantity of money and rise with decreases. Thus Wicksell believed that observed high interest rates with high rates of inflation and low interest rates with low rates of inflation contradict the classical explanation of changes in the price level from the supply and demand for money. In his judgment, "the laws which govern the exchange of commodities have no significance in themselves in regard to the absolute level of money prices" (39). Indeed, to Tooke's declaration that "the prices of

commodities do not depend upon the quantity of money indicated by the amount of bank notes nor upon the amount of the whole of the circulating medium; but…, on the contrary, the amount of the circulating medium is the consequence of prices," Wicksell replies: "There can be no doubt that there is much truth in this" (44). Furthermore, the classics allowed movements between the use of the precious metals for monetary and nonmonetary purposes, depending on the relative values in their alternative uses, and did not claim any rigid separation between the two as Wicksell alleges.

Yet from the above perspectives Wicksell believed he had found the missing element in the quantity theory in explaining changes in the price level, namely, deviations of market rates of interest from the "natural" rate. In constructing his theory, Wicksell reaches for Böhm-Bawerk's (1891) theorizing about capital and interest as the explanation of the natural rate. Now Böhm-Bawerk's work was to explain the *source* of interest from the productivity of capital goods over and above the use of labor only in production, an argument he developed from a misreading of "capital" in the classical theory of interest as capital goods rather than loanable funds, as explained in Chapter 6. Thus, following Böhm-Bawerk, Wicksell reasons that the "natural" rate of interest is that determined as if the lending and borrowing of capital goods were conducted without the use of money:

> [the] natural rate is roughly the same thing as the real interest of actual business. A more accurate, though rather abstract, criterion is obtained by thinking of it as the rate which would be determined by supply and demand if real capital were lent in kind without the intervention of money.
>
> (Wicksell 1898:xxv)

Also for Wicksell, capitalists are dealers in consumer goods, not savers who supply "capital," as the classics explained or is understood in the language of the marketplace:

> It is usually said that in modern communities capital (of the mobile kind) is lent *in the form of money*. But this is a metaphorical and inexact manner of speaking which can easily lead to error. Liquid capital, which is what we are considering, or in other words goods, are never lent–they are never given and taken by way of borrowing–they are simply *bought and sold.*
>
> …For the sake of simplicity it will be assumed that the present owners of the available consumption goods are capitalists…They are in a position, if necessary, to postpone payment up to a period of, let say, one year.
>
> It may be supposed in theory that the entrepreneur borrows these consumption goods from the capitalists *in kind,* and pays them out *in kind* in the shape of wages and rents.
>
> (Wicksell 1898:102–3; italics in original)

Moreover, banks do not depend on, nor are they limited by, the supply of savings in order to extend loans to borrowers in Wieksell's analysis.

Wicksell's conception of the process of banking thus leads him to deny that market rates of interest are determined by the supply and demand for "capital." He declares: "…we have not…come across anything which corresponds to the customary method of explaining how the rate of interest is determined by the supply and demand of 'capital.' It would appear rather that the rate of interest… is completely subject to the discretion of the Bank" (75). He also regards Mill's (*Works,* 3: ch. 23) clarification of the classical "capital" supply and demand theory of interest, including the explanation that "Loanable capital is all of it in the form of money" (655), as having succeeded "merely…in adding to…confusion" (Wicksell 1898:xxv).

In Wicksell's system, banks assume a much more significant role in the economy than being just intermediaries between savers and borrowers. By setting interest rates below the "natural" rate, the banks set off a cumulative process of price increases that may continue almost indefinitely–"proceeding without limit, so that sooner or later the banks will be led to raise their rates" (xxvii; see also 94–5). Wicksell (120) also argues: "If, on the other hand, the rate of interest is maintained no matter how little *above* the current level of the natural rate, prices will fall continuously and without limit." Furthermore, the process is not necessarily initiated by a new injection (or withdrawal) of money (cash) by a central bank or release of, or addition to, hoards of cash by the public.[5] Indeed, according to Wicksell, banks have an unlimited power to supply as much "money" as demanded:

> Money is continually becoming more fluid, and the supply of money is more and more inclined to accommodate itself to the level of demand…No matter what amount of money may be demanded from the banks, that is the amount which they are in a position to lend (so long as the security of the borrower is adequate)…The "supply of money" is thus furnished by the demand itself.
>
> (Wicksell 1898:110)

It is from this perspective that Wicksell believes that, by their extension of credit, "banks can raise the general level of prices to any desired height" (111).[6]

Of course, Wicksell also argues that a deviation between the rate of interest and the natural rate may not be initiated by the banks: "The other factor, which is often of more weight, takes the form of the independent movements of the natural capital rate itself, which must necessarily, but in general only gradually, be accompanied by corresponding movements of the money rate" (xxviii). The natural rate itself "depends on the efficiency of production, on the available amount of fixed and liquid capital, on the supply of labour and land, in short on all the thousand and one things which determine the current economic position of a community; and with them it constantly fluctuates" (106).

In Wicksell's scheme, the inflation generated by a deviation between the market rate of interest and the "natural" rate would occur even in the absence of money (specie or currency) being used as a medium of exchange. The argument ignores

the fact that without money to exchange with other goods and services, the price level ($P=H/ky$, where H=currency, k=proportion of income held in cash, and y=real income or output) is meaningless; we can have relative prices as rates of exchange between different commodities but not a weighted average of all prices ($P=\sum w_i p_i,\ i=1,\ldots,\ n-1$, where the nth commodity is money itself, and $p_n=1$) expressed in terms of a common unit of measure, the currency. Indeed, banknotes and checks are orders to withdraw certain quantities of money. Thus even an abstract unit of account with which Wicksell seems to be toying in his scheme, has to be defined in terms of some commodity.[7]

Another deviation of Wicksell's arguments from the classics is his derivation of a change in the price level from the expenditure of incomes: it is the excess demand for commodities that raises their prices, hence the price level, but not the excess supply of money that enables expenditures to exceed the supply of goods and services and thus lower the value of money itself. Indeed, Wicksell maintains that:

> it must not be assumed that the quantity of the available stock of money or of individual balances serves as a *direct* measure of commodity prices and determines their level…[and] the laws which govern the exchange of commodities have no significance in themselves in regard to the absolute level of money prices.
>
> (Wicksell 1898:38–9; italics in original)

As Bertil Ohlin observes:

> Already in his *Geldzins,* Wicksell had stressed the idea that as a change in the price of *one,* commodity is due to a change in the relation of supply to demand, the same must be true of a change in the general commodity price level. This constituted a new approach to monetary theory…
>
> Following up the idea that a rise in the general price level is due to a rise in total demand in relation to total supply, Wicksell intuitively realised that it would be profitable to divide each of these two categories into two classes: the supply of consumers' goods and the supply of capital goods, on the one hand, the income to be spent and the income to be saved, on the other hand. A study of the relations between these four factors gave him a deeper insight into the character of price movements than that obtained as a result of the analysis of changes in price levels by means of the old quantity theory…
>
> (Ohlin 1936:xiii–xiv; italics in original)

Wicksell links the price-level determination process with the rate of interest thus:

> the fall in the rate of discount,…, must, when it has persisted long enough to exert a depressing influence on long-term rates of interest, provide a stimulus to trade and production, and alter the relation between supply and demand

> for goods and productive services in such a way as necessarily to bring about a rise in all prices.
>
> (Wicksell 1898:89)

Wicksell also argues in the *Lectures* that

> Every rise or fall in the price of a particular commodity presupposes a disturbance of the equilibrium between the supply of and the demand for that commodity, whether the disturbance has actually taken place or is merely prospective. What is true *in this respect* of each commodity separately must doubtless be true of all commodities collectively. A general rise in prices is therefore only conceivable on the supposition that the general demand has for some reason become, or is expected to become, greater than the supply.
>
> (Wicksell 1906:159; italics in original)[8]

Keynes adopts a similar argument when he claims his "escape from the confusions of the Quantity Theory, which once entangled [him]," and asserts that:

> the price level as a whole [is] determined in precisely the same way as individual prices; that is to say, under the influence of supply and demand. Technical conditions, the level of wages, the extent of unused capacity of plant and labour, and the state of markets and competition determine the supply conditions of individual products and of products as a whole. The decisions of entrepreneurs, which provide the incomes of individual producers and the decisions of those individuals as to the disposition of such incomes determine the demand conditions. And prices–both individual prices and the price-level–emerge as a result of these two factors. Money, and the quantity of money, are not direct influences at this stage of the proceedings. They have done their work at an earlier stage of the analysis.
>
> (Keynes 1936:xxxiv–xxxv)

The problem with attempting to explain the price level from the aggregate supply and demand for output is that it obscures the fact that incomes are earned from production, and that the expenditure of incomes thus should not cause all prices to rise. An increase in some prices as a result of shifts in consumer preferences or tastes should cause some other prices to fall. Only when the means of payment (money) have increased relative to output or the demand for money itself has decreased would all prices rise.

Of course, the excess supply or demand for money argument is consistent with Say's Law of Markets, but the logic of which Wicksell was not much persuaded (e.g. Wicksell 1906:159–60; also see Siven 1997:205–6). Wicksell's attempts to provide an alternative explanation however led him to such an untenable argument as the wage-cost theory of inflation:

> a rise in wages may precede the rise in prices, acting as its direct cause. It will indeed appear later that this must be regarded as the *most probable procedure*

> whenever the rise in the price level is gradual and permanent, as opposed to those more fortuitous changes which are brought about by speculative buying and the like.
>
> (Wicksell 1898:2; emphasis added)

In the reverse, Wicksell argues, "a low level of prices is often the *effect* of a previous reduction in wages" (ibid.; italics in original). But a rise or fall of wages may squeeze or raise profits or some other income component, and not change the price level unless the money supply has changed relative to its demand or output.

Wicksell also disputes the process described in the classical forced-saving doctrine by which an increase in the quantity of money first lowers interest rates and induces increased production and employment when real wages and rentals fall, but the subsequent rise of interest rates, nominal wages, and rentals reduces the rate of production and employment to their initial levels. According to Wicksell, the logic of the forced-saving doctrine applies only if the "recipients of fixed incomes" are not able to "hold back their own 'wares' from the market" (94).

Summarizing the classical theories Wicksell disputes

The classical theories of interest, the price level, and inflation have been explained in Chapter 4. However, a brief restatement here seems necessary to cast in sharper focus the error of Wicksell's criticisms of them. The classical explanation of the price level by the supply and demand for money (specie) takes into account the existence of other media of exchange, including checks and credit. Thus there is no presumption of a constant proportion between money and output, as Wicksell claims. Indeed, in one of Marshall's responses to questions at the Gold and Silver Commission (of which Wicksell was aware), he points out that the velocity of money has been increasing: the "gradual change in the methods of business…has enabled us to do some twenty or thirty times as much business as we did before with a volume of gold and silver only two or three times as large as we had before, and if that change should go on fast I believe that prices would rise" (Marshall [1887] 1926:39). Marshall also notes that "a great rise of prices is possible without a change in the supplies of gold and silver, provided there is a sufficient change in the methods of business" (40). Marshall's argument follows that of David Ricardo, who writes:

> The value of the circulating medium of every country bears some proportion to the value of the commodities which it circulates. In some countries this proportion is much greater than in others, and varies, on some occasions, in the same country. It depends upon the *rapidity of circulation,* upon the *degree* of *confidence* and *credit* existing between traders, and above all, on the judicious operations of banking.
>
> (Ricardo *Works,* 3:90; emphasis added)

When confidence is high, more goods and services may be sold using instruments of credit, including checks, than upon the surrender of money (cash). A high

degree of confidence among bankers also encourages more lending of their customers' deposits or "capital," just as a high degree of confidence in the banking institutions encourages more purchasing of their liabilities by households (savings) and less holding of wealth in the form of cash (hoarding). Mill's (*Works:* chs 11 and 12) elaborate discussion of the substitutes for money in transactions and the influence of credit upon prices also affirms Ricardo's explanation of the determinants of the value of money.

The supply of goods and services constitutes the demand for money in circulation, and so does the hoarding of money (cash), which tends to raise money's value or lower the price level. As Hume (1752:173), for example, observes: "If the coin is locked up in chests, it is the same thing with regard to prices, as if it were annihilated…As the money and commodities…never meet, they cannot affect each other." Also see Thornton (1802:232–42) and Marshall (1923:43).

In explaining the determination of interest rates, the classics distinguished money from "capital" and credit; money being the medium in which purchasing power from earned income may be held or debts settled, "capital" being savings, while credit is a means of assigning the right to use another's "capital" or temporarily to acquire the use of an asset. It is for the privilege of such temporary acquisition of the use of an asset that interest is paid, hence, interest being the cost of "capital" or credit. Ricardo (*Works,* 5:436–7) makes this point clearly when he insists that credit "does not create Capital, it determines only by whom that Capital should be employed." Mill (*Works,* 3:527) reaffirms the point, noting that "It seems strange that there should be any need to point out, that credit being only permission to use the capital of another person, the means of production cannot be increased by it, but only transferred." This is also why the extension of private sector credit does not affect the price level, unless it also affects the demand for money.

Thus, applying the supply and demand framework, the classics explained that interest rates are determined by the supply and demand for "capital," not money, for example, Smith (*WN,* 1: bk 2, ch. 4); also see Marshall ([1887] 1926, 1920:66). Where financial intermediation exists, the supply of "capital" takes the form of purchasing financial assets while its demand takes the form of issuing financial assets (loan-notes, bonds, or bank deposits), that is, in equilibrium, $S_c = Y - C - \Delta H_h = \Delta FA = D_c$, where Y=nominal income, C=consumption, ΔH_h=households' accumulation of cash balances, and ΔFA=newly issued financial assets. The greater the demand for "capital," the higher the rate of interest, given the schedule of its supply. And the greater the supply of "capital" or savings (increased demand for financial assets) given its demand, the lower the rate of interest (high price of financial assets).

Variations in the quantity of money play no substantive role in the determination of interest rates, particularly in the long run, as Hume (1752:177) explains: "High interest arises from *three* circumstances: a great demand for borrowing; little riches to supply that demand; and great profits arising from commerce: and the circumstances are a clear proof of the small advance of commerce, and industry, not of the scarcity of gold and silver [i.e. money]" (italics in original). This view

is restated by other classics, including Smith (*WN,* 1:376), Ricardo (*Works,* 1:363–4; 3:91–2), and Mill (*Works,* 3:655–6). Marshall ([1887] 1926: esp. 41, 49, 51–2; 1920: esp. bk 6, ch. 6) also reaffirms the classical argument in his clarification of the theory of interest, adding: "These truths are familiar; and they are the basis of the theory of capital and interest"(1920:483).

Money (cash) may be the medium through which borrowing and lending take place, but it does not constitute the substance of the transaction since money is not "capital." Thus Smith (*WN,* 1:374), explains that when loans of money are made:

> …money, is as it were, but the deed of assignment, which conveys from one hand to another those capitals which the owners do not care to employ themselves. Those capitals may be greater in almost any proportion, than the amount of the money which serves as the instrument of their conveyance; the same pieces of money successively serving for many different loans, as well as for many different purchases.
>
> (Smith *WN,* 1:374)

This is saying that the volume of loans made over a period of time, say a year, is typically several times the quantity of cash in an economy. Also see Mill (*Works,* 2:55) and Marshall (1920:430–3, 482–94); Pigou (1927:121) restates the point as, in the act of granting loans, "money acts…as a mere ticket conveying a right to things."

However, variations in the supply of money (cash) may affect the rate of interest in the short run until all prices have reacted to the changed quantity, as for example, Ricardo (*Works,* 1:297–8) explains; also see Marshall ([1887] 1926:38, 41; 1923:257). Thus, in a commodity money system, an increase in the supply of money may arise from an increase in net exports. In the short run, the increased supply is consistent with an increase of real income. The rate of interest will fall if recipients of the new money make new loans (buy financial assets) in order to earn interest income, rather than hold their additional income in cash or purchase commodities. The same effect on the rate of interest would result from an increased supply of money that is due to the increased productivity of gold mines. In a fiat money system, additional money (cash) enters the economy through a central bank's creation of credit through open-market purchases. The additional money also increases the willingness of its recipients (especially banks) to lend, and thus decreases the equilibrium nominal rate of interest (liquidity effect). But when prices of goods and services rise, increased demand for credit ensues, driving up nominal interest rates again.

Moreover, variations in the demand and supply of "capital" do not affect the price level unless they affect the demand for money itself; money not being "capital." Thus, an increase in the supply of "capital" (purchase of financial assets) may arise from a reduction in hoarded money, which would both decrease the rate of interest and raise the price level. But an increase in the supply of "capital" from a reduction in the purchase of consumption goods would reduce the rate of

interest but leave the price level unchanged, the price level being the weighted average of the prices of consumers' and producers' goods.

The classics designated the long-run market price, which enables wages, interest, rents, and profits to be paid under the condition of free competition, the "natural" price, around which short-run prices may oscillate but will be tending towards all the time (Chapter 2). As Smith (*WN,* 1:65) explains: "The natural price…is, as it were, the central price, to which the prices of all commodities are continually gravitating." Smith also contrasts a monopoly price with the natural price thus:

> The price of monopoly is upon every occasion the highest which can be got. The *natural price,* or the price of free competition, on the contrary, is the lowest which can be taken, upon every occasion indeed, but for any considerable time altogether. The one is upon every occasion the highest which can be squeezed out of the buyers, or which, it is supposed, they will consent to give: The other is the lowest which the sellers can commonly afford to take, and at the same time continue their business.
>
> (Smith *WN,* 1:69; emphasis added)

Ricardo (*Works,* 1:90–1) restates the argument, referring specifically to "the 7th chap, of the Wealth of Nations" in which the issue "is most ably treated." Thus the "natural" rate of interest in classical analysis is the long-run rate determined by the supply and demand for "capital," around which short-run interest rates fluctuate.

An increase in the supply of money (cash) may in the short run decrease the market rate of interest below the rate consistent with the long-run supply and demand for "capital" or savings–the "natural" rate. But as the increased quantity of money affects prices, the demand for credit will increase and drive the market rate back up to equal the "natural" rate. (In modern monetary analysis one would say that both the nominal and real interest rates rise again; but the classical natural rate of interest is not necessarily the modern equivalent of the real rate of interest. Only when the long-run (expected) rate of inflation is zero may the real and natural rates of interest be the same.) This is why the classics emphasized the fact that increases in the quantity of money do not permanently lower the level of interest rates but only raise the price level or lower the value of money itself.[9] And, of course, an increase in the expected long-term rate of profit will also raise the demand for "capital" and the natural rate accordingly.

Given Wicksell's reactions to classical monetary analysis, and his image as the developer of the "cumulative-process" argument, it is worthwhile quoting Ricardo's explanation of that argument in some detail:

> I do not dispute, that if the Bank [of England] were to bring a *large sum of notes* into the market, and offer them on loan, but that they would for a time affect the rate of interest. The same effects would follow from the *discovery* of a *hidden treasure* of gold or silver coin. If the amount were large, the Bank, or the owner of the treasure, might not be able to lend the notes or the money at

> four, nor perhaps, above three per cent; but having done so, neither the notes nor the money, would be retained unemployed by the borrowers; they would be sent into every market, and would every where raise the prices of commodities, till they were absorbed in the general circulation. It is only during the interval of the issues of the Bank, and their effect on prices, that we should be sensible of an abundance of money; interest would, during that interval be under the *natural* level; but as soon as the additional sum of notes or the money became absorbed in the general circulation, the rate of interest would be as high, and new loans would be demanded with as much eagerness as before the additional issues.
>
> (Ricardo *Works,* 3:91; emphasis added)

The discovery of the "hidden treasure" amounts to a reduction in the demand for money or an increase in the quantity of money in circulation, which must increase the price level, according to the quantity theory, the same effect produced by the supply of "a large sum of notes" by the Bank of England.

Ricardo's denial of the ability of a central bank to permanently lower market interest rates or the "natural" rate by its money creation in the *Principles* also well illustrates the point:

> …the real value of a commodity is regulated, not by the accidental advantages which may be enjoyed by some of its producers, but by the real difficulties encountered by that producer who is least favoured. It is so with respect to the interest for money; it is not regulated by the rate at which the Bank [of England] will lend,…, but by the rate of profits which can be made by the employment of capital, and which is totally independent of the quantity, or of the value of money. Whether a Bank lent one million, ten millions, or a hundred millions, they would not permanently alter the market rate of interest; they would alter only the value of the money which they thus issued. …If they charge less than the market rate of interest, there is no amount of money which they might not lend,–if they charge more than that rate, none but spendthrifts and prodigals would be found to borrow of them.
>
> (Ricardo *Works,* 1:363–4)

Interpret the "market rate" here to mean that consistent with the supply and demand for "capital," hence the "natural" rate, and we find a clear precursor of Wicksell's "cumulative-process" argument. Wicksell (1958:79–80) indeed acknowledges Ricardo's explanation but argues the possibility that "banks could maintain the low rates of interest" and thus cause a series of endless price increases; see also Wicksell (1898:xxiii–xxiv; 1906:190).

Mill also refers to Smith's and Ricardo's use of the concept of the "natural" rate of interest:

> …there must be, as in other cases of value, some rate which (in the language of Adam Smith and Ricardo) may be called the *natural rate;* some rate about

> which the market rate oscillates, and to which it always tends to return. This rate partly depends on the amount of ["capital"] accumulation going on in the hands of persons who cannot themselves attend to the employment of their savings, and partly on the comparative taste existing in the community for the active pursuits of industry, or for the leisure, ease, and independence of an annuitant.
>
> (Mill *Works,* 3:648; emphasis added)

Similarly, Marshall explains the process of a temporary decrease in the rate of interest from credit inflation, to be followed by price increases and a restoration of the original level of interest, also using the term "cumulative" to describe the price reaction:

> Looking at the special case of the effect of an increase in currency on the rate of discount in the western world, the cycle seems to be this. The new currency, or the increase of currency, goes, not to private persons, but to the banking centres; and, therefore, it increases the willingness of lenders to lend in the first instance, and lowers the rate of discount. But it afterwards raises prices. This latter movement is *cumulative*…Thus, a fall in the purchasing power of money tends, after a while, to raise the rate of discount and the rate of interest on long investments.
>
> (Marshall 1923:257; emphasis added)

Marshall's explanation follows similar clarifications he made before the Gold and Silver Commission (Marshall [1887] 1926).

Indeed, the short- and long-run interest rate, price level, and output effects of increases in the supply of money constitute what the classics called the "forcedsaving" doctrine, explained in Chapters 4 and 5. It is because fixed income earners lose from the price-level increase to the benefit of residual income earners (profits) that the increased investment funds gained by entrepreneurs from the increased supply of money constitutes "forced saving" by the losers. In the classical analysis, the process comes to an end when wage, interest, and rental contracts are revised to restore the real incomes of the initial losers, not the possibly infinite process of price-level escalation Wicksell's account suggests.

It is a failure on the part of Wicksell as well as several modern writers to recognize in classical writings a clear statement of the cumulative process of pricelevel changes in response to changes in the supply of money and the effect on interest rates to have made the argument Wicksell's creation. For example, Lindahl declares:

> With this theory, Wicksell did not only increase our understanding of the mechanism of price movements, he also demonstrated a fruitful method of attacking problems. Indeed, in pursuing his monetary theory further one is led into more general dynamic theory. He thus made a contribution to science which is of more than historical interest, for it is still a living force and an

> incentive to further research. The full significance of Wicksell's achievement as an economist can therefore not yet be appreciated.
>
> (Lindahl 1958:44)

Accounting for Wicksell's deviations from the classics

Wicksell's belief that he was providing corrections and extensions to the classical theories of interest and price-level determination arises mainly from his misunderstandings, partly perhaps of his hurried and utilitarian approach to the study of economics: "It was his opponents' charge that he expressed himself on economic matters without having the necessary knowledge that led him to study economics seriously" (Lindahl 1958:11),[10] and partly due to his lack of sufficient care in attempting to integrate or find a compromise between the classical theory of interest and that of Böhm-Bawerk's. Wicksell spent time in England, France, Germany, and Austria to engage mostly in self-study of economics. As Lindahl (14) explains, Wicksell's "teachers were first and foremost the English Classicists, especially Malthus, John Stuart Mill, and Ricardo; during his years of study abroad, he was also much impressed by the newer streams of thought in economics represented by the names Walras, Jevons, Menger, and Böhm-Bawerk."

With respect to Böhm-Bawerk's teaching, Wicksell believed it "is the only theory which provides a rational explanation of the magnitude of the rate of interest on capital, wages, and rents, of the distribution of the final product between capitalists, workers, and landlords, etc." (1898:xxix). Wicksell (132–4) also enthusiastically endorses Böhm-Bawerk's period of production analysis in which variations in the rate of interest affect the structure of capital goods in production–more roundabout methods being adopted when the rate of interest falls. And just as Böhm-Bawerk (1890, 1891, 1906) never could interpret "capital" correctly in the classical theory of interest, so it almost was with Wicksell. Indeed, there are some passages in Wicksell's writings, even in *Interest and Prices,* where the loanable funds concept of "capital" appears to be intended, for example, "Capital is accumulated (or saved) when a customer allows part of his balance to remain at the Bank, and increases it from time to time by depositing fresh sums (in the shape of cheques received in exchange for goods and the like)" (1898:73). In the *Lectures* (1906:145), Wicksell explicitly acknowledges the fund concept of "capital" but seems inclined not to give up Böhm-Bawerk's objection to the meaningfulness of the classical "capital" supply and demand theory of interest.

Thus, for example, Wicksell recounts that "It is usually said that in modern communities capital (of the mobile kind) is lent *in the form of money*" and immediately responds, "But this is a metaphorical and inexact manner of speaking which can easily lead to error" (1898:102; italics in original). In explaining his disagreement with the statement, he refers to "capital" as "goods," not funds. Similarly, Wicksell cites an extensive explanation of interest rate determination by F.A.Walker and shows from his criticism that he misunderstood it:

> What is interest?… It is the compensation paid for the use, not of money, but of capital. Money is only one of many forms of capital; and in loans is

> usually only the agent of effecting a transfer of other forms of capital than itself. If I borrow money, the chances are that I at once, or shortly afterwards, purchase with it articles for my business or my personal necessities… These were what I really borrowed. These are what, in any philosophical view of the subject, I pay interest on; not upon the money. The money was but the means to this end…
>
> (Wicksell 1898:108)

Now understanding that money is the instrument by which "capital" or savings are transferred from "surplus-spenders" to "deficit-spenders" or borrowers makes Walker's explanation quite clear. But from his confusion over "capital," Wicksell retorts:

> This kind of generality is too metaphorical to take us very far. Walker should have indicated the mechanism by which the same results are reached in real life as are suggested by 'any philosophical view of the subject.' For in *actual fact* it is money which is lent, not the goods purchased by means of money. The rate of interest is a matter for negotiation with the owners of money and not with the owners of goods.
>
> (Wicksell 1898:108; italics in original)

Wicksell similarly quotes W.S.Jevons's explanation of the exhaustion of a merchant's "capital" by inflation and the limits imposed by the supply of "reserve of notes" from "the Bank of England," and fails to recognize "capital" as loanable funds.

This is very much like Böhm-Bawerk (1890, 1891), Fisher (1906:52–3, 186–7; 1930:32–3, 91–4), Hayek (1936), or Keynes (1936:186–92) denying the validity of the classical "capital" supply and demand theory of interest because of their failure to interpret "capital" as loanable funds. As Keynes's example well illustrates, it was because Marshall (1920) used "capital" instead of "money" in explaining that "Interest, being the price paid for the use of capital in any market, tends towards an equilibrium level such that the aggregate demand for capital in that market, at that rate of interest, is equal to the aggregate stock forthcoming there at that rate" (Keynes 1936:186). Thus Wicksell's theory of interest rate determination, founded mainly on a central-bank credit creation, and his reading of "capital" mainly as capital goods, was no advance on the classical theory but a retrogression.

It is quite possible that had Wicksell well understood the classical "capital" theory of interest, he might have appreciated the short- and long-run movements of interest rates in response to changes in the supply of money, as the classics and Marshall explained. Such an understanding might have spared him the effort to fill his perceived but nonexisting gaps in the quantity theory of money in explaining variations in the price level. Wicksell's moderation of his arguments in *Interest and Prices* as they came under criticisms suggest validity to this speculation. For example, instead of the "natural rate" of interest being that which equates the supply and

demand for real capital goods without the intervention of money, Wicksell redefines it as "The rate of interest at which *the demand for loan capital and the supply of savings* exactly agree, and which more or less corresponds to the expected yield on the newly created capital" (Wicksell 1906:193; italics in original). Now this comes very close to the classical definition, particularly if "capital" here means "loanable funds" rather than capital goods. Wicksell also writes, "the granting of credit or the transference of capital is itself frequently made in the form of money–which is also the way in which capital accumulations, or savings are made. Money is usually said to constitute a *means of saving* and of *transferring capital* (loans)," and "Capital accumulation and transfer are always effected by means of money" (24; italics in original). Ohlin also recounts some of Wicksell's change of mind on his theory, including the redefinition of the "normal rate" of interest as "the rate which equalises supply and demand for savings" (Ohlin 1936: xiv–xv), which is exactly the classical definition.

Another telling piece of evidence in this regard is presented by Laidler (1991:151n) who refers to Jonung's citation of Wicksell's unpublished 1920 statement that "To search for *any other* cause behind the decline in the value of money than the abnormal size of the volume of notes is unnecessary" (italics in original). This is very much like David Ricardo (*Works,* 3:52–127) explaining the rise in the price of bullion or the decline in the value of Bank of England notes from an excessive note creation relative to the quantity of gold or demand for the notes, the same principle that underlies the quantity theory.

Another source of Wicksell's problems with the classical theories of interest and the price level was his fusion of credit with money. To him,

> Strictly speaking, we can assert that all money–including metallic money–is *credit money*. For the force which is directly responsible for the generation of value always lies in the belief of the receiver of an instrument of exchange that he will be able to obtain for it a certain quantity of commodities. However, notes and paper usually enjoy a purely local credit, while the precious metals–or at any rate gold–are accepted on a more or less international scale. But it is all a question of degree.
>
> (Wicksell 1898:49; italics in original)

Such fusion of money with credit deprives Wicksell of the ability to recognize that it is the "capitals" of savers that banks loan to borrowers on credit, and that such credit extension is not inflationary. The fusion also encourages Wicksell's argument that private banks have the capacity to lend just as much as demanded of them by borrowers: "No matter what amount of money may be demanded from the banks, that is the amount which they are in a position to lend (so long as the security of the borrower is adequate" (110).

Similarly, Wicksell (135) argues that "money, which is the one thing for which there is really a demand for lending purposes, is elastic in amount. Its quantity can to some extent be accommodated–and in a completely developed credit system the accommodation is complete–to any position that the demand may

assume." His argument is somewhat a negation of the classical model in which banks only lend a fraction of their customers' deposits or "capital" and keep some as reserve against future cash withdrawals, thereby, turning money from "dead stock" into productive "capital" (Smith *WN,* 1:341). As Smith further explains:

> What a bank can with propriety advance to a merchant or undertaker of any kind, is not either the whole capital with which he [banker] trades, or even any considerable part of that capital; but that part of it only, which he would otherwise be obliged to keep by him unemployed, and in ready money for answering occasional demands.
>
> (Smith *WN,* 1:322–3)

Wicksell's use of the comparative statics method of analysis without paying careful attention to causal factors also appears to have hindered his full appreciation of the logic of the classical theories of interest and price-level determination he criticized. For example, he argues:

> Now let us suppose that for some reason or other commodity prices rise while the stock of money remains unchanged, or that the stock of money is diminished while prices remain temporarily unchanged. The cash balances will gradually appear to be *too small in relation to the new level of prices* (though in the first case they have not on the average altered in absolute amount).
>
> (Wicksell 1898:39–40)

But commodity prices could not rise without a decrease in the demand for money (cash) while the quantity of money remained the same, and neither would prices remain unchanged while the quantity of money is diminished without the demand for money also having decreased at the same time. Explaining changes in the price level from changes in the demand and supply of money is what the quantity theory of money is all about.

Similarly, in respect of the rate of interest, Wicksell argues:

> When the rate of interest (both the capital and the money rate) is high, there is an obvious tendency for money to circulate somewhat more rapidly, for "hoards" of coin and bullion to be drawn out of their hiding-places, and for the employment of all credit instruments to become more profitable–in short, there is a tendency for prices to rise (though only once and for all, not progressively). A low rate of interest has in all respects the opposite tendency.
>
> (Wicksell 1898:119)

But Wicksell provides no direct connection between the supply and demand for "capital" or credit in the determination of high or low interest rates. The classical approach would explain high interest rates in the short run from either a decrease in savings relative to its demand or an increase in the demand for savings relative

to the supply. The price level would fall if a decrease in savings is accompanied by an increase in hoarding. Similarly, a low rate of interest may derive from increased savings, relative to the demand, or a decrease in the demand for savings, relative to the supply. And low interest rates need not cause the price level to rise if they arise from increased savings at the expense of consumption spending and not a change in the demand for money.

Summary and conclusions

Wicksell's writings on money, credit, interest, and price-level determination were attempts to deal with what he perceived to be real-world puzzles not explained by the classics as well as Marshall whose theories he first studied. He was also influenced by counterarguments to the classical explanations by Thomas Tooke and Eugen Böhm-Bawerk. Tooke's argument insisting that price increases cause the supply of money or means of payment to increase, rather than the other way around, merely requires a correction by clarification. Indeed, Wicksell's later position on the quantity theory shows his inclination away from Tooke's views. But the influence of Böhm-Bawerk's capital theory on Wicksell's reading of the classical theory of interest could not be that readily corrected since it involves a fundamental change in conception of "capital" in both the theory of interest and in production. The Austrian and classical traditions are inconsistent in several respects, the Austrian tradition arising from Böhm-Bawerk's misinterpretation of the classical view.

The classical theories of money, credit, interest, and price-level determination do not suffer from the weaknesses Wicksell thought he found. The classics explained price dynamics from the injection of money (specie or currency) that may lower interest rates temporarily but sooner or later raise the price level and interest rates again. This is virtually the argument Wicksell repeats, except that in his model, the process may start from banks lowering their rates of interest or discount without any new injection of money; indeed, the process could take place in the absence of money, all transactions being undertaken with checks or bank transfers. The classical argument also deals with the temporary effect of such money and credit changes on real output and employment, which is embodied in their "forced-saving" doctrine. In terms of relevance to a real economy, the classical theories score high above Wicksell's, dealing as they do with financial intermediation by banks involving both cash and credit instruments. One does not have to assume a cashless economy, full employment of "available means of production, labour and so on" (Wicksell 1898:90), only circulating capital goods, imagine "capitalists" as those who possess consumption goods, or that factor incomes are paid before production begins, as Wicksell's formal model does, to derive his principal conclusions.

Finally, given the historical precedence of the classical arguments over Wicksell's and the fact that he misrepresented some of the classical propositions after having studied them, Wicksell hardly deserves to be accorded the position of having advanced the classical theories of money, credit, interest, and the price level, but

rather having retarded their understanding. We find little in Wicksell's arguments to justify such high praise of him as the one who "has been justly called 'the economist's economist': few writers have commented with so much penetration on the ideas of their predecessors and contemporaries as he did" (Blaug 1996:529). The fact that Keynes and several modern writers have touted Wicksell's contributions to modern monetary analysis over Marshall's and the classics' is a puzzle yet to be resolved. At first glance, the obscurity of the fund concept of "capital" in the classical theory of interest appears to have much to do with it.

8 Fisher, the classics, and modern macroeconomics

Introduction[1]

Several aspects of Irving Fisher's macroeconomic analysis appear to be in concert with classical analysis, especially his exchange equation where changes in the quantity of money affect the price level, and nominal interest rates are adjusted to reflect inflation or deflation. Fisher's influence on Milton Friedman's macroeconomics, which is generally perceived to be in contradiction to Keynesian macroeconomics, also carries the appearance of the classical consonance. However, several of the disputes in modern macroeconomics can be traced to some of Fisher's arguments in contradiction to classical theories. These include his rejection of the classical "capital" supply and demand theory of interest in favor of the Austrian time-preference theory, his adoption of Böhm-Bawerk's capital-goods conception of "capital" in reading the classical theory of interest, his definition of "stock" to mean a fixed quantity rather than the flow of funds as in classical economics, his denial of interest as a form of income separate from rent or profits, and his inclusion of savings in checkable bank deposits in the definition of money or currency Alfred Marshall pointed out some of these problems with Fisher's work, but to which modern macroeconomics seems to have paid little attention. Recognizing Fisher's detours from classical macroeconomics may help a successful resuscitation of classical macroeconomics.

Fisher on the classical theory of interest

As explained in Chapter 4, the classical theory of interest is an application of value theory, such that the rate of interest in any credit market is determined by the supply and demand for "capital" or savings or loanable funds. Irving Fisher's theory of interest, on the other hand, focuses on explaining the rate of interest by the intertemporal consumption choices of individuals, although such choices can be subsumed under the classical "capital" supply and demand argument. To Fisher, interest is the premium a consumer is willing to pay for present consumption rather than to defer such consumption into the future. Thus, if one is willing to give $105 next year in order to have $100 to spend now, then the 5 percent premium (interest) on the current loan measures one's degree of impatience.

Hence, Fisher defines the rate of interest as "the percent of premium paid on money at one date in terms of money to be in hand one year later" (1930:13). The $5 return on the $100 loan is the lender's compensation for the willingness to postpone current consumption.

Fisher's preferred explanation of interest arises from his belief that the classics did not have an adequate theory of interest rate determination. He argues: "To say that the rate of interest is fixed by supply and demand is merely to state, not to solve the problem [of interest]. Every competitive price is fixed by supply and demand. The real problem is to analyze the particular supply and demand forces operative in determining the rate of interest" (46). Besides, Fisher argues:

> …it is [not] very illuminating to say that the rate of interest is the price paid for the use of money, especially as the money whose use is purchased is usually not money at all but credit–nor is either the money or credit literally used continuously during the loan. It disappears at the beginning and reappears at the end.
>
> (Fisher 1930:47)

It is as if he never encountered statements by the classics that money is simply a medium for conveying the purchasing power of the loan or savings, for example, "Almost all loans at interest are made in money…But what the borrower really wants, and what the lender really provides him with, is not the money, but the money's worth, or the goods which it can purchase" (Smith *WN,* 1:373) or "When one person lends to another,…, what he transfers is not the mere money, but a right to a certain value of the produce of the country, to be selected at pleasure…What he really lends is so much capital; the money is the mere instrument of transfer" (Mill *Works,* 3:508).

Fisher's remedy for his perceived weakness of the classical theory of interest is to employ his "principles of impatience and opportunity" to account for both the demand and supply sides of the loans or credit market. He does this by arguing that those who have a higher degree of impatience or time-preference than the average in the market (represented by the market rate of interest) borrow until the marginal value of the dollar to them is just equal to the rate of interest. On the other hand, those who have a lower degree of impatience than the market average seize the opportunity to lend up to the point where their degree of impatience in parting with the marginal dollar is just equal to the market rate of interest.

Fisher appears to take the cue for his time-preference or impatience theory of interest from Böhm-Bawerk to whose works, *Capital and Interest* (1890) and *The Positive Theory of Capital* (1891), criticizing the classical demand and supply of "capital" theory of interest, he frequently refers. Böhm-Bawerk in these works claims the classical theory of interest to be inadequate because it allegedly fails to justify why anyone would be willing to pay interest to borrow "capital." Therefore, he claims to have provided the justification in terms of the value productivity of

capital, by which he means capital goods, not funds, as the classics defined "capital" in the theory of interest. Thus, Böhm-Bawerk labels the theory of interest in the tradition of Smith, Turgot, Ricardo, and Senior as "colourless" and "naive" (1890:80–107).

Like Böhm-Bawerk, Fisher acknowledges that different authors have attached different meanings to the word "capital," including producers' goods and loanable funds. He does not sort out the meanings carefully, but concludes that "It is idle to attempt any reconciliation between concepts of capital so conflicting, and yet there are elements of truth in all" (Fisher 1906:57). In arguing his time-preference theory of interest, Fisher defines "capital" such that it is not in accord with the classical flow-of-funds concept. Rather, he equates "capital" with any asset that yields a stream of income over time. And to discourage acceptance of the classical theory of interest, Fisher suggests that:

> The student should…try to forget all former notions concerning the so-called supply and demand of capital as the causes of interest. Since capital is merely the translation of future expected income into present cash value, whatever supply and demand we have to deal with are rather the supply and demand of future income.
>
> (Fisher 1930:32)

Fisher also disputes any valid distinction between rent on land and interest on "capital," arguing that:

> The spurious distinction between rent as income from land' and interest as the income from 'capital' is a case in point [of the confusion in economics]. From this confusion comes the notion that land differs from 'capital' in that there is a margin of cultivation for the former and none for the later; and that, whereas different qualities of *land* bear different rents, representing the difference in advantage between a particular grade of land and no-rent land, all part of *capital* bear the same rate of interest.
>
> Fisher (1906:186–7; italics in original)

He adds: "It is quite true that the value productivity of land differs with different grades of land; but it is equally true that the value productivity of machinery, or of any other elements of capital, so varies" (187). Thus, Fisher insists that "Capital, in the sense of capital value, is simply future income discounted or, in other words, capitalized" (1930:12).

Further, to dispute any distinction between interest and rent, Fisher argues that "The income from land is…both rent and interest just as truly as the income from a typewriter or a bond" (33). He bases this claim on the fact that we can calculate the value of the services of these assets as a ratio of their capitalized values. Thus, he concludes: "Interest…is the ratio of payment to the money *value* of these things" (32). In all these, Fisher insists on defining "capital" as a commodity, not as loanable funds or savings.

Even when Fisher recognizes the classical definition of "capital" as fund, he still treats "capital" not as a flow of savings, but rather as a timeless, non-varying stock. He argues:

> A fund is fully specified by one magnitude only; a flow requires two,–the *amount* of flow and the *duration* of flow… Capital is a fund and income a flow. This difference between capital and income is, however, not the only one. There is another important difference, namely, that capital is *wealth,* and income is the *service* of wealth. We have therefore the following definition: A *stock of wealth* existing at an instant is called *capital.* Thus a dwelling house now existing is capital; the shelter it affords or the bringing in of a money-rent is its income. The railways of the country are capital…
>
> (Fisher 1906:52–3; italics in original)

Similarly, Fisher defines capital as "A stock of goods, whether wealth or property, existing at an instant of time" (1922:7).

Surely, it makes sense to define wealth as accumulated savings, but also recognize savings as a flow per unit of time. It is such flow which is meant by the classics as "capital." But using his fixed-quantity conception of "capital" or "stock," Fisher (1930:91–3) disputes Hume's, Smith's, and other classicals' argument that interest tends to be low where "capital" is relatively plentiful, and tends to be high where "capital" is relatively scarce. To illustrate his point, Fisher contrasts a smaller investment of "capital" in "nearly exhausted" mines in Nevada with a greater amount being invested in fruit trees in Florida. He reasons that the need to disinvest from the exhausted mines in Nevada would lower interest rates there while the greater demand for borrowing for investment in trees in Florida would raise interest rates at that location. Thus he argues that low interest rates may rather be associated with a smaller amount of capital investment and high rates with a greater investment.

To pre-empt any future criticisms of the above argument, Fisher declares that

> Apologists of the common idea that abundance or scarcity of capital lowers or raises interest might be inclined to argue that it is not the total capital, but only the loanable capital which should be included, and that the Nevada community had more loanable capital than the Florida community. But the phrase loanable capital is merely another cloak to cover the fact that it is not the amount of capital, but the decision to lend or borrow it, (or the income stream which the capital stands for) which is important.
>
> (Fisher 1930:93–4)

Fisher's criticisms of the classics thus reveal his failure to interpret correctly "capital" and "stock" as savings or a flow of funds in the classical theory of interest. As Alfred Marshall reiterates the conception:

> Adam Smith said that a person's capital is *that part of his stock from which he expects to derive an income*. And almost every use of the term capital, which is

> known to history, has corresponded more or less closely to a parallel use of the term Income: in almost every use, capital has been that part of a man's stock from which he expects to derive an income
>
> (Marshall 1920:66; italics in original)

Marshall's clarification affirms Smith's argument that the "*stock* which is lent at interest is always considered as a *capital* by the lender" (*WN,* 1:372), and that:

> The quantity of *stock,* therefore, or, as it is commonly expressed, of money which can be lent at interest in any country, is not regulated by the value of the money, whether paper or coin, which serves as the instrument of the different loans made in that country, but by the value of that part of the annual produce which, as soon as it comes either from the ground, or from the hands of productive labourers, is destined not only for replacing a *capital,* but such a *capital* as the owner does not care to be at the trouble of employing himself.
>
> (Smith *WN,* 1:373; emphasis added)

But partly through Fisher's work, modern macroeconomics now firmly associates "stock" with a fixed quantity, and "capital" as capital goods only. These associations often become an impediment to some modern readers of the classical theory of interest, in which interest is the income derived from lending a flow of funds per unit of time–an application of the classical theory of value to "capital," stock, or savings. It was an impediment for Keynes, for example, while he interpreted Marshall's argument that "Interest…tends towards an equilibrium level such that the aggregate demand for *capital* in that market, at the rate of interest, is equal to the aggregate *stock* forthcoming there at that rate" (Keynes 1936:186; emphasis added). Keynes retorts: "It is to be noticed that Marshall uses the word 'capital' not 'money' and the word 'stock' not 'loans'; yet interest is a payment for borrowing *money,* and 'demand for capital' in this context should mean 'demand for loans of money for the purpose of buying a stock of capital-goods'" (186n). But for the confusion of "capital" and "stock" to mean physical goods, Keynes might have understood that Marshall meant exactly what he was claiming should have been the correct statement of the theory of interest. Jack Hirshleifer also bases his denial that interest is a return on capital on Fisher (1930:58);[2] see Hirshleifer and Glazer (1992:348).

Also what Fisher claims to be the apologists' employment of a cloak to cover an erroneous classical argument is rather the correct interpretation of the classical supply and demand for "capital" theory of interest rates. Dennis Robertson offers such a consistent interpretation of the classics in his reference to Marshall's restatement of the classical theory of interest, in which Robertson identifies "capital" with "loanable" or "investible funds" (1966:151). Marshall also notes the unhelpfulness of Fisher's use of the term "capital," observing that:

> The writings of Professor Fisher contain a masterly argument, rich in fertile suggestion, in favour of a comprehensive use of the term [capital]… But he

> seems to take too little account of the necessity for keeping realistic discussions in touch with the *language of the market-place;* and to ignore Bagehot's caution against trying 'to express various meanings on complex things with a scanty vocabulary of fastened uses'.
>
> (Marshall 1920:649; emphasis added)

In his disputes with the classical theory of interest, Fisher also refuses to accept that interest on a "savings bank deposit" is a form of income accruing to the depositor (1906:135). He declares that "it may be well here to point out that interest is not, as traditional doctrine would have it, a separate branch of income in addition to rent, wages and profits" (1930:32). But, as is well-known and also discussed in earlier chapters, saving deposits are among the financial assets acquired by savers ($S = Y - C - \Delta H_h = \Delta FA^d$), and which yield interest income, whereas profits are earned from a different type of activity than the lending of funds.

In spite of his disputes with the classical theory of interest rate determination, some of Fisher's other arguments affirm the validity of the classical theory of interest, although he himself did not directly acknowledge the similarities between his views and those of the classics. For example, Fisher defines interest as "the rate in a (humanly speaking) safe loan, or other contract implying specific sums payable at another date or set of dates" (35). The classical theory of interest is precisely about the borrowing and lending of funds. Like the classics, Fisher denies that increases in the supply of money would permanently lower the rate of interest. Rather, he argues that interest rates may fall in the short run while there is a "maladjustment between the money in banks and in circulation" and the "demand for loans" has yet to overtake "the supply" (47). Later interest rates must rise with prices, argues Fisher, although not by the full extent of inflation while prices are rising:

> The money rate and the real rate are nominally identical…when the purchasing power of the dollar in terms of the cost of living is constant or stable …[otherwise] the rate of interest takes the appreciation and depreciation into account to some extent… That is, when prices are rising, the rate of interest tends to be high but not so high as it should be to compensate for the rise.
>
> (Fisher 1930:43; also restated on pp. 493–4)[3]

This is in concert with classical arguments, particularly by Hume, Smith, Ricardo, and J.S.Mill, about the futility of attempting to keep interest rates low with monetary expansion, detailed in Chapter 4.

Just as some classics argued, Fisher also indirectly claims the legitimacy of interest as the reward for waiting: "…profit or gain on [a] transaction, if risk be disregarded, is interest, a compensation for waiting during the time elapsing between the payment to labor and the income received by the capitalist from the sale of the product of labor" (52). Fisher also argues the futility of a complete prohibition of interest almost as Smith does, arguing: "…experience shows that complete prohibition of interest cannot be made effective. Interest, if not explicitly,

will implicitly persist, despite all legal prohibitions. It lurks in all purchases and sales and is an inextricable part of all contracts" (49). Smith's view is that a complete prohibition of interest, "instead of preventing, has been found from experience to increase the evil of usury; the debtor being obliged to pay, not only for the use of the money, but for the risk which his creditor runs by accepting a compensation for that use. He is obliged…to insure his creditor from the penalties of usury" (*WN,* 1:378).

Fisher's monetary analysis

Fisher's monetary analysis is in accord with classical arguments in several important respects, namely, his arguing that increases in the supply of money relative to its demand would not raise the level of output (and employment) permanently but would only lower the value of money or raise the price level–"i.e., the theory that prices vary proportionally to money" (1912:151). Fisher's elaborate explanation of the transition between the increase of money (specie) and the ultimate effect on the price level, through the intermediation of banks (or depository institutions), is also very much in the classical tradition.[4] So is his explanation of the determinants of money's velocity by such factors as the payment system, the frequency of payments, the availability of credit, and the density of population, for example, Ricardo (*Works,* 3:90; 4:58; 5:374, 420, 421) and Mill (*Works,* 3:513–6).

Fisher's principal differences with classical monetary analysis include his definition of the "circulating currency" to include checkable bank deposits and his preference for restraints on commercial bank credit as a monetary stabilization tool, even in a fiat monetary regime. According to Fisher, "Currency consists of two chief classes: (1) money [and] (2) bank deposits…subject to check" (1912:148). He defines money as *"goods generally acceptable in exchange for other goods"* (147; italics in original) and designates bank notes as "both circulating medium and money" (148). The significance of Fisher's inclusion of bank deposits in the currency is that it affects his explanation of the process by which variations in the quantity of money and bank deposits affect the price level.

Fisher's approach to explaining the price level, of course, differs from the Cambridge-equation version of the quantity theory (see Chapter 4). He formalizes the classical flow demand and supply version of the quantity theory into his famous equation of exchange whereby the quantity of money *(M)* multiplied by its rate of turnover in transactions or velocity *(V)* facilitates the sale of goods and services (ΣpQ). He simplifies the latter variable as PT, where the p's are "the prices of various goods," the Q's are "the quantities of goods sold," P="a weighted average of all the p's," and T="the sum of all the Q's" (159–60). Thus T may be regarded as a proxy for the level of output–bought and sold over a "given year" (1922:25).

But instead of simply treating the increased use of checkable bank deposits for transactions purposes as a reduction in the demand for money (currency) and thus an increase in the velocity of currency, and which would raise the price level, Fisher expands his equation of exchange and assigns bank deposits their

own velocity: $MV+M'V'=PT$, where M' is bank deposits and V' is the "velocity of circulation…of these bank deposits" (1912:180). He uses this formulation to argue the inevitable increase of the price level from the institution of banking, almost along the same lines as David Hume (1752:35–6) who sees the institution of banking or paper credit as causing an "avoidable" inconvenience from inflation. By including bank deposits in his explanation of inflation, Fisher almost negates the positive impact of savings on output growth through the intermediation of banks. He concedes that the institution of banking promotes the growth of trade and "to that extent [tends] to lower the price level," but insists that the "priceraising effect is far more important than the price-depressing effect" (1912:202).

Fisher recognizes that banks must base their loans on the deposits of money or the savings of their customers to be solvent, but he minimizes the price-dampening effect of the publics' deposit of money with banks, which the extension of bank loans (without any additional money supply from a central bank) only partly counters. Thus in his credit-cycle theory of inflation, Fisher (186–91) argues that an increase in the deposit of new money (gold or cash) with banks tends to raise prices and increase the profits of "enterprisers" who subsequently demand (and obtain) more credit to expand their businesses, causing prices to rise still further. He concludes that the "Rise of prices generates rise of prices, and continues to do so *as long as the enterprisers' profits continue abnormally high*" (187; italics in original).[5] And in this argument, Fisher does not clearly acknowledge that the banks must receive new deposit of savings in order to extend more loans, but only notes that "These borrowings are mostly in the form of short-time loans…; and,…, short-time loans engender deposits" (186).[6]

Fisher's imputation of inflation to commercial bank lending is in contrast with Smith's praise of the positive growth effects of financial intermediation by banks: "The judicious operations of banking, by substituting paper in the rooms of a great part of…gold and silver, enables the country to convert a great part of this dead stock into active and productive stock; into stock which produces something to the country" (*WN,* 1:341). Smith's argument follows from the fact that when banks hold savings in the form of gold and silver (or modern currency) in their vaults they deprive industry of "capital," which could have been used to increase production. The extension of loans or credit from such deposits (through the issue of private bank notes or credit accounts upon which checks may be written) is rather beneficial to a country's real output growth, and is not inflationary.

But Fisher's imputation of inflation to bank lending leads him to recommend restraint on bank credit creation as a means of preventing inflationary cycles and bouts of recession and unemployment:

> …as the economic analysis…indicates a causal relationship between inflation and employment or deflation and unemployment, it seems reasonable to conclude that…the ups and downs of employment are the effects, in large measure, of the rises and falls of prices, due in turn to the inflation and deflation of money and credit.
>
> (Fisher 1926:702)

This perspective leads Fisher to an even worse recommendation, following the Great Depression, namely, his proposal to "raise reserve requirements against checking deposits from 10 percent…to 100 percent" as a means of promoting monetary stability or preventing "inflation and deflation" (1935:vii). A 100 percent reserve requirement would reduce banks to being mere custodians of peoples's hoards of cash and eliminate the intermediation function of banks (a process Fisher 1912:165–71, himself well describes), to the detriment of economic prosperity. Development economists seem to have been a breed apart in their early recognition that "financial deepening" or increased financial intermediation by banks is essential for capital formation and economic growth, for example, McKinnon (1973).[7] Only a few modern Austrian economists, such as Rothbard (1995), still pay attention to Fisher's recommendation of the 100 percent reserve requirement. Recognizing that legal reserve requirements merely impose a tax on society's "capital," some countries, including Canada and the United Kingdom, have now eliminated the reserve requirements on bank deposits.

Fisher and modern macroeconomics

Fisher's views on interest, money, and monetary policy have had direct and indirect influences on modern macroeconomics. His equation of exchange *(MV=PT),* for which he gives "Ricardo…chief credit for launching the theory" (1922:26n), continues to provide a useful framework for monetary analysis and so too his approximation of the inflationary premium in nominal interest rates, $i = r + \pi^e$, where r=real rate of interest, and π^e=expected rate of inflation. Both of these contributions are consistent with classical macroeconomics, especially when the velocity of money (currency) is interpreted as the inverse of the demand for money to hold in the Cambridge equation *(V=1/k;).* But Fisher's criticisms of the classical theory of interest and his suggestion that the student forget "all former notions concerning the so-called supply and demand of capital as the causes of interest" have helped to impair appreciation of the validity of the classical theory of interest and classical monetary policy. Modern macroeconomics now takes seriously only Keynes's "liquidity-preference" or money supply and demand theory of interest and Robertson's "loanable-funds" theory as the major alternatives.

If "capital" in the classical theory of interest means capital goods and a fixed quantity (stock) at a point in time rather than a flow of funds overtime, then the supply and demand for capital could not explain the rate of interest, as the Austrians, Fisher, and Keynes have argued in criticism of the classical theory. The time-preference theory of interest Fisher himself supported, following the work of Böhm-Bawerk, appears not to have withstood its criticism by Keynes (1936:166) for being incomplete. According to Keynes, one also needs to specify the medium in which the intertemporal choice is executed, whether money (cash) or some other form. But the time-preference theory does not specify the medium.

With a little more care in interpreting "capital" as savings or lonable funds and according the act of saving a willingness to defer current consumption into the

future, and borrowing as an immediate demand for the savings of others in exchange for one's financial liabilities, Fisher could have supported the classical theory of interest instead of having contributed to undermining its acceptance in modern macroeconomics. Indeed, from the supply of "capital" function, $S_c = Y(1-t) - C - \Delta H_h = \Delta FA^d$, it is easy to see that a high degree of impatience to consume must diminish the quantity of "capital" offered on loan, which would tend to raise the rate of interest. The same is true of an increased or high degree of liquidity or cash preference (ΔH_h), which must reduce the flow of savings. Similarly, a high degree of impatience to consume would lead to the offering of more financial assets or loan notes (ΔFA^s) in the credit market, lowering their prices and raising the discount or interest rates.

The dispute over the appropriate definition of "money," of course, precedes Fisher's work.[8] However, his inclusion of checkable bank deposits in the "circulation medium," because of their potential for being used to make payments, has helped unduly to focus on the payment function of money as its prime identification in modern macroeconomics. Fisher's work also provides a basis for Keynes's suggestion that other bank deposits besides checkable accounts be included in the definition of money. Keynes (1930, 1:233–9) praises the "genius of Professor Fisher" for his statement of the equation of exchange that includes checkable deposits but faults him for not having included "overdraft facilities" as well.[9] Other modern writers who have followed Fisher's argument for including bank deposits in the definition of money, include Hawtrey (1950), Laidler (1969, 1993), and Friedman and Schwartz (1970).

As explained in Chapter 3, the modern broad definition of money besides currency, which Fisher's work endorses, has caused much confusion in the explanation of interest rate determination as well as accounting consistently for the causes of inflation. The broad definition also presents problems for the appropriate focus of monetary policy, whether to control only the growth of a central bank's own liabilities or currency, or the growth of the public's savings with depository institutions as well in *M*1, *M*2, and the like.

Conclusions

Fisher's differences with the classical theories of interest and money arise mainly from conceptual problems that can be remedied. His criticisms of the classical theory of interest as being inadequate, especially, following similar criticisms by Böhm-Bawerk, can be shown to be incorrect. In explaining the determination of interest rates, the classics did not mean by "capital," capital goods, and neither did they mean by "stock," a fixed quantity of wealth. The classics also were not oblivious of the role of impatience on the part of borrowers or the need for rewarding lenders of "capital" for their waiting or abstinence. Acknowledging these facts and taking account of Fisher's restatement of the classical negation of the belief in the ability of increased quantity of money (cash) relative to its demand to permanently lower interest rates may help to minimize debate over the theory of interest in modern macroeconomics.

Fisher's inclusion of bank deposits in his exposition of the process of inflation also entails some inconsistencies. Bank deposits are the nonconsumed incomes or savings of income earners. Financial intermediation by banks thus links savers with borrowers, and such a process should not be held responsible for causing inflation. Rather, financial intermediation promotes production and income growth that, without any additional supplies of high-powered money, would tend to lower the price level. Debate over the appropriate instrument of monetary policy may thus be helped by a clearer recognition of this fact.

9 The classical theory of growth and Keynes's paradox of thrift

Introduction[1]

One of the most significant distortions of classical macroeconomics by Keynes is their theory of economic growth. In place of the positive role of savings in promoting economic growth, Keynes argued the paradox of thrift, which claims that the greater the desire to save in an economy, the poorer it becomes. Much of modern macroeconomics at the close of the twentieth century has been returning to the classical teaching that an economy's growth potential is governed by its rate of saving. But before this turnaround in teaching and policy recommendation, the emphasis was on the growth of consumption spending in order to make business investment spending profitable. Growth models of the Harrod-Domar or Solow (1956) kind, in which the rate of savings matters were special topics to which not many students reached in their macroeconomics. Development economics even during the heyday of Keynesian economics did take the deviant position of emphasizing the role of savings to finance investment or "capital formation." The oddity of students learning about the growth-retarding effects of savings in macroeconomics courses and its positive role in the economic growth and development of the less developed countries (LDCs) may have been sustained by the fact that development economics was treated as being outside of the respectable mainstream of economics or that problems of the LDCs were of a special kind. The strong adherence to the notion of savings being a negative force in economic growth also may have been sustained by the hold of Keynes's language on the leading macroeconomic theorists of the twentieth century.[2] Indeed, not even the ardent critics of the Keynesian paradigm, such as Milton Friedman and Robert Lucas, among the Nobel Prize winners, sought to change the Keynesian language or address directly the misleading nature of Keynes's negative views on savings in the growth process. Among the precious few who have argued the positive role of savings, by associating savings with financial assets accumulation, are Pigou (1936), Robertson (1940), Hazlitt (1959), McKinnon (1973), Case and Fair (1989), Barro (1993), Boyes and Melvin (1990), and Edwards (1991). This chapter restates the classical savings theory of growth and explains its misrepresentation by Keynes.

The classical theory of growth

The classical theory of growth states that a country's economic growth depends on its rate of savings and the productivity of the processes in which such savings are employed. Current after-tax aggregate income from production, the classics noted, would be paid to the factors that cooperate in the production process, including labor (wages), land (rent), and capital goods (rental), and the residual (expected profits) going to entrepreneurs or the organizers of production. Whether the subsequent level of production and income is greater or less than the current level depends on how much of the current income is saved and employed in replenishing the used-up productive capacity or depreciation, to acquire additional capital goods to aid future production, and to provide the means to hire additional labor and land. The greater the rate of saving, the greater also will be the amount of capital goods to support the division of labor in production, and hence the greater the rate of income generation in the future.

Adam Smith lays out this explanation of the requirements for economic growth in book 2, chapter 3 of the *Wealth of Nations,* which is worth quoting in some detail:

> The annual produce of the land and labour of any nation can be increased in its value by no other means, but by increasing either the number of its productive labourers, or the productive powers of those labourers who had been employed. The number of its productive labourers, it is evident, can never be much increased, but in consequence of an *increase of capital,* or the *funds destined for maintaining them.* The productive powers of the same number of labourers cannot be increased, but in consequence either of some addition and improvement to those machines and instruments which facilitate and abridge labour; or of a more proper division and distribution of employment. In either case an additional capital is almost always required. It is by means of an *additional capital* only, that the undertaker of any work can either provide his workmen with better machinery, or make a more proper distribution of employment among them. When the work to be done consists of a number of parts, to keep every man constantly employed in one way, requires a much greater capital than where every man is occasionally employed in every different part of the work. When we compare, therefore, the state of a nation at two different periods, and find, that the annual produce of its land and labour is evidently greater at the latter than at the former, that its lands are better cultivated, its manufactures more numerous and more flourishing, and its trade more extensive, we may be assured that its capital must have increased during the interval between those two periods, and that more must have been added to it by the good conduct of some, than had been taken from it either by the private misconduct of some, or by the public extravagance of government.
>
> (Smith *WN,* 1:364–5; emphasis added)

Some of Smith's words may be in need of clarification. By "productive labourers" Smith is referring to those engaged in producing goods that can be sold at a profit rather than consumer services, such as hospitality, entertainment, or government bureaucracy. He illustrates the difference between productive and unproductive labor thus:

> There is one sort of labour which adds to the value of the subject upon which it is bestowed: there is another which has no such effect. The former, as it produces a [saleable] value, may be called productive; the latter, unproductive labour. Thus the labour of a manufacturer adds, generally, to the value of the materials which he works upon, that of his own maintenance, and of his master's profit. The labour of a menial servant, on the contrary, adds to the value of nothing.
>
> (Smith *WN,* 1:351)

By such criterion, Smith also includes among the unproductive laborers, "the most respectable orders in the society" such as the "sovereign with all the officers both of justice and war who serve under him, the whole army and navy, churchmen, lawyers, physicians, men of letters of all kinds; musicians, opera-singers, opera-dancers" (352). Of course, using Smith's own criterion, "men of letters" whose instructions increase the human capital of their students, hence their income earning capacity, properly should not be included among the unproductive laborers.

However, note that Smith's designation of some labor as unproductive is not the same thing as his having regarded them as useless. He considers all labor for which there is demand, hence a payment, as useful. His distinction turns only on whether the expense on labor returns its cost plus profits to the one who employs it. Thus, "A man grows rich by employing a multitude of manufacturers: he grows poor, by maintaining a multitude of menial servants. The labour of the latter, however, has its value, and deserves its reward as well as that of the former" (351).

"Capital" in the quote also refers to savings that may be invested directly by their owners or loaned out to producers at interest. The classics wrote about an economy in which financial intermediation existed, not a barter economy. Thus, Smith explains:

> Capitals are increased by parsimony and diminished by prodigality and misconduct.
>
> Whatever a person saves from his revenue he adds to his capital, and either employs it himself in maintaining an additional number of productive hands, or enables some other person to do so, by lending it to him for an interest, that is, for a share of the profits. As the capital of an individual can be increased only by what he saves from his annual revenue or his annual gains, so the capital of society, which is the same with that of all the individuals who compose it, can be increased only in the same manner.
>
> (Smith WN, 1:358–9)

Smith connects such capital accumulation with economic growth by arguing that "Every increase or diminution of capital, therefore, naturally tends to increase or diminish the real quantity of industry, the number of productive hands, and consequently the exchangeable value of the annual produce of the land and labour of the country, the real wealth and revenue of all its inhabitants" (358). He also underlies the prerequisite of savings for capital accumulation and increased production by noting that "Parsimony, and not industry, is the immediate cause of the increase of capital. Industry, indeed, provides the subject which parsimony accumulates. But whatever industry might acquire, if parsimony did not save and store up, the capital would never be the greater" (359). Smith further adds:

> By what a frugal man saves, he not only affords maintenance to an additional number of productive hands, but like the founder of a public workhouse, he establishes as it were a *perpetual fund* for the maintenance of an equal number in all times to come…. No part of it can ever afterwards be employed to maintain any but productive hands, without an evident loss to the person who thus perverts it from its proper destination.
>
> (Smith *WN,* 1:359–60; emphasis added)

Thus, the flow of savings and the potential for increased economic growth are enhanced by a lower rate of taxation *(t),* a lower cost of living or spending on consumption *(C),* and little need for holding cash balances *(H)* for transaction purposes or as a store of wealth, as can be noted from the savings equation: $S = Y(1-t) - C - \Delta H_h = \Delta FA$, where FA=financial assets, including bank deposits, mutual funds, and bonds. It is such understanding of the conditions for economic growth that underlies the classical prescription of low taxation and low government spending, free trade, particularly in "corn," to keep the cost of living low, and the protection of private property and enforcement of commercial contracts in order to encourage the exchange of debt instruments and the development of "capital" markets.

The classics recognized the important duty of the state in providing national security and protection of private property, hence the need for taxation. Regarding the protection of private property, Smith explains:

> The affluence of the rich excites the indignation of the poor, who are often both driven by want, and prompted by envy, to invade his possessions. It is only under the shelter of the civil magistrate that the owner of the valuable property, which is acquired by the labour of many years, or perhaps of successive generations, can sleep a single night in security. He is at all times surrounded by unknown enemies, whom, though he never provoked, he can never appease, and from whose injustice he can be protected only by the powerful arm of the civil magistrate continually held up to chastise it. The acquisition of valuable and extensive property, therefore, necessarily requires the establishment of civil government.
>
> (Smith *WN,* 2:232)

The significance of the administration of justice along with low taxation and peace in promoting economic growth in Smith's view is contained in his declaration that "Little else is requisite to carry a state to the highest degree of opulence from the lowest barbarism but peace, easy taxes, and a tolerable administration of justice: all the rest being brought about by the natural course of things."[3]

Also by maintaining a general state of confidence, a government encourages income earners to hold financial assets (FA)—bank deposits, mutual fund shares, bonds, and stocks—in place of cash as a store of wealth. However, although government expenditure in these cases may be useful, it needs to be kept at a minimum since, like the expenditure on personal services by households, government spending does not return its expense plus profit, but takes from the funds that could have been employed to hire productive workers.

Smith also explains that there could not be too much saving or insufficient consumption for an economy's growth. This because the amount saved and employed as capital is consumed by a different group of people other than the income earners who do the saving. These are the "productive" workers hired with the savings or those who produce the raw materials and capital goods rented or purchased for further production:

> What is annually saved is as regularly consumed as what is annually spent, and nearly in the same time too; but it is consumed by a different set of people. That portion of his revenue which a rich man annually spends, is in most cases consumed by idle guests, and menial servants, who leave nothing behind them in return for their consumption. That portion which he annually saves, as for the sake of the profit it is immediately employed as a capital, is consumed in the same manner, and nearly in the same time too, but by a different set of people, by labourers, manufacturers, and artificers, who reproduce with a profit the value of their annual consumption.
>
> (Smith *WN,* 1:359)

Besides, the interest rate mechanism assures that there could not be too much saving for investment and economic growth. In the absence of a central bank's credit inflation, interest rates are determined by the supply and demand for "capital" or savings, as explained in Chapter 4. An increased supply of savings relative to its demand would lower the rate of interest and increase the quantity of "capital" borrowed for investment or production. In this case, economic growth would take place along with lower interest rates. On the other hand, an increased demand for "capital" or savings would raise the rate of interest and induce an increased quantity of savings. Economic growth would then proceed along with higher interest rates.

Thus, the impediments to a country's economic growth include (a) high government spending, which dissipates the community's funds that otherwise might have contributed to its "capital" formation, (b) extravagance in private consumption or prodigality, as it reduces savings, (c) protective tariffs for certain industries, which only reallocate a nation's "capital" to less profitable enterprises,

and (d) state interference to direct private enterprise in its allocation of investment funds. Smith bases his caution against state interference in industries on the wellfounded belief that owners or borrowers of "capital" endeavor to earn the most profits from its employment, and agents of the state are less likely than private entrepreneurs to know how to invest their "capital." He explains:

> What is the species of domestic industry which his capital can employ, and of which the produce is likely to be of the greatest value, every individual, it is evident, can, in his local situation, judge much better than any statesman or lawgiver can do for him. The statesman, who should attempt to direct private people in what manner they ought to employ their capitals, would not only load himself with a most unnecessary attention, but assume an authority which could safely be trusted, not only to no single person, but to no counsel or senate whatever, and which would no-where be so dangerous as in the hands of a man who had folly and presumption enough to fancy himself fit to exercise it.
>
> (Smith *WN,* 1:478)

To a considerable degree, subsequent classical writers followed Smith's explanation of the process of economic growth, emphasizing the role of savings. David Ricardo points out that:

> the wealth of a country may be increased in two ways: it may be increased by employing a greater portion of revenue in the maintenance of productive labour [i.e. increased savings],–which will not only add to the quantity, but to the value of the mass of commodities; or it may be increased, without employing any additional quantity of labour by making the same quantity more productive,–which will add to the abundance, but not to the value of commodities.
>
> (Ricardo *Works,* 1:278)

He elaborates by noting that, in the first case, the country "would become rich by parsimony; by diminishing its expenditure on objects of luxury and enjoyment; and employing those *savings* in reproduction" (ibid.; emphasis added).

J.-B.Say affirms the same argument by noting that:

> [A] nation that does not expend its entire income, and annually augments its capital [savings], that is the one and the only one that provides the greatest annual markets for its product. In effect, each year it experiences growth in the profits from its capital and in the power of its industry and, consequently, in its income; that is to say, its means of consumption either direct or through exchange, in one word, its markets.
>
> The public interest is consequently not served by consumption, but it is served and served prodigiously by *saving,* and though it seems extraordinary to many persons, not being any less the true as a consequence, the labouring

> class is served by it more than anyone else. These persons think, perhaps, that the values which the wealthy save out of outlays on their personal pleasures in order to add to their capitals are not consumed. They are consumed; they furnish markets for many producers; but they are consumed reproductively and furnish markets for the useful goods that are capable of engendering still others, instead of being evaporated in frivolous consumption.
>
> (Say 1803, quoted in Baumol 1977:150; emphasis added)

Indeed, Say's restatement of Smith's clarification that saving does not endanger total spending and economic growth is what has become known as Say's Law of Markets. The law explains that there cannot be a deficiency of demand for all goods (including money) at the same time since production is the source of income, and people earn income in order to spend either on immediate consumption or to purchase income earning assets. James Mill endorses Say's argument against the insufficiency of demand by pointing out that

> When goods are carried to market what is wanted is somebody to buy. But to buy, one must have wherewithal to pay. It is obviously therefore the collective means of payment which exist in the whole nation that constitute the entire market of the nation…. If a nation's power of purchasing is exactly measured by its annual produce, as it undoubtedly is; the more you increase the annual produce, the more by that very act you extend the national market, the power of purchasing and the actual purchases…so that a nation can never be naturally overstocked either with capital or with commodities; as the very operation of capital makes a vent for its produce.
>
> (Mill 1808:81–2)[4]

Even as Thomas Malthus expressed concern over the possibility of insufficient demand or spending because of too much saving, he nevertheless acknowledged the importance of savings for an economy's growth:

> It is not, of course, meant to be stated that parsimony [saving or thrift], or even a temporary diminution of consumption, is not often in the highest degree useful, and sometimes absolutely necessary to the progress of wealth…when the capital of a country is deficient, compared with the demand for its products, a temporary *economy of consumption* is required, in order to *provide that supply of capital* which can alone furnish the means of an increased consumption in future.
>
> (Quoted in Ricardo *Works,* 2:325–6; emphasis added)

David Ricardo correctly pointed out to Malthus that he had failed in his concern over the sufficiency of demand to "remember that to save is to spend, as surely, as what [Malthus] calls spending" (*Works,* 2:449), reiterating Smith's explanation that what is annually saved is also spent or consumed. Indeed, had Malthus kept fully in mind his own declaration that "No political economist of the present day

can by saving mean mere hoarding" (quoted in Blaug 1996:161), he might have argued differently about the possibility of insufficient demand because of too much saving.

J.S.Mill reiterates the same principle:

> The word saving does not imply that what is saved is not consumed, nor even necessarily that its consumption is deferred; but only that, if consumed immediately, it is not consumed by the person who saves it. If merely laid by for future use, it is said to be hoarded; and while hoarded, is not consumed at all. But if employed as capital, it is all consumed; though not by the capitalist. Part is exchanged for tools or machinery, which are worn out by use; part for seed or materials, which are destroyed as such by being sown or wrought up, and destroyed altogether by the consumption of the ultimate product. The remainder is paid in wages to productive labourers, who consume it for their daily wants; or if they in their turn save any part, this also is not, generally speaking, hoarded, but (through savings banks, benefit clubs, or some channel) re-employed as capital, and consumed.
>
> (Mill *Works,* 2:70)

Alfred Marshall also reaffirms the classical saving-is-spending principle in his *Pure Theory of Domestic Values* when he writes:

> The whole of a man's income is expended in the purchase of services and of commodities. It is indeed commonly said that a man spends some portion of his income and saves another. But it is a familiar economic axiom that a man purchases labour and commodities with that portion of his income he saves just as much as he does with that he is said to spend. He is said to spend when he seeks to obtain present enjoyment from the services and commodities which he purchases. He is said to save when he causes the labour and the commodities which he purchases to be devoted to the production of wealth from which he expects to derive the means of enjoyment in the future.
>
> (Quoted in Keynes 1936:19)

However, by the 1930s, especially following the Great Depression, the classical principle that saving is the most important prerequisite for economic growth had come under severe attack and was replaced with Keynes's alternative proposition that consumption spending, assisted by a low interest rate policy by a central bank, is what drives an economy's growth. We turn next to Keynes's theory and explain how he could have misunderstood the classical savings theory of growth.

Keynes's paradox of thrift proposition

In place of the classical savings theory of growth, Keynes substituted his consumption and "monetary…theory of output as a whole" (1936:xxii). He declares that "the level of output and employment depends, not on the capacity

to produce or on the pre-existing level of incomes, but on the current decisions to produce which depend in turn on current decisions to investment and on present expectations of current and prospective consumption" (xxxiii). In Keynes's view, it is the monetary expansion of a central bank to reduce the level of interest rates that motivates increased investment, production, and income growth, given the appropriate level of consumption demand. In the *Treatise* Keynes also emphasizes the importance of a central bank in promoting economic growth, arguing that, "the greatest evil of the moment and the greatest danger to economic progress in the near future are to be found in the unwillingness of the Central Banks of the world to allow the market-rate of interest to fall fast enough" (1930, 2:207).

According to Keynes, increased savings curb demand for produced goods, reduce prices, create business losses, and unemployment, hence his "paradox of thrift" proposition, widely taught in macroeconomics textbooks. Rather than savings providing the capital for economic growth, Keynes argues that "the growth of capital depends not at all on a low propensity to consume [i.e. a high propensity to save] but is, on the contrary, held back by it; and only in conditions of full employment is a low propensity to consume conducive to the growth of capital" (1936:372–3). He makes the same point in the *Treatise:* "the increase or decrease of capital depends on the amount of investment and not on the amount of saving" (1930, 1:173). Furthermore, "It is *investment,* i.e. the increased production of material wealth in the shape of capital-goods, which alone increases national wealth, and can alone in the long run bring down the natural-rate of interest" (2:207; italics in original). Keynes's argument derives from his reasoning that investment is only the acquisition of capital goods, and such purchases along with consumption spending generate the aggregate income out of which savings, passively, may flow.

Indeed, Keynes finds no positive role in his income determination process for savings, which he defines merely as "the excess of income over what is spent on consumption" (1936:74)[5] or "the *negative act* of refraining from spending the whole of [one's] income on consumption" (1930, 1:172; emphasis added). He makes no distinction between nonconsumed income, which is hoarded in the form of cash, and that which is invested in financial assets to earn interest or dividends, including bank deposits, bonds, or stocks, that is, $S = Y(1 - t) - C$. Thus, Keynes regards savings as that part of income which is withdrawn from the expenditure stream, a damper on aggregate demand or total spending.

Furthermore, according to Keynes, current savings hold no prospects of returning as future consumption spending. To believe otherwise is to suppose fallaciously the existence of a "nexus which unites decisions to abstain from present consumption with decisions to provide for future consumption" (1936:21). He elaborates the argument, declaring that:

> An act of individual saving means—so to speak—a decision not to have dinner to-day. But it does *not* necessitate a decision to have dinner or to buy a pair of boots a week hence or a year hence or to consume any specified thing at any

> specified date. Thus it depresses the business of preparing to-days's dinner without stimulating the business of making ready for some future act of consumption. It is not a substitution of future consumption-demand for present consumption-demand,–it is a net diminution of such demand.
>
> (Keynes 1936:210; italics in original)

It is because saving reduces the demand for consumption goods that increased savings must reduce the level of production and employment. Only if savers gave notice of the specific things they plan to buy later as well as the dates of the planned purchases–quite an impossible supposition–would their act of saving not significantly imperil production, he argues. Keynes does not recognize the classical definition of saving, such that it constitutes spending by someone other than the saver.

Although Keynes argues that the proportion of current output that is invested must be equal to the proportion saved, he makes that link merely out of an identity: "in the aggregate the excess of income over consumption, which we call saving, cannot differ from the addition to capital equipment which we call investment," because "the whole of…output must obviously have been sold either to a consumer or to another entrepreneur" (64). There is no causal sequence from savings by households providing the investment funds to entrepreneurs. On the contrary, Keynes develops the now familiar causal sequence from autonomous investment spending to income creation and then to savings.

Keynes also does not recognize that increased saving may lower the rate of interest, but firmly separates savings and investment demand from the determination of interest rates. Thus an increase in the rate of interest (which could have arisen from an increased investment demand),[6] rather has "the effect of reducing the amount actually saved" instead of increasing it (110). This would happen, according to him, because the increase in the rate of interest, although it may reduce consumption spending, would also reduce investment upon which income and savings depend:

> The rise in the rate of interest might induce us to save more, *if* our incomes were unchanged. But if the higher rate of interest retards investment, our income will not, and cannot, be unchanged. They must necessarily fall, until the declining capacity to save has sufficiently offset the stimulus to save given by the higher rate of interest. The more virtuous we are, the more determinedly thrifty, the more obstinately orthodox in our national and personal finance, the more our incomes will have to fall when interest rises relatively to the marginal efficiency of capital.
>
> (Keynes 1936:111; italics in original)

Note that in this argument Keynes does not indicate the source of the increase in the rate of interest, although he includes cash among the assets acquired in the act of saving (81) and also argues that an increased demand for cash or high liquidity preference raises the rate of interest (166–74). But as explained earlier

(Chapter 4), an increase in the rate of interest (or a fall in the price of financial assets) due to an increase in investment demand, may increase the flow of savings out of current income and make increased investment spending possible. The increased investment would then increase employment and future income. Thus, Keynes's argument misrepresents what is, in effect, a comparative statics analysis that also can be illustrated by a model he himself summarizes in the *General Theory* (178), but could not correctly attribute to the classics.

Furthermore, according to Keynes, increased saving, instead of lowering the rate of interest and increasing the amount invested, decreases investment by increasing unanticipated inventories, which will result in reduced output and employment. Thus, an increased propensity to save produces the same result in terms of income and employment as an increase in the rate of interest, according to him. By such reasoning Keynes arrives at his proposition of the "paradox of poverty in the midst of plenty" (30). A poor community "prone to consume by far the greater part of its output," rather has a greater prospect of growth than one which saves more because "a very modest measure of investment will be sufficient to provide full employment" (31).

Recognizing Keynes's confusion

It is easy to understand Keynes's difficulties with the classical savings theory of growth when one recognizes his misidentification of saving with the hoarding of cash.[7] In the *Treatise* Keynes illustrates this misunderstanding with a banana economy model in which a thrift campaign leads to a fall in the demand for bananas, a fall in the price level, and a loss to the plantation owners who then lay off some of their employees (1930, 1:176–7). Had Keynes conceived of saving as the transfer of purchasing power from income earners to borrowers or issuers of financial assets, he might have realized that saving does not reduce the total demand for bananas. Some borrowers of the savings would use the funds to purchase bananas for consumption, while others would purchase bananas for processing into banana products, such as banana cream pies.

In the *General Theory* Keynes reveals his misidentification of saving with the hoarding of cash by his rejection of the classical proposition that interest is the reward for waiting or abstinence. Instead he argues that "the rate of interest cannot be a return to saving or waiting as such…On the contrary,…the rate of interest is the reward for parting with liquidity [i.e. cash] for a specified period" (1936:166–7). Thus, he believed that increased hoarding of cash, which also must entail a reduction in consumption out of income, would raise the rate of interest and reduce the quantity of money available for borrowing and for investment. This is why he could not appreciate Alfred Marshall's explanation, along classical lines, that high interest rates and limited economic growth were due to insufficient saving:

> Everyone is aware that the accumulation of wealth is held in check, and the rate of interest so far sustained, by the preference which the great mass of

> humanity have for present over deferred gratifications, or, in other words, by their unwillingness to "wait." And indeed the true work of economic analysis in this respect is, not to emphasize this familiar truth, but to point out how much more numerous are the exceptions to this general preference than would appear at first sight.
>
> (Marshall 1920:483)[8]

To this Keynes retorts:

> The world after several millennia of steady individual saving, is so poor as it is in accumulated capital-assets, is to be explained, in my opinion, neither by the improvident propensities of mankind, not even by the destruction of war, but by the high liquidity-premiums formerly attaching to the ownership of land and now attaching to money. I differ in this from the older view as expressed by Marshall with an unusual dogmatic force in his *Principles of Economics*.
>
> (Keynes 1936:242)[9]

Now, recalling that the classics and Marshall did not consider the hoarding of cash an act of saving nullifies Keynes's objection to Marshall's restatement of the classical argument. Furthermore, to the extent that increased demand for cash reduces the supply of savings and raises the rate of interest, this would be a shortrun phenomenon. A fall in the price level, following the increased demand for cash (hence reduced spending), would reduce the demand for credit and lower equilibrium interest rates. Keynes's misidentification of saving with hoarding also explains why he rejected Marshall's explanation in the *Pure Theory of Domestic Values,* cited above, namely, that saving is just another form of spending, which he quoted (19).

Keynes's misidentification of saving with the hoarding of cash also explains why he sided with Malthus against Ricardo in their debate over the possibility of a general glut from too much saving, and extended the under-consumption theory of Malthus and his followers beyond their own limit. Keynes found quite puzzling Ricardo's success in arguing the lack of validity to Malthus's concerns over saving or parsimony in causing a reduction in the progress of wealth.[10] To Keynes, "The completeness of the Ricardian victory is something of a curiosity and a mystery" (32). He made little meaning of Ricardo's arguments such as "Productions are always bought by productions or services; *money is only the medium by which the exchange is effected*. Hence the increased production being always accompanied by a correspondingly increased ability to get and consume, there is no possibility of Overproduction" (quoted in Keynes 1936:369; my emphasis). Keynes thought Malthus, along with Karl Marx, Silvio Gesell, J.A.Hobson, and A.F.Mummery, ought to have won the debate instead of the Ricardians whose principle Keynes frequently restated simply as "supply creates its own demand" (25).[11]

Whereas Malthus and the others recognized the need for savings to promote investment or capital accumulation, but were worried about *too much* saving, Keynes felt that the under-consumption theorists conceded too much, particularly in

admitting that increased savings would reduce the rate of interest. Noting that Hobson and Mummery "were aware that interest was nothing whatever except payment for the use of money," Keynes considered their arguments to have "failed of completeness, essentially on account of their having no independent theory of interest" (369–70). He believed they should have constructed the theory of interest from the supply and demand for money, a mercantilist doctrine whose restatement Keynes claimed to have been his novel contribution to modern macroeconomics. But the critics of Ricardo's argument appear to have learned enough corrections of the money theory of interest idea from David Hume, Adam Smith, David Ricardo, and J.S.Mill to have repeated it.

Summary and conclusions

The classical theory of growth focused on increased savings as the most important determinant. Savings supply the "capital" to be borrowed by investors to purchase capital goods, materials, and rent the services of land and labor for increased production. Increased "capital" also facilitates the division of labor to enhance labor's productivity, a process aided by the discovery of new techniques in production. Other important factors besides savings to promote economic growth are government policies to provide national defense, secure the freedom of trade, both foreign and domestic, and the administration of justice to secure the sanctity of private property and contracts. But by misinterpreting saving to mean the hoarding of cash, Keynes could not understand the significance of savings in the classical theory of growth, and argued the paradox of thrift instead. Keynes urged increased consumption spending to validate investment plans, and increased money creation by central banks to lower interest rates and supply the funds for investment.

Growth theory in modern macroeconomics is very much in the classical tradition when it argues that increased savings promotes capital accumulation and economic growth. However, the formulation often takes the form of an aggregate production function in which output growth depends upon investment or physical capital accumulation, growth of the labor force, and technology, a formulation which does not lend itself to readily discernible policy prescriptions as does the classical theory.

Regrettably, Keynes's negative view of savings, as illustrated in the paradox of thrift argument, still dominates much of modern macroeconomic analysis, particularly the textbook variety. The paradox of thrift argument is often used to suggest that governments should promote consumption spending rather than saving, if they wish to promote economic growth in the short run. For example, Samuelson and Nordhaus (1985:171–4) discuss the paradox of thrift in contrast with President Ronald Reagan's tax cuts in the early 1980s aimed at promoting greater savings and restoring economic growth in the United States. Even as the authors later modify their view on the role of savings for long-term growth, they are not able to rid themselves completely of the Keynesian view. Thus, they argue:

> Over the long run, a nation's capital stock is primarily determined by its

> national savings rate. When a nation saves a great deal, its capital stock grows rapidly and it enjoys rapid growth in its potential output. When a nation's saving rate is low, its equipment and factories become obsolete and its infrastructure begins to rot away. This close relationship between saving, investment, and economic growth is the major reason why economists focus on a nation's savings rate.
>
> (Samuelson and Nordhaus 1998:661)

But, in presenting of the process of equilibrium income determination, they repeat the Keynesian argument that increased saving will leave "firms with too few customers and larger inventories of unsold goods," leading to businesses cutting "back production and lay[ing] off workers"(448). They make no connection between savings and interest rate determination or the supply of loanable funds for investment.

Colander and Gamber (2002:116) also restate, without contradiction, "the paradox of thrift–an increase in saving reduces output in the short run," and continue to canvass the confusing claim that "In the short run, *increases* in saving lead to decreases in output, while, in the long run, *increases* in saving lead to increases in output" (117; italics in original). They also argue that "If saving increases, there will be more saving available for firms to use for investment expenditures" (116), but because of their ascription to the Keynesian reasoning, Colander and Gamber are unable to make the connection that savings supply the funds for investment expenditures both in the short run and long run, and therefore savings promote output and income growth in both periods.

Recognizing the error of Keynes's paradox of thrift argument should make it easy to develop a consensus in emphasizing the applicability of the private virtue of saving at the community level, just as Keynes (1936:361n) quotes Adam Smith to have argued: "What is prudence in the conduct of every private family can scarce be folly in that of a great Kingdom."[12] Although the classical savings theory of growth is sensible, the algebraic and diagrammatic representations of Keynes's paradox of thrift alternative make it hard for some, particularly the macroeconomics textbook authors, to discard it. Thus, it would seem fair to argue that paying as much attention to the meaning of words in context as we do to modeling economic propositions may be more rewarding, especially in settling disputes between Keynes and the classics. Saving is not the hoarding of cash. It is the wellspring of funds for investment and economic growth, just as the classical economists argued.

10 Full employment

Keynes's mistaken attribution to the classics

Introduction[1]

Accounting for Keynes's tremendous success in persuading economists and the general public of the irrelevance of classical economics to the problems of any real economy or "the economy in which we live" (Keynes 1936:13), particularly one faced with the problem of unemployed labor and productive capacity, was his claim that the classical economists assumed the existence *always* of full employment. Keynes asserted this claim in his criticisms and denial of the relevance of the classical theories of interest, inflation, the quantity theory of money (from which a theory of the price level is derived), the classical forced-saving doctrine, and the law of markets or Say's Law. He specifically mentions J.-B.Say, David Ricardo, Alfred Marshall, and A.C.Pigou among those who employed the fullemployment assumption.[2] It turns out that none of the classical theories in question employs that assumption. Yet it attests to Keynes's ability to persuade his audience that practically all introductory and intermediate macroeconomics textbooks, some of whose authors are also historians of economic thought, repeat his claim without contradiction.

The classical economists recognized the existence of (involuntary) unemployment of labor and productive capacity. Indeed, devising appropriate policies to raise the standard of living, especially for the poor, and also increase employment opportunities for a growing population were the principal focus of the classical economists. See, for example, Smith (*WN,* 1:359–60, 372; 2:208), Ricardo (*Works,* 1:386–97), Malthus (1836:231–40, 351–60), and Mill (*Works,* 2:356–8). Writing in the classical tradition, Alfred Marshall also was equally concerned about the fate of the poor and the need to identify policies that would promote employment, economic growth, and the welfare of the poor.[3] Indeed, Keynes himself recalls Marshall's explanation of his transition from mathematics to economics as having been influenced by his visits to "the poorest quarters of several cities and [having] walked one street after another, looking at the faces of the poorest people" on his vacations, and having been motivated to find solutions to their plight.[4] Following his being mentioned among those arguing the fullemployment theories, Pigou (1941:78, 91) firmly denies having employed the assumption. Indeed, such an assumption would be inconsistent with the title of

Pigou's 1933 book, *The Theory of Unemployment,* which Keynes cited as representing the classical view of the labor market.

But even as other competing theories have weakened the influence of Keynes's or Keynesian economics,[5] the persistent attribution of the full-employment assumption to classical economics continues to undermine appreciation of the relevance of classical economic principles and policies to real-world problems. In this chapter, I restate from Keynes's *General Theory* the specific contexts in which he claims to have found the assumption of full employment made or implied by the classics. I draw heavily on the classical texts themselves to contradict Keynes's claims. The extensive citations are necessary because of the long-standing misrepresentations of the classics in the secondary literature. Besides, previous attempts by Keynes's contemporaries, including Pigou (1936), R.G.Hawtrey (1937), and Dennis Robertson (1937, 1940), to show his misrepresentations of classical arguments but without direct references to the classical literature have proved to be quite ineffective. Their failure may have helped Keynes succeed in persuading many economists and the general public to accept his views.

Keynes's attributions of the full-employment assumption

Keynes defines full employment as a condition in the labor market in which only "frictional" and "voluntary" unemployment exist. According to him, *"Men are involuntarily unemployed if, in the event of a small rise in the price of wage-goods relatively to the money-wage, both the aggregate supply of labour willing to work for the current money-wage and the aggregate demand for it at that wage would be greater than the existing volume of employment"* (1936:15; italics in original). According to this definition, only if a fall in the real wage led to a greater number of people being employed, would existing unemployment be involuntary Thus an increase in the money supply, which causes the real wage to fall through an increase in the price level and causes increased employment, indicates the existence of involuntary unemployment.

Keynes (15–16) justifies this definition of involuntary unemployment by invoking classical value theory applied to a labor market. According to that argument, the real wage at which one accepts employment must be at least equal to the marginal disutility of work to be done. Thus, according to his argument, there is voluntary unemployment if only a rise in the real wage would induce more people to accept employment. Following standard classical argument relating to wage determination in different occupations and the problems of adjustment of labor between industries as "capital" (fund) moves from one industry to another, for example, Pigou (1933), Keynes lists types of unemployment that are consistent with "frictional" and "voluntary" unemployment. They include "either temporary loss of work of the 'between jobs' type or of intermittent demand for highly specialised resources or of the effect of a trade union 'closed shop' on the employment of free labour" (1936:16).

Keynes also associates full employment with a condition under which "the supply of output as a whole ceases to be elastic, i.e.…a further increase in the

value of the effective demand will no longer be accompanied by any increase in output" (26). Also, "We have full employment when output has risen to a level at which the marginal return from a representative unit of the factors of production has fallen to the minimum figure at which a quantity of the factors sufficient to produce this output is available" (303). This is how the vertical aggregate supply curve of output has come to be incorrectly associated with classical macroeconomics. Authors who follow Keynes's narrative (e.g. 191, 209) suggesting that the classics assumed the existence *always* of full employment because the "labor market" always clears, thus hardly distinguish between the short and long run in classical analysis while attributing the vertical aggregate supply curve to them, for example, Abel and Bernanke (1992:426) and Dornbusch and Fischer (1994:200–1).

To illustrate his claim that the classical theory of interest assumes full employment, Keynes cites Ricardo's explanation in the *Principles of Political Economy* that a central bank cannot lower permanently the rate of interest by its money creation, but "would alter only the value of the money which they thus issued" (Keynes 1936:190). He first accords more credence to Ricardo's statement of the theory of interest over those of later writers, including Marshall and Pigou, but suggests that Ricardo's version is valid only under the assumption of full employment: "Once again the assumption required [for its validity] is the usual classical assumption, that there is *always* full employment; so that, assuming no change in the supply curve of labour in terms of product, there is only one possible level of employment in long-period equilibrium" (Keynes 191; emphasis added). Note that Keynes uses "short-" or "long-period" in the *General Theory* in place of "short-" or "long-run" as in modern economics.

Continuing with his criticism of Ricardo's statement of the classical theory of interest, Keynes also argues that "even in the long period the volume of employment is not necessarily full but is capable of varying" (ibid.). In fact, this is an argument to which the classics would not object, as I explain later. (It is also noteworthy that Keynes here attributes a long-period analysis to the classics in which we are all not dead!)[6] Keynes advances this criticism against the classical theory of interest in support of his claim that "the quantity of money as such is, indeed, nugatory in the long period [and where money-wages are flexible]; but the terms on which the monetary authority will change the quantity of money enters as a real determinant into the economic scheme" (ibid.). It is not readily clear how relevant Keynes's statement is to his criticism of Ricardo, given that Ricardo (e.g. *Works,* 1:89–90; 3:93; 5:107–8; 6:16) himself argues that variations in the quantity of money are not necessarily neutral in their effect on relative prices or the composition of output in the long run.[7] On the other hand, Ricardo and other classics also argued real consequences, including changes in output, from variations in the quantity of central-bank money in the short run, an argument that underlies the classical "forced-saving" doctrine (explained in Chapter 4).

Regarding the theory of the price level and inflation derived from the quantity theory of money, Keynes disputes the classical explanation and claims instead that "the price level as a whole [is] determined precisely the same way as individual

prices; that is under the influence of supply and demand" in production (1936: xxxiv). The money supply first determines "the supply of liquid resources, hence the rate of interest, and in conjunction with other factors (particularly that of confidence) the inducement to invest" (xxxv). Only after investment has determined the level of incomes, output, and employment is the price level determined. And the price level typically would rise only when there is full employment.

Believing that the classics did not recognize the possibility or existence of hoarding in their application of the quantity theory, Keynes also argues that:

> For the purposes of the real world it is a great fault in the quantity theory that it does not distinguish between changes in prices which are a function of changes in output, and those which are a function of changes in the wageunit. The explanation of this omission is, perhaps, to be found in the assumptions that there is *no propensity to hoard* and that *there is always full employment.*
>
> (Keynes 1936:209; emphasis added)

Keynes (209, n. 1) thus argues that the quantity theory of money would have been valid, "though without significance," if velocity had been defined as being determined both by transactions and liquidity demands for money, instead of only the former.

Keynes also attributes the full-employment assumption to the classical forcedsaving doctrine, which argues that increases in the money supply may increase real output and employment in the short run while lowering the rate of interest and raising the price level. Keynes first asserts that, for the concept to be meaningful, the condition of full employment must exist. Thus, he defines forced saving as "the excess of actual saving over what would be saved if there were *full employment* in a position of long-period equilibrium" (80; emphasis added). He cites Jeremy Bentham's discussion of the phenomenon in circumstances of "all hands being employed and employed in the most advantageous manner" and in which increases in the supply of money raise only the price level (quoted in Hayek 1932), and attributes the same argument to all "the nineteenth-century writers who dealt with this matter" (1936:80–1). Keynes then rejects attempts to "apply this perfectly clear notion to conditions of less than full employment" (81).[8]

With regard to Say's Law of Markets, Keynes claims:

> It is true that [J.-B.Say's] 'law of markets' has been long abandoned by most economists; but they have not extricated themselves from his basic assumptions and particularly from his fallacy that demand is created by supply. Say was *implicitly assuming* that the economic system was *always operating up to its full capacity,* so that a new activity was always in substitution for, and never in addition to, some other activity. Nearly all subsequent economic theory has depended on, in the sense that it has required, this same assumption. Yet a theory so based is clearly incompetent to tackle the problems of unemployment and the trade cycle.
>
> (Keynes 1936:xxxv; emphasis added)

Keynes also insists: "Thus Say's law, that the aggregate demand price of output as a whole is equal to its aggregate supply price for all volumes of output, is equivalent to the proposition that there is *no obstacle to full employment*" (26; emphasis added). To substantiate the same charge of fallacy against Marshall, Keynes quotes Alfred and Mary Marshall's argument in the *Economics of Industry* that "It is not good for trade to have dresses made of material which wears out quickly. For if people did not spend their means on buying new dresses they would spend them on giving employment to labour in some other way" (20, n. 1).[9]

But none of Keynes's attributions of the assumption of full employment of labor to the classics, including Bentham, is valid. The attributions appear rather to be the result of Keynes's efforts to make meaning of classical arguments with which he had difficulty. The following section explains Keynes's confusions.

Keynes's mistaken attributions of full employment

First, Keynes's claim that the classics, among whom he included Alfred Marshall and A.C.Pigou, did not recognize the existence of involuntary unemployment is simply false. It may well be meaningful, as Keynes does, to define full employment (or voluntary unemployment) in a particular market as a condition in which only an increase in the real wage may cause more labor to be employed. This would be a direct application of classical value theory to the determination of wages and employment in a particular labor market. Those who are unemployed in a particular industry may be unwilling to accept a lower nominal wage that, given the cost of living or the price level, would translate into a lower real wage. Alternatively, the value of their marginal revenue product to the prospective employers must be lower than the existing money wage. However, the equality between the value of marginal revenue product and the marginal disutility of labor in a particular labor market does not necessarily translate into a flow equilibrium for the aggregate supply and demand for labor in all markets as Keynes claims the classics argued.[10]

The point is that a prevailing *average* market wage rate does not necessarily indicate an intersection of an upward sloping aggregate supply curve with a downward sloping aggregate demand curve for all labor. Clearly a physician who is laid off at a particular location may be unwilling to take a job as a truck driver in the same locality, assuming he or she would qualify as a commercial truck driver. The same physician may also decline an offer in a different location, because of potential family dislocations, even though the real wage there may be the same or a little higher than what he or she seeks in the present location.

Furthermore, prospective employers do not always hire the first person who answers their advertisement of vacancies, nor do prospective employees take the first offer they receive. Either party may wish to explore other opportunities before signing on to the employment contract. Thus, vacancies in different occupations may exist along with unemployment in the aggregate at any moment in time. This is the sense in which aggregating the supply and demand functions in different labor markets is analytically and practically not very helpful.[11]

In fact, Pigou's (1933) work, which Keynes held up as the best illustration of

the classical model of a theory of aggregate employment, warns against attempting the aggregation of labor markets, arguing that "a general demand function for all labour cannot be obtained by adding together the demand functions for different sets of centres" (63) of employment or industries. Furthermore, an increase in the wage-fund, which Pigou (143–53) does not consider to be inelastic, could lead to more workers being hired in some "employment centres" without an increase in the average (nominal) wage. Another complication Pigou observes in his analysis of unemployment in the aggregate is the co-existence of "unfilled vacancies" alongside unemployment. Thus Pigou (10) argues: "if the number of would-be wage-earners and the quantity of labour demanded are both constant, the quantity of unemployment may still fluctuate, provided that the quantity of unfilled vacancies also fluctuates in the same direction and to an equal extent."

Furthermore, Pigou (1913:12–29) restricts his definition of unemployment to "only *that part of* [the idleness of prospective wage-earners] *which is, from their point of view and in their existing condition at the time, involuntary*" (14; italics in original)[12] or what Marshall (1920:572) calls "enforced idleness." In other words, Pigou has in mind those who are willing to work at the existing wage rate in their respective industries, but do not have job offers or those "attached to the industry in question and [are] prepared for full work there *if they can get it*" (21; emphasis added). Pigou (1933:3–4) restates the same conditions. Thus, before Keynes defined his involuntary unemployment, Pigou had a meaningful one, and Keynes's claim that the "classics," including Pigou, always assumed the existence of full employment is false.

Classical economics also explains shifts in the demand for labor in a particular occupation as being determined by movements of "capital" (or loaned-out savings) between industries in response to changing profit rates. Unemployed labor either needs time to retrain in order to meet changing skill requirements or follow after relocated "capital," an option that is also hampered by the cost of gathering information. These and other explanations of the "causation of unemployment and its fluctuations" (Pigou 1933:vii), which Marshall (1920:572) also describes as "a great evil," and their remedies were among the concerns of the "classics," but to which Keynes appears to have paid little attention.

Pigou (1933:252) elaborates the argument regarding the problem of adjusting aggregate supply of labor to its demand in the real world, which Keynes also quotes, thus:[13]

> With *perfectly free competition* among workpeople and labour *perfectly mobile,* the nature of the relation [between the wage-rates and labours' demand function in the long run] will be very simple. There will always be at work *a strong tendency* for wage-rates to be so related to demand that everybody is employed. Hence, *in stable conditions* every one will actually be employed. The implication is that such unemployment as exists at any time is due wholly to the fact that *changes in demand conditions* are continually taking place and that frictional resistances prevent the *appropriate wage adjustments* from *being made instantaneously*.
>
> (Keynes 1936:277–8; emphasis added)

Keynes may be correct in interpreting Pigou's explanation as one indicating "how much employment there will be, given the supply function of labor, when the *conditions of full employment are satisfied*" (275; emphasis added). But it hardly serves as proof that Pigou argued that full employment always exists. Also contrast Pigou's reference to "changes in demand conditions…continually taking place" as a factor determining the rate of unemployment with Keynes's (1937a: 222) claim that "orthodox theory assumes that we have a knowledge of the future of a kind quite different from that which we actually possess."[14] In the *Principles,* Marshall also states: "As it is, the economic conditions of the country are constantly changing, and the point of adjustment of normal demand and supply in relation to labour is constantly being shifted" (1920:480). This is hardly a claim of knowledge about future market conditions, which Keynes alleges the "classics" assumed.

In fact, in the very next sentence, which Keynes does not cite, Pigou also argues that "In the absence of perfectly free competition among workpeople the functional relation, if such exists, between the wage-rate stipulated for and the state of demand *need not be of the above simple sort*" (1933:252; emphasis added). Furthermore, Pigou (vi-vii; emphasis added) prefaces his discussion in the text by noting that he was adopting "a simplified model of the economic world rather than that world itself in its full completeness…In particular many complications of the detail associated with the *imperfections of markets* are left aside," partly because he had already discussed them "at length in [his] *Industrial Fluctuations*." He adds that both books "are complementary to one another" in some degree (ibid.).

Pigou's (1941:78) own reaction to Keynes's misrepresentation of his 1933 book includes this important statement: "The classical view is not one which either asserts or implies that full employment always exists." He also argues that the passage Keynes (1936:277–8) cites "does not imply that the percentage of unemployment among would-be wage earners over the average of good and bad times is necessarily the same" (Pigou 1941:80). Thus Pigou denies Keynes's misrepresentations of classical arguments by defending the "classical view as it really is–to be carefully distinguished from current caricatures of it" (91).[15]

Keynes's definition of involuntary unemployment, for which he advocates increases in the money supply as a cure, serves a strategic but misleading purpose. He argues that a heightened liquidity preference or propensity to hoard cash on the part of the public was a key determinant of unemployment, but which the classics overlooked. Indeed the experience of the Great Depression during which currency-deposit ratios of both the public and banks rose to historic levels (see, e.g. Bernanke 1983) confirms the significance of this factor. Furthermore, the inability of workers to find work for a protracted period of time during the depression convinced many of his readers that classical explanations of unemployment as being always "frictional" and "voluntary" are inadequate. The failure of the classics to recognize his "involuntary" type of unemployment, according to Keynes, means that they believed full employment exists always because both "frictional" and "voluntary" unemployment were "consistent with full employment thus defined" (1936:16). Keynes therefore concludes: "Obviously,…, if the classical theory is only applicable to the case of full

employment, it is fallacious to apply it to the problems of involuntary unemployment" (ibid.).

But Keynes misrepresents classical economics on this point too. The classics explained the disorganization of industry that arises from a "heightened liquidity preference" or increased demand for hoarding resulting, for example, in "an extreme depression of general prices, from what may be indiscriminately called a glut of commodities or a dearth of money" (Mill *Works,* 3:574) or "scarcely any demand for the work of navvies, and not much for the work of the building and the engine trades" (Marshall 1920:591). A significant difference between the classics and Keynes is that they did not include hoarding in their definition of saving as Keynes (1936:81, 167) does. According to the classics, income is spent in three principal forms: (a) consumption for immediate gratification; (b) purchasing interest- or profit-earning assets or saving; and (c) buying the security services of money (cash), that is, $Y = C + \Delta FA + \Delta H_h$. See, for example, Smith (*WN,* 1:359, 458), Ricardo (*Works,* 3:172), Mill (*Works,* 2:70), and also Marshall (1923:46). Malthus, for whom Keynes has apparently the greatest regard among the classical economists, also distinguishes hoarding from saving, arguing that "No political economist of the present day can by saving mean mere hoarding" (quoted in Blaug 1996:161). Thus, whereas Keynes considers a heightened liquidity preference as reflecting increased saving, and which he regards as bad for an economy except under conditions of full employment, the classics considered hoarding as a reduction in saving, which is bad for economic growth and increased employment.[16]

Regarding the classical theory of interest, Keynes's assertion that David Ricardo must be assuming full employment for arguing that increased currency creation of the Bank of England would not lower interest rates permanently but only lower the value of the currency they issued stems from his failure to interpret correctly "capital" in the classical theory of interest. Indeed, Keynes made the claim in the appendix to chapter 14 of the *General Theory,* in which he takes to task statements of the classical "capital" supply and demand theory of interest, including that of Alfred Marshall. As explained in Chapter 5, Keynes found Ricardo's statement of interest rate determination somewhat acceptable because it was couched in terms of money. But the reason Ricardo pointed to the ultimate increase in the price level or the diminution in the value of currency instead of the rate of interest being kept low is that the issuing of paper currency may increase the supply of credit in the short run, but not "capital." "Capital" derives from savings; credit only assigns to a borrower the right to employ existing "capital."

In the short run, the increased credit, which is over and above the existing "capital" would lower interest rates but also raise prices and transfer purchasing power from fixed or contract-income earners, such as wages, interest, and rentals. When the contracts are later revised in light of the price increases, interest rates would not remain low but rise. The higher prices would cause the demand for credit to increase, driving up interest rates. Such adjustments of the prices of labor, "capital," land, and rental equipment are again straightforward conclusions from the application of classical value theory, without the need for invoking the

assumption of full employment. The argument is restated by the classics, including Smith (*WN,* 1:376), Ricardo (*Works,* 1:363–4; 3:91–2), and J.S.Mill (*Works,* 3:655–6). Marshall (1920: esp. bk. 6, ch. 6) also reaffirms the argument in his clarification of the theory of interest, adding: "These truths are familiar; and they are the basis of the theory of capital and interest" (483). We also can verify with realworld evidence that countries in which central-bank money creation is excessive generally have higher nominal interest rates than those whose central bank's money creation is low, especially if there are no legal interest ceilings.[17]

Keynes's attribution of the full-employment assumption to the classical theory of the price level and inflation also stems from his failure to apply the classical theory of value to money. Such an application would explain the value of money from money's supply and demand, not from the supply and demand for goods and services, as Keynes claims. That is, using Marshall's (1923:43–8) summary of the quantity theory, that is, $H=kPy$, the price level, $P=H/ky$, the value of money, $V_m=1/P=ky/H$, where k=proportion of income held as cash, y=real income or output, and H=quantity of high-powered money (cash).[18] I have substituted H for M in the restatement to preserve the classical distinction between money and credit, but which has become fused in the modern definition of money as $M=C+D$, that is, currency held by the general public and the public's deposits with banks. Deposits must balance with bank reserves (R) and credit (BC), thus $M=C+R+BC=H+BC$, since $C+R=H$.

Thus, for example, Hume argues:[19]

> It seems a maxim almost self-evident, that the prices of everything depend on the proportion between commodities and money, and that any considerable alteration on either has the same effect, either of heightening or lowering the price. Increase the commodities, they become cheaper; increase the money, they rise in their value. As, on the other hand, a diminution of the former, and that of the latter, have contrary tendencies…the prices do not so much depend on the absolute quantity of commodities and that of money which are in a nation, as on that of the commodities which come or may come to market, and of the money which circulates.
>
> (Hume 1752:172–3)

Ricardo (*Works,* 3:104) makes the same point when he explains: "Commodities measure the value of money in the same manner as money measures the value of commodities," also adding that "commodities would rise or fall in price, in proportion to the increase or diminution of money" (193).

The supply of goods and services constitutes the demand for money in circulation. So does the hoarding of money (cash), which tends to raise the value of money or lower the price level. As Hume (1752:173) observes: "If the coin is locked up in chests, it is the same thing with regard to prices, as if it were annihilated…As the money and commodities…never meet, they cannot affect each other." This version of the quantity theory is similar to Irving Fisher's restatement as $HV=PT$, where T=number of transactions, and V=velocity of money

or "rapidity of circulation" in the classical language; also see Marshall (1923:43). Keynes (1936: ch. 15) also employs this version of the quantity theory in discussing the income velocity of money.

The flow and stock statements of the quantity theory may be reconciled by noting that $V=1/k$, so that while $P=H/ky$, P is also equal to HV/y, having substituted y for T in the Fisher equation. Pigou draws a similar connection between the Cambridge and Fisherian versions of the quantity theory, arguing that "the pictures that [they] both paint are of the same thing" (1917:39). However, Pigou also contrasts the two versions, noting that the Cambridge version:

> is a somewhat more effective engine of analysis. It focusses attention on the proportion of their resources that people choose to keep in the form of [money] instead of focussing it on 'Velocity of circulation'. This fact gives [the Cambridge version]…a real advantage, because it brings us at once into relation with volition–an ultimate cause of demand–instead of with something that seems at first sight accidental and arbitrary.
>
> (Pigou 1917:54)

Thus an increase in the desire to hoard translates into a decline in money's velocity (V) hence a fall in the price level, $P=HV/y$. However, Keynes (1937a:216) disputes the direct link between changes in velocity and the price level, insisting that changes in velocity "primarily affect…the rate of interest." Keynes (1937b) maintains this position, elaborating instead his "liquidity-preference" or cash theory of interest.

There is no single market for money (cash) on which its value is directly determined as there are markets for credit on which interest rates are determined, labor on which wages are determined, and land on which rents are determined. And while the money values (prices) of goods and services are directly determined in their respective markets, the value of money is measured as the weighted average of the prices of all goods and services. Of course, modern macroeconomics refers to short-term credit markets as the money market, and long-term credit markets as the capital market. But surely, credit and money are two different things, which the classics did not confuse. See, for example, Smith (*WN,* 1:458) who also explains that "Money, like wine, must always be scarce with those who have neither the wherewithal to buy it, nor credit to borrow it."

It is the process of determining the value of money–from its supply and demand–that creates its uniqueness, and perhaps renders application of the supply and demand principle to it difficult for some, including Keynes. Several of the classics emphasized this point, as Mill, for example, observes:

> [Determining the exchange value of money] is not a question of any difficulty, when the illusion is dispelled, which caused money to be looked upon as a peculiar thing, not governed by the same laws as other things. Money is a commodity, and its value is determined like that of other commodities, temporarily by demand and supply, permanently and on the average by cost

> of production. The illustration of these principles [of value], considered in their application to money, must be given in some detail, on account of the confusion which, in minds not scientifically instructed on the subject, envelopes the whole matter; partly from a lingering remnant of the old misleading associations, and partly from the mass of vapoury and baseless speculation with which this, more than any other topic of political economy, has in latter times become surrounded.
>
> (Mill *Works,* 3:507)

Note that the cost of fiat, paper money being minuscule, as compared with that of commodity money, does not change the application of the supply and demand argument to the determination of the price level (or the value of money). Instead of the cost of production controlling the supply of commodity money, which is also thus endogenous, a central bank controls the supply of fiat money (currency), which could make the supply exogenous, unless the supply were targeted at some other economic variable.

Thus, a fundamental point that needs repeating is that the classics and early neoclassicals such as Marshall, Pigou, and Fisher did not invoke the assumption of full employment to explain variations in the price level with the quantity theory, and neither is that assumption required for their argument to be valid.[20] Indeed, if full employment were necessary for inflation to occur, few economies would experience variations in their rates of inflation while also experiencing various degrees of unemployment. The 1970s was a period of high rates of inflation along with increasing rates of unemployment in many countries, giving birth to the new label, "stagflation."

Keynes's problem with the classical forced-saving doctrine was that it frustrated his vision of pushing "monetary theory back to becoming a theory of output as a whole" (1936:xxii). Having linked his involuntary unemployment to the incidence of hoarding or a high liquidity preference on the part of households, Keynes naturally sought the solution in a policy of increased central-bank money (cash) creation. But the classical forced-saving doctrine argues that increases in the money supply may increase real output and employment in the short run but would raise only the price level as well as nominal wages and interest rates in the long run.[21] The classics explained that continued production is made possible by the willingness of people to save (not hoarding of cash) or lend so that a part of their current income could be devoted to the purchase of currently produced goods and the hiring of labor, land, and the services of capital goods as well as the purchase of materials for further processing.

Even with the existing productive capacity, the unwillingness of income earners to save and lend to producers would frustrate future production. As Smith explains:

> Every increase or diminution of capital [i.e. savings]…naturally tends to increase or diminish the real quantity of industry, the number of productive hands, and consequently the exchangeable value of the annual produce of the land and labour of the country, the real wealth and revenue of all its

> inhabitants…By what a frugal man annually saves, he not only affords maintenance to an additional number of productive hands, for that or the ensuing year, but like the founder of a public workhouse, he establishes as it were a perpetual fund for the maintenance of an equal number in all times to come.
>
> (Smith *WN,* 1:359–60)

In the absence of increased saving or lending by banks through a reduction in their economic or excess reserves, an increase in the supply of money (currency) by a central bank would impose an inflationary tax on all fixed income earners, especially labor, to the advantage of residual income earners (i.e. profits). The rising price of final goods enables producers to hire more factors of production, including additional labor, from their increased profits. But the process ends when contracts, including wage rates, are revised and direct or variable costs rise, while profit rates fall again.[22] Thus, instead of saving more in return for interest income, fixed income earners find a reduction in their real income for which there is no interest reward. And this is the sense in which the increased, short-term real savings of the community is forced. It is also this redistributive aspect of the process in its initial stages, when prices are rising, that the classics considered unjust about forced saving.

Now if Keynes could find that the forced-saving doctrine applies only to conditions of full employment, he could then suggest increases in the money supply as a cure for unemployment. Yet the closest Keynes came to producing direct evidence to support his claim that the classical writers assumed full employment while explaining the forced-saving doctrine was Jeremy Bentham's discussion of "forced frugality," as quoted in Hayek (1932:125). But contrary to Keynes's representation, Bentham there discusses two circumstances, one in which "All hands [are] employed, and employed in the most advantageous manner," and in which case an infinite increase in the money supply would not increase "real wealth" or output. The second case is one in which "national wealth is *increased* at the expense of national comfort and national justice" from the new money having been "employed in the shape of capital" (ibid.; emphasis added).

It is not clear from the passage quoted in Hayek whether Bentham relaxes the assumption of "all hands being employed" when he allows for the increase in output. The full text reproduced in Stark (1954:342–51) also does not make this clear, but Bentham's argument would lack consistency without it.[23] However, Ricardo, for example, does argue a temporary increase in employment while dealing with the question of forced saving:

> There is but one way in which an increase of money no matter how it be introduced into the society, can augment riches, viz at the expence of wages of labour; till the wages of labour have found their level with the increased prices which the commodities will have experienced, there will be so much additional revenue to the manufacturer and farmer they will obtain an increased price for their commodities, and can whilst wages do not increase *employ an*

> *additional number of hands,* so that the *real riches of the country* will be somewhat *augmented.*
>
> (Ricardo *Works,* 3:318–19; emphasis added)

Furthermore, Bentham (cited in Hayek 1932), just as other classical writers on the subject, for example, Ricardo (*Works,* 3:120–2, 136–9; 6:16–17), also explains that the increase in real output results from inflation reducing the purchasing power of fixed income earners or a tax on "all fixed *(sic)* incomists." And like Bentham, Ricardo (*Works,* 3:123) views the phenomenon as unjust: "[The increase in real output from money creation] must be accompanied with a degree of injustice to individuals which requires only to be understood to excite the censure and indignation of all those who are not wholly insensible to every honourable feeling."

Thus, Keynes's use of Bentham's argument as the basis for claiming that the classics argued that only the price level rises from increases in the supply of money or his definition of forced saving as "the excess of actual saving over what would be saved if there were full employment in a position of long-period equilibrium" (1936:80) constitutes either a misrepresentation or a distortion of the quote from Hayek (1932). And Keynes's subsequent claim that "All the nineteenth-century writers who dealt with [forced saving] had virtually the same idea in mind" (1936:80–1), namely, the assumption of full employment, is simply false.

Keynes bases his presumption that Say's Law of Markets must be founded on the assumption of full employment partly on the belief that the classics did not recognize the existence of hoarding. According to him, the classics could not confidently claim that income earned from production constitutes the demand for goods and services or "supply creates demand," if they recognized the incidence of hoarding, which would prevent all income from being spent. Thus Keynes (1936:19n) finds it perplexing that both Mill and Marshall recognized that "though men have the power to purchase, they may not choose to use it" and yet accepted Say's Law as being valid.

But in fact, both writers acknowledged the hoarding of income in cash, especially in times of commercial crises, whose effect is to lower the price level. As Mill explains, while discussing Say's Law in times of commercial crises:

> At such times there is really an excess of all commodities above the money demand: in other words, there is an under-supply of money. From the sudden annihilation of a great mass of credit, every one dislikes to part with ready money, and many are anxious to procure it at any sacrifice. Almost everybody therefore is a seller, and there are scarcely any buyers: so that there may really be, though only while the crisis lasts, an extreme depression of general prices, from what may be indiscriminately called a glut of commodities or a dearth of money. But it is a great error to suppose, with Sismondi, that a commercial crisis is the effect of a general excess of production…. its immediate cause is a contraction of credit, and the remedy is, not a diminution of supply, but the restoration of confidence.
>
> (Mill *Works,* 3:574)

Similarly, Marshall (1923:42) quotes David Ricardo's explanation of increased hoarding when confidence is shaken: "A smaller amount [of cash] is required in a high state of public credit, than when alarms make individuals call in their advances, and [they] provide against accidents by *hoarding*" (emphasis added). And, indeed, the effect of such hoarding is to dry up the supply of credit and create unemployment, Marshall argues:

> But though men have the power to purchase they may not choose to use it. For when confidence is shaken by failures, capital [funds] cannot be got to start new companies or extend old ones. Projects for new railways meet with no favour, ships lie idle, and there are no orders for new ships. There is scarcely any demand for the work of navvies, and not much for the work of the building and the engine-making trades. In short there is but little occupation in any of the trades which make fixed capital. Those whose skill and capital is specialized in these trades are earning little, and therefore buying little of the produce of other trades. Other trades, finding a poor market for their goods, produce less; they earn less, and therefore they buy less: the diminution of the demand for their wares makes them demand less of other trades. Thus commercial disorganization spreads: the disorganization of one trade throws others out of gear, and they react on it and increase its disorganization.
>
> (Marshall 1920:591–2)

Besides, J.-B.Say and Ricardo also explicitly acknowledge the incidence of unemployment due to the introduction of machinery, while discussing the Law of Markets. Say explains:

> Whenever a new machine, or a new more expeditious process is substituted in the place of human labour previously in activity, part of the industrious human agents, whose service is thus ingeniously dispensed with, must needs be thrown out of employ. Whence many objections have been raised against the use of machinery, which has been often obstructed by popular violence, and sometimes by the act of authority itself.
>
> …A new machine supplants a portion of human labour, but does not diminish the amount of the product; if it did, it would be absurd to adopt it.
>
> (Say 1834:86)

Ricardo argues that "the substitution of machinery for human labour, is often very injurious to the interests of the class of labourers…. the same cause which may increase the net revenue of the country, may at the same time render the population redundant, and deteriorate the condition of the labourer" (*Works,* 1:388).

Ricardo also explains the unemployment caused by sudden changes in the channels of trade due to wars, the outbreak of peace, and changes in "the taste and caprice" of consumers (263). During the process of adjustment to the changed circumstances, "much fixed capital is unemployed, perhaps wholly lost, and labourers are without full employment. The duration of this distress will be longer or shorter according to the strength of that disinclination, which most men feel to

abandon that employment of their capital to which they have long been accustomed" (265).

Furthermore, the classics recognized that the competition between labor and machinery or equipment in production is influenced by the cost of hiring labor relative to that of machinery—the wage/rental ratio. Increases in the cost of labor would tend to reduce employment even while total output may be increasing. As Ricardo explains, "every rise of wages will have a tendency to determine the saved capital [funds] in a greater proportion than before to the employment of machinery. Machinery and labour are in constant competition, and the former can frequently not be employed until labour [the wage rate] rises" (395). Thus the classics did not assume a fixed capital-labor or output-labor ratio in the production process while explaining the Law of Markets. The same quantity of output could be produced with varying rates of employment. There is thus no necessary connection between maximum production and "full employment," as Keynes's arguments suggest (see Marget [1938–42] 1966, 2:759–61, for an excellent criticism of Keynes on this point).

What the Law of Markets really seeks to explain is the adjustment of relative prices, interest rates, and the price level, following changes in production or tastes in different markets. Where excess supplies of goods and services arise, prices will fall, and where excess demands emerge, prices will rise. Changes in the demand to borrow "capital" for either production or consumption will affect interest rates, just as changes in the supply of "capital" will affect them. And an excess demand or supply of money affects the price level. These arguments also show that there is no unique relationship between the rate of interest and the volume of employment in the long run as Keynes believes the classics argued. The rate of interest in the long run depends on the flow of savings (not money) relative to its demand. We also should note that the Law of Markets does not apply to factors of production, including labor and land. It applies only to the expenditure of income, which may be earned from the sale of the services of those factors, on goods and services (e.g. Say 1821:15–16).

In criticizing the classics for not recognizing the existence of hoarding while arguing the Law of Markets, Keynes also confuses income with money. He cites in illustration of the charge, Alfred and Mary Marshall's statement that "It is not good for trade to have dresses made of material which wears out quickly. For if people do not spend their *means* on buying new dresses they would spend them on giving employment to labour in some other way" (Keynes 1936:20, n. 1; emphasis added). To Keynes, there is no need to talk about the substitution of employment between industries unless there is full employment. Keynes (1937a:223) repeats the argument, but doubts "if many contemporary economists really do believe it." However, the Marshalls were talking about income being spent in one way or another, including the "purchasing" of cash to hold. However, having failed to distinguish income from money (cash) in the argument, Keynes criticizes followers of the classical tradition: "Contemporary thought is still deeply steeped in the notion that if people did not spend their money in one way, they would spend it in another" (1936:20).

Furthermore, Keynes considers the criticism to be important because he does not recognize the classical definition of saving such that it is spending by someone else other than the income earner, as explained in the quote he cites from Marshall's *Pure Theory of Domestic Values* (Keynes 1936:19). Thus, to him the mere existence of saving should have warned the classics that aggregate demand could be deficient, leaving some produced goods unsold in the market. But as Smith (*WN,* 1:359) explains "What is annually saved is regularly consumed as what is annually spent, and nearly in the same time too; but it is consumed by a different type of people." Ricardo (*Works,* 2:449) and Mill (*Works,* 2:70) make the same point. But according to Keynes (1936:210), saving is not spending, because "An act of individual saving means—so to speak—a decision not to have dinner to-day…It is [also] not a substitution of future consumption-demand for present consumption-demand,—it is a net diminution of such demand." Keynes's view of saving would be correct only if saving meant the hoarding of cash, but which it is not. Thus, Keynes's attribution of the full-employment assumption to the classics on the basis of the Law of Markets simply has no basis in what the classics themselves argued. Neither is the assumption necessary for the Law of Markets to be valid.

Finally, Keynes's failure to interpret "capital" or saving as defined by the classics also served him poorly in another context. He was unable to connect the notion of investment to the use of borrowed savings to purchase producer's goods as well as hire the services of land and labor. Rather, he associated investment only with the purchase of capital goods, which has become a tradition in modern macroeconomics. Thus Keynes (1936:275) wrongly accuses Pigou of having "furnish [ed] a theory of unemployment which involves no reference at all to changes in the rate of investment (i.e. to changes in employment in the non-wage-goods industries)." But Pigou's argument applies to employment as a whole depending on the "wage-fund," which is a portion of investment "capital" or savings. Thus, for example, Pigou (1941:71) talks about the interest rate equating "the quantity of investment demanded [with] the quantity which people wish to supply," or the supply and demand for "capital."

Some implications and conclusions

The classical analyses in which Keynes presumes that the full-employment assumption is required for their validity really do not require that assumption. The problem rather was with Keynes's misinterpretation or misrepresentation of some key concepts in classical analysis, especially the concepts of "capital" and saving, and his failure to apply the classical theory of value to money. Some would prefer to argue that Keynes deliberately misrepresented classical economics in order to make his own point. But the case for his having misinterpreted classical concepts is more persuasive.[24] As Don Patinkin argues with regard to Keynes's misinterpretation of J.S.Mill,

> [the] cases of misrepresentation by deliberate design are few and far between in scientific literature in general…; on the other hand, carelessness which

> expresses itself in yielding to the temptation to interpret texts…incorrectly, but in a way which accords with one's preconceptions, is a common failing of which on occasion all of us may in varying degrees be guilty.
>
> (Patinkin 1978:342)

However, Keynes's repeated appeal to realism or analysis applicable to "the world in which we live" (e.g. 1936:13, 249, 250) and his misrepresentations of classical arguments as being relevant to an ideal world of full employment made for easy acceptance of his views, particularly among the younger generation of economists and the general public.[25] Besides, Keynes also made frequent references to the fact that "full, or approximately full, employment is of rare and shortlived occurrence" (e.g. 250), a view few would dispute. Thus his incorrect attributions of the full-employment assumption to the classics served as a very useful rhetorical device.

In modern macroeconomics, Keynes's misrepresentations of classical economics persist both in undergraduate textbooks and in some professional writings. All attributions of a vertical aggregate supply curve to the classics are in this tradition. So are virtually all contrasts of less than full-employment equilibrium with some full-employment alternative versions of the IS-LM model, formulated as a vehicle for communicating Keynes's ideas (see Darity and Young 1995). Examples include Leijonhufvud (1981: esp. ch. 7), who contrasts Keynes's analysis with others and applies the full-employment assumption to the classics, although partly siding with some classical arguments by Robertson. Chick (1983) is simply a restatement of Keynes's claims. Leijonhufvud's (1983) attempt to suggest remedies for some deficiencies of the IS-LM model while contrasting it with some fullinformation model is also in this tradition. And so is Patinkin (1965) and his 1990 defense of the IS-LM model in which he illustrates how full-employment level of output could be reached from positions of (Keynesian) less than full-employment equilibrium.

Some professional economists serving as referees for some highly regarded economics journals also take very seriously Keynes's incorrect attribution of the full-employment assumption to the classics. Thus in recommending rejection of a manuscript showing that Keynes's paradox of thrift was founded on his misinterpretation of the classical concept of saving, a referee asserts:

> …the classical model starts with the assumption of full employment. For growth to occur, saving is an absolute necessity. *Everyone agrees with that*…. it must be remembered that [Keynes] was trying desperately to rid himself of his classical training. If one starts at full employment with pure competition, etc., everyone is a classical economist.
>
> (Anonymous referee; emphasis added)

A referee for another journal makes a similar observation in recommending rejection of the same manuscript, arguing: "The Paradox [of Thrift] shows what will happen if the interest mechanism totally fails to work…. The 'classical theory' to which [the author] refers assumed full employment. *One* (not the only one!) of

[Keynes's] problems was to do interest theory without that assumption" (italics in original).

Clearly, the roots of Keynes's misrepresentations of classical macroeconomics go very deep among modern economists. Thus there is need to correct his false attribution of the full-employment assumption to the classics, more clearly than his contemporaries, especially Pigou (1941) and Robertson (1940:28–30), have attempted. Pigou's (1950) conciliatory remarks about the *General Theory* following Keynes's death also have been interpreted by some as his willingness to accept Keynes's arguments after all. The comments include the following.

1 The "supply schedule of resources for investment being unduly high, that is, […] the propensity to consume being unduly low" could cause increased unemployment (1950:27).
2 Equating saving with the hoarding of cash: to prevent the nominal rate of interest from going to zero, the representative person's "desire to save must be aborted. This means in practice that it leads to his withdrawing from circulation into stockings or savings deposits an amount of money equivalent to what he desires to save. He must go on doing this day after day, thus causing a continuing decrease in the income velocity of money, unless and until this process culminates in a new equilibrium" (35–6; see also 51).
3 That increased saving causes decreased income and employment: "greater thriftiness carries with it a smaller total of employment" (40), and Keynes's "*main* conclusion, that…thriftiness dampens employment, is in no way weakened" (44; italics in original).
4 Whatever imperfections there may be in his working out of the fundamental conception embodied [in the *General Theory*], the conception itself is an extremely fruitful germinal idea. In my original review article [Pigou 1936] on the *General Theory* I failed to grasp its significance and did not assign to Keynes the credit due for it. Nobody before him, so far as I know, had brought all the relevant factors, real and monetary at once, together in a single formal scheme, through which their interplay could be coherently investigated (65).

Quite a concession, even for a memoriam.

As Kahn (1978:550) observes, "It would have given Keynes intense pleasure had he lived to hear Pigou, in November 1949, partially renounce his review of the *General Theory*…It was a moving occasion." However, Pigou also went on to declare that Keynes's *General Theory* "does *not,* to my mind, constitute a revolution. Only if we accepted the myth–as I regard it–that earlier economists ignored the part played by money, and, even when discussing fluctuations in employment, tacitly assumed that there weren't any, would that word be appropriate" (1950:65; italics in original).

Several of Keynes's contemporaries, including Pigou himself, failed to refer directly to the classical texts to show the errors of his interpretations. Rather, they attempted to sketch their own versions of classical economics, much to their disadvantage. Keynes (1936:175) could claim to have been "brought up on"

classical economics by Marshall himself and that he also "taught [it] for many years to others,"[26] and thus blunt the effectiveness of their criticisms. Besides, Keynes was also a lecturer in economics and editor of the *Economic Journal,* one of the leading journals in economics at the time.

However, using the textual evidence we can show that Keynes indeed misrepresented the application of classical value theory to the determination of wages (and employment), interest rates, and the price level by insisting that they require or imply the assumption of the full employment of labor. Thus the validity of classical macroeconomics as well as the relevance of classical economic policies to the real world, including their interest rate, employment, and monetary policies to promote efficient economic growth, may be better appreciated by ending Keynes's misrepresentations of classical arguments.

11 Hicks, the IS-LM model, and the success of Keynes's distortions of classical macroeconomics

Introduction[1]

The persistence of J.M.Keynes's misrepresentations of classical macroeconomics may be attributed largely to the popularity of the IS-LM model as a teaching tool inspired by J.R.Hicks's 1937 article. The model has the particular appeal of reducing several complex interconnections of a monetary economy into a few simple mathematical equations subject to manipulations to derive a variety of conclusions. Built upon Keynes's changed definitions of some key concepts in classical economics, such as "capital," savings, investment, and money, the model is yet presented as a framework with which to contrast fairly and accurately classical and Keynes's views of a monetary economy. Thus, the extent of Keynes's distortions of classical macroeconomics is often lost on many users of the model. Furthermore, it is difficult to restate effectively the classical arguments in contrast to Keynes's claims while employing the model, as the interminable disputes between Keynesians, monetarists, and new classical economists, all of whom use the "Keynesian language and apparatus" (Friedman 1968:15), well illustrate.

Indeed, Leijonhufvud (1981:151) acknowledges that the IS–LM model is "more of a hindrance than help in coming to grips" with the substantive issues in dispute between the classics and Keynes. Barro (1993:vi) points out that the model "leaves students with a poor understanding of how the economy works," while Baily and Friedman (1995:vii) acknowledge that the model is "clearly unrealistic in several respects." Yet Baily and Friedman also represent the view of many economics professors who are "convinced that the model remains the best framework for laying out the core of a course on macroeconomics" (viii). For some users of the model, the hope seems to be that continuing research in macroeconomic analysis will provide the means for correcting its major deficiencies for it to capture better the workings of a monetary economy, for example, Leijonhufvud (1983), Hillier (1986), Mankiw (1990), and Patinkin (1990).[2] Darity and Young, after their extensive "inquest" into the IS-LM model, are also unable to decide whether the model should be "vilified for its elusive, chameleon-like character or be cherished for its flexibility" (1995:1). But they anticipate that "in its variegated forms" the model will not be "forsaken" and probably will continue to "rule the roost" in the teaching of macroeconomics (37). This chapter explains

the success of the IS-LM model in propagating Keynesian economics and Keynes's misrepresentations of classical macroeconomics, and why the model's principal deficiencies appear hardly remediable.

The IS-LM model

The modern IS-LM model derives from J.R.Hicks's original 1937 article aimed at helping to settle the disputes that arose following the publication of Keynes's *General Theory* (1936). The model attempts to depict a simultaneous determination of equilibrium in the market for goods and services (IS) as well as for money, variously defined (LM), with respect to the rate of interest and national income. Equilibrium in the market for goods and services is achieved when aggregate output or income (Y) just equals aggregate demand (AD) for consumption *(C),* investment *(I),* and government expenditure *(G)* for a closed economy, that is, $Y = C + I + G = \mathrm{AD}$. According to the model, equilibrium income falls when AD declines relative to income ($Y > \mathrm{AD}$), because of the build-up of unintended inventories that have to be reduced through a cutback in production and employment. Equilibrium income rises when AD exceeds the value of current output ($Y < \mathrm{AD}$), causing a reduction in inventories and increased employment and production to replenish inventories.

The model makes a connection with the "money market" where the rate of interest is supposed to be determined by the supply and demand for money, variously defined.[3] An increase in aggregate income causes the demand for money to increase because of the need for increased transactions, and the equilibrium rate of interest rises if the quantity of money is fixed. On the other hand, a decline in the level of income causes a decline in the demand for money and a decline in the equilibrium rate of interest, given the quantity of money. Thus the LM curve slopes upward in an interest rate-income space. The rate of interest also falls when the quantity of money is increased by the monetary authorities relative to its demand (LM shifts right), while the rate of interest rises when the quantity of money is decreased (LM shifts left). Equilibrium income rises with the fall in the rate of interest as the money supply increases because the lower interest rate is supposed to induce greater investment spending and production, along a downward sloping IS curve. (The IS curve itself mirrors a downward sloping investment-demand or "marginal efficiency of capital" curve along which a lower interest rate increases investment spending, income, and higher savings to balance the increased investment for equilibrium in the product market. An increase in the rate of interest contracts investment spending/income, and subsequently savings along the same investment-demand curve.) Equilibrium income falls with a rise in the rate of interest as the LM curve shifts left because investment spending is supposed to be retarded on the IS curve, along with production and employment.

These conclusions of the IS-LM model pretty much affirm several of Keynes's key messages in the *General Theory*. According to Keynes, the classical economists took aggregate or effective demand for granted by their reliance on Say's Law,

which he characterized simply as "supply creates its own demand."[4] But the Great Depression proved the classics wrong, according to Keynes. He thus set out to provide a general theory that takes seriously the role of AD or total spending in determining aggregate income and employment. The most important determinant of AD in Keynes's view is consumer spending. It is the largest component of total spending, and even private investment decisions are founded on its expected trend. According to Keynes, "the level of output and employment depends, not on the capacity to produce or on the pre-existing level of incomes, but on the current decisions to produce which depend in turn on current decisions to invest and on present expectations of current and prospective consumption" (1936:xxxiii). However, consumer spending is typically less than earned income since consumers also save–a withdrawal from the expenditure stream, by his conception–as well as pay taxes, $T = tY$; $(C < Y(1 - t))$. It thus takes private investment and government spending, which are supposed to be autonomous of income, to make up for the shortfall of consumption spending.

Following Keynes's arguments in the *General Theory,* the IS–LM model depicts increases in autonomous investment and government spending as rightward shifts of the IS curve; decreases are represented as leftward shifts of the IS curve. Total income expands by a multiple (κ) of the autonomous amount of increases in investment or government spending $(\Delta Y = \kappa \Delta I$ or $\Delta Y = \kappa \Delta G)$ through a chainspending process or the multiplier: each recipient of new income from investment or government expenditure spends a fraction on consumption, which becomes another person's income, and so on (Chapter 12 explains the mythology of the Keynesian multiplier argument). The extent of the multiple expansion of total income is muted if the quantity of money is fixed and the rate of interest rises as the expansion takes place. Indeed, the model also suggests that total income would rise if consumers simply increased their consumption, completely unrelated to their current income (autonomous consumption, a_0, in $C = a_0 + \beta Y (1 - t)$, where β=the propensity to consume out of disposable income), so that $\Delta Y = \kappa \Delta a_0$, and $\kappa = 1/(1 - \beta)$.

Keynes also believed that the classical economists did not have a valid theory of interest rate determination, because they argued that the rate of interest is determined by the supply and demand for "capital," which he misinterpreted as capital goods (Keynes 1936:186–90), the meaning modern economics now firmly attaches to "capital." Keynes (165–74) thus provided a money supply and demand (cash or liquidity preference) theory of interest, which is incorporated in the LM portion of the IS-LM model. Shifts of the LM curve and their effects also incorporate Keynes's (xxxv, 194–209, 298) claim to have turned monetary theory from a theory of price level determination in classical economics to a theory of production as a whole. The short-run version of the model pays little attention to the possibility of inflation from increases in the money supply, which also reflects Keynes's claim that "an increase in the quantity of money will have no effect whatever on prices, so long as there is any unemployment" (295). Of course, Keynes bases the claim on the assumption of "constant returns" to employment, homogenous "resources" and a constant "wage-unit" or "moneywage" (295, 296).

His general tendency is to allow changes in the quantity of money to affect output and prices until full employment when only prices rise (296–7, 300–3).

The IS-LM model also has encouraged the development of the aggregate supply (AS) and aggregate demand (AD) approach to explaining the price level and its changes, a movement away from the earlier Keynesian tradition of assuming a constant price level whenever the economy is operating at less than full employment of labor and capacity. The AS-AD framework also follows Keynes's argument that the general price level is determined "in precisely the same way as individual prices; that is to say, under the influence of supply and demand" (xxxiv) for output. This is in contrast with the classical quantity theory's determination of the price level *(P)* from the supply *(H^s=H)* and demand *($H^d = k^d Y = k^d Py$)* for money (currency). That is, $P = H/k^d y$, where *H*=currency or high-powered money, k^d=the proportion of income desired to be held in cash by both households and non-households, and *y*=real income, for example, Marshall (1923:38–50). Indeed, arriving at the aggregate demand and supply of output explanation of the price level was Keynes's "final escape from the confusions of the Quantity Theory, which once entangled" him (xxxiv).

The success of the IS-LM model

The success of the IS-LM model in communicating Keynes's ideas over those of the classicals derives partly from its presentation as a framework with which to evaluate fairly the theoretical disputes between Keynes and the classics, its appealing feature of reducing complex interconnections of an economy into a few equations, and the model's adoption of Keynes's changed language of economics. As a medium for evaluating contending propositions, the modern version takes its cue from Hicks's (1937) original IS-LL presentation, which does not appear overtly to be a medium for propagating Keynes's misrepresentations of classical arguments. As Hicks explains his motivation, "If we can construct [a typical "classical"] theory, and show that it does give results which have in fact been commonly taken for granted, but which do not agree with Mr. Keynes' conclusions, then we shall at last have a satisfactory basis of comparison" (148). Hicks's model indeed appears to play fair with the classical tradition by its recognition of interest rate determination from savings and investment demand, a classical argument Keynes failed to recognize in the *General Theory* and in subsequent writings. The model also appears to recognize in classical analysis the simultaneous equilibrium determination in the market for goods and services as well as for money, both in the short run and long run, again contrary to Keynes's claims of incompleteness in classical theorizing.

Note that, in constructing the original IS-LL model, Hicks does not refer directly to the work of the classical economists proper but only to their views as have been "commonly taken for granted." This because, as he explains in a 9 April 1937 letter to Keynes, he had "made a practice of restraining [his] interest in the history of economic theory at 1870" (Keynes 1973, 14:81). That is, he only went as far back as the beginning of the neoclassical period. Thus, Hicks confesses

to Keynes of not knowing "anything about the interpretation of the Ricardians" (ibid.). It also shows the remarkable success of the IS-LM model that, through it, the classical views that had become "commonly taken for granted" in the 1930s could so quickly be replaced by Keynes's alternative propositions, following the publication of the *General Theory*.

Hicks's incorporation of the equilibrating process arguments of classical economics that Keynes disputed may have spared the model's outright rejection by those trained in the classical or Marshallian tradition. It also later may have helped the model's widespread adoption that several of Keynes's contemporary critics sought common ground with him rather than present outright contradictions of his arguments, particularly with respect to the theory of interest. For example, Dennis Robertson (1936, 1966: chs 13 and 14) kept insisting that Keynes's self-proclaimed novel contribution to economics, namely, the liquiditypreference theory of interest, was merely a restatement of the loanable-funds theory that he and others were laying out in the tradition of Marshall's *Principles*.[5] Pigou (1950:65) also praises Keynes for having reduced the complex relationships of an economy into a "single formal scheme, through which their interplay could be coherently investigated." And this is a basic feature of the original as well as the modern IS-LM model. In modern times, Milton Friedman's acceptance of the Keynesian language and apparatus as well as his view of the *General Theory* as a "great book" (1970:133), while yet attempting to argue classical monetary conclusions, also could not have hindered the model's popularity. The fact that Keynes himself did not fully endorse Hicks's model as accurately representing his own views (or those of the classics) also may have helped its widespread perception as a neutral medium through which his views against those of the classics may be examined.[6]

But, in spite of Hicks's acknowledgments of classical arguments, his model legitimizes Keynes's claims to have provided a more relevant analytical framework for dealing with short-run problems than did the classical economists by his praises of Keynes's alternative propositions as mere amendments. Hicks thereby papered over Keynes's fundamental problems with the classical theories of (a) income determination, (b) interest rate, and (c) the price level, and helped to entrench in modern macroeconomics Keynes's changed definitions of classical savings, "capital," investment, and the marginal efficiency of capital. By their failure to recognize or address such fundamental changes in definitions, subsequent contributors to the development of the modern IS-LM model such as Alvin Hansen (1949, 1953), Franco Modigliani (1944, 1963), and Don Patinkin (1965, 1990) simply have refined a model that blurs Keynes's fundamental distortions of classical economics.

As we may note from previous chapters, the classical economists did not advance a clear theory of national income determination, although such a theory can be inferred from their theory of economic growth. The classical theory would make the level of aggregate income depend on the rate of current production, which itself would depend upon the rate of savings (investment in or the purchase of financial or income earning assets, ΔFA^d) in the previous period to provide the "capital" or funds to investors for purchasing capital goods, including raw

materials, and hiring the services of land and labor for current production, given some level of technology (τ): $Y = f(\Delta FA, \tau)$. The net income derived from current production may again be distributed into three main categories, namely, consumption *(C),* savings ($S = \Delta FA^{d}$), and cash balances (ΔH_h), that is, $Y(1 - t) = C + \Delta FA + \Delta H_h$. Whether the rate of subsequent production and income level rises, remains the same, or falls will depend upon whether the flow of current savings rises, stays the same, or falls below the previous level. An increase in the supply of savings will lower the rate of interest and increase borrowing for investment spending by firms, while an increase in investment demand for savings will increase the rate of interest, which would curb consumption or hoarding of cash and induce a greater flow of savings. Thus, both in the short run and long run, saving is a most important determinant of the level of aggregate income, not the quantity of money (currency) supplied by a central bank.

Note that, consistent with the language of the marketplace, the classics recognized households' purchases of financial assets with their savings as "investments," not only the purchase of capital goods by firms, as in modern macroeconomics, following Keynes. As Marshall (1923:46), for example, explains, "…even peasants, if well to do, incline to *invest* the greater part of their savings in Government, or other familiar stock exchange securities, or to commit them to the charge of a bank" (emphasis added).

However, following Keynes's lead to have turned the classical quantity theory of money into a theory of production as a whole, Hicks derives a theory of national income in his statement of the classical theory from the "Cambridge Quantity equation," which he writes as "M=*k*I," and declares, "…as soon as *k* and M are given, I [total income] is completely determined; that is to say, total income depends directly upon the quantity of money" (1937:149).[7] From such transformation of the quantity theory equation, it would appear reasonable to argue, as Hicks does, that a decrease in the public's desire to hold money balances *($k_1 < k_0$)* must increase total income *(I),* for a given quantity of money *(M)*, while an increase in the demand *($k_1 > k_0$)* must reduce it. Hicks provides further substance to his transformation of the quantity equation by suggesting that changes in the demand for money *(k)* may be reflected in changes in the rate of savings, which would then affect the rate of investment and thus income and employment. He also acknowledges that changes in *k* may affect the price level, and not savings and income creation directly, while treating the case of changes in the public's degree of confidence. All of these acknowledgments have the appearance of being consistent with classical macroeconomics.

But in the preceding accommodations of classical arguments, Hicks blurs the gulf between Keynes and the classics on the role of savings in the theory of income determination. He does not deal with Keynes's denial that savings are the source of loanable funds or "capital" for investment, and neither does he criticize Keynes's failure to accept as valid the classical theory of interest rate determination by the supply and demand for "capital" or savings. Instead, Hicks credits Keynes for having merely transformed the quantity equation from determining the level of total income (which is not the classical conception of the

quantity theory, anyhow) into a theory of interest rate determination: "It is the liquidity preference doctrine which is vital. For it is now the rate of interest, not income, which is determined by the quantity of money," Hicks (1937:152) declares. This in conformity with Hicks's earlier view that it was "a great strength of Mr. Keynes' theory of interest that it conceives the rate of interest, from the outset, as a money rate… The determination of the rate of interest is thus a specifically monetary problem; through it the quantity of money enters the economic scheme" (Hicks 1936:245).[8]

Hicks (1946) later provides support for Keynes's money supply and demand theory of interest with his Walrasian equation counting exercise. He argues that the introduction of a "borrowing-and-lending equation" into an n-equation system in which *n* prices, including that of money, are to be determined creates a mathematical problem of *n*+1 equations determining n prices. Thus, he suggests deleting either the loans or the money equation, and settles for deleting the loans equation. But the price of money is already determined, being equal always to unity (p_m=1). It is the value of money that has to be determined as the inverse of the weighted average of all other prices (V_m=1/*P*). Thus adding the loans equation presents no problem of over-determination as Hicks (1946:153) claims.[9]

Hicks's endorsement of Keynes's argument in the *General Theory* that the rate of interest is determined by the supply and demand for money (cash or liquidity), and not the supply and demand for savings, and that when such interest rate is "set against the schedule of the marginal efficiency of capital determines the value of investment; that determines income by the multiplier" (Hicks 1937:152; Keynes 1936:xxxiv–xxxv, 166–8; 1937:250), has helped to entrench these claims in modern macroeconomics. Missing from the modern IS-LM model is a recognition of classical arguments that savings are logically prior to investment spending and that the rate of interest is determined primarily by the supply and demand for "capital" or savings, and not money (cash).[10]

Hicks's original construction of the IS-LM model also accommodates the classical forced-saving doctrine, another of the classical arguments Keynes failed to recognize. It explains that an increase in the quantity of money (currency) may lower the rate of interest, increase the price level as well as employment and production in the short run, but restore the level of interest rates, the rate of production, and employment after all prices, including wages have adjusted. Hicks's accommodation of the argument takes the form of noting that changes in the quantity of money (currency), given its demand or the liquidity preference (k), affect the price level as well, both in the short run and long run, and quotes Alfred Marshall's (1923:257) statement of the sequence of events: "The new currency, or the increase of currency, goes, not to private persons, but to the banking centers; and therefore, it increases the willingness of lenders to lend in the first instance, and lowers the rate of discount. But it afterwards raises prices; and therefore it tends to increase discount" (Hicks 1937:151).

However, Hicks's accommodation of the classical forced-saving doctrine also turns out to have been a mere lip-service, as he quickly declares the argument to be "superficially satisfactory" (ibid.). He bases such declaration on the view that

it is not clear what "determines the amount of money needed to produce a given fall in the rate of interest" nor what "determines the length of time for which the low rate will last" (ibid.). This in spite of the fact that the Keynesian scheme he credits with being an improvement over classical theory does not provide any such specific answers. Thus, although in a long-run flexible-price version of the modern IS-LM model some consideration is given to the inflationary consequences of increases in the money supply, the short-run version of the model hardly pays any attention to the forced-saving mechanism. Such neglect of the price level effects in the short-run version of the IS-LM model is also consistent with Keynes's rejection in the *General Theory* of the forced-saving doctrine as not being applicable in conditions of less than full employment (1936:80–1).

While accommodating the classical supply of savings and investment demand theory of interest in the original IS-LL version, Hicks failed to recognize Keynes's error in claiming that his marginal efficiency of capital, which relates to the purchase of physical capital goods, was the same concept as the classical marginal efficiency of "capital," which relates to the rate of return on invested funds or savings (Keynes 1936:139–44). Hicks further blurred Keynes's confusion over the classical theory of interest by calling the interest rate determined by the intersection of the savings and investment demand schedules, the "investment rate," which is supposedly distinct from the rate determined by the supply and demand for money or the "money rate" (Hicks 1937:156, 157). By such distinction between the "investment rate" and the "money rate," Hicks was able to accommodate Keynes's (1936:142–3) "startling conclusion, that an increase in the inducement to invest or in the propensity to consume will not tend to raise the rate of interest, but only to increase employment" (Hicks 1937:152, 154). But, given the savings schedule, the rate of interest could not remain unchanged in the face of an increase in investment demand or the marginal efficiency of capital, as Hicks himself earlier notes: 'An increase in the inducement to invest (i.e., a rightward movement of the schedule of the marginal efficiency of capital…) will tend to raise the rate of interest, and so affect saving" (149).

In accommodating Keynes's claim, Hicks (1937:158) also diverts attention from the relevant classical analysis by attributing the distinction between the investment rate of interest and the money rate to Wicksell's version of the classical natural vs the market rate of interest argument. As explained in Chapter 7, Wicksell's version was an attempt to state the classical explanation of the process by which deviations of short-run market interest rates from the long-run or "natural" rate, consistent with the supply and demand for "capital" or savings, would cause the price level to change. Such price-level changes cause changes in the demand for "capital" until the equality between the short-run and "natural" rates are again restored.

Hicks's apparent accommodations of classical arguments with which Keynes had difficulty, while praising Keynes's alternative theories and failing to confront Keynes's confusions over classical concepts, failed to resolve the Keynes vs classical debate, as the criticisms of Keynes's claims by several of his colleagues, especially Dennis Robertson and Ralph Hawtrey, show. The IS-LM model that has emerged

from Hicks's initial efforts enables the "neoclassical Keynesians" to continue stating Keynes's fundamental propositions while those attempting to argue the classical propositions but still using the IS-LM model, such as the monetarists and new classicals, are still far from completely overturning the Keynesian influence. The Post-Keynesians have little use for the IS-LM model, mainly because of its market equilibrating features. Meanwhile, modern macroeconomics continues to grapple with the Keynesian confusions buried into the construction of the IS-LM model, some of which I illustrate in the following.

Persistent problems with the IS-LM model

The modern IS-LM model fails to represent accurately classical arguments or the workings of a monetary economy for several reasons, including (a) the model's treatment of saving as a withdrawal from the expenditure stream rather than the supply of investment funds or "capital," (b) shifting of the IS curve or AD from changes in "autonomous" consumption, investment, or government spending, and thus preserving the Keynesian multiplier argument, (c) the definition of money to include savings of various maturities with depository institutions (*M*1*, M*2*,* and so on), (d) the treatment of changes in the demand for "money," (e) the absence of price level determination from the supply and demand for money (currency), (f) the over aggregation of markets, and (g) confining of classical theories to the condition of full employment of labor or productive capacity only, all of which follow Keynes's views.

To represent the classical view correctly, saving should be defined as the purchase of financial or income earning assets or the supply of investment "capital": $S_c = Y(1-t) - C - \Delta H_h = \Delta \mathrm{FA}^d$. That way an increase in savings will not be treated as a leftward shift of the IS curve or a reduction in "aggregate demand" to yield a reduced level of equilibrium national income and employment, as the IS-LM model concludes. The model's conclusion follows from Keynes's negative views of saving, even when saving takes the form of "holding wealth" rather than the hoarding of cash because, according to him, increased saving depresses consumer prices while failing to lower the equilibrium rate of interest (1936:211–13). But increased savings leaves total spending or "aggregate demand" unchanged, reduces the equilibrium rate of interest, and increases the rate of investment spending by firms—purchasing capital goods, raw materials, and hiring the services of land and labor—which increases the level of income in the next period. To show such results correctly with the IS-LM model would require shifting instead the LM curve to the right—increased holding of deposits of various maturities, including demand, savings, term, money market, and mutual fund shares—while keeping the IS curve in place.

But note that accommodating increased savings as a rightward shift of the LM curve still does not deal with the market for bonds since the LM curve is defined over the supply and demand for "money" only. Furthermore, defining saving as the purchase of, or investment in, financial assets (Marshall 1923:46) by households permits easy handling of changes in investment demand and their effect on

equilibrium interest rates. Patinkin (1990:126–7) well illustrates the difficulties entailed in using the IS-LM model to deal with such events. He could not immediately interpret an increase in investment demand or the "marginal efficiency of capital" as raising the rate of interest, a conclusion that readily derives from classical theory.

Shifting of the IS curve because of changes in the so-called autonomous consumption *(a_0),* government *(G),* and investment *(I)* spending, on the premise that any of such spending increases AD over current income is invalid. In a closed economy, households could not consume without having first earned income from production, or borrowed the funds from someone else who must have earned it, or received a gift of cash. Thus, in the absence of the dishoarding of cash (accumulated from past income), total consumption spending could not increase without a corresponding decrease in the supply of loanable funds or savings, thereby reducing investment spending. Similarly, government spending must be funded by taxes, borrowing from the public, or the central bank. Thus, for a closed economy, government spending that is not funded by newly created (printed) money must displace private sector spending, and therefore could not be the source of increased AD. There also is no such thing as autonomous investment spending. If business owners do not borrow funds for investment from the public (supply of financial assets, $\Delta \mathrm{FA}^{\mathrm{s}} > 0$), they would have to undertake the savings themselves and reduce their own consumption spending. Thus, in the absence of external financing, borrowing from the central bank, or dishoarding of cash, increased spending by consumers, government, or investors cannot change total spending in the economy or AD through the so-called multiplier process, contrary to the conclusions of the IS-LM model.

Indeed, increased borrowing from the public by the government or firms may raise the equilibrium rate of interest and cause a reduction in private sector consumption spending as well as its hoarding of cash ($\Delta H_{\mathrm{h}} < 0$). The latter may be interpreted as an increase in the velocity of cash, owing to the increase in the rate of interest. It may be tempting to interpret the resulting increase in total spending and subsequent income as a multiplier effect, $\Delta Y/\Delta G = \Delta Y/\Delta I > 0$, but such an interpretation would be misleading. The increase in total spending and income would be due to a reduction in hoarding or an increase in saving ($S_{\mathrm{c}} = Y(1-t) - C - \Delta H_{\mathrm{h}} = \Delta \mathrm{FA}^{\mathrm{d}}$) rather than the series of consumption spending upon which the Keynesian multiplier argument is founded.

While Hicks (1937:151) employed Marshall's version of the forced-saving mechanism, which uses the currency definition of money, consistent with the classical definition (see Chapter 3), it is not clear that he was using the currency definition of money in the rest of the article.[11] Now Keynes himself switches between the currency definition and money inclusive of bank deposits in the *General Theory* (1936:167, ch. 15),[12] while modern macroeconomics has firmly settled on defining money to include bank deposits, beginning with *M*1. But the modern definition comingles currency with the public's savings, creating confusing results. Thus, monetarists would like to argue that increases in the money supply could not permanently increase real income and lower interest rates, against claims

to the contrary by the Keynesians, for example, Friedman (1972) and Friedman in Gordon (1974). But if increases in *M*1, *M*2, or *M*3 are driven by the increased purchase of bank financial assets by the public, then real income would increase along with lower rates of interest. Only if such increases are driven by increases in high-powered money or currency would it be correct to argue that the lower interest rates and increased real output would be temporary and only the price level would rise permanently sooner or later, as the monetarists argue in concert with the classical view.

Also, as explained in Chapter 3, the inclusion of savings in the modern definition of money (*M*1, *M*2, *M*3, and so on) creates a confusing target for monetary policy. Attempting to control the quantity of money with changes in the highpowered money *(H)* results in the opposite of what a central bank ought to be concerned with, namely, stabilizing the price level and creating conditions to facilitate real income growth. Reducing the growth of *M*2 or *M*3, most of which is composed of the public's savings with depository institutions, through the sale of financial assets by the monetary authorities or raising the required reserves ratio, unnecessarily reduces the flow of "capital" or savings to investors. But the IS-LM model does not readily alert its users to such inconsistent policy action.

Similarly, attempting to control the level of interest rates by varying the quantity of high-powered money may yield inconsistent results. An increase in the rate of interest from the increased demand for loanable funds or "capital" would induce increased savings from income earners, which would not be inflationary. But increasing the quantity of money (currency) in an attempt to keep interest rates from rising adds to total spending in excess of real-income creation, and thus would cause inflation. The opposite is also true. Attempting to raise the level of interest rates through a central banks' sale of financial assets to the public, when interest rates are falling because of increased savings, would frustrate the growth of real income and may cause a recession.

The comingling of currency and savings in the modern definition of money employed in the IS-LM model also may create another confusion when attempting to interpret the notion of an increase in the demand for money, an asset to hold (Baumol 1952, Tobin 1956). From the perspective of households or income earners, an increase in their demand for bank financial assets relative to the supply must lower the rate of interest as it increases the supply of loanable funds. Yet the typical conclusion derived from an increase in the demand for "money" in the IS-LM model is an increase in the rate of interest, a conclusion consistent with Keynes's liquidity-preference theory, but inconsistent with the increased purchasing of bank financial assets.

Indeed, while discussing the liquidity-preference theory of interest, Keynes frequently refers to cash, not bank deposits, as in "the rate of interest…is the 'price' which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash…[thus] the quantity of money is the other factor, which, in conjunction with liquidity-preference, determines the actual rate of interest in given circumstances" (1936:167–8). And from the supply function for savings, $S = Y(1 - t) - C - \Delta H_h = \Delta FA^d$, an increase in the demand for currency *(H),* must

reduce the flow of savings while consumption spending is unchanged, and thus raise the equilibrium rate of interest in the credit market. This is one reason some of Keynes's contemporaries were claiming similarities between his theory of interest and that of the classics, for example, Robertson (1937, 1966: chs 13 and 14), much to Keynes's own disagreement (Keynes 1937:241). But an increase in the demand for financial assets (including bank deposits) must be at the expense of holding cash balances or consumption spending, and thus lower interest rates instead.

Having co-opted changes in the supply and demand for money to explain interest rates, in line with Keynes's claims, the IS-LM model leaves out an explicit determination of the price level from the supply and demand for money (currency), as in the classical quantity theory. Furthermore, the model creates the notion that the price level rises from increases in the quantity of central bank money only after an economy has reached its full employment of labor or productive capacity. The claim is inconsistent with reality where rates of inflation are observed in economies experiencing various rates of unemployment and economic contraction. For example, Argentina recorded an average annual inflation rate of 402 percent between 1980 and 1992 while its per capita gross national product declined at an annual rate of 0.9 percent over the same period. A worse phenomenon occurred in Nicaragua over the same period, where the annual inflation rate was 656 percent while the economy contracted at an annual rate of 5.3 percent.[13] An accurate representation of classical theory requires an explicit statement of the price level as being determined by the supply $(H^s = H)$ and demand for currency $(H^d = k^d Y = k^d Py)$,[14] that is, $P = H/ky$. The rate of inflation would then be explained by the growth rate of currency relative to the growth of its demand: $\Delta P/P = \Delta H/H - \Delta k/k - \Delta y/y$. Instead, the IS-LM model encourages the explanation of changes in the price level from the AS and AD, although these two variables are not independent.

Without an increase in the supply of money (currency) or a reduction in its demand, the total demand for goods and services could not increase without households having first earned more income from production. But an increase in income (production), which leads to an increase in spending, should not cause the price level to rise. Thus, it is incorrect to claim an increase in the price level from an increase in total demand for goods and services without invoking an increase in the excess supply of money $\{\Delta(H^s - kPy) > 0\}$. Similarly, there could not be a decrease in the price level from a decrease in AD without first a decrease in the supply of money relative to its demand or an increase in the demand for money relative to its supply $\{\Delta(H^s - kPy) < 0\}$. In the absence of a change in the excess demand for money, a decrease in AD must arise from a decrease in aggregate production and income, which thus would not create an excess supply of goods and services and cause the price level to fall.

The IS-LM model also encourages the unhelpful aggregation of markets, including those of goods and labor. Thus in discussing the demand for goods and services in the aggregate, the model leaves little room for handling the adjustment processes entailed in Say's Law of Markets, and encourages the

acceptance of Keynes's misstatement of the law as having claimed that there never could be an excess supply of all goods (excluding currency) or insufficient demand or unemployment of labor. But what the law states is that an excess supply of goods in one market would cause prices there to fall (and firms likely make losses) while a concurrent excess demand for goods in another market would cause prices in that market to rise (and firms increase their profits). The spending of income on alternative goods and services by households assures the balancing of an excess demand in one market with an excess supply in another. This is why, in the absence of a flight to cash (excess demand for money) from a shake up of confidence, there could not be an excess supply of all goods at the same time (Say 1821, 1834; Mill 1808:84–5; Ricardo *Works,* 1:290–2, 3:180; Mill *Works,* 3:570–6, 1874:47–74). But the Law of Markets explains that an excess demand for money (currency) creates a glut of all goods (excluding money) and services as well as cause a recession and unemployment.

Also by aggregating the supply and demand for labor in different occupations into a single equation, following Keynes (1936:7–34, 257–71), the IS-LM model obscures a richer explanation of unemployment from changes in the demand for labor of different skills (Pigou 1933),[15] or union activities in setting high wages or resisting variations in the wage rate for their members. The model also encourages acceptance as valid Keynes's claim that the existence of involuntary unemployment from the activities of trade unions or "as a result of legislation," such as the minimum wage (Keynes 1936:6, 16), is consistent with full-employment equilibrium for all labor, and that such a definition of full employment was accepted by the classical economists. But as explained in Chapter 10, the classical economists as well as Marshall and Pigou recognized the existence of involuntary unemployment of labor, which constitutes a disequilibrium in the labor market, and also discussed ways of relieving such unemployment.

Finally, the IS-LM model encourages acceptance of Keynes's (xxxv, 26, 191, 209) incorrect designation of classical theories of the price level, interest rates, forced-saving doctrine, and Say's Law as being valid only under the assumption of full employment. This arises from treating all adjustments of equilibrium income and interest rates in less than full employment of the available quantity of labor (the potential labor force) and productive capacity as being relevant to short-run, Keynesian equilibrium states of the economy. On the other hand, the model designates some long-run, full-employment equilibrium position where real output or income does not change (to the right of a Keynesian equilibrium state) as being relevant to classical economics. Such characterization of classical economics denies most users of the IS-LM model the appreciation of classical theories relevant to understanding short-run adjustments in the markets for goods and services, "capital," labor, and land as well as for money (currency), as explained in previous chapters. Marshall (1920: bk. V, chs 2, 3, and 5), for example, devotes a considerable amount of space to clarifying the adjustment process or tendencies from temporary, short-run equilibrium toward the long-run equilibrium consistent with Adam Smith's analysis of market and "natural" price determination, but

which one hardly recognizes from the IS-LM treatment of classical macroeconomics.

Hicks later moved away from some of his endorsements of Keynes's arguments as being superior to the classical theories. For example, he gives Marshall's explanation of variations in interest rates over the long-term high marks over Keynes's alternative, concluding: "So I now think that Marshall, after all, does win that trick in the game" (1989:78). Hicks also concedes, albeit not very helpfully: "it could be that Marshall, who was surely…the 'classical' theorist whom Keynes had most in mind, was mainly right in his day, while Keynes was mostly right in his. And in ours–we should not commit ourselves to either view without looking around" (Rima 1988:5). Furthermore, Hicks expresses dissatisfaction with the IS-LM model: "I have…not concealed that, as time has gone on, I have myself become dissatisfied with [it]…that diagram is now much less popular with me than I think it still is with many other people" (1980/81:139). He also disavows Keynes's rigid connection between income determination and employment growth, and accepts the existence of equilibrium in the product markets but disequilibrium (unemployment) in the labor market (146–8). Hicks also admits that it was misleading for him to have suggested that one could ignore the "equation of borrowing and lending" while attempting to explain the determination of interest rates (Rima 1988:5).

But such concessions are hardly enough to eliminate the entrenched position of the IS-LM model and its Keynesian influence on modern macroeconomics. To summarize correctly the classical arguments discussed in the preceding requires the following specifications, at the very least:

$$y = f(I = \Delta\mathrm{FA}, \tau) \tag{1}$$

$$S_c = Y(1 - t) - C - \Delta H_h = \Delta\mathrm{FA}^d \tag{2}$$

$$D_c = I = \Delta\mathrm{FA}^s > \Delta K \tag{3}$$

$$i = g(S_c, D_c, \Delta H^s) = \$X/P_{FA} \tag{4}$$

$$P_{FA} = g(\Delta\mathrm{FA}^s, \Delta\mathrm{FA}^d) = \$X/i \tag{4b}$$

$$P = H/k^d y \tag{5}$$

$$V_m = 1/P = h(H^s, H^d) \tag{5b}$$

$$N = \gamma(y, w/r, \zeta, \tau) \tag{6}$$

where ΔK=investment in producers' or capital goods, $\$X$=coupon payment, P_{FA}=price of financial assets, V_m=value of money, w/r=average wage-rental ratio. That is, the level of income has to be determined by the flow of savings or "capital" *(S_c),* savings have to exclude the hoarding of cash (ΔH_h), interest rates have to be determined by the supply and demand for credit ($S_{CR} = S_c + \Delta H^s$) in the short run, when the supply of money (currency) temporarily affects the availability of credit, but by the supply and demand for "capital" only in the long run, the price level *(P)* or the value of money *(V_m)* has to be determined by the supply and demand for money (currency), and the rate of total employment has to be determined by the rate of production, the wage/rental ratio, the mix of

industrial production (ζ), and technology (τ). These specifications are missing from the IS-LM model.

Conclusions

The IS-LM model, originally conceived as a medium through which Keynes's disputes with classical theories may be resolved, has served instead to propagate Keynes's misrepresentations of classical arguments. By failing to confront the real basis of Keynes's disagreements with the classical theories, namely, his misunderstanding or misrepresentation of some fundamental classical concepts, especially the definitions of "capital," saving, and investment, Hicks and subsequent contributors to the development of the model have ended up propagating only Keynes's alternative theories of interest, the price level, income, and employment determination. The model also makes it difficult to state correctly the classical theories Keynes misrepresented, and mainly has created room for continued disagreement between modern adherents of Keynes's views and those attempting to argue the classical theories, such as the monetarists and new classical economists, just as Hicks's original IS-LL model failed to resolve the disputes among Keynes's contemporaries.

Meanwhile, the IS-LM analysis may continue to dominate modern macroeconomics because of its appeal as a teaching tool and the semblance of competence it provides its users of being able to solve for the equilibrium values of income, interest rate, and perhaps employment, from a few functional specifications. But a real monetary economy is much more complex than the IS-LM model represents. The irony is that Keynes's own words would seem to support this criticism of the model: "Too large a proportion of recent 'mathematical' economics are merely concoctions, as imprecise as the initial assumptions they rest on, which allow the author to lose sight of the complexities and interdependencies of the real world in a maze of pretentious and unhelpful symbols" (1936:298). But there can be no denying that his own work has encouraged the construction of the IS-LM model.

12 The mythology of the Keynesian multiplier

Introduction[1]

Among the most misleading concepts in modern macroeconomics is the Keynesian multiplier. It is also the main building block of Keynes's (1936) aggregate demand management, and income and employment creation theory. The multiplier concept invites acceptance by building on two fundamental truths: (a) people typically consume a fraction of their income and (b) such purchases for consumption are incomes for sellers. Thus, the concept argues that consumption spending releases purchasing power to producers and thereby validates their investment plans. Saving plays no positive role in supplying the funds for investment in Keynes's reasoning, for example, "The investment market can become congested through the shortage of cash. It can never become congested through the shortage of saving" (1937:669), and "Saving has no special efficacy as compared with consumption, in releasing cash and restoring liquidity" (1938:321).

Furthermore, according to the argument, consumption spending creates a multiplier effect from some initial "autonomous" expenditure such that, in a simplified model, national income increases by a factor *(k)*. That is, $\Delta Y = k\Delta Z = (1/s)\Delta Z$, where Y is nominal income (GDP), k is the multiplier, s is the marginal propensity to save ($\Delta S/\Delta Y = 1 - \Delta C/\Delta Y$), $\Delta C/\Delta Y$ is the marginal propensity to consume, and Z is the "autonomous" expenditure, such as investment or government expenditure that does not depend on domestic savings. Keynes (1933, 1936), by his elaboration of Richard Kahn's (1931) earlier argument, thus exalts consumption spending to a magical significance in macroeconomic analysis, contrary to the classical emphasis on savings as the fountain of investment funds for production and employment growth, as explained in Chapter 9. Indeed, such popular claims as, "The current U.S. economic expansion is being driven by consumer spending" or "The Japanese economy is in a recession because the Japanese are saving too much," reflect the Keynesian multiplier view.

Some earlier analysts did cast doubts on the validity or meaningfulness of the Keynesian multiplier argument, for example, Pigou (1933, 1941), Robertson (1936), Hawtrey (1950, 1952), Hazlitt (1959), Haberler (1960), Rothbard (1962), and Hutt (1974), but with hardly any success in limiting its widespread acceptance and teaching in modern macroeconomics. Stockman (1999:300–11) comes close

to showing the error of the Keynesian argument by his references to "indirect effects," but nevertheless fails to give a clear refutation of the argument because of his conceding an expansionary effect of consumption spending through a change in the rate of interest. In this chapter, I explain the mythology of the Keynesian multiplier and the ineffectiveness of its earlier criticisms. If one asked some fundamental questions, such as, "From where does the initial consumption spender get the income to spend?" or "What is saving other than the purchase of financial assets and not the hoarding of cash?" (the classical definition of saving) we find that the Keynesian multiplier story is more of a myth than an accurate description of the economic process.

The source of income growth is production, albeit in anticipation of demand, just as Adam Smith, J.-B.Say, James Mill, David Ricardo, J.S.Mill, and other classicals have explained. No one consumes without first having earned income from production or borrowed someone else's income. Moreover, the income generation process in an economy is a concurrent one, not the unidirectional process described in the Keynesian multiplier story. And saving (not the hoarding of cash) is not a leakage from the income–expenditure stream; it is the main source of investment finance. Thus, the multiplier, if one existed, is not the inverse of the marginal propensity to save. Indeed, the closest we come to the multiplier concept in reality is the productivity of investment or the incremental output-capital ratio,[2] but which does not depend on the marginal propensity to consume as the Keynesian multiplier argues. It is also a mistake to interpret earlier arguments of a change in production or demand in one sector of an economy having "multiplying effects" throughout an economy, as by Walter Bagehot, N.A.L.J.Johannsen, J.Wullf, Alfred Schwoner, A.C.Pigou (Hegeland 1954), L.F.Giblin, and Ralph G.Hawtrey (Dimand 1988, 1997), as precursors of the Keynesian multiplier story.[3]

Economics students' time would be much better spent by their not being subjected to studying the Keynesian multiplier argument as if it were valid. Recognition of the fundamental flaw in the Keynesian multiplier concept also should caution against attempts by professional economists to estimate the impact effects of certain public expenditures, using "sectoral multipliers" based on the consumption expenditures of people employed in those industries, for example, Kahane (1997).[4] It is quite misleading to leave public policymakers with the notion that their spending is not at the expense of the private sector because it may be autonomous. Such recognition also casts doubts on the usefulness or validity of estimated government expenditure multipliers as in Sinai (1992).

Keynes and the multiplier

Fundamental to Keynes's development of the multiplier concept from Richard Kahn's (1931) earlier argument is the view that insufficient consumption spending is the principal limitation on the growth of aggregate demand, hence, income and employment creation. The focus on consumption spending in the *General Theory* extends beyond Keynes's (1933) earlier discussion of the multiplier, which

follows more closely that of Kahn's (1931). Indeed, Keynes (1936) distinguishes his "investment multiplier"–the increase in total income due to an "increment of aggregate investment" or $k = \Delta Y / \Delta I$–from Kahn's "employment multiplier," which is the "ratio of the increment of total employment…associated with a given increment of primary employment in the investment industries" (115). However, in presenting his formal argument, Keynes assumes an identity between his and Kahn's multiplier. This follows naturally from Keynes's principal focus on providing a theory of employment closely related to income creation. But this is misleading; the same level of output or income may be produced with fewer or more labor, depending on the technique employed or labor's productivity (also see Marget 1938–42:759–61).

Thus, like Kahn (1931), Keynes conceives of the economy as being divided into two main sectors, one producing consumption goods and the other investment or nonconsumption goods, with the latter being the smaller of the two. Investment in either sector requires additional labor to work with capital equipment to increase production, but it is investment in the nonconsumption goods sector that produces the magical result or secondary "beneficial repercussions" (Kahn 1931:173). The additional employment in the nonconsumption goods industry creates income, a greater proportion of which will be spent on consumption goods: $C/Y > S/Y$, where C and S are consumption and savings, respectively Therefore, in Kahn's and Keynes's reasoning, there is a secondary-employment effect in the consumption goods industry unrelated to the original investment decision of entrepreneurs in that industry. Of course, to the extent that some of the incomes of the additional workers employed in the nonconsumption goods industry are spent on imported goods, they argue that the secondary-employment effect would be partly dissipated.

Holding the initial employment effect of investment in the consumption goods industry constant, Keynes and Kahn trace a dampening but cumulative, secondaryemployment creation effect from the spill-over of consumption demand from the nonconsumption goods industry. The secondary-employment effect turns out to be greater than the initial employment created in consumption goods industry, hence the multiplier:

> To meet the increased expenditure of wages and profits that is associated with the primary [non-consumption goods sector] employment, the production of consumption-goods is increased. Here again wages and profits are increased, and the effect will be passed on, though with diminished intensity. And so on *ad infinitum*.
>
> (Kahn 1931:173; italics in original)

In Keynes's view:

> Unless the psychological propensities of the public are different from what we are supposing, we have here established *the law* that increased employment for investment must necessarily stimulate the industries producing for

> consumption and thus lead to a total increase of employment which is a multiple of the primary employment required by the investment itself.
>
> (Keynes 1936:118; emphasis added)

Thus the principal focus of the multiplier argument is on consumption spending. Indeed, according to Keynes, the demand for labor

> depends by definition…on *nothing* but two factors, namely (1) the relationship in a given environment between the total number of men employed and the number who have to be employed in the wage-goods industries to provide them with what they consume, and (2) the state of marginal productivity in the wage-goods industries.
>
> (Keynes 1936:278; italics in original)

And this argument follows from the fact that consumption "is the sole end and object of all economic activity" (104). Furthermore, saving, in Keynes's view, is simply the "negative act of refraining from spending the whole of [one's] current income on consumption" (*Treatise,* 1:172). Saving is a negative act because it withholds a portion of current income from "circulating" and thus from becoming the future income for those whose production otherwise might have been bought. In Keynes's mind, saving "depresses the business of preparing to-day's dinner without stimulating the business of making ready for some future act of consumption. It is not a substitution of future consumption-demand for present consumption-demand,–it is a net diminution of such demand" (1936:210). It is partly because of this "withdrawal" or "leakage" effect of saving on the expenditure stream, in Kahn's and Keynes's views, that there is a dampening effect on the cumulative process of secondary income and employment creation. Hence, "the greater the marginal propensity to consume, the greater the multiplier" (Keynes 1936:125).

From the conception of the effect of saving on employment creation, it might seem that income recipients spending all of their incomes on consumption goods would produce the most beneficial effect on the economy's growth and employment creation. However, Keynes argues for spending as high a proportion of income as possible on consumption but never 100 percent. He believes a 100 percent consumption of income would create the prospects of an uncontrollable income explosion from a small increase in investment or contraction from a small decrease (in nonconsumption goods industries). Furthermore, both Keynes and Kahn associate price-level increases from the secondary-employment increases or the multiplier effect. They reason that there must exist an upward-sloping aggregate supply curve in the consumption goods industry, owing to the law of diminishing marginal returns. Thus, in the short run, increases in output must be associated with increases in the price level (and a decline in the real wage). A marginal propensity to consume that is equal to 1 thus would assure an infinite increase in the price level from an increase of investment spending in the nonconsumption goods industry (or an infinite deflation from a small decrease): "If [the public

seeks] to consume the whole of any increment of income, there will be no point of stability and prices will rise without limit" (117). Thus, some saving, though a negative act of not spending all of one's income on consumption, is a necessary safety valve, as it were, for the economy.

This is how Keynes arrives at the remarkable claim that, instead of saving providing the funds for investment, it is rather investment that, after increasing incomes, enables savings to increase to match the original investment:

> [The public's] effort to consume a part of their increased incomes will stimulate output until the new level (and distribution) of incomes provides a margin of saving sufficient to correspond to the increased investment. The multiplier tells us by how much their employment has to be increased to yield an increase in real income sufficient to induce them to do the necessary extra saving, and is a function of their psychological propensities.
>
> (Keynes 1936:117)

In a similar vein, Kahn asserts:

> The motive force that increases employment is an increase in investment or a *reduction in savings*. As a concomitant of this increase in employment occur changes in savings and investment which, partially or wholly, neutralise the effect on the difference between savings and investment of the change that is the cause of the increased employment.
>
> (Kahn 1931:182; emphasis added)

However, when "full employment is reached, any attempt to increase investment still further will set up a tendency in money-prices to rise without limit, irrespective of the marginal propensity to consume…Up to this point, however, rising prices will be associated with an increasing aggregate real income" (Keynes 1936:118–19).

In their multiplier story, both Kahn and Keynes pay some attention to the method of financing investment, acknowledging that taxation may not assure full realization of the impact, particularly if the "increased taxes are paid at the expense of consumption rather than of saving" (Kahn 1931:174, 179). Keynes is not explicit in regard to taxation but follows Kahn's recognition of the possibility that government borrowing to finance public works may reduce private sector investment spending if it raises the rate of interest (Kahn 1931:174; Keynes 1936:119–20). However, both suggest that in the case of borrowing, "it is always within the power of the banking system to advance to the Government the cost of [public works] without in any way affecting the flow of investment along the normal channels" (Kahn 1931:174; Keynes 1936:119). But they do not point out that only a central bank's lending to the government would create the positive income and employment effect they suggest, and that lending by commercial banks (without a change in their own demand for cash or reserves-deposit ratio) would produce no such positive effect. Kahn, in fact, disputes the substitution of

government for private investment argument: "It is sometimes claimed that if the Government borrows for the purpose of building roads, this necessitates an equal reduction in the funds available for investment from other sources. But it is clear that even if this claim has any force at all, it cannot have a universal application" (1931:174).

Both Kahn and Keynes also argue that tax revenues will increase, following the increase in income and employment due to public sector investment, to more than compensate the government overtime for its initial investment in public projects (Kahn 1931:192–3; Keynes 1933:345–50). According to Keynes, "There is no magic here, no mystery; but a reliable scientific prediction" (ibid.) in the argument. Even if future taxes alone were not to compensate the government for such spending, they would flow from "the saving on the dole *plus* the reduction in foreign lending *plus* the increase in unspent profits *minus* the reduction in the rate of saving" (Kahn 1931:189; italics in original). Hence Kahn's belief that "*pari passu* with the building of roads, funds are released from various sources at precisely the rate that is required to pay the cost of the roads" (174). Keynes does not extol the argument this much in the *General Theory,* but it seems nevertheless to underlie his claim that "public works even of doubtful utility may pay for themselves over and over again at a time of severe unemployment" (1936:127).

The mythology of the Keynesian multiplier

The myth of the Keynesian multiplier argument derives primarily from its description of an income creation process "with diminished intensity" based on consumption spending. It portrays a relay process by which an initial consumer creates new income for the next person who then repeats the process with another. But to have income to consume, one first must produce. Moreover, for one to receive income from production someone else must have purchased or paid for it. And this purchaser also must have earned income from production with which to make the payment, that is, someone else must have paid her or him for having produced something for sale. Those who do not produce have no income with which to purchase the output of those who do, while those who cut back on their production also thereby reduce their own demand for output in the economy.

Such an understanding leads inexorably to this: the economy is one in which many individuals engage in concurrent production and subsequent exchange–the excess of production over own-consumption needs–in order to earn income. The income so earned is what permits those who produce to obtain from each other those products they need but which they themselves have not produced. This realization very much confirms the validity of Adam Smith's opening words in the *Wealth of Nations* focusing on production as the foundation of an economy's wellbeing: "The annual labour [production] of every nation is the fund which originally supplies it with all the necessaries and conveniences of life which it annually consumes, and which consist always either in the immediate produce of that labour, or in what it purchases with that produce from other nations" (*WN,* 1:1).

Note that the above description of the economic process asserts nothing about the state of employment or unemployment. All enterprises as well as individual producers undertake their concurrent production mainly on the basis of anticipations of demand. If all of a producer's anticipated demand is not realized, it may be because others have not produced and earned enough income to purchase the output, or that some producers have used their earnings to acquire additional cash balances (hoarding). Those producers who are thus disappointed may react by reducing their prices or cutting back on their production and perhaps laying off some workers, if they employed hired hands. But the general tendency is for all producers almost on a daily basis to undertake concurrent production at rates determined by their anticipated demand. Adam Smith aptly makes the point:

> The quantity of every commodity brought to market naturally suits itself to the effectual demand. It is the interest of all those who employ their land, labour, or stock, in bringing any commodity to market, that the quantity never should exceed the effectual demand; and it is the interest of all other people that it never should fall short of that demand.
>
> (Smith *WN,* 1:64–5)

David Ricardo underscores the point: "It is self-interest which regulates all the speculations of trade, and where that can be clearly and satisfactorily ascertained, we should not know where to stop if we admitted any other rule of action" (*Works,* 3:102).

Money helps the exchange process by breaking the act of sale from simultaneous purchase of goods and services for producers. However, in the absence of money, producers may exchange their net output through barter or other instruments of exchange, including credit. But the real substance of the economic process, namely, the concurrent production and subsequent exchange of output over own-consumption needs does not change with the existence of a means of payment or media of exchange. Again, as Smith explains:

> If money is wanted, barter will supply its place, though with a good deal of inconveniency. Buying and selling upon credit, and the different dealers compensating their credits with one another, once a month or once a year, will supply it with less inconveniency. A well regulated paper will supply it, not only without any inconveniency, but, in some cases, with some advantages.
>
> (Smith *WN,* 1:458)

This description of the production and exchange process is also the essence of "Say's Law," as entailed in J.-B.Say's clarification for Thomas Malthus that *"productions can only be purchased by productions"* (1821:13; italics in original) and David Ricardo's argument against Malthus's on gluts quoted by Keynes: "Productions are always bought by productions or services; money is only the medium by which the exchange is effected. Hence the increased production being always accompanied by a correspondingly increased ability to consume, there is

no possibility of Overproduction" (1936:369). Ricardo's discussion of the "Law" in chapter 21 of the *Principles,* is quite elaborate, incorporating the role of expectations, the adjustment of production to actual demand, and the possibility of gluts in some markets:

> No man produces, but with a view to consume or sell, and he never sells, but with an intention to purchase some other commodity, which may be immediately useful to him, or which may contribute to future production. By producing, then, he necessarily becomes either the consumer of his own goods, or the purchaser and consumer of the goods of some other person. It is not to be supposed that he should, for any length of time, be ill-informed of the commodities which he can most advantageously produce, to attain the object which he has in view, namely, the possession of other goods; and therefore, it is not probable that he will continually produce a commodity for which there is no demand… Too much of a particular commodity may be produced, of which there may be such a glut in the market, as not to repay the capital expended on it; but this cannot be the case with respect of all commodities…
>
> (Ricardo *Works,* 1:290–2)

J.S.Mill restates the same argument as:

> What constitutes the means of payment for commodities is simply commodities. Each person's means of paying for the productions of other people consist of those which he himself possesses. All sellers are inevitably, and by the meaning of the word, buyers. Could we suddenly double the productive powers of the country, we should double the supply of commodities in every market; but we should, by the same stroke, double the purchasing power. Everybody would bring a double demand as well as supply; everybody would be able to buy twice as much, because everybody would have twice as much to offer in exchange.
>
> (Mill *Works,* 3:571–2; quoted in Keynes 1936:18)

Equally important for a clear understanding of the preceding argument, Mill concludes the paragraph from which Keynes takes the quote by noting, "Besides, money is a commodity; and if all commodities are supposed to be doubled in quantity, we must suppose money to be doubled too, and then prices would no more fall than values would" (*Works,* 3:572).[5] Keynes may have taken his quote from Marshall and Marshall's *The Economics of Industry* (1879:154), which has the words, "by the meaning of the word," instead of the original *"ex vi termini"* and does not include the latter quote. Thus, Keynes may not have known of the inclusion of money among the commodities whose supply and demand Mill discusses in the Law of Markets within the same paragraph. Keynes also must not have seen Mill's reaffirmation of the same point in his *Essays:*

> In order to render the argument for the impossibility of an excess of all commodities applicable to the case in which a circulating medium is employed,

> money must itself be considered as a commodity. It must, undoubtedly, be admitted that there cannot be an excess of all other commodities, and an excess of money at the same time.
>
> (Mill 1874:71)

In any case, as has become evident, Keynes misrepresented the logic of Say's Law to claim only that "supply creates its own demand" (1936:18), insisting also that the law must imply the absence of unemployment (Jonsson 1995, 1997; Kates 1997, 1998; and Ahiakpor 1997a).[6]

The system of income payment may mask the fact that incomes are earned on an hourly or daily basis. By contractual arrangements, most employers keep their employees' daily earnings until payments are made on a weekly, biweekly, or monthly basis. (The employers themselves may opt to lend the earnings of their enterprises to banks in the form of deposits.) But income earners' expenditures—consumption and purchase of financial assets or savings—take place on a daily basis. First time income earners may finance their daily consumption spending out of loans while others draw down their savings (deposits with banks) out of previous earnings. But these technical details of the income payment system should not obscure the fact that production and exchange in an economy take place concurrently, almost on a daily basis.

Even when we take note of the lag between investment spending and the yield of output, the concurrent nature of production (earning of income) and exchange is not eliminated. The investor who engages, say, in the erection of a production plant must hire all kinds of workers, from architects, ground preparers, bricklayers, carpenters, electricians, painters, and the like, who engage in various stages of the construction until the plant is finished. If the process takes one or two years to complete, it would still be a continuous process, yielding incomes to the various categories of workers who also would engage in daily expenditures of their own. Were the investment for developing a farm, the same continuous income earning process for the workers would take place before harvest time. The investor typically also would have borrowed the investment funds from savers by issuing financial assets or IOUs: $I = \Delta FA^s = \Delta FA^d = Y(1-t) - C - \Delta H_h = S$, where I=investment spending, FA=financial assets, $Y(1-t)$ = disposable income, C=consumption spending, ΔH_h=households' addition to their cash balances, and S=savings.[7]

Furthermore, in the proper conception of the economic process, it is the total of output exchanged, that is, products that may be used either for direct consumption or for further transformation into finished goods, which yield income. The latter usage of products may be termed "investment." Thus the produce of a farmer may be bought partly for direct home consumption and partly as material for manufacturing into a processed good: apples and apple juice or apple pies; or grapes and grape juice, wine, or raisins. The forester's new cuts may be bought for building dwelling houses or offices. Similarly, General Motors earns income from all cars sold, whether they are bought by households (consumption) or firms (investment). It is the total production less own-usage that fetches income for the producer. There is nothing particular about investment in a

"nonconsumption-goods" industry creating "spill-over" effects in "consumption goods" industries, which thus cause more people to be hired in the latter industry than otherwise would have occurred.

There also may be an income-increasing effect of investment spending in all industries, regardless of whether they are designated as consumption or investment goods industries. That effect arises from the acquisition of nonhuman factors of production such as knowledge or equipment to aid human hands and increase labor's productivity. The increase in labor's productivity may also lead to the hiring of more labor in the same industry, not just labor's (partial) displacement by these factors. For example, funds invested in agriculture may increase the productivity of agricultural labor and increase output as well as employment in that industry. Likewise investment in a steel plant may increase labor's productivity and employment there as well as in other industries using steel as input in their production. And the increase in production, income, and employment in one industry constitutes an increased demand for the output of other industries. In no case need we base the possible increase in total employment on the necessity of an increase in demand for only consumption goods (durable or nondurable).

The productivity enhancing effect of investment is what underlies the incremental output–capital ratio analysis in development economics. It is similar to Hawtrey's argument that "*Any* additional capital outlay [investment in capital goods] is a source of cumulative demand, and the [multiplier] theory in generalised form states that the ratio of the resulting additional production to the additional capital outlay will be the ratio of the additional income to the additional saving" (1950:77; italics in original).

Keynes's (1933, 1936) multiplier story also is founded on the notion that saving takes away from the expenditure stream. This is the point of summing the diminishing amounts of consumption spending, such that, in the simplified model, the multiplier, $k=1/s$, where s=the marginal propensity to save=$1-c$, and c is the marginal propensity to consume. But that summation process would be valid only if saving is the hoarding of cash, which it is not.[8] People typically spend their after-tax income in three main categories: (a) goods and services for immediate consumption, (b) purchase of financial assets to earn future income in the form of interest or dividends (profits), and (c) purchase of the services of money (cash)–the ready availability of purchasing power against unforeseen opportunities or emergencies (e.g. Marshall 1923:39–50), that is, $Y(1-t) = C + \Delta\mathrm{FA} + \Delta H_{\mathrm{h}}$. The division of income into all three parts thus requires optimizing along three margins: the utilities of (a) consumption, (b) interest or dividend income, and (c) the service flow of cash. Thus, unless income earners are building up their cash balances, the portion of their income they do not consume but save is not lost to the expenditure stream; it is only passed on to deficit spenders or investors who supply financial assets in order to borrow from savers (surplus spenders), $S = Y(1-t) - C - \Delta H_{\mathrm{h}} = \Delta\mathrm{FA}^{\mathrm{d}}$. Therefore, if the marginal propensity to consume is 0.9, there may be only about 10 percent of income being devoted to investment spending and productivity creation in the next period as compared with a marginal

propensity to consume of 0.8, which may ensure that 20 percent of current income is available for investment spending. The correct appreciation of the role of savings in supplying funds for investment spending also leads to the recognition that there is no such thing as an autonomous investment expenditure.

Keynes and Kahn also suggest that the banking system may supply the funds for investment, without relying on the public's savings as the source. Now if a central bank prints new money (cash) and buys the public's financial assets, it indeed would supply the funds for investment spending. But given that such additional purchasing power from the central bank only adds to that acquired through production and income earned by the public, total purchasing power ($Y + \Delta H^s$) must exceed the available goods and services during the relevant period. As a result, the price level must rise: $P_1 = H_1/ky_0 > P_0 = H_0/ky_0$, deriving the price level, *P,* from the Cambridge equation, *H*=*kPy,* where *H*=the stock of currency, *k*=the proportion of income held as cash by households, banks, and firms, and *y*=real output or income.

In the short run, wage and other contracted or fixed-income earners would lose real income from the rise of prices. This may induce increased hiring of labor and other factors for increased production, what the classics called "forced saving" (Chapters 4 and 10; Ahiakpor 1985, 1997a; see also Hume 1752:37–9 and Ricardo *Works,* 3:136–9, 310–22; 6:16–17). But sooner or later, the contracted rates will have to be revised so that real wages, interest, and rentals are restored to their original levels, causing producers to lose the additional real command they had on investment funds during the rising of prices. The rate of production thus would also be restored to its previous level, that is, before the injection of central bank credit from newly printed cash. Dennis Robertson in April 1933 alerted Keynes to this fact, to which Keynes responded that Robertson was "addressing [him] to one of [Keynes's] deader selves" (Kahn 1984:103), having failed to recognize the point.

On the other hand, if by the "banking system" we mean commercial banks who issue their own liabilities (financial assets) to savers in the form of deposit accounts, mutual funds, and other securities, and then buy the financial assets of borrowers (loan notes, corporate paper, and bonds), we would recognize that their lending to investors generates no inflationary consequences. In fact, the banks do not lend all of the purchasing power they gain from their customers but keep some in cash reserves against their short-term liabilities, such as demand and savings deposits. Thus the public's savings with commercial banks exceeds the funds the banks lend to investors or borrowers, $S_b = Y(1-t) - C - \Delta H_h = \Delta FA_b > I = \Delta FA_I$, the difference being the banks' own cash reserves. This may be confirmed from banks' balance sheet where *D* (deposits)=*R* (reserves)+BC (bank credit or loans).[9] If banks increase their lending without any new deposits from the public, this must come from a reduction in their cash reserves, just as the public may increase its savings (lending) without additional income by reducing their cash balances ($\Delta H_h < 0$) or "dishoarding"–the same notion as a change in the velocity of money (cash). The public's purchase of nonbank financial assets (FA_{nb}) issued directly by investors,

such as bonds and stocks, completes their total investment or savings portfolio, $S_T = S_b + S_{nb} = Y(1 - t) - C - \Delta H_h = \Delta FA_T = \Delta FA_b + \Delta FA_{nb}$.

Seen in this light, the view that there could be any spending on public projects by the government not funded by a central bank, without there being at the same time a reduction in the availability of funds for private sector investment or a "crowding out," is simply incorrect. Unless the public decides to increase its savings–purchase of financial assets–when the government issues new bonds, there must be a total crowding out of private sector investment spending by that of government spending, a point Keynes appears to recognize:

> We have been dealing…with a *net* increment of investment. If, therefore, we wish to apply the [argument] without qualification to the effect of (e.g.) increased public works, we have to assume that there is no offset through decreased investment in other directions,–and of also, of course, no associated change in the propensity to consume.
>
> (Keynes 1936:119)

Should the government raise the funds from new taxes and the public not reduce its consumption spending by the full amount of the tax, savings must fall and so must the flow of funds to private sector investment. Furthermore, the income and employment growth effects of government spending depend on the relative productivities of government spending and private sector investment. If government spending increases productivity at a lesser rate than that of private sector spending, then public sector investment may rather retard the economy's growth.

Kahn and Keynes also argue that the multiplier enables the Exchequer or public treasury to benefit from government borrowing to fund or subsidize expenditures. The claim is that such expenditures increase total incomes out of which additional taxes are paid, and through the cumulative process of the multiplier, the tax collection may even exceed the funds borrowed by the government to spend on public projects. Thus, Keynes declares:

> it is a complete mistake to believe that there is a dilemma between schemes for increasing employment [and income] and schemes for balancing the budget–that we must go slowly and cautiously with the former for fear of injuring the latter. Quite the contrary. There is no possibility of balancing the budget except by increasing the national income, which is much the same thing as increasing employment [through government borrowing to spend on projects].
>
> (Keynes 1933:347)

But clearly, unless a government-funded project were not capable of being undertaken by the private sector or the government's investment in the project would have yielded a greater output than if undertaken by the private sector, the argument is invalid. Production by the private sector would have yielded the

same or greater effect on national income and tax collection than if undertaken by the government. Like the consumption function upon which the multiplier argument is founded, the tax-benefit effect of publicly funded projects is yet another misleading Keynesian claim.

Finally, note that the simple Keynesian multiplier for a closed economy is calculated on the presumption of some expenditures being autonomous, a_0 in the consumption function, $C = a_0 + b\Upsilon(1 - t)$, I_0 in the investment function, and $G = G_0$, for government expenditure. This is the basis of deriving the multiplier effect from the formulation, $\Upsilon = [1/\{1 - b(1 - t)\}](a_0 + I_0 + G_0)$, such that $\Delta\Upsilon = k\Delta(a_0 + I_0 + G_0)$, where k is the multiplier. But if all expenditures depend on income (and there is no central bank monetization of debt), such that $C = b\Upsilon(1 - t)$, $I = \Delta FA^s = \lambda\Upsilon$ because investment funds must come from savings, and $G = t\Upsilon + \gamma\Upsilon$ because government expenditures must depend on taxes ($T = t\Upsilon$) and bond revenues ($\Delta B = \gamma\Upsilon$), then the Keynesian multiplier effect, as noted in Chapter 11, disappears, $\Upsilon = C + I + G$ becomes $\Upsilon = b\Upsilon(1 - t) + \lambda\Upsilon + t\Upsilon + \gamma\Upsilon$, and $\Upsilon = [1/(1 - b(1 - t) - \lambda - t - \gamma)](0) = k(0) = 0$.

The inadequacy of some earlier criticisms

A.C.Pigou was among those who first rejected the validity of the Keynesian multiplier argument. He recounts the argument almost exactly as in Kahn (1931) and restated by Keynes (1933, 1936):

> …an increase in employment in road-making…will involve secondary employment in the industries that make wage-goods…The people set to work on road-making, or whatever it may be, have *pro tanto,* more money to spend; they spend it, and so set to work more makers of the wage-goods that they buy; these, by spending their money, set to work more makers of the wage-goods *they* buy; and so on indefinitely. Indeed, according to this argument, it is only because some of the wage-earners' goods are bought from abroad that the setting of a single new man to work on road-making does not cause an infinite number of men to obtain employment in making wage-goods!
>
> (Pigou 1933:74–5; italics in original)

Pigou then declares "This argument, in the present form, is invalid" (ibid.).

However, Pigou does not present a clear statement of the fact that the Keynesian multiplier argument is founded on a misconception of the role of consumption rather than production in the income determination process. The basis of his rejection of the argument seems to be only that employment in any industry is determined by the ruling real wage rate and the rate of interest. Thus, given these two factors in the wage or consumption goods industry, activity in the non-wage goods industry would affect employment in the former only if it affects the rate of interest. However, Pigou finds no reason to believe that such would happen:

> Activity in the non-wage-good industries certainly will not *lower* the rate of interest, and cannot, therefore, by that route increase the demand for labour

> in the wage-good industries. Apart from that, nothing that happens in the non-wage-good industries can, from the short-period standpoint that alone is in question here, benefit the wage-good industries.
>
> (Pigou 1933:75; italics in original)

In his book, *Employment and Equilibrium,* Pigou is much less dismissive of the Keynesian multiplier argument. Instead he notes that employment multipliers may take on different values, from less than zero to greater than one, "according to circumstances" (1941:180), including whether the products from public sector investment compete with those from the private sector or whether public sector investment affects the rate of interest (182). Perhaps, having himself argued the "multiplying principle" by which secondary effects of production in one industry may result in increased employment in others, Pigou could not focus on the fundamental flaw in the Kahn-Keynes multiplier version.

Indeed, Robert Leeson (1997) argues that Kahn and Keynes must have taken the multiplier argument from Pigou's 1927 *Industrial Fluctuations*. Kahn (1984:101) also claims to have heard of the multiplier story–"the cumulative effect of providing one extra man with employment"–from his father at the age of 8. In their 1929 article, "Can Lloyd George Do It?" Keynes and Hubert Henderson argue that there are indirect employment effects of public works that opponents of Lloyd George's pledge have ignored (1929:86–125). Leeson (1997:57) finds the similarity between Pigou's (1927:294) argument that "secondary influences are set to work that further enlarge the aggregate real demand for labour. This is very important…. unfortunately, we do not know at all how large" the secondary effects are, and Keynes's caution that "It is not possible to measure the effects of this [secondary employment] with any sort of precision" (Keynes and Henderson 1929:107), to be too close not to suggest a borrowing of ideas by Keynes. However, Pigou's argument, also considered by Wright (1956:184) to be "the most developed form of the [multiplier] theory in the 1920's," may more accurately be interpreted as a recognition of the general equilibrium effects of an expansion of production in one sector on total income and employment in the economy. It is quite different from Kahn's and Keynes's exclusive focus on the benefits of increased consumption spending as the beginning of the expansionary process, rather than production.

Dennis Robertson was another important critic of Keynes's multiplier argument. He based his criticisms on three main grounds: (a) the comparative statics nature of the Keynesian argument, (b) the error of Keynes's belief in the automatic generation of savings to equal the cost of investments, and (c) the unlikelihood of a stable relationship between consumption spending and income growth (Presley 1979:165–76). Robertson thus queries the Keynesian multiplier argument for not taking into account the lag between investment spending and income generation but appears to claim that the expenditure of income earned from the nonconsumption goods industries creates "secondary" income and employment in the consumption goods industries contemporaneously. However, although Keynes claims that "the logical theory of the multiplier…holds good

continuously, without time-lag, at all moments of time" (1936:122) he nevertheless admits of the need for some passage of time for its "full effect" to be realized in terms of the change in employment and output (122–5).

Robertson also focuses on the need to provide investment founds either from voluntary savings or from bank credit to finance investment spending, an argument Kahn and Keynes sought to avoid by their claim that investment by itself generates income and savings to finance it. Lastly, Robertson argues the need to recognize that the changing level of income and its distribution will change the overall marginal propensity to consume upon which Keynes builds his multiplier argument. Thus, all of Robertson's criticisms center on the need for greater realism in the Keynesian multiplier story, but not quite its complete negation. This is much reflected in Robertson's comment:

> Perhaps anything which happens can be expressed, with sufficient ingenuity, in terms of distortion of 'the marginal propensity to consume.' But when all this is said, it seems to me doubtful whether, for the analysis of a fluctuating world, the 'multiplier' constitutes much advance over more crudely 'monetary' weapons of thought.
>
> (Robertson 1936:175)

R.G.Hawtrey (1950:76–88) presents an extensive criticism of Keynes's multiplier argument, including the definition of terms such as saving and investment that Keynes employs. He describes Keynes's claims and assumptions variously as "practically untenable" (77), "nonsense" (78), and "fallacious" (80). Hawtrey bases his criticism mainly on Keynes's failure to recognize (a) the positive role of savings in supplying "capital" in the investment market, (b) the role of cash balances held by both banks and income earners in causing a gap between savings and the investment of "capital" to purchase capital goods or materials, what he calls "capital outlay," and (c) Keynes's failure to distinguish "active" investment from unintended accumulation of inventories. By clearly noting that nonconsumed income may be held as cash balances (ΔH_h) or used to purchase financial assets (ΔFA^d) or savings, the latter providing the means with which nonconsumed output may be purchased, Hawtrey was able to declare that "The multiplier theory goes astray in inferring that the *cause* of a deficiency of demand is to be found in an excess of saving over active accumulation. The equality of saving to the deficiency of demand is an arithmetical identity derived from the definitions of the terms, and in itself throws no light on causation" (1950:81; italics in original). Rather, Hawtrey traces the source of demand deficiency to an increased demand for cash balances by both banks and income earners, not to savings as Keynes asserts.

Hawtrey (1952) continues with his criticism of Keynes's multiplier argument in a similar vein as Robertson's, although less extensively. He does not think the multiplier argument has the "correct account of the sequence of events" (165), partly because the rise of prices, which Kahn and Keynes suggest must accompany the expansion of wage goods, does not necessarily occur, and partly because

their argument does not take into account the requisite time for a change in investment to cause a change in output and income before savings would increase (166). However, Hawtrey here does not address Keynes's fundamental misconception of the economic process and undue focus on the role of consumption in income determination, but is willing to suggest similarities between classical analysis and that of Keynes: "Keynes's theory resembles the classical theory in being static" (ibid.).

Coupled with his own use of terms such as "consumers' income," instead of simply income, and the "multiplier effect" to refer to the flow of money between the public and banks, Hawtrey gives the impression to some readers that he accepts the basic validity of Keynes's multiplier argument, and that his own 1928 analysis of the effect of a country's payment of foreign reparations or the subsequent analysis of an increase in imports on domestic production may be a precursor of the Kahn-Keynes multiplier story.[10] But the inference is mistaken. There is no particular focus on consumption as against savings out of income in any of these arguments by Hawtrey. Furthermore, there is little reason for Hawtrey to have failed to claim precedence in advancing the Keynesian multiplier argument if he believed it was the same as his own earlier analysis, which it is not (Ahiakpor 2000).[11] Patrick Deutscher is thus correct in noting that "If Hawtrey believed he had discovered the multiplier, it is unlikely that he would have been diffident about drawing the profession's attention to the fact" (1990:104).

Gottfried Haberler's (1960) criticism of Keynes's multiplier argument is also very similar to those of Robertson's and Hawtrey's, focusing on its lack of realism in not allowing for time lags (a) between public sector investment spending and output expansion in the consumption goods industries and (b) "between the receipt of money and its expenditure" (232).[12] Haberler also argues the absence of a "simple and unique relationship" between individual marginal propensities to consume and "the multiplier (marginal propensity to consume of *society as a whole*)" (231; italics in original). He notes that the size of an estimated multiplier could be infinite if workers paid on some government projects consumed all of their incomes and saved nothing, which further underscores the inappropriateness of Keynes's leap from "a psychological law about the behaviour of the individual consumer" (229) to that of the society.[13]

But again these criticisms fail to get to the fundamental mythology of the multiplier argument, namely, the claim that it is consumption spending that drives an economy's growth rather than the concurrent production and subsequent exchange of net output. In fact, Haberler's concerns about the failure of the multiplier argument to recognize the possible time lag between the receipt of money and its expenditure and the need to have information on the income velocity of money appear to miss the real target. Keynes includes an "increase in liquidity preference" (1936:120), which must affect the income velocity of money, among the impediments to the full realization of the multiplier effect.

Henry Hazlitt (1959) presents perhaps the most substantive criticism of Keynes's multiplier argument, also calling it a "myth" (429). His main point is that there is nothing significant about the multiplier as derived by Kahn and Keynes. If savings

equal investment and the proportion of income invested happens to be 10 percent (because the marginal propensity to consume is 0.9), then by simple arithmetic the "multiplier" has to be 10, that is, $\Upsilon/I = 1/0.1 = 10$. Were the proportion of investment instead 20 percent, the multiplier would be 5 by a similar calculation.[14] Hazlitt also criticizes Keynes for his argument that inflation would become uncontrollable if the marginal propensity to consume were to reach 1, and for Keynes's failure to link investment spending directly with savings as its principal source of finance. However, Hazlitt's reduction of the multiplier argument to a simple arithmetical illusion has failed to diminish belief in Keynes's argument perhaps because it appears to focus on the past or realized magnitudes ($\Upsilon/I = k$). Hazlitt's critics may easily point out that the multiplier argument is about a projected change in income (and employment) in response to a change in investment spending, that is, $\Delta\Upsilon = k\Delta\mathcal{Z}$ or $k = \Delta\Upsilon/\Delta\mathcal{Z}$.

W.H.Hutt (1974) also disputes the validity of Keynes's multiplier argument, but from quite a different perspective. He regards Keynes's concern over the secondary effects of consumers' expenditure as a concern over *"changes in the ownership of money"* (53; italics in original). Hutt goes on (ch. 7) to dispute the validity of this concern, pointing out that the existence of money merely facilitates the worker–worker exchange that takes place in a market economy. Employers or entrepreneurs, he notes, only act as intermediaries between workers who engage in production with the intent of using their incomes to purchase those items they themselves have not produced, a restatement of Say's Law–"productions can only be purchased by productions." Hutt thus asserts: *"The use of money can be held only to facilitate, never frustrate, the process of asking market-clearing exchange values, i.e., values which permit a better (a fuller) utilization of productive capacity"* (59; italics in original).

According to Hutt, it is the failure of some workers to produce enough to purchase the output of others that spreads a depression in the form of increasing unemployment. The negative repercussions of such inadequate concurrent production are made worse if prices are sticky or do not adjust quickly, and if unemployed labor is also subsidized through "unemployment compensation" or "price support" (55). Thus, he argues, "The 'unemployment'…becomes a collectively purchased product, similar in effect to private decisions in favor of greater leisure" (ibid.). It is such impact on subsequent production, initiated by an earlier inadequate production, that he calls *"the true or real multiplier"* (ibid.; italics in original). Hutt's argument is thus very much in line with the classical explanation of the economic process.

Though Hutt's reasoning is valid, it does not directly confront Keynes's mistaken focus on consumption spending as the root of the multiplier process. Instead he declares that his reasons for disagreeing with Keynes "are unconnected with the *Keynesian multiplier* thesis, *which depends upon 'expenditures'–changes in the ownership of money*" (53; italics in original). For a seemingly persuasive argument as the Keynesian multiplier story–one person's consumption spending becomes another's income out of which a fraction is spent, and so on–a parallel argument such as Hutt's appears too indirect to be an effective refutation.

Summary and conclusions

Keynes's multiplier story lures the mind to its acceptance because it builds on an irrefutable logic, namely, that people typically spend a fraction, albeit a large one, of their income on consumption and that such purchases are incomes for those who are sellers. Keynes also made his story easily acceptable by noting the fact that people do hold money (cash) and often add to their cash balances out of income, and thus they may not pass on all of their newly earned purchasing power to others. By misrepresenting the classical definition of saving to include the hoarding of cash (1936:81, 167) and also claiming that Say's Law presumes the existence always of full employment of labor and never an excess demand for cash (19–21), Keynes was able to lay the grounds for extolling the virtues of consumption spending as the means by which to raise aggregate demand and promote the growth of output and employment. But when one asks the fundamental question, "From where do people find the means to make their consumption purchases?" we are led to the realization of the mythology of the multiplier argument. Production is the source of income and employment growth, and savings supply the financing. Increased production in one sector, by increasing the demand for the output of other sectors, may cause an increase in their production also, which may appear as a "multiplier effect," as some earlier analysts have described the process. But this is quite different from the Keynesian multiplier story.

If it is legitimate to divide an economy's output into consumption and nonconsumption goods, it is nevertheless important to keep in mind that it is the totality of incomes earned from production in both sectors that is used to purchase both goods. Producers also are constantly taking the necessary steps to match their supplies with the market demand for both goods. Their decisions are not determined by the relative employment of labor in consumption and nonconsumption goods industries. They may miscalculate the demand for their products. But market prices adjust (up or down) from their anticipated values when such miscalculations occur, and producers take the new data into account during their next production runs, as the classics have explained. Indeed, some unemployment may arise from such miscalculations of demand by some producers (Jonsson 1997). It is this process of quantity, price, and interest rate adjustments that is described in Say's Law of Markets, not the version popularized by Keynes as "supply creates its own demand."

Keynes's argument that saving is not needed to finance investment spending because the multiplier process makes it possible for investments to pay for themselves through additional savings out of newly created income may have given confidence to supporters of public works programs, but it is simply fallacious.[15] Without a central bank's printing of new money to finance investments (forced saving), they must be financed by savings out of income previously earned, most of which may be channeled through financial intermediaries or banks. The notion of an autonomous government or investment spending, which does not rely on or affect private sector savings, is part of the multiplier's myth. Using the

multiplier argument to deny the opportunity cost of public sector spending, financed either out of borrowed funds or taxation, has been an unfortunate confusion in modern macroeconomic analysis. The Keynesian multiplier story appears plausible only because both its proponents and previous critics have failed to ask the pertinent questions to help unmask its fundamental misconception of the economic process, especially the concurrent nature of production and subsequent exchange rather than a unidirectional one.

13 Conclusion

We may summarize our study of classical macroeconomics as follows. It explains the nature and causes of the growth of an economy, just as Adam Smith states in the full title of his *The Wealth of Nations,*[1] reacting to the mercantilist policies of his day. Thus classical macroeconomics explains that production is the source of a country's wealth, and the principal determinants of an economy's growth are the policies pursued by the country's government, particularly in (a) providing the security of private property from external and internal violation through national defense and the administration of justice, (b) the enactment of laws to facilitate the acquisition of "capital" or savings on a scale larger than that of single proprietorships or partnerships, and (c) maintaining the freedom of commerce or market exchange, both domestic and foreign. The classical economists' explanation of the benefits of voluntary market exchange rather than a state directed one took the form of their clarifying the determination of prices in different markets from supply and demand–the classical theory of value, discussed in Chapter 2. The benefits of voluntary market exchange include its reward to those who employ their land, labor, and "capital" to meet the perceived needs of people in the marketplace and the continuing reallocation of these factors to different sectors of the economy to meet changing needs over time without the direction of an all-knowing sovereign or government. As Smith explains, the free market system discharges the

> sovereign…completely…from a duty, in the attempting to perform which he must always be exposed to innumerable delusions, and for the proper performance of which no human wisdom or knowledge could ever be sufficient; the duty of superintending the industry of private people, and of directing it towards the employment most suitable to the interest of the society.
> (Smith *WN,* 2:208)[2]

It was in pursuit of the forementioned explanation that the classics distinguished short-run market prices from their long-run or "natural" values. The former often tend to be determined by changes in market demand while the latter tend to be determined by long-run costs of production or the revenue that assures the continuing supply of labor, land, and "capital," and yield of profits to the undertaker

of an enterprise. Thus, were the short-run market price to fall consistently below the natural price, "capital" will leave the industry, shrinking production and adjusting output or supply to the sustainable level of demand. On the other hand, were the short-run price to exceed the natural price, "capital" would move into the industry in pursuit of profits, increasing production to meet the persistent level of demand.

The classics also used their theory of value to explain the determination of interest rates in different "capital" or credit markets, wages in different occupations or "centers of employment," rentals on lands or capital goods, exchange rates on currencies of different countries, and the general price level as well as its growth or inflation. It was their belief that a clear understanding of these explanations would aid the adoption of those policies most conducive to an economy's growth. Thus, understanding that interest rates are determined by the supply of savings relative to its demand rather than the abundance of money or currency, may deter a government from inflating its currency in hopes of lowering interest rates permanently in order to encourage borrowing for investment and thus promoting economic growth. Rather, the policy would be that of low taxation, maintenance of confidence in the financial markets, enforcement of contracts, and maintenance of a stable value of the currency in which commercial contracts are written.

Similarly, high or low wages are determined by the relative scarcity of skills in different occupations. A great demand for certain skills would raise the wage rate for them and induce a reallocation of effort to acquiring such skills to meet the demand over time. Low wages, on the other hand, may indicate too little demand for the skills or their over-supply, which would encourage some reallocation of labor over time. On the classical principles, there is nothing sacrosanct about labor to require its special treatment from government by regulating its remuneration anymore than the price of bread or milk. Changing market values or prices encourage the reallocation of factors to supply them to meet their long-run demand. The same explanation applies to the allocation of land and other capital goods and to the trading of foreign currencies in the foreign exchange market.

The classical economists, starting especially with Adam Smith, also believed that the pursuit of self-interest or the desire of "bettering our condition, a desire which, though generally calm and dispassionate, comes with us from the womb, and never leaves us till we go into the grave" (*WN,* 1:362–3) on the part of both sellers and buyers assures the working of the factor allocative mechanism they described. And where not interfered with by a government, such a market mechanism works to promote economic growth or the material well-being of people.

The application of the classical theory of value to money or currency received special treatment from the classics, given that the market for money is not as evident as that of other goods and services. They first distinguished money from other media of exchange or money substitutes, such as checks and bills of exchange. Where money was a commodity such as gold or silver, its supply depended on the cost of acquiring it from the mines or the commodities exchanged

for it in foreign trade. In such circumstances, an increase in the demand for money may take long for the quantity supplied to respond, thus sustaining a rise in the value of money (a depression of the price level). On the other hand, the institution of paper or fiat money enables a government to adjust quickly its quantity to the changing demand, thus being capable of maintaining a fairly stable value of money or the general price level. Such ease of adjusting the quantity as well as the cheaper cost of its production recommended the use of paper money to Adam Smith, with the caveat that its supply be properly regulated to meet the needs of trade. David Ricardo's pamphlets on money elaborate Smith's arguments on the determination of the value of money and the need for its proper regulation to enable money to perform its legitimate roles in an economy, namely, as a measure of value, an instrument of exchange or commerce, and a store of value, not the source of "capital" for economic growth. J.S.Mill continued in this tradition of classical monetary theory and policy.

Say's Law of Markets integrates the preceding classical principles well by describing the interconnectedness of the markets for goods and services, "capital" or savings, and money. Thus the law explains that an excess supply in a particular goods market may be matched by an excess demand in another market, a reflection of too much allocation of productive factors to the market experiencing the excess supply and too little to the market with the excess demand. Relative prices would change, falling in the market with the excess supply and rising in the market with the excess demand, and motivating suppliers to change their production pattern to meet the market demands. As Ricardo aptly explains, a resistance to selling at the lower price in the market with the excess supply may require that some of these producers increase their demand for credit to sustain themselves while hoping for the market demand to rise. If so, interest rates would rise, putting pressure on the borrowers to review their decision quickly. Sooner or later all producers would adjust their demand for credit or "capital" on the basis of the profitability of their production rates.

Also, a change in demand away from the purchase of goods and services as well as financial assets toward the demand for money (currency) would raise the value of money or lower the price level for all goods and services. Until the production or supply of money responds to meet the increased demand, there would be a contraction in the supply of "capital" and a slow down in economic activity or an economic recession along with increased unemployment. The classics attributed the latter phenomenon mainly to a shake-up of confidence, when most people resort to securing their wealth by hoarding cash rather than saving with depository institutions.

On the basis of their explanation of the principal cause of recessions, namely, the excess demand for money following a shake-up of confidence, the classics recommended that the government take actions to restore confidence in the financial markets in order to induce the public to restore their rate of savings to finance business spending. The classics considered it nonsensical to identify the source of recessions as the overproduction of goods and services, as argued by the likes of Thomas Malthus, Sismondi, and Chalmers—the under-consumptionist

theorists. Productions constitute the source of demand for productions because acquiring income to spend on other people's productions is the reason one engages in production, the Law of Markets explains. Thus there could not be too much production of everything, including money. Only while the demand for money (currency) exceeds its supply is there a deficiency of demand for other goods and services as well as for financial assets (supply of savings). As J.S.Mill clearly caps that debate, "Nothing is more true than that it is produce which constitutes the market for produce, and that every increase of production, *if distributed without miscalculation* among all kinds of produce in the proportion which private interest would dictate, creates, or rather constitutes, its own demand" (1874:73; emphasis added). Thus, aggregate demand management policies of the modern Keynesian variety arise from a misunderstanding of the working of markets.[3]

The preceding classical principles were carried into the neoclassical period, usually dated from 1871, mainly by Alfred Marshall, along with some modifications to suit the changed times and economic institutions. An early significant distortion of classical macroeconomics arose from the work of Eugen Böhm-Bawerk who assigned the capital-goods only interpretation of "capital" in the classical theory of interest and proceeded incorrectly to criticize it, substituting for that theory, the time-preference version. He also found fault with the classical application of the theory of value to "capital" in explaining interest rates because he incorrectly attributed Karl Marx's labor theory of value to all classical writers, including Adam Smith.[4] Irving Fisher followed Böhm-Bawerk's lead in rejecting the classical "capital" supply and demand theory of interest and emphasized the time-preference theory. But as explained earlier (Chapter 4), the time-preference theory of interest can be subsumed under the classical "capital" supply and demand theory if "capital" is correctly interpreted as funds saved from income. An individual's time-preference determines his or her saving or borrowing behavior. Furthermore, Fisher interpreted as a fixed quantity the classical use of "stock" interchangeably with "capital" (thus meant to be a flow variable), and therefore could not associate "capital" with the determination of interest rates.

Fisher also extended the definition of currency to include the public's savings held with banks as checkable deposits. This new definition has complicated for modern macroeconomics the explanation of the supply of money as originating from a central bank as well as the nature and instruments of regulating the quantity of money. Fisher's inclusion of savings in the definition of currency also complicated his illustration of the classical quantity theory of money with his equation of exchange. Instead of the price level being determined by the quantity of (central bank) money times its velocity divided by the volume of transactions *(P=HV/T),* Fisher added the volume of bank deposits multiplied by their velocity to the numerator of that equation. He thus attributed a necessary inflation bias to the institution of banking instead of the classical real economic growth effect of commercial banking.

In his attempt to integrate Böhm-Bawerk's theory of capital and interest with the classical version from the works of Ricardo, J.S.Mill, and Alfred Marshall, Knut Wicksell also created a distorted version of the classical theory of interest

as well as monetary analysis. Like Fisher, Wicksell envisioned the ability of banks to create a never-ending inflation simply by extending credit and keeping the market rate of interest below the natural rate, or a never-ending deflation by raising the market rate above the natural rate in a monetary system where banks do not depend on the public's savings to extend credit. Thus, although Wicksell may have intended by his work to improve upon the classical quantity theory of money in explaining the price level and inflation, his analysis blurs the role of money's supply and demand in the explanation.

None of the variations and distortions of the classical theories is as significant as that of John Maynard Keynes's, whose work was influenced by Robert Malthus, Sismondi, and Chalmers, among writers in the classical period, and Böhm-Bawerk, Fisher, Wicksell, J.A.Hobson, and A.F.Mummery, among writers in the early neoclassical period. Keynes could not recognize "capital" as funds in the classical literature, but identified savings invariably with the hoarding of cash, attributed the notion of investment only to the purchase of capital goods, and extended the definition of money to include deposits other than those subject to withdrawal by check. As a result, Keynes could not make meaning of the classical "capital" or savings supply and demand theory of interest, could not appreciate that savers' investments in financial assets constitute the supply of "capital" for business investors, or that the act of saving does not reduce total spending on goods and services (or aggregate demand) in an economy. He also could not appreciate that his cash or liquidity-preference theory of interest was subordinate to the classical "capital" supply and demand theory of interest since an increased preference for liquidity (cash) constitutes a reduction in the flow of savings or demand for financial assets, which would raise interest rates in the short run.[5]

From such confusion, Keynes also could not recognize the coordinating role of interest rates between savers and borrowers to assure that "too much saving" or "insufficient demand" would not persist, and thus carried the concerns of the under-consumption theorists beyond where Say's Law had stopped them in the nineteenth and early twentieth centuries. Indeed, it is hard to appreciate the validity of James Mill's argument that "a nation can never be naturally overstocked either with capital or with commodities; as the very operation of capital makes a vent for its produce" (1808:82) if one thought "capital" in the statement meant capital goods, which do not emerge directly from households' savings. But an excess supply of "capital" (savings) would lower interest rates and increase borrowing for spending as well as partly reduce the flow of savings itself. Keynes further capped his distortions of classical macroeconomics by attributing to them the assumption of always full employment of labor and available production capacity. Classical macroeconomics in Keynes's script is hardly what the classical economists wrote. Efforts to examine Keynes's charges against the classics but without first dealing directly with his distortions of classical concepts, as in the work of A.C.Pigou, Frank Knight, Jacob Viner, J.R.Hicks, R.G.Hawtrey, D.H.Robertson, Don Patinkin, and Milton Friedman, thus could not be successful.

Pigou's acquiescence with some of Keynes's new definitions well illustrates the ineffectiveness of this approach to dealing with the Keynesian distortions of

classical macroeconomics.[6] For example, in his 1949 retrospective on Keynes's *General Theory,* Pigou concedes that increased saving may be harmful to an economy, causing increased unemployment and a decreased level of aggregate income, a major inversion of the classical savings theory of economic growth. Pigou argues, "In short, greater thriftiness carries with it a smaller total of employment" (1950:40), adding: "Nobody doubts any longer that Keynes's argument, as I have set it out above, is not only correct on his premises, but is also applicable in a general way to the conditions of the actual world" (41). Furthermore, Pigou declares, "The analysis I have followed so far affirms that greater thriftiness both entails less employment and also more investment" (41–2) and, after disputing Keynes's claim of "the quantity of investment demanded [being] an increasing function of current consumption," yet affirms that Keynes's "*main* conclusion, that, in the conditions contemplated, thriftiness dampens employment, is in no way weakened" (44; italics in original).

Pigou's concessions seemed warranted only because he had adopted Keynes's definition of saving or thriftiness to mean the hoarding of cash instead of the classical meaning of saving as the purchase of financial assets. The Keynesian definition of saving to mean hoarding is also reflected in Pigou's treatment of the process by which his own version of the real balance effect works to curb too much saving: "Arrest [of too much saving] may come through the desire to save stopping because, with lower prices, the representative man has accumulated in *money* so large a labour value of assets that he does not care for any more" (1950:36; emphasis added). The same view of saving as hoarding is reflected in Pigou's argument that "when people decide to consume less, this decision is often accompanied by a decision to make their position more liquid, which implies reducing the income velocity of money $[V_y = Y/M]$" (51).

But when people decide to consume less, they may purchase more financial assets instead of hoarding their income in cash or becoming "more liquid." Such increased saving would lower interest rates, encourage more borrowing for investment spending and increased production and employment, rather than the economic depression Keynes deduced from the increased propensity to save or a "heightened liquidity preference." Some modern macroeconomics textbooks now affirm the positive role of saving for an economy, although several also tend to confine such effects to the long run. There would be far more clarity in the analysis of the impact of saving on an economy if saving were distinguished from hoarding, as the classical economists did, rather than the current hotchpotch of analysis that assigns negative effects of saving to the short run while attributing positive effects to the long run, for example, Colander and Gamber (2002).

Hicks's failure to address the conceptual differences between Keynes and the classics also accounts for the failure of his efforts through the IS-LM model to present a framework for successfully addressing the theoretical disputes between Keynes and his followers on the one hand and defenders of the classical tradition on the other, a failure that persists to this day (Chapter 11). Milton Friedman's declaration of Keynes's *General Theory,* the very foundation of the Keynesian macroeconomics, which most of his professional work has aimed at countering,

as a "great book" (1970:133) very much reflects how little he recognizes Keynes's distortions of classical concepts. Thus, contrary to the view that everything that is worthwhile to learn in classical macroeconomics has been incorporated into some version of modern macroeconomics or that a study of classical economics may be a wasteful pastime, this book argues otherwise. Modern macroeconomics entails serious distortions of classical macroeconomics, and macroeconomic theorizing and policymaking stand to benefit a great deal from our correcting these distortions. A brief sketch of these benefits follows.

By discarding the Keynesian concepts underlying the IS–LM model, particularly the definition of money to include savings of various maturities instead of currency only, monetarists will be able to make a more credible argument about inflation being "always and everywhere a monetary phenomenon." They will no longer be stumped by the failure of double-digit growth of *M*2 to spark inflation in the United States or other more developed countries where only about 10 percent of *M*2 is central bank money or currency. Monetarists also will find accord with David Hume's recommendation on monetary policy, namely, that "The good policy of the magistrate consists only in keeping [the quantity of money, i.e. currency], if possible, still [i]ncreasing; because by that means, he keeps alive a spirit of industry in the nation, and [i]ncreases the stock of labour [production], in which consists all real power and riches" (1752:39–40). This is the equivalent of the constant money growth rule that Milton Friedman abandoned in the 1980s in preference for a freeze on the quantity of high-powered money,[7] following his frustration with central bankers' refusal to adopt the constant growth rule applied to *M*2.

The New Classicals would find consistency of their argument regarding unanticipated changes in the quantity of money (currency) and real output and employment changes with the classical forced-saving doctrine. They may also be motivated to make more plausible and truly classical claims about the effectiveness of monetary policy than pursuing the argument that inflation could be reduced without the pain of unemployment if a contractionary monetary policy were announced and believed by the general public. Together, adherents of these two schools of thought would find meaningful and defensible basis in classical macroeconomics for arguing the adoption of high-powered money as the proper instrument of monetary policy rather than *M*1 or *M*2, and the stability of the price level as the requisite target or goal. The dangers of the so-called Taylor rule—varying the quantity of "money" on the basis of changes in the price level and deviations between the actual and potential GDP—or having the monetary authorities respond always to some index of the stock market would more readily be exposed.

Keynesian and Post-Keynesian economists have much to gain by recognizing that the principal basis of Keynes's revolution in economic thought was his confusion over some key economic concepts, including "capital," saving, and investment related to households. They would appreciate that Keynes's attributions of the full-employment assumption to the classical theories of interest, price level, the forced-saving doctrine, and Say's Law were all in an effort to make meaning

of arguments over which he was confused. Rather than treating Keynes's own backtracking before his death on the usefulness of the assault he had unleashed in the *General Theory* on classical macroeconomics as the work of a "sick man,"[8] they may take seriously his own doubts and read the classical literature more carefully. Indeed recent work by some New Keynesians appear to be moving in the direction of accepting some classical arguments, including the positive role of savings in economic growth, even if related only to the long run.

The Austrian economists, much marginalized in modern macroeconomics, perhaps have the most to gain by interpreting the classical theories correctly. They already share the classical perspectives on the benefits of free markets, currency regulation or control to curb inflation, and the monetary underpinnings of the business cycle–the classical forced-saving mechanism. They would find grounds for giving up their mistaken criticisms of classical arguments by recognizing the two categories of capital: one as funds saved by households and the other as the capital goods purchased with only a part of such funds, the remainder being used to rent the services of land and labor as well as partly kept as cash in hand to run a business. Austrians would thus appreciate the complementarity as well as the subsidiarity of their time-preference theory of interest to the classical "capital" supply and demand theory of interest.[9] They would also find, perhaps to their pleasant surprise, that classical macroeconomics is not one of those "competing theories that ignore capital altogether or that treat capital as a one-dimensional magnitude" (Garrison 2001:11).

Austrians would also appreciate that the classical application of the theory of value to "capital" to explain interest rates, to labor to explain wages in different occupations, to land to explain rentals in different markets, and to money (currency) to explain the price level does not involve a labor theory of value. Neither do such applications of the supply and demand framework invoke the assumption of perfect competition in markets. As Alfred Marshall explains whiles absolving the classics from having relied on such an assumption, "Perfect competition requires a perfect knowledge of the state of the market…it would be an altogether unreasonable assumption to make when we are examining the causes that govern the supply of labour in any of the lower grades of industry" (1920:448–9).

By separating "capital" or savings from money (currency) as the classicals did, modern Austrians also may give up arguing their claim that only a regime of "free banking"–depository institutions setting up shop without any government regulation of their business, including the printing of bank notes–would assure a stable or inflation-free economic environment. In short, instead of attempting to derogate classical economics, Austrians may find fruitful ways of cooperation by way of elaborating classical arguments. F.A.Hayek did not fail to engage Keynesian arguments successfully in the 1930s and 1940s because most of his audience were dumb, but because he could not show that Keynes's principal arguments against classical macroeconomics were founded on misrepresentations. His arguing instead the Austrian theories of capital, interest, and production, which are founded partly on Böhm-Bawerk's misrepresentations of classical concepts, in the face of

Keynes's challenges to the classicals, and Frank Knight's corrections of his capital-theory arguments (see Chapter 6), could not have been a winner. Modern Austrians have a chance to do better.

In conclusion, the following points may be made. The classical economists did not all write with the same accord on all the core principles we now call macroeconomics. Some of their choices of words may appear to us to be unclear or their arguments inconsistent. But with careful reading, we can find consistency in their explanation of market prices being determined by supply and demand, and their extensions of that explanation to factor services such as labor, land, and "capital" as well as to money (currency). Careful reading also enables us to appreciate the classical explanation of how all markets for produced goods and services are interconnected, reflecting the changing desires of producers and consumers, thus requiring little intervention by government to promote "aggregate demand"–the Law of Markets. From such understanding, we can better appreciate their policy preferences for promoting economic growth, both in the short run and long run. Modern research may then better focus on clarifying how operations of the classical macroeconomic principles change over time with changing economic institutions in order to assist in the design of appropriate macroeconomic policies.

Notes

1 Introduction

1 Even his acknowledgment of Keynes's error in attributing the full-employment assumption to the classics takes an obtuse form in a footnote: "[Keynes's] indictment that the classical theory knows no unemployment except a frictional one is true only if the term frictional is defined so widely as to rob the indictment of all significance" (1954:1177, n. 12). As explained in Chapter 10, Keynes's attribution of that assumption to the classics was simply wrong.
2 Originally published in the *American Economic Review,* September 1946. As Chapter 12 explains, the Keynesian multiplier concept is a myth.
3 The Public Choice/Supply-Siders could easily find home with the Monetarists or New Classicals while the emerging Austrian macroeconomists are yet to form a distinct group, sharing as they do much of the policy perspectives of the above, although employing different analytical structures, for example, Garrison (2001) and Horwitz (2000).
4 Ahiakpor (1998: ch. 2) elaborates. Sowell (1974) suffers from the same limitation, although written in vigorous defense of classical macroeconomics.
5 For a detailed critique of Laidler's claim, see Aslanbeigui and Oakes (2002) and Johnson and Cate (2002).
6 However, unlike Keynes, Frank, and Bernanke define saving as the acquisition of financial assets, and which "is so important to an economy" (2002:248).
7 DeLong also departs from the Keynesian framework in treating savings as a flow of funds into "financial markets," and which enables "Businesses seeking to invest [to] draw on the pool of savings to gain financing for purchasing capital goods to expand their productive capacity" (2002:67).
8 See especially the presentations by Oliver Blanchard and Alan Blinder.

2 The classical theory of value: a foundation of macroeconomic analysis

1 Note that Smith includes interest rate in the rate of profit. Thus, the natural price covers the natural rate of interest also.
2 Smith cites the example of Shetland, which is "more than commonly abundant in fish" and where landlords charge rent "in proportion, not to what the farmer can make by the land, but to what he can make both by the land and by the water. It is partly paid in sea-fish; and one of the very few instances in which rent makes a part of the price of that commodity, is to be found in that country" (*WN,* 1:162).
3 Blaug (1996:38) also sees no labor theory of value proposition in Smith's *Wealth of Motions.,* noting that "the construction of Book 1, chapter 6 shows clearly that it was meant to be a refutation of the labour-cost theory of value hinted at by some of Smith's predecessors,"
4 It is important to keep in mind that Smith uses the foregone leisure involved in the period of "toil and labour" as the measure rather than the wage rate or the value of labor in terms of money. David Ricardo's failure to keep this distinction in mind led to his criticisms of Smith's argument, as I note later.

5 Note that Smith does not say, "labour alone, therefore, never varying in its own price," but rather, "never varying in its own value." The distinction is important. The price of labor, according to Smith, is the wage rate while the value of labor in the context being discussed is the quantity of labor for which labor will exchange. And the price of labor does vary according to the forces of demand and supply (*WN,* 1: ch. 8).
6 For a recent clarification of Smith's theory of value along these lines, see Hueckel (2000).
7 Thomas Malthus (1836: esp. 117–22) similarly objects to Smith's use of the term "the value of labour" to mean anything else other than the money price of labor or the wage rate.
8 Ricardo explains well that it is the cost of producing specie that limits its supply relative to the demand, and thereby determines its value–that being replicated by the paper substitute. Thus, "If every man might issue paper money in what quantity he pleased and which he was under no obligation to redeem how long will it have any value above its cost of production?" (*Works,* 2:48), Ricardo wonders.
9 Mill considers the term, "exchangeable value" to be "bad English," and adopts instead De Quincey's alternative, "exchange value" (*Works,* 3:457).
10 Ricardo lists three conditions: (a) utility, (b) scarcity, and (c) "the quantity of labour required to obtain them" (*Works,* 1:12). Again, Mill's argument is in contrast with some modern writers' claim that the classics had no role for utility in their theory of value.
11 Ludwig von Mises (1949:121) repeats the claim, arguing that the "acting man" does not choose, for example, between "all the gold and all the iron" to be used when faced with the choice of purchasing either commodity. Yet such a comparison of total utilities was the problem the earlier economists thought they had to solve, according to Mises. Blaug (1996:39) also repeats this claim of Smith having sought to compare total utilities.
12 See Ahiakpor (1999a) for a point-by-point rebuttal of Rothbard's charges against Smith.

3 On the definition of money: classical vs modern

1 This chapter is based on a paper by the same title presented at the History of Economics Society Meetings in Vancouver, BC, Canada, 30 June–3 July 2000.
2 Greenfield and Yeager (1986) explain the operational confusion that the Federal Reserve System of America has got into from confusing credit and money.
3 Thornton appears to recant his view on the Bank's over-issue in a speech in the House of Commons on 14 May 1811, calling it a "dangerous doctrine" and "an error to which he…had stood corrected after a fuller consideration of the subject" (Ricardo *Works,* 3:83, n. 3).
4 Thornton also disputes Hume's argument that the inflation of paper causes price inflation, which is localized within the country of issue. In Thornton's view, "paper credit…enhances the prices not of that single spot in which it passes, but of the adjoining places, and of the world" (1802:270).
5 David Reisman (1971) finds other grounds for not regarding Thornton's arguments in the *Paper Credit* as highly as some others, such as Blaug, Ekelund and Hébert, and Hayek.
6 Chapter 4, on the classical theory of interest, explains the logic and validity of Ricardo's argument.
7 Senior explains: "If given quantities of two different articles are each found by experience to exchange for a given quantity of a third article, the proportionate value of the two first mentioned articles may, of course, be inferred. It is *measured* by the third. Hence arise the advantages of selecting, as one of the subjects of every exchange, a single commodity, or, more correctly, a species of commodities constituted of individuals of precisely similar qualities. In the first place, all persons can ascertain, with tolerable accuracy, the intrinsic causes which give value to the selected commodity, so that one half the trouble of an exchange is *(sic)* ready performed. And, secondly, if an exchange is to be effected between any other two commodities, the quantity of each

that is usually exchanged for a given quantity of the third commodity is ascertained, and their relative value is inferred. The commodity thus selected as the general instrument of exchange, whatever be its substance, whether salt, as in Abyssinia, cowries, on the Coast of Guinea, or the precious metals, as in Europe, is *money*. When the use of such a commodity, or, in other words, of money, has become established, value in money, or *price,* is the only value familiarly contemplated" (1836:96–7; italics in original).

8 Thus, Walker has a much firmer commitment to a specific definition of money than Schumpeter (1954:1086–7) attributes to him.

9 Marshall (1923:13n) notes: "This is substantially the definition for which F.A.Walker argued with great force in 1878: and which has won its way to general acceptance."

10 However, Fisher appears to lose sight of the fact that such deposits are made possible by the savings of income earners. Instead, he suggests that the deposits are created basically at the whim of banks through their loans, for example, Fisher (1935:7–8). Thus, instead of recognizing the 8 billion contraction of bank deposits between 1929 and 1933 as a contraction of the public's savings with banks, he describes the occurrence as a "destruction" of check-book money by the banks (6–7).

11 The Federal Reserve Bank of the United States adopts the following definitions: *M*1=Currency in circulation+Traveler's checks+Demand deposits+Other checkable deposits; *M*2=*M*1+Small denomination time-deposits+Savings deposits+Money market deposit accounts+Non-institutional money market mutual fund shares+ Overnight repurchase agreements+Overnight Eurodollars; *M*3=*M*2+Large denomination time-deposits+Term repurchase agreements+Term Eurodollars; and *L*=*M*3+Nonbank holdings (net of money market fund holdings) of: Short-term US Treasury securities+Commercial paper+Savings bonds+Bankers' acceptance. See Hubbard (2000:26).

12 Robertson may be following Marshall's response to the question, "In what sense do you use the word currency when you speak of dependence of prices on the quantity of the currency?" To which Marshall replied, "I believe that you can make the theory valid with almost nay definition of currency, provided, when you have once adopted it, you adhere to it throughout" ([1887] 1926:35). However, Marshall went on to say, "I, myself, use the term currency to include everything which passes from hand to hand as a means of purchasing, without requiring any special or trade knowledge on the part of those who handle it" (ibid.), which is quite different from the array of financial assets now included in the modern definition of money.

13 Chapters 9 and 12, on the theory of growth and the mythology of the Keynesian multiplier, explain the limited potency of fiscal policy in promoting the growth of income and employment.

4 The classical theories of interest, the price level, and inflation

1 Subsequent chapters on Keynes's misinterpretation of "capital" and his attribution of the full-employment assumption to the classics will elaborate.

2 Failure to understand the classical definition of saving, which excludes hoarding, has plagued the interpretation of their theory of interest by several analysts, most notably Keynes. It also affects Douglas Vickers' inaccurate interpretation of Smith's monetary analysis when he sees in it a "failure to recognize that damaging interruptions may in fact occur in the savings-investment process, and that it may not be true that a portion of his income 'which a rich man…annually saves…is *immediately* employed as capital.' Hoarding of money, and consequent variations in the rates of flows of expenditures, could and did occur, with damaging economic repercussions" (1975:484; italics in original).

3 Of course, short of declaring bankruptcy by a borrower, interest will still have to be paid on a loan whether the borrower makes profits or not.

4 Non-household's cash balances, including cash reserves of banks and the cash holdings of other firms, make up the balance of the volume of cash or currency supplied by the monetary authorities: $H = H_h + H_{nh}$. $\Delta H_h = p\Delta Y + \Delta p Y$, where p is the proportion of income households desire to hold as cash. Thus the accumulation of cash balances (ΔH_h) may arise from an increase in income (ΔY) while the desired proportion (p) remains unchanged, or from a change in the desired proportion (Δp) while the level of income (Y) is unchanged.

5 These financial assets exclude those traded on the stock market. The flow of savings employed to purchase equity in firms deducts from the flow determining interest rates, just as the issue of stocks by firms deducts from their demand for "capital" or supply of financial assets on the loans market.

6 Jeremy Bentham called it, "forced frugality," J.S.Mill called it, "forced accumulation" (see Schumpeter 1954:724), while A.C.Pigou called it, "forced levy" (1927:132; 1933:236; also Keynes 1936:189). See also Robertson (1936:185, n. 6; 1949:51). But contrary to Schumpeter (1954:1116) and Blaug (1996:159), this classical argument was not founded on the assumption of full employment. See Ahiakpor (199 7 a) and Chapter 10.

7 This is the mechanism Knut Wicksell (1898) employs to derive a limiting mechanism to his credit theory of inflation, also adopted by Irving Fisher (1912).

8 The same pressure will be on borrowers for consumption purposes. To acquire the same real volume of goods and services, they need a greater volume of loans, and would thus be willing to pay higher interest rates.

9 Ricardo clarifies that he is "here speaking of an excess of [Bank] notes, of that quantity which adds to our circulation without effecting any corresponding exportation of coin, and which, therefore, degrades the notes below the value of the bullion contained in the coin which they represent" (*Works,* 3:92n). Earlier Ricardo acknowledges the short term influence of new money on interest rates: "I do not dispute, that if the Bank were to bring a large sum of notes into the market, and offer them on loan, but that they would for a time affect the rate of interest" (91).

10 Immediately after making this point, Marshall discounts the validity of Böhm-Bawerk's attacks on the classical theory of interest, noting that the latter has "underrated the acumen of his predecessors in their writings on capital and interest" (Marshall 1920:484n). Chapter 6 explains the basis of Böhm-Bawerk's erroneous criticisms of the classical "capital" supply and demand theory of interest.

11 Introduction of government does not change the argument. Governments obtain funds for spending from taxes and/or issuing financial assets (bonds), and their spending is also on goods and services and on money.

12 This is equivalent to Keynes's increased liquidity-preference argument in his alternative money supply and demand theory of interest. Chapter 5 elaborates.

13 The increased real income during the forced-saving process causes the demand for money to increase, but the demand decreases when real income falls as real wages are restored and the rate of production and employment return to their original levels.

14 Laidler (1981:186) correctly notes that "there is a great deal more credit due to Smith as a monetary economist than is usually granted him." But Laidler himself could have been less inclined to accept Jacob Viner's (1937) incorrect attribution of a weakness to Smith's monetary analysis, in the view that Smith ignored the Hume price-specie-flow mechanism. The Humean analysis can be found in Smith's *Wealth of Nations* (esp. 1:345–6, 453–6, 460). Ahiakpor (1999a:366–7) elaborates.

15 Of course, estimating the effectiveness lag of changes in the growth of currency on prices is a complication in reality.

16 Friedman (1970) includes [South] Korea among the list of high money-growth and high inflation countries, and Germany among the low money-growth and low inflation countries.

17 Also see Cagan (1956) for a strong affirmation of the argument, especially in cases of hyperinflation. Cagan dismisses such alternative theories or causes of inflation as exchange

rate depreciation, unionization of labor, and cost-price spiral, and "places crucial importance" instead "on the supply of money" (90–1).

5 Keynes's misinterpretation of the classical theory of interest

1 This chapter draws heavily on Ahiakpor (1990).
2 Marshall's comments here closely follow that of J.S.Mill's: "Loanable capital is all of it in the form of money. Capital destined directly for production exists in many forms; but capital destined for lending exists normally in that form alone" (*Works,* 3:655).
3 Chapter 10 on Keynes's incorrect attribution of the full-employment assumption to the classics elaborates.
4 See also Robertson (1936, 1940:19), Knight (1937), and Hazlitt (1959:193) who reach the same conclusion. Keynes (1938:319) also says, "The rate of interest is determined by the total demand and total supply of cash or liquid resources."
5 Keynes's allowance of money's "equivalent" in the argument is an unhelpful complication. If people hold bank accounts instead of cash, they increase the supply of loanable funds, tending to decrease the rate of interest.
6 Keynes's equation of his marginal efficiency of capital with Marshall's is a switch from his earlier denial of the same in a 27 August 1935 letter to Roy Harrod: "my definition of marginal efficiency of capital is quite different from anything to be found in [Marshall's] work or in that of any other classical economist (except for a passage which he makes little subsequent use of in living Fisher's latest book)" (Keynes 1973, 13:549). The denial turns out to be correct.
7 Hicks (1977:153) mistakenly claims that Marshall, Pigou, and J.B.Clark did not employ the classical fund ("fundist") concept of capital. See also Hicks (1983:336–7) for a similar misinterpretation of Marshall's work.
8 Hicks is mistaken in this argument. The supply and demand for money equation is not in competition with that of borrowing and lending to determine the n prices from a set of n equations describing an economy. The price of money is always equal to unity. Rather it is the weighted average of the n-1 prices, which are to estimate the value of money, V_m=1/P, where $P = \sum_{i=1}^{n-1} w_i p_i$, where w_i=weights of the n-1 commodities, and p_i=the n–1 prices.
9 Chapter 9 on Keynes's misinterpretation of the classical savings theory of growth elaborates the classical clarification of saving as being spending.
10 Robertson (1937:431; 1940:27) refers to this point in his criticism of Keynes's failure to recognize the three-margin analysis entailed in the classical theory of interest, also noting the contributions of A.C.Pigou and Frederick Lavington.
11 Employing the logic of the quantity theory, Robertson (1933:402) also explains that increases in hoarding will cause the price level to fall.
12 The latter concession is a reversal of Harrod's earlier correct interpretation of Marshall's explanation of interest rate determination by the marginal efficiency of capital and the schedule of savings, against Keynes's criticism: "I do not think that Marshall failed to appreciate the distinctiveness of the concepts of marginal efficiency of capital and the rate of interest. He knew that there was a schedule of marginal efficiencies and he thought that interest was determined by this and the schedule of propensity to save" (Keynes 1973, 13:548–9).
13 Harrod (1951:453) claims that he "supplied a diagram purporting to reconcile the classical theory [of interest] with [Keynes's] theory, and that [Keynes] incorporated it in the *[General Theory]*–the only diagram in it." However, O'Donnell (1999) argues that Harrod never supplied a diagram but only suggested how one could be drawn. Besomi (2000) advances arguments in support of O'Donnell's claim.

14 The appendix to chapter 14 contains the clearest exposition of Keynes's confusion over the meaning of capital in the classical theory of interest. Harrod's success in having Keynes relegate that part of the chapter to an appendix may have helped to delay an early discovery of Keynes's fundamental confusion over the classical "capital" supply and demand theory of interest by others with a clearer understanding of the classical concept (Ahiakpor 1990).
15 Keynes's confusion arose partly from the debate between the Austrians and neoclassical over capital and interest (Keynes 1936:176, 192–3), in which the Austrians, following Böhm-Bawerk, treated "capital" only as capital goods. Chapter 6 elaborates.

6 The Austrians, "capital," and the classical theory of interest

1 This chapter draws heavily on Ahiakpor (1997b).
2 Kirzner himself is more careful, noting that in the determination of interest rates, "it cannot be ruled out that other factors (including physical productivity)" may be relevant (1993:185–6). This may be contrasted with Mises (1949:486, 524–5) and Garrison (1985). Hayek (1945a) also recants his earlier acceptance of the role of productivity, which Mises (1949:525n) approvingly cites.
3 See Hayek (1935 and 1941). Mises (1949: chs 18 and 20) elaborates, making references to Hayek. There are traces of the argument in Mises (1934), to which Keynes (1936:192) also refers.
4 Clark (1899:134) makes a similar argument regarding abstinence and interest: "The particular enjoyment that the man might have had, if he had spent his money on consumers' goods, he will never have if he saves it. He has abandoned it forever; and, as an offset for it, he will get interest. *In the absence of disaster,* the new capital will create its outflowing product *thenceforth forever*" (emphasis added).
5 Kirzner (1993:179–81) makes a similar criticism of the explanation of interest as being the reward for "waiting."
6 Note that in referring to "capital" as a permanent fund, Clark is assuming "normal" business conditions and he is not oblivious to the fact that "capital" can be destroyed. As he explains, "This [description] is not saying that no capital ever perishes in fact. Untoward accidents occur. We here speak of what is, in the strict sense, normal; and the perishing of capital is not so" (1893:309n). Clark's terminology is pretty much that of Smith's (*WN,* 1:360) who describes the act of supplying "capital" as establishing "as it were a perpetual fund."
7 The same anonymous reader also cites Hicks's (1977:152–65) classification of writers into those who held the "materialist" as against the "fundist" concept of "capital," placing the Austrians among the "fundists" and neoclassicals, such as Marshall and Pigou, among the "materialists." But as Ahiakpor (1990:510) earlier points out, Hicks was mistaken. The closest the Austrians come to being "fundists" is their estimation of the value of capital goods in production but not "capital" as loanable funds.
8 The measurement problem is further complicated by claims such as "a 'stage of production' is itself a subjective concept…it has meaning only in terms of the relationship (as perceived by producers) between the capital goods that make up a stage of production and the future consumption goods. A given stage does not correspond to a particular industry or even to a particular, objectively defined, collection of capital goods" (Garrison 1985:167).
9 Knight here follows the distinctions drawn by J.B.Clark. See also Boulding (1936) who follows in the same tradition as Hayek in failing to recognize "capital" as fund and a flow variable.
10 Of course, Hayek (1945a: 22) later calls his praising of Knight's argument a mistake.
11 Leijonhufvud (1968:207, 211–17), attempts to excuse Keynes's difficulties with the classical "capital" demand and supply theory of interest by the confused nature of this debate.

12 Hawtrey (1952:220–55) also provides a substantive criticism of Hayek's argument.
13 Given the stock of money (cash), variations in its demand affect primarily the price level, $P=H/ky$, where H=stock of money, y=real income or output, and k=proportion of income the public desires to hold in cash. The rate of interest is not affected unless, given the level of real income (y), changes in the demand for money (k) affect the demand for financial assets.
14 It also means that an increase in the demand for cash balances must reduce the flow of savings or loanable funds and impair investment spending. Contrast this with Mises's (1949:519) incredible claim that "increased cash holding and increased capital accumulation […] take place side by side," thus an increased demand for cash balances does not impair economic growth even in the short run. He also asserts that "A man's savings is always embodied in concrete capital goods" (ibid.), while at the same time defining saving to include the hoarding of cash.
15 Robertson (1966:151), for example, explains that "the rate of interest [is] the market price of the hire of something which Marshall called free or floating capital', which others have called 'capital disposal' or 'command over capital', and which recent writers seem to have settled down into calling 'loanable' or 'investible funds'."
16 Also see Hayek's (1941:3, 6) doubts about the meaningfulness of a "single magnitude" called "capital." Lachmann (1956:2–3) also harps on the heterogeneity of capital goods, as if the classics argued otherwise.
17 Also see Garrison (1985: esp. 163). Mises (1949:556) also talks about the abandonment of plant construction as interest rates rise. But business enterprises do not react to changes in interest rates this way, as Tullock (1988, 1989) explains in disputing the Austrian argument.

7 Wicksell on the classical theories of money, credit, interest, and the price level

1 This chapter is based on Ahiakpor (1999b).
2 In Keynes's (1930:186) view, Wicksell's 1898 book "deserves more fame and much more attention than it has received from English-speaking economists. In substance and intention Wicksell's theory [of changes in the Bank-rate and inflation] is more akin…to the theory in this Treatise, though he was not successful, in my opinion, in linking up his Theory of Bank-rate to the Quantity Equation."
3 Patinkin (1965:593) provides a contrast between Wicksell's analysis and that of the classics, including Hume, Thornton, Ricardo, and Mill, in which Wicksell's is less adequate.
4 Laidler (1991:146–9) notes that Wicksell's work has helped to undermine appreciation of the validity of the classical quantity theory, but his criticism of Wicksell, if those comments were meant to be taken as such, is rather muted.
5 Like several of his other claims, Wicksell modifies this argument in the *Lectures:* "the condition on which the banks could maintain a rate of interest permanently below the real rate would therefore be an incessant flow to them of new gold, and under such circumstances commodity prices would also rise continuously" (1906:198). But he also extends the same logic to the issuing of "banknotes, fictitious deposits, or other bank credit" (ibid.), which is his original proposition.
6 The similarities between Wicksell's argument and Fisher's (1912:186–91; 1922:60–6) bank credit theory of inflation (discussed in Chapter 8) are quite striking, although Fisher's version appears to be much more realistic.
7 Humphrey (1997:84) attempts to salvage Wicksell's error in this regard but fails to provide the requisite quotation as proof.
8 Ekelund and Hébert (1997:491) regard Wicksell's argument here as constituting "an important step toward integrating monetary theory with value theory. He constructed an aggregate-demand-aggregate-supply framework for investigating changes in prices."

9 Fisher (1930:43) agrees with the classical argument, suggesting that "when prices are rising, the rate of interest tends to be high but not so high as it should be to compensate for the rise."
10 Of course, one's motivation for studying a subject is not necessarily a good guide to determining how well one understands it, although the process of study may matter.

8 Fisher, the classics, and modern macroeconomics

1 This chapter draws on a paper by the same title presented at the Allied Social Sciences Association Conference, New Orleans, LA, January 1997. I thank E.Roy Weintraub and Michael Gootzeit for encouraging comments on that paper without implicating them in any errors here.
2 Private communication. Interest is surely not a return on capital goods, but it is for lending one's "capital" or savings.
3 Fisher (1922: e.g. 58–60, 68, 232–3) repeats the argument.
4 Fisher attempts statistically to confirm the principles of the classical forced-saving doctrine, although he does not refer to the doctrine by name but only that the "principle underlying this relationship is, of course, familiar" (1926:787).
5 Fisher (1922:60–6) repeats the argument.
6 The view that banks lend without first receiving deposits from their customers has become quite widespread in modern economics. Kohn (1993:207) and Hubbard (2002: ch. 13) are among the helpful exceptions to many textbooks' presentations of the process of banks' financial intermediation which suggest that banks "create loans out of nothing."
7 There is a bit of irony in McKinnon's (1973:10) attribution of the inspiration for his work on "financial deepening" and economic growth to "Fisher's [1930] approach to impatience and intertemporal choice." But the irony is more in Fisher's failure to confront the conflict in his views regarding the role of banks as financial intermediaries and the instruments with which they perform such a role.
8 Mason (1976) provides a good account of the debate between bullionists and anti-bullionist/banking schools in the nineteenth century over what to call "money" and what is responsible for inflation.
9 A modern equivalent would be to include the available credit on credit cards issued to the public in estimating the total amount of "money" since they have the potential of being used to settle debts.

9 The classical theory of growth and Keynes's paradox of thrift

1 This chapter draws heavily on Ahiakpor (1995).
2 Among the influential Nobel Prize winners in the Keynesian camp of macroeconomics are J.R.Hicks, Paul Samuelson, Franco Modigliani, Lawrence Klein, and James Tobin.
3 The Adam Smith Institute credits Dugald Stewart as having cited the quote from a 1755 lecture.
4 Say (1821, 1834), Mill (1808:84–5), Ricardo (*Works,* 1:290–2; 3:180), and Mill (*Works,* 570–6; 1874:70–4) elaborate the logic of Say's Law. Ahiakpor (1997a, 2001a), Kates (1997, 1998), and Jonsson (1995, 1997) restate the meaning of Say's Law and explain its misinterpretation by J.M.Keynes.
5 Also see Keynes (1936:62–5).
6 Of course, Keynes (1936:141–2) himself denies that an increase in investment demand could raise the rate of interest.
7 Leijonhufvud (1968: esp. 29–30 and 264) comes close to recognizing Keynes's misinterpretation of the classical definition of saving, but rather defends him as restating "the most ancient proposition of monetary theory" (29n). He also incorrectly

argues that Keynes was merely misapplying the classical theories of interest and income determination, which dealt with a barter economy (28–9).

8 Among the exceptions considered by Marshall is the possibility that the desire to provide for old age and family could be so strong as to cause some savers to pay borrowers for taking charge of their savings until needed in the future, "and interest would be negative all along the line" (1920:483, n. 2).

9 Goodwin (2000:427–30) also documents Keynes's equation of saving with hoarding, and his negative views of savings on economic prosperity. But so successful is Keynes's influence on modern economic thinking, it appears, that Goodwin offers hardly any criticism of Keynes's misidentification of saving with hoarding. Instead, Goodwin's narrative carries on as if Keynes had seen correctly the light to economic prosperity, but which the classical economists had missed.

10 See, for example, Ricardo (*Works,* 2:301–31).

11 Keynes's statement of Say's Law of Markets can be misleading if it suggests that the suppliers of goods and services create the demand for what they themselves sell.

12 Of course, Smith (*WN,* 1:478) makes the remark in the context of international trade, not saving. Keynes also cites the quote to contrast it with Mandeville's argument that belief in the virtues of public frugality "is an error," an argument with which he sides (1936:361).

10 Full employment: Keynes's mistaken attribution to the classics

1 This chapter is based on Ahiakpor (1997a).

2 Besides Keynes's own work, others such as Hansen (1953:20–1) and Patinkin (1965: esp. 313–5) provide a basis for this characterization of classical economics.

3 See, for example, Marshall (1901 and 1903) and other essays in Pigou (1956).

4 See Keynes's "Alfred Marshall, 1842–1924," in Pigou (1956, 10). Hicks (1983:337) also uses this evidence to cast Marshall differently from the classics, arguing that Marshall's economics "was to be an economics of the shopfloor, not like that of the classics, an economics of the counting-house."

5 Keynes's economics can be distinguished from Keynesian economics, as Leijonhufvud (1968) has done. A distinguishing feature of Keynesian economics is a recognition of an equilibrating mechanism, which links the money and goods markets, but which Keynes (1936) denies. See, for example, Hicks (1937).

6 In *Monetary Reform* (1924:88), Keynes argues that "*in the long run* we are all dead" (italics in original).

7 Ahiakpor (1985) elaborates the point.

8 See Blaug (1996:158–9) for a history of the forced-saving doctrine, which includes contributions from Richard Cantillon. Ahiakpor (1985: esp. 22–5) restates Ricardo's contribution, which conflicts with Blaug's view that the "only major writer who was reluctant to accept the thesis was Ricardo" (1996:159).

9 Keynes (1937a:223) also repeats this claim. Keynes (1936:19) earlier quotes Marshall's argument in the *Pure Theory of Domestic Values* explaining that all income must be spent either on "present enjoyment" or on means devoted to the production of future income, that is, savings. I explain later Keynes's confusion in this regard.

10 Pigou (1941:29–37) elaborates.

11 Lucas (1981:242) makes about the same point when he argues that "there is an involuntary element in *all* unemployment, in the sense that no one chooses bad luck over good; there is also a voluntary element in all unemployment, in the sense that however miserable one's current work options, one can always choose to accept them" (italics in original). But Lucas (1981:243) is incorrect in claiming that Keynes was the one who introduced "involuntary unemployment…[as] a theoretical construct."

12 It is noteworthy that Keynes (1936) does not cite Pigou (1913). On a practical level, it is also difficult to imagine in what sense most unemployment could be anything but involuntary,

especially arising from lay-offs. Even among those classified as frictionally unemployed, many would first have anticipated new job offers before quitting their current employment, and thus would quickly find new jobs.

13 Keynes's quotation leaves out Pigou's reference to "a long-period point of view," which I reinsert as "in the long run."

14 Indeed, Pigou's argument is consistent with Marshall's (1920: bk 6, ch. 5) discussion of variations in wages and the "difficulty of forecasting the future."

15 Of course, Pigou himself later vitiates these protestations with his incredible acquiescence with some of Keynes's arguments in the *General Theory,* including the claim that Marshall's *Principles* "dealt in the main with long-term tendencies…[thus] Marshall postulates that in equilibrium employment is always equal to the available labour force…; there is always precisely full employment in Keynes's sense" (1950:23). For more on Keynes's misrepresentation of Pigou's explanation of the determinants of unemployment, see Aslanbeigui (1992). She also points out that Pigou's (1913) definition of "involuntary unemployment" is consistent with Keynes's (1936:26) view that unemployment is involuntary if aggregate employment is not "inelastic in response to an increase in the effective demand for [labor's] output" (Aslanbeigui 1992:430).

16 Ahiakpor (1995) explains that this misrepresentation of the classical definition of saving by Keynes forms the basis of his paradox of thrift proposition. Pigou (1936), Viner (1936), Hawtrey (1937), and Robertson (1937) also correctly criticize Keynes for his misrepresentation of the classical argument and for having made too much of the incidence of hoarding. But they were not explicit in pointing out Keynes's error of defining saving to include hoarding. Perhaps as a result, Keynes (1936b), in response to Pigou and Viner, could not recognize the point of their criticism.

17 See, for example, World Bank (1994:184–5), particularly the cases of Argentina, Brazil, Israel, Peru, Turkey, and Uruguay. Note that the monetary data also include bank credit rather than reserve money only, but the low M2/GDP ratios of these countries would indicate that most of the change in *M*2 is currency.

18 Keynes (1924:81–8) and Pigou (1927:120–1) also state the quantity theory this way.

19 Keynes (1936:343, n. 3) cites Hume's "Essay on Money" but does not seem to have recognized it as an application of classical value theory to money as J.S.Mill argues later.

20 An anonymous reader of the article upon which this chapter is based insists on supporting Keynes's argument, claiming that "short of full employment…we do not have a determinate theory of the price level," while also referring to Laidler (1991), as if that work contradicts my argument. Laidler in numerous places rather states the fundamental proposition of the quantity theory of money as explaining the price level from the demand and supply of money (e.g. 1991:52, 56, 57), and also that "such real variables as output and, in particular, employment" (95) do change in the transmission of monetary shocks to prices. Even when Laidler regrettably invokes the assumption of "an economy that has its only long-run equilibrium at full-employment levels of income" (1993:47) while explaining Fisher's version of the quantity theory, he nevertheless carries on the analysis in terms of the "supply and demand" for money in the short run, connecting it with that of Marshall and Pigou (47–51). Indeed, Fisher (1926), later republished in the *Journal of Political Economy* as "I Discovered the Phillips Curve," is yet another excellent refutation of the view that variations in the quantity of money affect prices only in long-run, full-employment equilibrium.

21 Indeed, Hume's "Essay on Money," which Keynes (1936:343n) also cites, contains the same idea. Hume (1752:170) argues that "though the high price of commodities be a necessary consequence of the increase of gold and silver, yet it follows not immediately upon that increase; but some time is required before the money circulates through the whole state, and makes its effect be felt on all ranks of people…it is only in this interval…between the acquisition of money and rise of prices, that the increasing quantity of gold and silver is favourable to industry…[that is] before it increases the price of labour."

22 The modern equivalent of this argument is that only unanticipated increases in the money supply may increase real output and employment in the short run. See, for example, Dornbusch and Fischer (1994:518–21).
23 An anonymous reader of the article upon which this chapter is based was inclined to absolve Keynes of my charge of misrepresenting the quote from Hayek on the basis of not finding this explicit relaxation of the assumption of "all hands being fully employed" in Stark (1954). But the point is that Bentham in one case allows no increase in real wealth or output from an increase in the supply of money, but does so in another. Keynes on the other hand argues that the classics did not allow any increase in output or employment from an increase in the supply of money because they assumed the existence of full employment.
24 Ahiakpor (1990: esp. 523–5) elaborates.
25 Prominent among the young torch-bearers propagating Keynes's views were J.R. Hicks, Richard Kahn, Joan Robinson, and Nicholas Kaldor. See Young (1987) and Darity and Young (1995). The adoption of full employment as a goal of the British Fabian Society also helped to generate fervor for Keynes's ideas among the public. See, for example, *Fabian Research Series* of the 1940s and Beveridge (1945).
26 Of course, this was an effective debating tactic but an exaggerated claim. As Skidelsky (1983:166) explains, Keynes's "total professional training [under Marshall] came to little more than eight weeks. All the rest was learnt on the job."

11 Hicks, the IS-LM model, and the success of Keynes's distortions of classical macroeconomics

1 This chapter is based on my paper, "Keynes, Hicks, and the Inadequacies of the IS-LM Model," discussed at the Western Economic Association International Conference in Vancouver, BC, 29 June–3 July 1994 and the History of Economics Society Meetings in South Bend, IN, 2–5 June 1995.
2 King (1993), for example, argues that such efforts are an unfortunate distraction from the proper focus of research in macroeconomic modeling.
3 In contrast with the classical definition of money as currency or high-powered money (H), the modern definition starts with $M1$ (currency in the hands of the nonbank public, checkable demand deposits, and traveler's checks), and includes other forms of the public's savings in defining $M2$, $M3$, etc. See Chapter 3 for the constituents of modern money.
4 On the error of Keynes's characterization of Say's Law, see Ahiakpor (1997a, 2001a), Jonsson (1995), and Kates (1997, 1998).
5 Tsiang (1956, 1980) repeats this attempt to find common ground between Robertson's loanable funds and Keynes's liquidity-preference theories of interest, but serves only to divert attention from Keynes's confusion over the classical theory of interest.
6 In a letter dated 31 March 1937, Keynes criticizes Hicks for having attributed to the classics the argument that an increase in the supply of money would increase output and employment. But the argument correctly represents the classical forced-saving doctrine (see Chapters 4 and 10). Keynes also criticizes Hicks for having included income in his savings function. See Keynes (1973, 14:79–81). See also Darity and Young (1995:12–15) for Keynes's reactions to versions of the IS-LM model.
7 Hicks was unfamiliar with the emerging custom of writing "Y" for income instead of "I" when he wrote the 1937 article. See his letter to Keynes (1973, 14:81).
8 Also see Modigliani (1944:48–9, 54–7, 60) for a similar view of interest rate determination. Hicks (1980/1981:140) later explains that he had been thinking along the same lines as Keynes and "I recognized immediately, as soon as I read *The General Theory,* that my model and Keynes's had some things in common." This may account for his less than critical assessment of Keynes's claims against the classics.
9 Modigliani avoids this error, but by failing to recognize that it is the value of money

(a weighted average of the *n*-1 other prices) that needs to be determined by the supply and demand for money equation, he ends up with the erroneous argument that the "nth [money] equation is therefore not a genuine equation…*the price level is thus indeterminate*" (1944:70; emphasis added).

10 As explained in Chapter 4, the classics recognized the temporary effect of changes in the quantity of money (currency) on the rate of interest, as these changes vary the quantity of credit or loanable funds. But subsequent changes in the level of prices and the demand for loans restore interest rates to their original level. Thus an increase in the quantity of money (currency) cannot permanently lower the level of interest rates, neither would a decrease in currency permanently raise interest rates.

11 Hicks (1980/1981:150) still glosses over "those puzzling questions of the definition of money, which in these monetarist days have become so pressing."

12 Sometimes Keynes's definition of money includes "time-deposits with banks and occasionally, even such instruments as (e.g.) treasury bills" (1936:167).

13 In Bolivia the annual inflation rate was about 221 percent while the economy contracted at the rate of 1.5 percent, and in Peru the inflation rate was about 312 percent while the economy contracted at the rate of 2.8 percent annually over the same period. See *World Development Report 1994*.

14 Note that the money demand (k^d) is not a constant proportion of income as, for example, Marshall (1923:38–50) explains, contrary to some modern restatements of the classical quantity theory, for example, Modigliani (1944:66, 69), Leijonhufvud (1983:72), Mankiw (1994:148), and Baily and Friedman (1995:441).

15 Pigou's book on the *Theory of Unemployment,* which Keynes used as representing the classical model of the labor market, was partly "directed to show that a general demand function for all labour cannot be obtained by adding together the demand functions for different sets of centres, no matter how these sets are made up"(1933:63).

12 The mythology of the Keynesian multiplier

1 This chapter draws heavily on Ahiakpor (200 1b).

2 Development economists talk about the inverse of this variable, the incremental capital–output ratio, but have long given up on its usefulness when calculated for the economy as a whole. See Meier (1995:164–6).

3 Ahiakpor (2000) explains the error of such claims by Dimand (1988, 1997) and Darity and Young (1997).

4 Kahane calculates the multiplier effects of state taxes spent on the California State University, Hayward campus on the "state and local economies," based on the expenditures of students and employees of the university.

5 Mill's own statement has "All sellers are inevitably and *ex vi termini* buyers," not the English rendition, "All sellers are inevitably, and by the meaning of the word, buyers." (See also W.J.Ashley's 1909 edition of Mill's *Principles:* 558.)

6 Clower and Howitt (1998:169) think Keynes was being "consciously disingenuous" in his attacks on Say's Law.

7 The failure to appreciate the continuous nature of the income earning and spending process in an economy seems to inform Fritz Machlup's (1939) elaborate efforts to improve upon the Keynesian multiplier theory by developing a "period analysis" founded on different income and transactions periods. Machlup's (1939:14, n. 1) derivation of a negative multiplier when the marginal propensity to consume is greater than one also appears to arise from this neglect. Funds borrowed for consumption must come from someone else's savings. Thus, it is not possible for the aggregate marginal propensity to consume (out of income) to be greater than one.

8 Hawtrey (1950:442) derives an alternative to the Keynesian multiplier this way. Fritz Machlup (1939:19–20) comes close to recognizing this fact, but dismisses it with the

claim that the Keynesian multiplier theory assumes a fixed level of total "investment," both public and private, hence it does "not matter what happen [s] to the saved funds" (20).

9 This does not mean that bank lending is deflationary. Rather, bank lending restores through borrowers most of the non-spending on goods and services by savers when the latter buy bank financial assets.

10 Dimand (1988:107–11; 1997) advances this argument most seriously. This in spite of the fact that Hawtrey himself refers to the Keynesian multiplier argument as having been "*Originated* by Mr. R.F.Kahn in an article in the *Economic Journal*…" (1950:76n; emphasis added). Even Hawtrey's 1932 commentary on Keynes's *Treatise,* which Dimand interprets as his "clear and explicit algebraic derivation of the multiplier" (1997:550), was meant mainly to show the error of Keynes's definitions of savings and investment (e.g. Hawtrey 1932:359), not to confirm the logic of the Keynesian multiplier argument. It is also noteworthy that Hawtrey's criticism of Keynes for asserting that public expenditures would provide their own funding through the multiplier, a criticism for which Keynes had no ready reply, led Joan Robinson to tell Keynes, "It's no good talking to [Hawtrey] until he has taken in the multiplier" (quoted in Deutscher 1990:134).

11 The same criticism applies to Hugo Hegeland's (1954) attempts to interpret earlier general equilibrium analyses, explaining the expansionary impact of an increase in production in one sector on the rest of the economy, by several German writers as well as Walter Bagehot and A.C.Pigou as being the equivalents of Kahn's and Keynes's argument.

12 Fritz Machlup (1939, 1943) expands on these perceived gaps in the Keynesian multiplier analysis and develops elaborate period analyses to improve upon the multiplier theory. Indeed, he believes that "*The Multiplier Technique* is at the moment the most efficient way of dealing with effects of changes in disbursements, such as additional investments or exports, upon national money income" (1943: vi; italics in original), adding that he has "tried to improve the multiplier technique by discarding the idea of the instantaneous or timeless multiplier and introducing time as an important variable" (vii). And "if multiplier theory is sufficiently qualified and reformulated to take account of varying propensities, inherent time lags and probable repercussions," he says, "its predictive usefulness may be much enhanced" (9). Thus, Machlup was far from a critic of the Keynesian multiplier analysis, unlike the others mentioned here.

13 Jeffrey Herbener's (1992) criticism of the Keynesian multiplier is similar to Haberler's and Machlup's, although he mentions neither of them. He notes the lack of realism in deriving an infinite multiplier, should the marginal propensity to consume (MPC) be equal to unity, or, the multiplier being negative, should the MPC be greater than one. He also doubts that Keynes was able to explain the multiplier's "functional relationship to the MPC or explain why it depends upon the existence of unemployed resources and inflexible wages and prices" (1992:79). None of these criticisms gets to the heart of the Keynesian multiplier's mythology.

14 Murray Rothbard's (1962) criticism of the Keynesian multiplier very much follows Hazlitt's. He also notes the absurdity of deriving an individual's multiplier with a value of 100,000 because such an individual happens to earn 0.00001 of national income. Thus, "[t]o increase social income and thereby cure depression and unemployment, it is only necessary for the government to print a certain number of dollars and give them to the" individual (1962:759). But this line of criticism, besides being wrong from its failure to derive correctly the size of the Keynesian multiplier, misses the fundamental misconception of the Keynesian argument.

15 Blaug describes the proposition as, "Capitalists [being able to] pull themselves up by their own bootstraps via the multiplier" (1996:244).

13 Conclusion

1 *An Inquiry into the Mature and Causes of The Wealth of Nations* (1776).
2 Modern Austrian economists will recognize Smith's argument here as similar to F.A.Hayek's (1937, 1945b) arguments for free markets rather than state direction of economic activity.
3 Ahiakpor (2001a) explains the reasons for Keynes's success in misrepresenting Say's Law in modern macroeconomics, which include his changed meaning of classical concepts and the false attribution of the full-employment assumption to the argument.
4 As explained in Chapter 2, Smith used labor as a measure of value, not its determinant. And while parts of Ricardo's discussion of the theory of value may appear as if he used the quantity of labor employed as a determinant of value, the classical theory of value is best understood as the determination of prices by the supply and demand of goods brought to market, as J.S.Mill (*Works,* 3:580–1) summarizes.
5 It is testimony to the persistence of this Keynesian confusion that, failing to recognize the relation between the demand for money (cash) and the supply of loanable funds (savings) through the purchase of financial assets, $S_c = Y(1 - t) - C - \Delta H_h = \Delta FA^d$, anyone at the turn of the twenty-first century would still be arguing that the loanable-funds theory of interest is flawed (Bibow 2000).
6 Indeed, Pigou was not interested in the "wrong ideas of dead men," an inclination he urged on Dennis Robertson who spent much effort attempting to show the errors of Keynes's arguments against classical macroeconomics, although employing his own terms rather than those of the classics. Presley (1981) refers to Robertson's formulations as "Robertsonian Economics." See also Mizen and Presley (1998).
7 Friedman here returns to the same prescription by F.A.Hayek in the 1930s (Hutchison 1981:112) in the face of declining prices, a prescription partly responsible for his losing the audience to Keynes and Keynes's followers, and deservedly so.
8 See Hutchison (1981:122–4) for an account of some reactions by Keynes's disciples to his backtracking and their "serious consideration of the desirability of suppressing" publication of his last article reaffirming the validity of some classical principles (145, n. 19).
9 A lower than the average market rate of time preference may cause one to purchase company stocks rather than bonds or bank financial assets, either of which amounts to saving. But the former does not directly explain interest rates while the purchase of bonds or bank financial assets does. Rather, the supply and demand for stocks explain the price of stocks or their yield, that is, dividend–price ratio.

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