The Springer Series on Demographic Methods and Population Analysis 30

Jo M. Martins
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Consumer Demographics and Behaviour

Markets are People

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Preface

Purpose

There is a growing interest in markets and the related way people behave as consumers of goods and services. A result has been the rising demand for information dealing with consumer behaviour. These accounts acknowledge the importance of demographic events such as births, population size and other demographic characteristics such as sex and age as determinants of market size and also of market opportunities for different types of products. However, the references to demography are often in the form of tabulated data without a clear indication of the relationship between the data and observed consumer behaviour. Among other things, texts on consumer behaviour mention the importance of market segments in making products more relevant to different groups in society. Frequently, market segments reflect demographic characteristics of groups in the population, such as those born within a given period of time. This allows for the identification and quantification of market segments to assess opportunities for the positioning of specific products in relation to these population segments. The life cycle is also an important determinant of income and changing needs that influence consumer behaviour and preferences for different products as people get older. These underlying market features make the relationship between demography and consumer behaviour an essential perspective.

This introductory book is a response to the demand for a better understanding of consumer behaviour using demographic perspectives that enhance those of other disciplines. It combines theoretical concepts with empirical evidence, and uses some relevant analytical frameworks and tools for this purpose. It also aims to provide teaching material with an emphasis on the characteristics of populations and groups within them and their relation to market size, diversity and consumer behaviour.

Organization

The book's demographic focus implies an emphasis on populations and groups rather than on the individual per se, which is the basis for assumptions made in micro-economics. However, it associates demographic and macro-economic factors

of income and consumption because, among other things, of the close relationship between levels of income and demographic characteristics during different stages of the life cycle. In this context, the book deals with the influence of population on market size. It also examines market characteristics related to differences in income per head of population and purchasing power for basic and other commodities as relative affluence rises. The book is concerned with demographic and income groups in the populations in relation to generic commodity groups rather than product brands and their differentiation. It concentrates on the interaction between consumers and generic products through their progression in their life cycle and varying income levels. The question of gender and cohort characteristics and their association with consumer preferences for different types of generic commodities is also dealt with. The book is organised into three major parts.

Part I – Basic Issues: Market Size and Composition

Chapters 1, 2 and 3 introduce basic issues that affect market size and composition, perspectives on consumer behaviour from different disciplines and relevant demographic perspectives that enhance the understanding of market characteristics and consumer behaviour.

Part II – Demographic Change, Markets and Consumption

Chapters 4, 5 and 6 are concerned with how the demographic transition and growth in population have led to clusters of countries and related markets with different sizes, age distributions and stages of development, which have different demands for basic and progressive commodities. These chapters introduce concepts that relate population growth to income per head of population that in turn determine not just how much but what households consume. The life cycle is also introduced as an organising framework to examine household consumer behaviour.

Part III – Consumption, Income, Age, Cohort and Gender

Chapters 7, 8, 9, 10 and 11 deal with household allocations of their budgets to meet their varying preferences as their income and age changes. They also examine how gender traits affect preferences for different types of commodities. Further, ageing and product substitution are analysed and cohort preferences are tested. Finally, Chapter 12 reviews demographic perspectives of consumer behaviour and their implications for the future.

Use

The book can be of help to those in business and public organizations who have an interest in enhancing business strategies and government policies concerned with consumer behaviour. It will be of benefit to those with demographic skills who wish to build up their range of experience, and will also profit those with exposure to studies of consumer behaviour who wish to improve their know-how with the enhancement from demographic perspectives. The book also provides material for a full semester course on consumer demographics and behaviour or shorter courses using selected sections of the text. It is designed as a primer without requirement for previous exposure to demography or consumer behaviour studies.

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Part I
Basic Issues: Market Size and Composition

Chapter 1
The Making of Markets

We labour to produce with the sole objective of consuming, and the kinds and amounts of goods produced must be determined with regard to what we want to consume.
W. S. Jevons – The Theory of Political Economy 1871[1970]

1.1 Markets are People

This is the *Age of Markets*. Markets have captured the imagination of people and the *Market* has assumed a pervasive place in business language. Often, the *Market* is used to convey a whole gambit of values and attributes that require no further explanation to those in the know. In some ways, markets have become abstractions that are translated in terms of people's understanding of trading and the way in which trading is conducted. The ubiquitous influence of markets has gone beyond private business and has influenced new concepts that involve the promotion of public services and concepts through *social marketing*.

To capitalize on this development, it is essential to understand the driving forces that propel markets. A market can be described as *... a gathering of people for buying and selling things...*[1] Thus, markets are about people involved in a fundamental human activity: the exchange of goods and services. Consequently, markets are influenced by people's characteristics, their perceptions of wants and tastes, their purchasing power and their relative position in the market as buyers and sellers.

One basic, simple proposition is that there are no markets without people, and that demographic trends and the number and characteristics of people are major determinants of the size and characteristics of markets. However, the social and economic environment of markets also influences the size and characteristics of populations. Among others, Adam Smith proposed that small markets discourage divisions of labour and hinder the power of exchanging. He indicated that small numbers of people force a greater degree of self-sufficiency and offer less scope for

[1] *Webster's New World Dictionary.* New York: The World Publishing Company, 1968.

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people to specialize in their innate skills; thus leading to a less efficient use of human resources and diminished opportunities for the creation of surplus production for exchange (Smith, 1970 [1776]). This also influences productivity and the capacity of households to go beyond mere basics to progress to a wider range of commodities.

In more rudimentary markets, barter is used as the means of exchanging commodities that households have for others that they want. Barter markets are rather cumbersome because they require the meeting of people who wish to exchange one for another specific commodity, on a mutually advantageous basis. Barter tends to fall into disuse as economies become more sophisticated and money becomes the means of exchange. In addition, the creation of credit has allowed for the surplus of some to be used by others who have wants beyond their present capacity to pay for them.

1.2 Choices People Make: Tendency to Consume or Save and Credit

Markets are basically about people's decisions within a range of options afforded by their individual or household budgets. A fundamental decision is whether to consume to satisfy a current want or to withhold current consumption and save to satisfy some future want. This can take the shape of storing a particular commodity for future consumption, such as buying food for a rainy day, or the acquisition of an asset such as a house that will provide shelter for many years to come, rather than renting one. Alternatively, saving can take the form of a financial security on the promise of future redemption, usually on favourable terms. This is about social rather than individual events, as it involves people with different characteristics and needs.

The level of people's income influences their *propensity to consume* and *propensity to save*. Keynes pointed out that consumption increases as the level of income rises. However, the proportion or propensity to consume is usually not as great as the rise in income (Keynes, 1967). In other words, the propensity or proportion of income consumed declines as income rises and the propensity to save increases as income rises. Thus, the markets for consumption and investments related goods and services vary depending on people's level of income. This book is mainly concerned with people as ultimate consumers.

Another decision is whether to stay within the current household budget or to seek credit in addition to current income. The use of credit has been a major force in shaping markets in the last fifty years. It has allowed the considerable expansion of current consumption by the promise of payment from future income. Thus, many households have been able to consume above their current income. Yet another decision is to use past savings to complement current income in the satisfaction of present wants.

At lower levels of income, household choices are obviously driven by basic wants for food and shelter. There is little room for choice between consumption and

saving. Often, the choice is between using only current income and seeking credit, or drawing on savings from a more affluent past, as might be the case with older people. As household income rises, discretionary choices are made according to people's preferences. It is at higher income levels where choices are more frequently made between current consumption and savings, and between different means of present gratification. As household income rises an increasing proportion is used for savings, placed in securities or other investments, such as property. Households with the lowest incomes may consume more than their income (Fig. 1.1). Some of this deficit may be funded from savings made by people before they retire and some while they are young from credit anticipating future ability to repay.

Concepts have evolved to deal with different patterns of consumption by consumers in relation to their income. It is said that when the consumption of certain commodities increases more than proportionately with the level of income – they are *income elastic* – the commodities are *progressive* (or superior) *goods*. Inversely, the proportion of *basic* (or inferior) *goods* consumed tends to decrease proportionately as income rises.

An illustration of how changes in income per head of population lead to disproportional preferences for different commodities is given by the components in the increase in Gross Domestic Product (GDP)[2] per head of population (per capita)

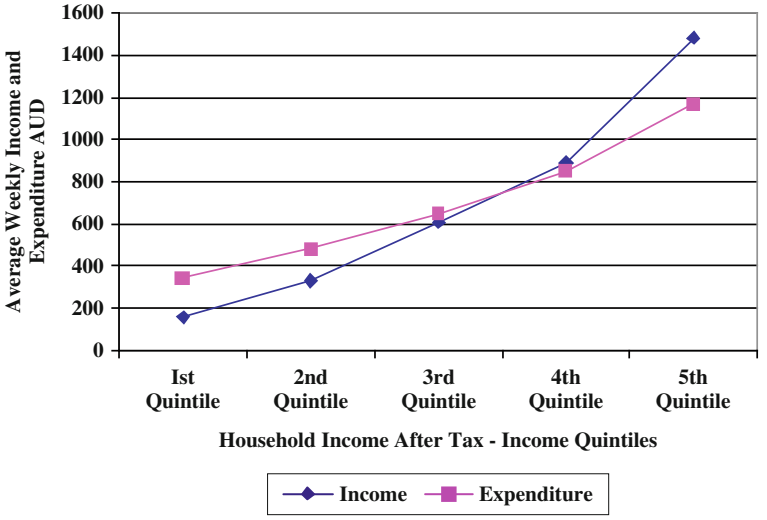

Fig. 1.1 Household average weekly income after tax and expenditure – Australia 1998–99 AUD
Note: The first quintile is defined as the fifth of all households with the lowest income after tax; the second quintile represents the fifth of all households with the second lowest income after tax, and so on. (AUD) Australian Dollars.
Source: ABS (2000a). Computations made by the authors.

[2]Gross Domestic Product is the sum of the total goods and services produced over a specified period, usually one year. Only the goods and services produced in the country are included, thus

in the United Kingdom from 1668 to 1996. Income per capita in 1996 represented 12.7 times the income per capita in 1668, in terms of 1990 International Dollars (Purchasing Power Parities – PPPs).[3] However, the increase in income was not proportionately distributed among all types of goods and services. In the first instance, as income rose it was used more than proportionally in capital formation (2.3) than for consumption (0.9).[4]

Table 1.1 Gross domestic product per capita England and Wales 1668 – United Kingdom 1996 (1990 International Dollars)

Goods and services type	Increase 1996/1668 (1668 = 1.0)	Income preference percent change in type/percent change all
Basic Private Consumption	4.0	0.3
Progressive Private Consumption	64.6	5.1
Private Consumption	*11.0*	*0.9*
Government Consumption (excluding education and health)	*15.4*	*1.2*
Private and Government Consumption	**11.5**	**0.9**
Capital Formation	**29.7**	**2.3**
All	**12.7**	**1.0**
Year	GDP per capita 1990 International $	
1668	1,411	
1996	17,891	

Note: "Basic Private" includes Food, Beverages and Tobacco, Clothing and Footwear, Light, Fuel and Power, Furniture, Furnishings and Household Equipment. "Progressive Private" includes Rent and Imputed Rent, Education, Health, Recreation and Entertainment, Transport and Communication and Other. The figures for 1668 relate only to England and Wales while the estimates for 1996 include the whole United Kingdom. 1990 International dollars are purchasing power parities of currencies prevailing at the two points in time using 1990 as the base. Income preference is defined as the quotient of the fraction of the proportional change in the value of consumption in a specific commodity by the total proportional change in the value of all commodities. The inclusion of tobacco as a basic commodity does not reflect the opinion of the authors.
Source: Maddison (2003). Computations made by the authors.

the "domestic". Expenditures on goods and services to replace the existing stock of capital are included, thus the "gross".

[3]Purchasing power parities are estimated for currencies to make comparisons of the purchasing power of given currencies to others, taking into consideration domestic prices for goods and services rather than exchange rates. They can also be used to compare the purchasing power of currencies over time, as in this case.

[4]Income preferences are calculated as indicated in Table 1.1. The percentage change for a particular item from 1668 to 1996 is divided by the percentage change over the same period for all items. Thus, if the proportional increase in a given item is the same as that for all items the ratio is 1, if the proportional increase in the particular item is greater than the proportional increase for all items the ratio is greater than 1, and if the proportional increase for the particular item is less than the proportional increases for all items the ratio is less than 1.

However, the more stark differences took place in the private consumption area. Some basic commodities such as food and household goods showed an income preference substantially below one (0.3) while some more progressive consumption goods and services such as transport and communication, health, recreation and entertainment had an income preference of 5.1 over the same period (Table 1.1).

1.3 Market Size, Value and Measurement Issues

In the past, it was difficult to estimate the aggregate size of markets in a consistent way because of the dearth of relevant data. Conceptual and practical problems delayed the evolution of consistent estimation methods. However, progress made since the late 1940s has made available estimates of the value of Gross Domestic Product and related expenditures. These can be used as proxies for the size of national markets for goods and services, in general, and household consumption as a sub-set. Further, a large number of surveys have given approximate dimensions of production and trade of a large number of commodities. Commodity or industry-specific surveys have also been helpful in assessing market size and value. In more recent decades, household consumer surveys have also provided a closer look at households as consumer units and their behaviour.

Markets reflect what people produce, what they have to pay for the product and how much they spend. Accordingly, different paths have been developed to estimate the value of the total flow of goods and services in the market over a given period of time. They are the *production*, *income* and *expenditure* approaches. Conceptually, the outcome should be the same (ABS, 2000b). As the production approach measures total output of goods and services for consumption and investment; income is either used for consumption or savings; and expenditures are either for consumption or investment goods and services. In a closed or global market, the result is the Gross Domestic Product (GDP). However, usually countries export and import goods and services for consumption and investment. The estimation of GDP takes into consideration the value of exports and imports.

In the context of the concern with households as consumers of goods and services, it is important to note that national account estimates of household consumption and GDP make adjustments for underestimation of income and expenditures. This may not be the case of income and expenditures estimates from household consumer surveys. The latter tend to underestimate income considerably. Further, national account estimates include imputations for non-market transitions such as rents of owner-occupied dwellings and adjustments for underestimation. These may not be included in estimates from household consumer surveys.

Another measurement issue is that the value of production reflects the *quantity* produced times the *price* of the commodities being bought and sold in the market. Prices for the same commodities may vary over time or between countries. Increases in prices over time, known as *inflation* affects the purchasing power of

currencies.[5] Consequently, to assess real changes in market size it is necessary to take into account price changes over time. In the case of household consumption of goods and services, Consumer Price Indexes (CPIs) are used for this purpose. Other indexes are used for other commodities.

It has been the custom to use the value of one currency for another in international markets – *exchange rate* – in estimating the size of markets in different countries. Usually, most of the goods and services in a country's market are not traded internationally. Therefore, exchange rates that pertain to international transitions do not reflect most of the prices in the domestic market. Consequently, the use of exchange rates in international comparisons may either under- or overestimate relative market

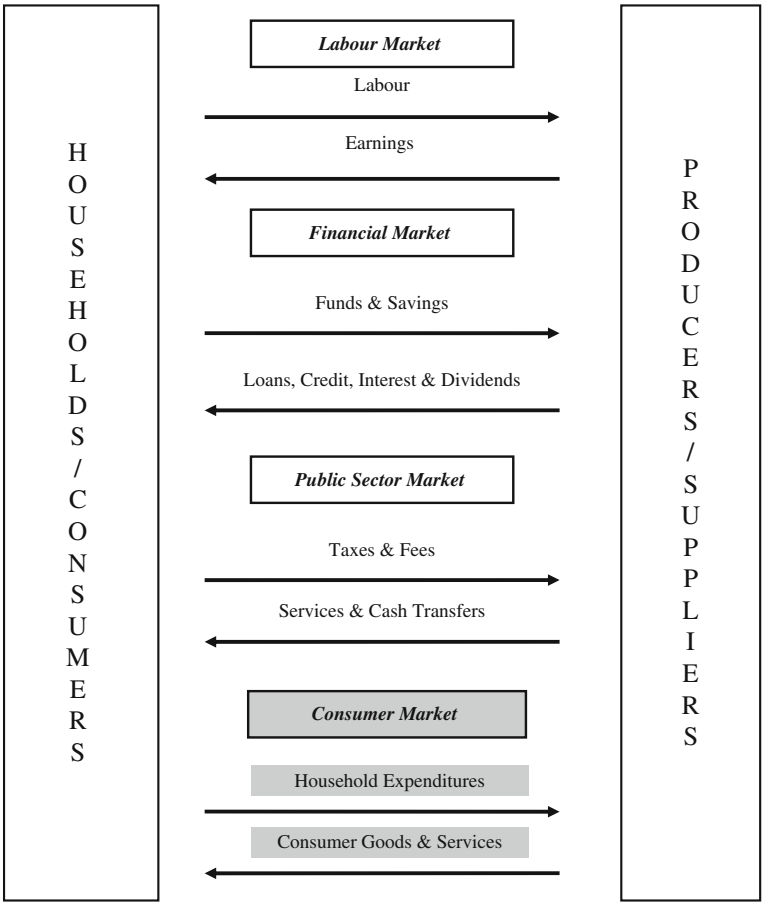

Fig. 1.2 Households and markets

[5] Although inflation is the most common phenomenon, prices may also fall – known as *deflation*.

sizes. Purchasing power parities (PPPs) of currencies have been developed to deal with this issue.[6]

Another issue related to market size is its relationship to the people involved. Accordingly, estimates may be expressed in their aggregate value or in terms of the average value of goods and services sold and bought per household or per head of the population (per capita).

Briefly, it could be said that people are in the market to sell and buy services and labour for the production and distribution of goods and services, for financial assets as storage of value, and credit services to enhance their purchasing power position to buy goods and services produced (Fig. 1.2). Money and credit are the means of exchange between buyers and sellers. Firms and government are also in the market as buyers. However, they could be considered as intermediary agents in the production of goods and services for ultimate consumption by households.

1.4 Market Size: Income and Population

Twelve countries account for about 70 percent of the world's Gross Domestic Product. However, it is not until the population in each country is considered that a better understanding is gained of the nature of the markets in each country. It is apparent that the number and characteristics of people not only influence market size and characteristics, but also income per capita and the potential for expenditure on different types of goods and services.

Accordingly, China with the largest share of the world's population (21 percent) but a GDP per capita of about $4,091 (international dollars) accounts for only the second largest share of the world's markets (9.7 percent), while the United States with less than about 5 percent of the population but a GDP per capita of about $41,675 has the largest share of the world's markets (23 percent) (Table 1.2). The difference in GDP per capita among countries not only affects the size of their markets but it also has a profound effect on related patterns of consumer behaviour and preference for basic and progressive commodities (Fig. 1.3).

1.5 Income and the Life Cycle

An important feature of the level of income of individuals and households is its close association with two demographic characteristics: age and sex[7] (Fig. 1.4). This association reflects earning capacity at different stages of life and the social and

[6] A useful explanation of the methodology is found in Kravis, I. B., Heston, A., & Summers, R. (1982). *World product and income – International comparisons of real gross product*. Baltimore: The Johns Hopkins University Press.

[7] The authors of this book have adopted what are considered to be conceptual differences between what is designated as *sex* and *gender* in Chapter 2. *Sex* is defined as the biological characteristics of males and females, while *gender* refers to psychological characteristics that are culturally determined from belief systems of what masculine and feminine behaviour is or ought to be.

Table 1.2 Global largest markets in gross domestic product terms and population billions[8] of international dollars and millions of people 2005

Country	GDP		Population		GDP per capita international $
	Billions international $	Percentage of total	Millions of people	Percentage of total	
United States of America	12,376.1	22.5	297.0	4.9	41,675
China	5,333.2	9.7	1,303.7	21.3	4,091
Japan	3,870.3	7.0	127.8	2.1	30,290
Germany	2,514.8	4.6	82.5	1.3	30,496
India	2,341.0	4.3	1,101.3	18.0	2,126
United Kingdom	1,901.7	3.5	60.2	1.0	31,580
France	1,862.2	3.4	62.8	1.0	29,644
Italy	1,626.3	3.0	58.6	1.0	27,750
Russian Federation	1,697.5	3.1	143.1	2.3	11,861
Brazil	1,583.2	2.9	184.2	3.0	8,596
Spain	1,183.5	2.2	43.4	0.7	27,270
Mexico	1,175.0	2.1	103.8	1.7	11,317
Canada	1,133.0	2.1	32.3	0.5	35,078
12-Largest GDPs	38,597.8	70.2	3,600.7	58.8	1,720
Rest of the World	16,374.5	29.8	2,519.8	41.2	6,498
World	54,972.3	100.0	6,120.5	100.0	8,971

Note: Figures may not add up due to rounding. (GDP) is Gross Domestic Product. The GDP and GDP per capita (per head of population p.c.) figures are on the basis of purchasing power parities 2005 compiled by the World Bank.
Source: WB (2008). Computations made by the authors.

economic roles played by males and females, in most societies. These demographic characteristics are two major factors in determining consumer behaviour because consumption tracks income closely during the life cycle and the preferences shown for different types of commodities. These preferences are partly a result of different levels of income experienced and partly due to changes in life styles at different ages and also because preferences vary by sex.

1.6 Market Segmentation and People's Characteristics

In addition to income, age and sex, other attributes such as culture, attitudes, habits, climate and geographical setting tend to play a part in people's patterns of consumption. Suppliers of goods and services can position themselves to capture segments of the market by responding to differences in people's characteristics

[8]The term "billion" in this book will follow the convention that equals a billion to one thousand millions i.e. "1" times "10^9" equals "1,000,000,000".

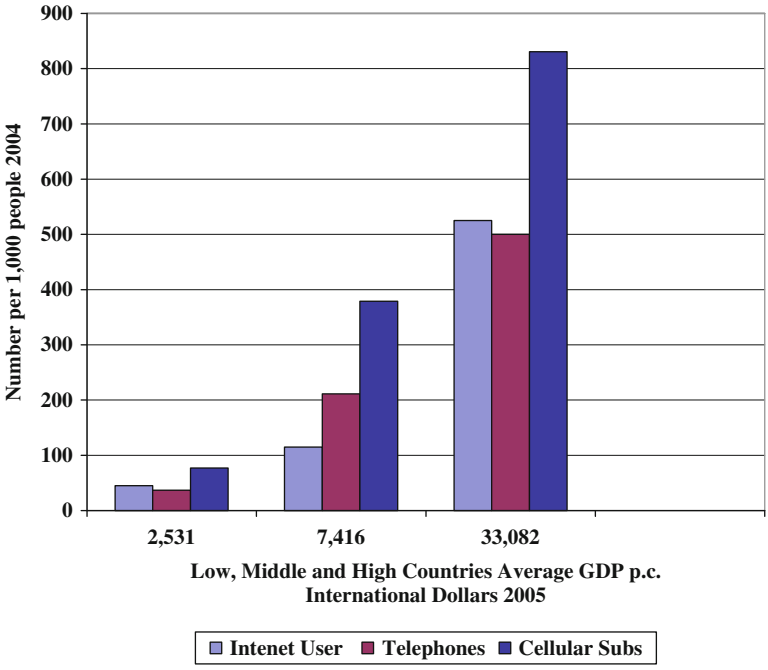

Fig. 1.3 Use of telephones, internet and cellular phones per thousand people in high, middle and low income countries gross domestic product per capita in international dollars 2005 (Purchasing Power Parities)
Note: GDP p.c. means Gross Domestic Product per head of population of low, middle and high income countries as defined by UNDP in Purchasing Power Parities.
Source: UNDP (2009).

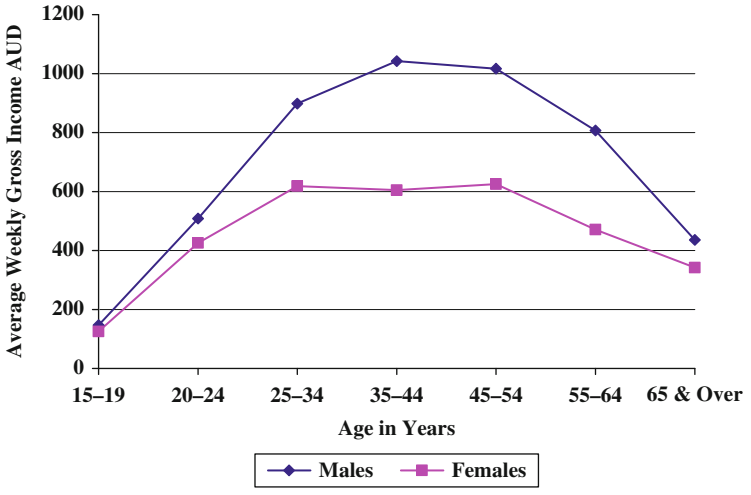

Fig. 1.4 Average weekly gross income by age and sex of employed people in Australia 2006 AUD
Note: (AUD) Australian Dollars.
Source: ABS (2007).

and their behaviour as consumers. The differences must lead to the identification of well-defined groups. Suppliers need to assess whether groups of people constitute market segments big enough to be operational, in the sense that they are large enough to deserve the additional costs of product differentiation. Alternatively, two or more segments with overlapping characteristics may be combined to create an operational market niche.

Some features of market segmentation have been described in terms of *price discrimination*. Price discrimination allows suppliers to sell their goods and services at different prices in different segments of the market to increase their profits. Some basic conditions should prevail for suppliers to benefit. In the first instance, segmentation should be easily achieved. Secondly, the demand for the given commodity must differ in the different segments. In other words, distinct segments should react differently to change in prices. Thirdly, obviously, the cost of segmenting markets should not be higher than the gain from doing it. Another feature of market segmentation is *product differentiation*. This approach to marketing involves suppliers differentiating basically the same commodity in order to position their modified product in response to the different perceptions and/or behaviour of people with different characteristics, such as age, who make up segments of the market.

1.7 Strategy Development: Dimensions and Assessment

Prevailing demographic characteristics and trends are some of the important factors that influence the size and characteristics of markets and the way they evolve. Therefore, they are a basic dimension of the business environment and a significant set of factors that affect today's and future markets. However, they must be used together with political, social, economic and technological change factors in market strategy development (Table 1.3).

It is important to note that although demographic factors are necessary to the definition of markets, they are not sufficient to explain differences in some aspects of

Table 1.3 Market environment and strategy development: Dimensions and change factors

Dimensions	Questions	Assessment approach
Demographic and social	• What are the visible population trends in terms of fertility, mortality and migration and their impact on population growth, ageing, urbanization and location?	• Demographic analysis and forecasting
	• What are the emerging trends in family formation and life style and what is their impact on demand for products?	• Demographic analysis and consumer surveys
	• What are the emerging lifestyle trends and how will they affect demand for products?	• Demographic analysis and consumer surveys

Table 1.3 (continued)

Dimensions	Questions	Assessment approach
Income and economic	• What is the economic climate and the likely effect on household and business income and their distribution? • How might it affect demand for products?	Economic analysis and forecasting
Political	What are possible regulatory changes and their effect on demand for products/services and their production?	• Survey of regulatory changes • Political agenda of parties • Agenda of lobby groups
Technological	What technological changes are emerging and how will they affect or offer new opportunities for: New or substitute products? New or substitute production methods? New or substitute marketing methods? Or how will they affect life-style and demand for products?	Analysis of technological change and diffusion
Overall summation	• What are the possible future scenarios emerging from these changes? • How should business change to place itself in a favourable position?	Scenario building and testing

Source: Authors' framework inspired by Rao and Stechel (1998):163.

consumer motivation and decision making. Accordingly, it is necessary to consider other factors such as income, to gain a better understanding of what are often called AIO (Actions, Interests and Opinions) factors that influence life styles and the nature of consumer markets.

References

Australian Bureau of Statistics (ABS). (2000a). *1998–99 household expenditure survey – summary of results*. Catalogue No. 6530.0. Canberra.

Australian Bureau of Statistics (ABS). (2000b). *National income, expenditure and product – Australian national accounts*. Catalogue No. 5206.0. Canberra.

Australian Bureau of Statistics (ABS). (2007). *2006 census tables – 2006 census of population and housing – Australia*. Catalogue No. 2068.0. Canberra: Commonwealth of Australia. www.abs.gov.au. Retrieved 29 Sept 2010.

Jevons, W. S. (1970). Theory of Utility. In R. D. Collison Clark (Ed.), *The theory of political economy* (p. 102). Harmondsworth: Penguin Books.

Keynes, J. M. (1967). *The general theory of employment, interest and money*. London: Macmillan.

Kravis, I. B., Heston, A., & Summers, R. (1982). *World product and income – international comparisons of real gross product*. Baltimore: The Johns Hopkins University Press.

Maddison, A. (2003). *The world economy – historical tables*. Paris: OECD.

Rao, V. R., & Steckel, J. H. (1998). *Analysis for strategic marketing*. Reading, MA: Addison Wesley.

Smith, A. (1970). Of the division of labour. In A. Skinner (Ed.), *The wealth of nations* (pp. 110–121). Harmondsworth: Pelican Books.

United Nations Development Program (UNDP). (2009). *Human development report 2009*. New York.

World Bank (WB). (2008). *Global purchasing power parities and real expenditure – 2005 International Comparison Program*. Washington, DC: World Bank.

World Publishing Company. (1968). *Webster's new world dictionary*. New York: The World Publishing Company.

Chapter 2
Perspectives on Consumer Behaviour

2.1 Consumer Behaviour: Assumptions and Deductions

Consumer behaviour has been the subject of study and conjecture by a variety of disciplines (Campbell, 1991) each of which reflects its own particular perspective on people as consumers and their behaviour. The following is a selective introduction to this wide ranging subject to illustrate some of the concepts used in the identification of consumer motivation and in the selection of the products they buy and use. It is not in the scope of this introductory text to cover a large number of other issues, such as the complex nature of collective consumption or the environmental implications of current consumption behaviour.

2.2 Economic Perspectives

Economics has a long track record in the study of consumer behaviour. Often, the economic literature on markets deals with concepts of demand and supply, especially in terms of perfect competition in its more rudimentary form. They are based on concepts of the *self-interest* of consumers and suppliers and their rational pursuit. The *invisible hand* of the market is used to achieve a distribution of products in accordance with consumer choice and efficient production due to competition among sellers. More advanced texts deal with concepts of consumer *utility* and choice, and market imperfections, and even monopolistic competition and some of its implications in terms of consumer choice and efficiency (Quirk, 1986). At the macro level, of relevance to demographic perspectives, Keynes (1967) related the level of consumption and savings to the level of income. At a later stage, as it will be discussed in another section, Modigliani (Modigliani & Brumberg, 1954) and Friedman (1957), among others, introduced longitudinal concepts that related consumption to the maximization of consumption over the life cycle. A core element, again, is the implicit concern with people and their behaviour in the pursuit of their economic interest, regardless of the theoretical sophistication and application of the propositions offered.

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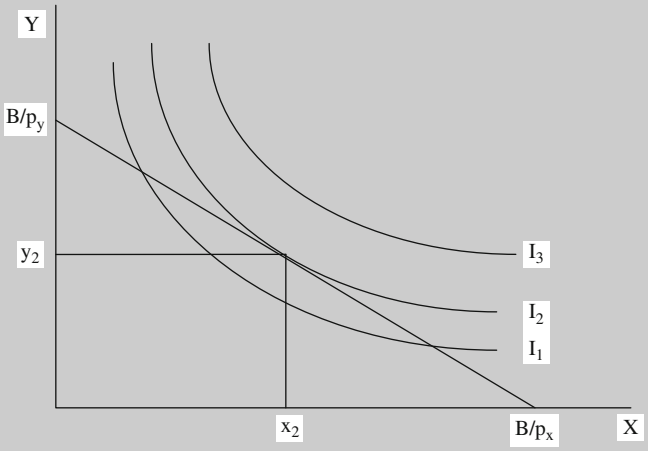
A number of aspects of economic perspectives have been criticised. Among others, the view of consumers as rational, hedonistic, maximising individuals has been questioned. Economists have responded by accepting that economic agents may not seek or have complete information, or the cognitive power to cope with the multitude of decisions to be made to maximise precisely their interest. Instead their choices are made mostly based on incomplete information and rules based on conscious and subconscious learning (Smith, 2002). This is the concept of *bounded rationality* developed by Simon (1982).

Reservations have also been raised about motivation in the acquisition of some goods and services. For instance, Veblen (1919) suggested that people may buy some products not because of any physical need but to fulfil a psychological desire to project a given position in society and or to gain other people's esteem. This is what has been known as *conspicuous consumption* (Bannock, Baxter, & Davis, 1998).

Box 2.1 Economics of Consumer Choice and Rational Maximisation of Preferences: A Simple Microeconomic Model

The economic analysis of consumer behaviour in its simpler forms usually makes a large number of assumptions concerning human behaviour. One of these is that consumers are concerned with their own preferences and behaviour rather than other people's consumption. This means that individual preferences are independent of others' preferences *(independence)*. Another assumption is that individual preferences follow an ordinal ranking. Given two or more collections of commodities, individuals will either prefer one collection to another or be indifferent in their preference *(rationality)*.



X and Y = Commodities in collections
I_3, I_2, I_1 = Combinations of X and Y to which consumer is indifferent, but $I_3 > I_2 > I_1$
B = Consumer Budget
B/p_x = Quantity of X that consumer can buy with Budget
B/p_y = Quantity of Y that consumer can buy with Budget
x_2 and y_2 = Collection of commodities X and Y that maximise consumer's preference with given Budget and prices of X and Y

Economists are not usually concerned on how preferences are arrived at by individual consumers. They leave these questions to other disciplines (such as psychology, sociology and anthropology) and take preferences as given following consumer tastes. Another assumption made is that consumer preferences are internally consistent and that the consumer will make the same choices on more than one occasion *(consistency).* All the collections of say two commodities X and Y to which the individual is indifferent to are said to have the same value to the consumer. Yet another assumption is that when the consumer prefers collection A to collection B and collection B to collection C, then the consumer prefers collection A to C *(transitivity).* Therefore, the consumer preferences can be constructed as a series of curves of different heights, each of the curves (I_3, I_2, I_1) representing the collections to which the consumer is indifferent to for different combinations of the quantities of the commodities involved. Each curve will be different from another and the curves will not cross each other, as it is assumed that consumers are consistent in their behaviour. These curves show the order of preference of the consumer, as each curve represent lower or higher quantity combinations of the two commodities, and it is assumed that more is better than less, in light of the rate of substitution of one commodity for another. The curve tends to be concave because another assumption made is that generally speaking there is a *diminishing marginal rate of substitution* between them, or the more one has of one commodity (say X) the less one is willing to give up of another commodity (say Y) to obtain more of that commodity (X).

Once the order of consumer's preferences is established, economists bring into the analysis the price of the commodities (p_x and p_y) and the consumer's budget (B). This is translated into a budget line (B/p_y, B/p_x) in terms of the prices of the two commodities. It is the boundary of the varied combinations of the quantities of the two commodities that the consumer can afford given the prices X and Y.

The consumer is assumed to maximise preferences for X and Y at the point where the budget line is tangential to the highest indifference curve in the consumer's indifference map. This will determine the consumer's choice of the collection (x_2 and y_2) that maximises preferences for the two commodities, within the consumer's budget given the prices of X and Y.

It is apparent that, in this model, an increase in the price of say commodity Y will result in a lower (B/p_y) quantity of Y that that consumer's budget can afford, and a move to a lower indifference curve. The quantities of X and Y will depend on their marginal rate of substitution, but usually lower quantities of Y, and of X to a lesser extent. A decline in the consumer's income and budget (without a price change) would lead to a lower parallel budget line. The impact on the quantities of X and Y will depend on the rate of marginal substitution between the two commodities. In the case of a *normal* commodity the tendency is for a lower combination of X and Y. However, there might be situations where one of the commodities is an *inferior* one, the consumer may increase the consumption of that commodity with a fall in income (the *Giffen Paradox*) (Quirk, 1986).

2.3 Psychological Perspectives

Psychology is mostly concerned with how consumers think and respond to stimulus, and how they develop attitudes that influence the commodities that they buy and use. Psychologists have developed organising frameworks that describe these processes. One of the early contributions was made by Maslow (1943) who developed the *Hierarchy of Human Needs*. This hierarchy has gone through a number of reiterations, and it is usually represented as a pyramid. Its more elaborated version includes eight levels of needs (Maslow, 1971).

1. *Physiological needs*. In the first instance, people address their basic wants concerned with the need to maintain body equilibrium (homeostasis) that involves, among other things, an appropriate level of air, drink, food, shelter, warmth, sleep, sex and excretion of wastes.
2. *Safety needs*. After the basic needs are satisfied, people require a sense of order and a predicable and organised environment that will make them feel secure.
3. *Love and belonging needs*. Next on the hierarchy are people's wants for love from family and affection from friends and others.
4. *Esteem needs*. In addition, to the love and affection of others, people have the desire to be respected by others and have a sense of achievement and self-esteem.

These four needs are considered by Maslow as basic. To these Maslow has added

5. *Knowing and understanding needs*. These are the cognitive needs involving awareness of reality, the motivational role of curiosity and experimenting for the acquisition of knowledge.
6. *Aesthetic needs*. Further on the hierarchy is the quest for and enjoyment of balance, form and beauty.

7. *Self-actualisation needs*. These needs involve the drive for the growth of self and fulfilment of one's potential.
8. *Self-transcendence needs*. At the apex of the hierarchy is the need to get out of oneself and help others to achieve their own potential and fulfilment (Fig. 2.1).

Maslow's hierarchy has been subject to criticism over the years. Some of these criticisms relate to the ranking of needs in the hierarchy and their apparent step-wise nature. Others point out that the needs and the hierarchy should take cultural differences into consideration. In regard to the first, Maslow accepted that needs in a lower layer may not be fully fulfilled before needs in an upper layer are addressed. He also recognised that that needs in different layers may be pursued simultaneously. And he acknowledged that there are individuals who feel some needs in higher layers are more important than in others in lower layers. He stated that *No claim is made that it is ultimate or universal for all cultures* (Maslow, 1943: 391). Self-actualisation and transcendence have also been the subject of criticism as concepts not capable of being tested.

Another organising framework often used in marketing in general, and advertising in particular, is what Palda (1966) called a *Hierarchy of Effects* proposed by Lavidge and Steiner (1961). This model of consumer behaviour was an attempt

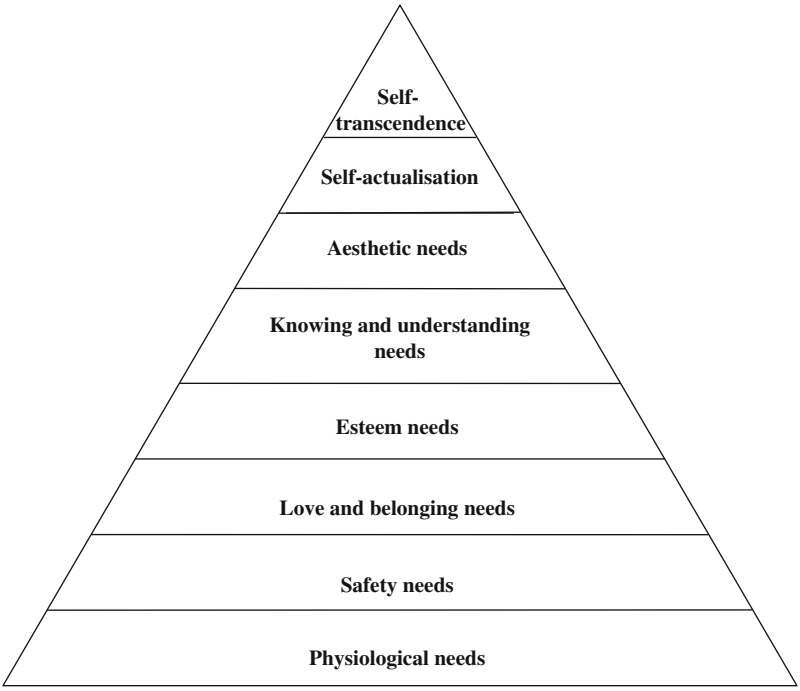


Fig. 2.1 Maslow's hierarchy of human needs
Source: Authors' graph inspired by material in Maslow (1971).

to provide a sequence of processes followed by consumers in their acquisition of commodities. The sequence involves:

1. *Awareness.* Lavidge and Steiner envisaged an initial step that takes the consumer from non-awareness to awareness of a particular product.
2. *Knowledge*. This initial step is followed by the consumer getting to know what the product has to offer.
3. *Liking*. In order for the product to be considered, the consumer needs to gain a positive attitude to the product.
4. *Preference*. Then the consumer assesses whether the product is preferable to other alternatives.
5. *Conviction*. To proceed further the consumer must desire and be convinced that the purchase of the product is appropriate.
6. *Purchase*. It is after the previous process that the consumer takes the action of buying the product.

This kind of model, which has been attributed to Lewis by Valkratsas and Ambler (1999), has the following sequence:

$$\textit{Attention} \rightarrow \textit{Interest} \rightarrow \textit{Desire} \rightarrow \textit{Action}.$$

It is known as the **AIDA** model. These models imply three elements: the *cognitive* or thinking element, the *affective* or feeling element and the *behaviour* or action elements (Valkratsas & Ambler, 1999) (Fig. 2.2). Palda (1966) was among the critics of the sequential model questioning not only the hierarchical sequence but the whole hypothesis. Much of the controversy involves the thinking and learning process and its impact on attitudes and behaviour (Ray, 1974) and whether action itself and experience feed back into cognitive and affective elements to influence attitudes and future behaviour (Smith & Swinyard, 1982) (Reibstein, Lovelock, & Dobson, 1980).

Hierarchy of Effects	**Models Building Blocks**	AIDA
Awareness Knowledge	**Cognitive**	Awareness
Liking	**Affective**	Interest
Preference Conviction		Desire
Purchase	**Behaviour (Conation)**	Action

Fig. 2.2 Hierarchy of effects and other consumer behaviour models
Source: Authors' graph inspired by material in Palda (1966), Lavidge and Steiner (1961) and Valkratsas and Ambler (1999).

Following concepts of consumer involvement developed by Krugman (1965), it is posited that consumers in low involvement situations may not follow the sequence of cognition, affect and conation; and that they are more likely to do so in situations of high involvement such as the purchase of an expensive or important item. In spite of these criticisms, the sequential model continues to be a reference point, even though integrated models that do not require the prescribed sequence and allow for a wider number of variables to be considered are now common.

In addition to these organising frameworks, psychologists have also been interested in how personality and gender characteristics, situational contexts, as well as culture and other social contexts may influence consumer behaviour. One of the theses is that consumers may use products in a symbolic manner, as a means of affirming their self identity and an *extension of self* (Belk, 1988). Another facet of this question is related to personality and the introduction and spread of new products. It is suggested that some individuals are *innovationprone* and that they are captivated by new ideas and products. But they may also be attracted by the uniqueness of new products because of their scarcity and the *social visibility* that enhances these consumers' position in their social environment (Fromkin, 1971). A corollary to this is that innovators will move on to other products when products become more widely used and loose their uniqueness. Psychologists have developed a number of concepts that posit how individuals' attitudes and behaviour are influenced by their social context. One of these concepts is *reciprocity*. This concept involves individuals' responses to the behaviour of others. The responses may be positive or negative. Thus, people may react to other people's behaviour by rewarding them with a positive response or punish them for their behaviour. These responses may be material or in the form of social sanctions (Perugini & Gallucci, 2001). An example is that parents in some cultures provide for their children with the expectation that they will look after them in old age. *Altruism* involves giving or helping others without expecting reward (Monroe, 1996). *Conformity* expresses the tendency of individuals to behave in ways that fit in with a group or society's norms to gain acceptance or status (Asch, 1951). Following a fashion in clothing is an example of conformity. These concepts suggest ways in which individuals are influenced by social others and form attitudes that in turn influence their behaviour, among other things as consumers.

Box 2.2 Multi-attribute Attitude Model

Psychologists place substantial importance on how consumers formulate their attitudes towards products that they purchase and use. A model often used is the *Multi-Attribute Attitude Model* developed among others by Fishbein (1963). This model usually takes the form of an equation

$$A_j = \sum_{i=1}^{n} X_{ij}\, Y_i$$

where

A_j = attitude towards j product
X_{ij} = belief to the extent (weight) that product j has attribute i
Y_i = value of attribute i

(Bettman, Capon, & Lutz, 1975)

For instance, a consumer has the belief that the attribute softness in a textile has an importance of 7 in a scale of 1 to 10. The consumer evaluates that cotton possesses that attribute at level 5 in a scale of 1 to 10. Then, the attitude of the consumer towards cotton on this attribute is $7 * 5 = 35$. Another attribute of a textile is shrinkage, the consumer considers that shrinkage of a textile has the value of 4 in the same scale, and evaluates that shrinkage in cotton has a weight of minus 6 (as shrinkage is a negative attribute). Accordingly, the consumer attitude towards cotton on this attribute is $4 * (-6) = -24$. If these were the only two attributes being considered then the sum of attributes would lead to attitude (A_j) towards cotton of the order of 11 ($35 - 24 = 11$). Among others, Calder (1975) has criticised this model's lack of empirical or mathematical basis. Criticisms have been levelled at the compensatory and linear form of the model, the cognitive process underlying the model, and the assumption that it provides a basis for prediction of behaviour. In spite of these criticisms, the model continues to have great appeal possibly because of the form of the simple equation and its simplicity in application.

Psychologists have also been concerned with personality attributes that characterise males and females and their roles in the household and society. It is proposed (Palan, 2001) that *males* are characterised by:

- independence,
- assertiveness,
- rationality,
- competitiveness, and
- focus on individual objectives.

While *females* are characterised by:

- understanding,
- caring,
- nurturance,
- responsibility,
- considerateness,
- sensitivity,
- intuition,
- passion, and
- focus on communal objectives.

It is posited that these attributes tend to affect the way in which males and females make decisions in relation to the products that they buy and use. Further, cultural stereotypes also influence male and female roles in consumption decisions in the households. It is suggested that *male stereotypes* have a propensity to make decisions related to their own consumption and more expensive items such as cars and other property, while *females* make most decisions related to purchases for children and others in the household, including themselves, and more everyday items such as food, clothes, personal hygiene, health care, education and cultural pursuits. More recently, psychologists have differentiated between sex and gender. *Sex* is defined as the biological characteristics of males and females, while *gender* refers to psychological characteristics that are culturally determined from belief systems of what masculine and feminine behaviour is or ought to be. Some psychologists postulate that individuals have both masculine and feminine traits that influence their behaviour. However, these characteristics may only be relevant in some contexts. Although there has been considerable interest in this area, only in some cases has gender behaviour added to the predication of consumer behaviour of males and females (Palan, 2001).

2.4 Sociological Perspectives

Psychology and social psychology are concerned with individual behaviour or how other people affect individual behaviour. The sociological perspectives are interested in consumers and their behaviour connected to features of social organisation, class distinctions and conflicts, institutions and mechanisms that mould social structures and behaviour. According to Warde (1990), the sociology of consumption involves issues that have been the object of work, over a long period of time, by Veblen (1919), Weber (1978) and Bourdieu (1984), among others, whose concerns included *social differentiation*. It deals with consumerism as a form of culture and the consumer society. It entails, among others, sociological issues dealing with *social stratification*, *role of work*, *social motivation* and *political action*. However, there are many divergent expressions of sociological views of consumers and their behaviour.

An influential view in sociology is that consumer roles and behaviour reflect class and power struggles connected to the ownership of the means of production by the *dominant classes* and consequent non-identification with the product of their work by the larger *subordinate classes*. This results in a lack of autonomy and self realisation by the latter, and a continuing asymmetry in the sharing of power and of the value of the output of production. Bauman (1983) suggests that there are two conflicting points of view. One looks at civilisation as a positive manifestation of reason and the related social order. The other sees growing social prohibitions and order that oppress the individuals' inner drives. It is postulated that, traditionally, social control has been exercised through subjugation of the body and its functions. However, there have been changes in way in which this is done.

Bauman (1983) identified three elements and attributes in the current mechanisms of social control: *disciplinary power*, *surveillance* and *capillary*. It is proposed that disciplinary power requires that bodily behaviour be made repetitive and predicable, in the form of routines that can be standardised and subjected to surveillance aimed at assessment and adjustments that check independence and bring bodily behaviour under social control. It is also postulated that power in modern society is not identified with a single entity or group. It is said to be arranged in a diffused manner (capillary) among a large number of social institutions and interactions.

Bauman (1983) suggests that the perception, in modern times, of power asymmetry and lack of reciprocity has led to subtle changes in the exercise of disciplinary power. The dominant classes have become the teachers of social behaviour and the subordinate classes become the pupils who can be punished for any deviance from civilised behaviour. Changes in the organisation of production have also forced the sharing of the surplus value of production and a degree of loss of disciplinary power by the dominant classes. It is suggested that the continuing exercise of disciplinary power by the owners of the means of production is now bought by a greater access to the product of their work by the subordinate classes. This is what Bauman describes as the *economisation* of the power conflict. However, this change has not resulted in the satisfaction of the desire for self realisation by the working classes, and has led to an ever rising need for economic growth to compensate the subordinate classes for their loss of autonomy and lack of fulfilment. It has also changed the focus of interest from production to consumption. In other words, *consumerism* is seen as arising from attempts at the continuing use of disciplinary power by the dominant classes by converting workers into neurotic consumers and denying them the role of producers and their realisation of self (Bauman, 1983).

A view that challenges that of Bauman (1983) is that . . .*we are moving towards a society without fixed status groups in which the adoption of styles of life (manifest in choice of clothing, leisure activities, consumer goods, bodily dispositions) which are fixed to specific groups have been surpassed* (Featherstone, 1987: 55). Featherstone (1987) cites Baudrillard (1975, 1981) and proposes that goods can not be looked at just in terms of their *utility,* their *use-value* and *exchange value*. Goods must be considered in terms of the consumption of *social signs* and not simply the result of rational economic behaviour. The consumer society involves self-conscious *stylisation* as a means of *self expression*. Consumers are said to express themselves through not only their consumption of food, clothes, housing and cars but also by what they read, the holidays they take and other leisure pursuits. They work to enjoy their adopted *life styles* regardless of age, sex or social background. Featherstone (1987) also points to the strategic importance of *cultural capital* as a marker of life styles and class distinction. He sees intellectuals and some lower middle class groups as the cultural intermediaries in the production of *social symbols* and their popularisation.

Box 2.3 A Typology of Social Trends and Consumer Behaviour

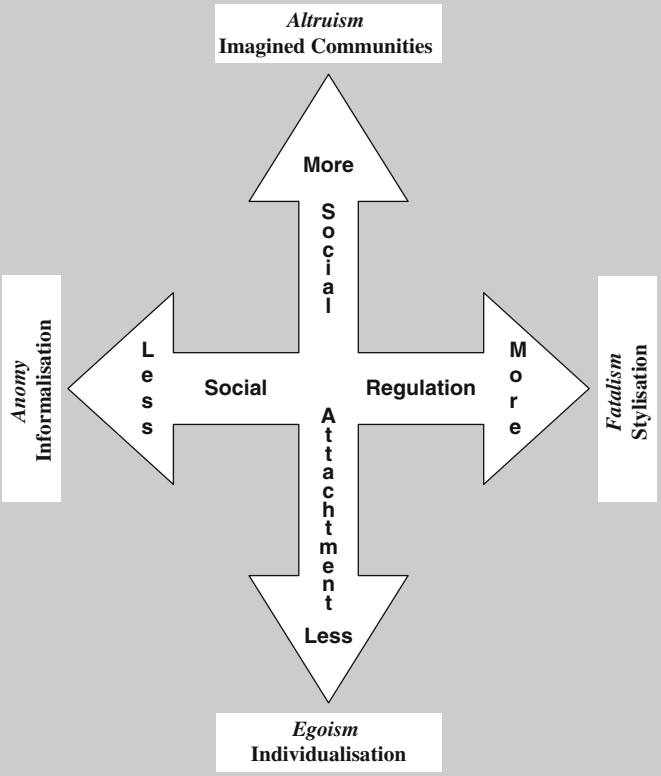
In a review by Warde (1994) of theoretical work concerned with consumption and social trends by Bauman, Beck and Giddens, Warde noted agreement regarding a rise in the degree of *individualisation* and a decline in the *spirit of disciple* in social control. Some of the explanations offered for these trends are the breaking down of class cultures, greater flexibility in production and labour markets, as well as an increase in *informalisation* due to less strict and fixed patterns of social behaviour. Warde (1994) also noted the proposition that individuals are using goods not only for their utilitarian needs but also as means of sending *signs* to others though their *consumption*, *ownership* and *display* of goods they choose in the market in the creation and maintenance of a self-identity. This requires the exercise of choice that entails responsibility for the choices made. It also involves partial dependency on the market place for the creation of personal identities. Some see this increase in responsibility for the creation of a personal identity a potential source of stress and anxiety for consumers.

According to this thesis, the greater degree of *anomie* (lower subjugation to social norms in social interaction) has led to greater *informalisation* that has allowed individuals greater choice to adopt *life styles* that project their individual identity. A rise in what could be perceived as *egoistic* behaviour has led to an increase in *individualisation.* Some manifestations of these social trends are said to have demographic implications in terms of observed lower fertility and higher levels of divorce, it is also seen in lower religious following in Western societies. These tendencies are also reflected in consumption patterns, and the growth of individuals' responsibility for choices they make in the creation of their individual identities, in conditions of waning social attachment and regulation (Warde, 1994). Thence, consumption choices can be a source of insecurity and anxiety that can interfere with a feeling of security with the chosen personal identity (*ontological security*). Accordingly, the freedom to choose can be seen as a risky condition. Warde (1994) concedes that studies of poverty in wealthy societies indicate that poor people may feel deprived and may even be prevented from normal social functioning. He also accepts that the delegation of decision making to women in poor households imposes on them a stressful load, but their limited means reduces freedom of choice and the anxiety arising from it.

Warde (1994) disputes some of the propositions related to consumer anxiety imposed by consumption choices, in the majority of cases. He sees a number of evolving and countervailing social processes and institutions that influence consumption and individuals' market choices that reduce risk in choices and any related stress and anxiety. Among others he mentions:

Advertising and other communication provides consumers with advice and direction on what is seen as appropriate to buy.

Social contacts with family, friends and colleagues also influence individual choices and diminish risk in what to buy and how to use it.
Delegation of choices takes place in households by the transfer of responsibility for selection from one member of the household to another.
Conventions and leftovers from social class norms and rules also offer guidance in what is socially respectable.
Complacency also reduces anxiety, as individuals accept their chosen personal identity and follow repetitive consumer behaviour consistent with their embedded habits.



(Source: Authors' diagram influenced by Warde, 1994).

Consumption selections made in the pursuit of given life styles should impose a considerable degree of discipline, to attain social approval and, consequently, diminish freedom of choice and the stress associated with it. This is reflected in what Bauman calls the emergence of *neo-tribes* or the *imagined communities* among youth and other groups in society that adopt similar styles

of clothing, eating and use of leisure services such as recreation. Warde also points out that the few who are likely to make choices without seeking social approval are unlikely to feel stress arising from making the right choices. According to Warde, consumption would become a lengthy and intolerable activity if individuals became anxious about every selection they made in the pursuit of personal identities. He states that most of consumption appears to be concerned with the enjoyment of goods and services purchased. In addition, those individuals with most to loose as a result of the choices they make in projecting a personal identity are those most disciplined and less likely to make inappropriate choices. Further, the proposition that there has been growing freedom of choice in a social context has not taken into consideration countervailing social developments that make freedom of choice limited (Warde, 1994).

Sociologists have identified a number of factors that influence consumer behaviour and the growth of consumption.

- *Social comparison* involves the acquisition of goods by lower classes trying to emulate trends in consumption set by the higher classes. This involves continuing demand for new products until they become popularised and cease to be a factor in social differentiation. Popularisation leads to a shift of interest by the higher classes to new products to maintain a continuing circle of class differentiation through consumption.
- *Creation of self-identity* through the goods that individuals purchase, own and display is another factor influencing consumption and consumer behaviour.
- *Stimulation from the novelty* of new goods or activities are a source of growth in demand and consumption, however, this drive might be limited to some extent by individuals' capacity for new experiences.
- *Matching effects* reflect individuals' need for consistency in their projection of a given identity or adoption of a specific life style. This will increase demand for complementary goods and services that make their behaviour sustainable across a range of different activities and consumption modes.
- *Specialisation* in consumption may be required by the presentation of a range of activities consistent with the projected image of self by individuals and increase demand for more than one type of clothing or footwear, creating niche markets and a greater fragmentation of the market for certain types of products.
- *Effects of socio-technical systems* implicit in the adoption of some products have an impact on the demand for others, electrical appliances require power, cars demand fuel and maintenance services. Thus, the consumption of some *visible signs* leads to the consumption of *less conspicuous products* (Shove & Warde, 1997).

Fashion affects consumption and consumer behaviour. Sproles (1974: 464) has described fashion as *a culturally endorsed form of expression, in a particular material or non-material phenomenon, which is discernible at any given time and change over time within a social system or group of associated individuals.* Features of fashion are similar to those of *conspicuous consumption* previously mentioned by Veblen. Fashion can also be seen as an illustration of goods being consumed to give *social signs* and a form of *stylisation* (Featherstone, 1987). In sociology, fashion has been traditionally identified as a mechanism of social differentiation. *Creative* and *conformity* features are implicit in the process (Chaney, 1998). In this context, fashion is set by the upper classes and *trickles down* to the rest of society. However, the development of *mass production* and *communication* have led to the identification of other fashion pathways where *horizontal flows* of fashion emanate from the innovation and stylisation of youth and lower classes, which may be followed by other groups in society (Sproles, 1974). In this sense, fashion can be seen as a curious form of *stylisation* and *informalisation* that has diminished structural distinctions in consumption from a prescribed *class-based social order* (Chaney, 1998).

Fashion can be considered both as an *object* and a *behavioural process*. Although the *object* of fashion may have *functional utility*, usually the strength of fashion relies on social motivation related to other attributes such as *aesthetic* and *stylistic* features, *ego-gratification* and *status-symbolism* qualities. In its creative and innovative phase, fashion has *novelty* and *exclusiveness* appeal to the group that adopts it as their *collective taste*. This implies *inbuilt obsolescence* that leads to the object of fashion becoming unwanted before the end of its functional life. The social process of fashion adoption and popularisation has been compared to the five phases of innovation and diffusion of new products:

- *Adoption* through the leadership of change agents.
- *Use cycle* mostly by demonstration and visibility given by change agents within and across given groups with specific life styles.
- *Social contagion and conformity* lead to fashion diffusion in a more popularised manner.
- *Market and social saturation* takes place when wide social acceptance leads to wide conformity with the fashion and mass marketing removes the uniqueness and exclusivity qualities of the fashion.
- *Decline and obsolescence* follow market and social saturation and the emergence of new fashions with the desired qualities of uniqueness and exclusiveness (Sproles, 1974).

Sociologists are also concerned with *gender*. This has often been in the context of the position of women in the household and society. The discussion is usually framed in terms of female and male specialised roles and functions, derived from biological and social attributes, and the sharing of power in the household and society at large. Swedberg (1987), in his wide ranging review of economic sociology, cites Tilly and Scott (1978) and claims that *women's behaviour in the market place*

cannot be adequately analysed without taking into account 'the family and household setting in which women were embedded as daughters, wives and mothers' (Swedberg, 1987: 76). Some of the basis for social differentiation between males and females is seen to arise from perceived personality differences, which suggest that males have *autonomous-separated-self* characteristics and females to have *emotionally-connected-self* attributes. This difference is attributed to males having to cut their emotional ties with their mothers in the affirmation of their separate male identities, while females have no need to do so and can remain connected, nurturing and even altruistic in their psychological make up. Social structures and power sharing have been based on the seen superiority of rational-separated males over emotional-connected females. According to England and Kilbourne (1990), the tendency to identify males and females in terms of dichotomies of rationality and emotion, egoism and altruism could be a false premise, as both males and females are seen to behave in a way where rationality is mixed with emotion. In the context of consumption and consumer behaviour, social perceptions have led to specialisation with rational-separated males being responsible for their own and important items in the household while emotional-connected females are left with responsibility for communal consumption, including themselves, and the shopping it entails (Chaney, 1998). The current trend of greater participation of females in the work force and the increasing importance of shopping could be seen as factors that influence social order and give females a different position in society. However, this proposition has been contested by Lury (1996), in terms of responsibility and control. While women are seen to be responsible for the management of the household's budget they are not in control of it (Chaney, 1998).

2.5 Anthropological Perspectives

Anthropology is often seen as the study of more primitive societies. However, it also studies industrialised societies. Anthropology is concerned with kinship and related social matters such as property and inheritance. It also explores culture and other aspects of social relationships and interaction. This interest has led to research into consumption and exchange practices in relation to the wider system of social interaction by Malinowski, Mauss and Boas (Campbell, 1991). Some social scientists shared their work between sociology and anthropology, such as Bourdieu (1984), and there is a certain degree of overlap in the topics discussed in sociology and anthropology. An influential but controversial contribution to the discussion of economic behaviour in a social context was made by Polyani (1944). He claimed that economic activity and behaviour were *embedded* in social relationships and structures and consequently could not be examined separately from them. He contested people's economic motivation in the acquisition of goods and proposed that the individual *acts as to safeguard his social standing, his social claims, his social assets. He values material goods only in so far as they serve this end* (Polyani, 1944: 46). Polyani based the mechanism of the production and exchange of goods and services on three social principles:

- *reciprocity* requires individuals to meet social obligations in the production and distribution of goods and services at the peril of social ostracism or even banishment;
- *redistribution* ensures that members of the community benefit from specialisation and division of labour arising from differences in sex, individual endowments and geography, the larger the social scale the greater the potential for redistribution;
- *householding* is production for one's household or group.

Three patterns of social behaviour are assumed to accompany these principles:

- *symmetry* in behaviour is expected from individuals based on trust or social sanctions.
- *centricity* in the collection and storage is required to benefit from specialisation and divisions of labour and redistribution;
- *autarchy* to enhance adequacy of production for the household and the social group.

In a similar vein to that of Mauss (1976), Polyani saw gifts as a symbol of social prestige that entail social reciprocation. He also saw that many aspects of trade were based on *social reciprocity* rather than the *propensity to barter* (Polyani, 1944). A major theme is that economic activity and behaviour reflect social obligations and practices rather than individual self-interest, a basic postulate of economic theory.

Anthropologists' concern for cultural patterns and related social practices has led them to the study of globalisation and its effects on indigenous cultures, and on consumption as an expression of it. It has been suggested (Appadurai, 1990) that there is a degree of tension between *cultural homogenization* and *cultural heterogenization*. Several factors are said to cause this tension:

- *Ethnic dispersal* from voluntary and forced migration, business and recreational travelling has spread contrasting cultures and created flows of people and settlements of diasporic groups of people among indigenous communities;
- *Technological diffusion* across national boundaries has influenced methods of production and employment and led to the parallel existence of old and new commercial organisations, and the availability or the image of diverse goods and services.
- *Financial flows* from country to country have resulted in differing methods of credit and financing co-existing in local communities.
- *Electronic media* have facilitated the rapid dissemination of information, advertising and the creation of imagined alternative life styles across national borders.
- *Ideological and political stances* have propagated internationally and sought to steer the direction or wrest power for alternative purposes or objectives.

In the context of consumption, these global driving forces push for greater *homogenization* of consumer behaviour. However, these drives are not in concert with one another, and allow counter responses that encourage indigenization of international trends and continuing heterogenization of consumer behaviour.

Nevertheless, these *imagined communities* have created demand for goods and services to satisfy the cultural manifestation of their perceived identities (Appadurai, 1990).

2.6 Psychographic Perspectives

The psychographic perspectives are presented here in spite of their lack of academic pedigree because of their wide use in the characterisation of market segments (Claritas, 2007; SBI, 2010). This approach tends to follow a typology method that classifies people into a number of stereotypes with given characteristics (Lipke, 2000). The product usually takes the form of a proprietary package that can be applied to given populations. One of its recognised forms is VALS or the Values and Lifestyle Program of SRI International. As the name indicates, it is based on the segmentation of the United States (US) adult consumer population into a typology that combines psychological attitudes, values and beliefs associated with some socioeconomic characteristics (Atlas, 1984).

A recent version of this hierarchical typology relies, among other things, on responses to questions related to *self-image* and *aspirations* associated with age, sex, education and income characteristics (SRIC, 2006a, 2006b). According to SRIC, the typology relies on two major dimensions:

- Motivation
- Resources

Respondents and their equivalent in the US consumer adult population have been grouped into two major categories:

- *Innovators* with high resources and innovation
- *Survivors* with low resources and innovation

These two categories are further divided into segments based on their *primary motivation:*

- Ideals
- Achievement
- Self-Expression

The result of this two-dimension classification is a matrix of six segments:

Innovators are said to be successful people with a high level of self-esteem. They are trend setters. Their projected identity is important as a reflection of their independence and personality. They are active consumers of products that are symbolic of their imagined identities.

- *Thinkers* are motivated by ideals. They seek knowledge and are open to new ideas. They are active and practical consumers who look for value-for-money products.
- *Achievers* are career and family oriented people. They like stability but also appreciate self-discovery. As active consumers, they prefer reputable products that project their achievement.
- *Experiencers* pursue self-expression. They savour the stimulation of a wide variety of experiences in which they engage and disengage easily. Their high income allows them to spend on conspicuous consumption in fashionable products and recreation.

Survivors have few resources that limit the breadth of their lives. They strive for security in their battle for survival. Their low income limits their consumption and leads to watchful and frugal spending with a preference for familiar products at a low price.

- *Believers* are driven by ideals. They follow narrowly interpreted moral codes of behaviour and engage in established routines. They are consistent consumers of familiar and well known products and brands.
- *Strivers* are motivated by achievement. They search for enjoyment in life and seek material success and approval from other people. However, their limited resources hinder their material progress. Their consumer behaviour is an opportunity for social engagement and display. They are impulsive consumers but with limited resources.
- *Makers* are stimulated by self-expression. Their self-identity is reflected in their work and family life. They are practical people and cherish self-sufficiency. They are frugal consumers with a propensity to choose basic and practical products (SRIC, 2006b).

The use of psychographics raises a number of questions, such as whether respondents to surveys are representative of the population at large. General application requires validation. Another question is country specificity, as in the case of VALS. Accordingly, even if the sample was representative of the US population, its generalisation outside the US would need to be assessed. In addition, there is the issue of reliability arising from the correlation of consumer behaviour and personality characteristics. This questions the predictability of consumer behaviour based on the life-style scale used (Lastovicka & Joachimsthaler, 1988).

2.7 Evolving Perspectives and Concepts

The large and varied notions of consumers and their behaviour range from the simplifying assumptions of neoclassic economics to Polyani's proposition that consumption is a manifestation of human interaction based on social obligation and motivation. A major dichotomy prevails between economics and the other social

sciences. However, some recent work has bought economic thinking closer to the other social sciences.

A contentious issue has been the assumption of independence of the individual consumer in economics and the perception by others that individual consumer behaviour is embedded in social structures and institutions, and therefore, reflects or takes into consideration other people's attitudes and behaviour. Another issue that divides economics from others is the self-interest assumption. Nevertheless, experimental economic work supports the contention that individual behaviour in the market place is affected by enforceable reciprocity in contractual arrangements (Fehr, Gachter, & Kirchsteiger, 1997). The assumption of economic rationality is another issue that has caused much discussion. Recently, Vernon Smith, a Nobel Prize winner in economics, has accepted that *Our brains conserve attentional, conceptual and symbolic thought resources because they are scarce, and proceeds to delegate most decision-making to autonomic processes (including the emotions) that do not require conscious attention… an alternative, ecological concept, of rationality: an emergent order based on trial-and-error cultural and biological evolutionary processes. It yields home- and socially-grown rules of action, traditions and moral principles that underlie property rights and interpersonal exchange, and social cohesion in personal exchange* (Smith, 2002: 552). Yet another economic assumption is that consumer choices are made in terms of the diminishing marginal substitution among different products, while others perceive that products may be chosen because of their semiotic attributes in class distinction or signs involving the creation of self-identity or as part of chosen lifestyles. Veblen's earlier concept of related conspicuous consumption has been part of the economic narrative of consumption, and under simplified assumptions in economics consumer *tastes* may be seen to include these semiotic attributes.

The outlined perspectives indicate some converging trends (Campbell, 1991):

- Rising perception that consumption takes place in a social rather than individual context.
- Increasing consideration that consumption can have associated social and semiotic value.
- Greater acceptance that consumers may often act not as a result of a conscious choice but rather as the result of unconscious habits or emotions.

However, there continue to be divergent views of consumption and its social manifestations. Some see the rise of mass production and communication as a liberating force that gives people freedom of choice in consumption and in the adoption of their personal identities and life styles, while others see in it a new form of class differentiation and stratification, or even a new form of imposing social discipline. In addition, there continues to be differences of opinion on how consumer cognitive processes take place, and on sequential and hierarchical processes leading to selection and acquisition of products, with a greater emphasis on cybernetic models. There are also alternative points of view regarding male and female roles and how they influence consumption and related functions and behaviour in the household. The impact of increasing international flow of people, ideas, technology and

products on consumers and their behaviour is attracting the attention of social scientists and some initial findings provide insights into this expanding area. Growing research in neuroscience will no doubt provide better insights into cognitive and other aspects of human motivation and behaviour. Continuing experimental economic research should also lead to a sounder basis for the development of more realistic insights into economic motivation and market behaviour.

References

Appadurai, A. (1990). Disjuncture and difference in the global cultural economy. *Theory, Culture & Society, 7*, 295–310.

Asch, S. E. (1951). Effects of group pressure upon the modification and distortion of judgements. In H. Guetzkow (Ed.), *Groups, leadership, and men* (pp. 177–190). Pittsburgh, PA: Carnegie Press.

Atlas, J. (1984, October). Beyond demographics. *The Atlantic Monthly*, pp. 49–58.

Bannock, G., Baxter, R. E., & Davis, E. (1998). *The dictionary of economics*. London: Penguin Books.

Baudrillard, J. (1975). *The mirror of production*. St Louis: Telos Press.

Baudrillard, J. (1981). *Towards a critique of the political economy of signs*. St Louis: Telos Press.

Bauman, Z. (1983). Industrialism, consumerism and power. *Theory, Culture and Society, 1*(3), 32–43.

Belk, R. (1988). Possessions and the extended self. *Journal of Consumer Research, 15*(September), 139–168.

Bettman, J. R., Capon, N., & Lutz, R. J. (1975). A multimethod approach to validating multi-attribute attitude models. *Advances in Consumer Research, 2*, 357–374.

Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste*. London: Routledge and Kegan Paul.

Calder, B. J. (1975). The cognitive foundations of attitudes: Some implications for multi-attribute models. *Advances in Consumer Research, 2*, 241–248.

Campbell, C. (1991). Consumption: The new wave of research in the humanities and social sciences. *Journal of Social Behavior and Personality, 6*(6), 57–74.

Chaney, D. (1998). The new materialism? The challenge of consumption. *Work, Employment and Society, 12*(3), 533–544.

Claritas. (2007). *Claritas PRIZM ® NE Segment Narratives*. Ithaca, NY: Claritas.

England, P., & Kilbourne, B. S. (1990, April). Feminist critiques of the separative model of self: Implications for rational choice theory. *Rationality and Society, 2*(2), 156–171.

Featherstone, M. (1987). Lifestyle and consumer culture. *Theory, Culture & Society, 4*, 55–70.

Fehr, E., Gachter, S., & Kirchsteiger, G. (1997, July). Reciprocity as a contract enforcement device: Experimental evidence. *Econometrica, 65*(4), 833–860.

Fishbein, M. (1963). An investigation of the relationships between beliefs about an object and an object and the attitude toward that object. *Human Relations, 16*, 233–240.

Friedman, M. (1957). *A theory of the consumption function*. Princeton: Princeton University Press.

Fromkin, H. L. (1971). A social psychological analysis of the adoption and diffusion of new products and practise from a uniqueness motivation perspective. *Proceedings of the Second Annual Conference of the Association for Consumer Research*, pp. 464–469.

Keynes, J. M. (1967). *The general theory of employment interest and money*. London: Macmillan.

Krugman, H. E. (1965, Autumn). The impact of television advertising: Learning without involvement. *Public Opinion Quarterly, XXIX*, 349–356.

Lastovicka, J. L., & Joachimsthaler, E. A. (1988, March). Improving the detection of personality – behavior relationships in consumer research. *Journal of Consumer Research, 14*(4), 583–587.

Lavidge, R. C., & Steiner, G. A. (1961, October). A model of predictive measurement of advertising effectiveness. *Journal of Marketing, 25*, 59–62.
Lipke, D. J. (2000, October). Head trips – A new way to understand consumer psychology. *American Demographics,* 38–40.
Lury, C. (1996). *Consumer culture*. Cambridge: Polity Press.
Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*, 370–396. http://psychoclassics.yorku.ca/Maslow/motivation.hmt. Retrieved 15 Feb 2007.
Maslow, A. H. (1971). *The further reaches of human nature*. New York: Viking Press.
Mauss, M. (1976). *The gift*. New York: Norton.
Modigliani, F., & Brumberg, R. (1954). Utility analysis and the consumption function: An interpretation of cross-section data. In K. K. Kurihara (Ed.), *Post Keynesian economics* (pp. 390–397). New Brunswick, NJ: Rutgers University Press.
Monroe, K. R. (1996). *The heart of altruism: Perceptions of a common humanity*. Princeton: Princeton University Press.
Palan, K. M. (2001). Gender identity in consumer behaviour research: A literature review and research agenda. *Academy of Marketing Science Review, 10*, 1–28.
Palda, K. S. (1966, February). Hypothesis of a hierarchy of effects: A partial evaluation. *Journal of Marketing Research, 3*(1), 13–24.
Perugini, M., & Gallucci, M. (2001). Individual differences in social norms: The distinction between reciprocators and procsocials. *European Journal of Personality, 15*, S19–S35.
Polyani, K. (1944). *The great transformation*. New York: Rinehart & Company.
Quirk, J. P. (1986). *Intermediate microeconomics*. Chicago: Science Research Associates Inc.
Ray, M. L. (1974). Consumer initial processing: Definitions, issues, and applications. In G. D. Hughes, M. L. Ray, & G. Haines (Eds.), *Buyer/consumer information processing* (pp. 145–156). Chapel Hill, NC: North Carolina Press.
Reibstein, D. J., Lovelock, C. H., & Dobson, R. de P. (1980, March). *The Journal of Consumer Research, 6*(4), 370–376.
SBI (Strategic Business Insights). (2010). *VALS*. Menlo Park, CA: SBI. www.startegicbusinessinsights.com. Retrieved 24 Jan 2011.
Shove, E., & Warde, A. (1997). *Noticing inconspicuous consumption*. Paper presented at ESF TERM Programme workshop on Consumption, Everyday Life and Sustainability, at Lancaster University, April 1997.
Simon, H. (1982). *Models of bounded rationality*. Cambridge: MIT Press.
Smith, R. E., & Swinyard, W. R. (1982, Winter). Information response models: An integrated approach. *Journal of Marketing, 46*(1), 81–93.
Smith, V. L. (2002). *Constructivist and ecological rationality in economics*. Nobel Prize Lecture. http://nobelprize.org/nobel_prizes/economics/laureates/2002/smith-lecture.pdf. Retrieved 4 Mar 2007.
Sproles, G. B. (1974). Fashion theory: A conceptual framework. *Advances in Consumer Research, 1*, 463–472.
SRIC. (2006a). *VALS survey*. www.sric-bi.com/vals/surveynew.shmtml. Retrieved 11 June 2006.
SRIC. (2006b). *The VALS segments*. www.sric-bi.com/VALS/types.shtml. Retrieved 11 June 2006.
Swedberg, R. (1987, Spring). Economic sociology: Past and present. *Current Sociology, 35*(1), 1–144.
Tilly, L. A., & Scott, J. W. (1978). *Women, work and family*. New York: Holt, Reinhart and Winston.
Valkratsas, D., & Ambler, T. (1999, January). How advertising works: What do we really know? *Journal of Marketing, 63*(1), 26–43.
Veblen, T. (1919). *The theory of the leisure class: An economic study of institutions*. New York: B. W. Huebsch.
Warde, A. (1990). Production, consumption and social change: reservations regarding Peter Saunders' sociology of consumption. *International Journal of Urban and Regional Research, 14*(2), 228–248.
Warde, A. (1994). Consumption, identity-formation and uncertainty. *Sociology, 22*(4), 877–897.
Weber, M. (1978). *Economy and society*. Berkeley, CA: University of California Press.

Chapter 3
Towards Consumer Demographic Perspectives

3.1 Demography is About People: Characteristics and Change

One of the distinguishing features of demography is that it is concerned with the study of human populations rather than the individual. In this sense, consumer demographics are closer to concepts dealing with populations and groups within them than to the concepts of individual consumer behaviour in microeconomics. Demography deals with population size and how it changes. It is also concerned with population composition by age, sex and other characteristics. The composition of the population influences the three components of population change (Pollard, Yusuf, & Pollard, 1995). These three components are:

- fertility,
- mortality, and
- migration

In turn, these three components affect the composition of a population creating an interactive system between composition and the components of change. For example, the age and sex composition of a population influences family formation, and possible separation, that affect births, and in some cases migration, that in turn have an impact on age and sex composition. The idea of such interactions and feedback loops can be broadened. Births, deaths, and migration are social events often influenced by social and economic conditions and have, in turn, social and economic consuequences. How does this affect consumer behaviour? One way is that people of different ages have different capacities for physical, social, and economic functioning. Thus, their ages influence their preferences for different goods and services. Because of this relationship, understanding the interaction between age composition and components of population change is important to understanding consumer behaviour.

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Box 3.1 Balancing Equation of Population Change: A Basic Demographic Model

The *fundamental population equation* can be used to show three components that affect demographic change; and how future population size and composition are influenced by the initial population size and composition that lead to subsequent births, deaths and migration. The term "stock" is often used to refer to the size and composition of a population at a point in time, while "flow" refers to the components of change over a period of time. Using these terms, Equation (1) illustrates the fundamental population equation:

$$P_{t0+1} = P_{t0} + B_{t01} - D_{t01} \pm M_{t01} \tag{1}$$

where

P_{t0} = Population stock at time t_0
B_{t01}= Births during period t_{01}
D_{t01}= Deaths during period t_{01}
M_{t01}= Migration (Net) during period t_{01} (arrivals less departures)
P_{t0+1} = Population stock at the end of period t_{0+1}

Natural increase in population is defined as the difference between the number of births and deaths in a given period.

If both sides of the equation are divided by the population at t_0

$$P_{t0+1}/P_{t0} = (P_{t0}/P_{t0}) + (B_{t01}/P_{t0}) - (D_{t01}/P_{t0}) \pm (M_{t01}/P_{t0}) \tag{2}$$

The result is a proportional growth model

$$p = \text{growth in population} = 1 + b - d \pm m \tag{3}$$

When

P_{t0+1} is not substantially greater than P_{t0}
b is close to the definition of the crude birth rate (see Box 3.2)
d is close to the definition of the crude death rate (see Box 3.2)
m is close to the definition of the net migration rate
b–d is close to the rate of natural increase

Then

$$p - 1 = b - d \pm m \tag{4}$$

$$g = b - d \pm m \tag{5}$$

where

g = population growth rate = p – 1

It is obvious that on a worldwide basis net migration is nil and population growth is entirely dependent on the relative values of the birth and death rates. However, migration can play a role in a country or a region's growth rate.

Further, empirical evidence indicates that in aggregated terms, the number of births is closely related to the age of women and that the number of deaths is also related to age. Consequently, the age distribution of the initial population stock greatly influences the number of births and deaths. Thus, the simple equation

$$P_{t0+1} = P_{t0} + B_{t01} - D_{t01} \pm M_{t01} \tag{1}$$

needs to be rewritten
where

$P_{t0} = \sum p_{0i}$
p_{0i} = people at time t_0 of age i
$B_{t01} = \sum b_{01i}$
b_{01i} = births of people (per women) aged i during period 01
$D_{t01} = \sum d_{01i}$
d_{01i} = deaths of people aged i during period 01
$M_{t01} = \sum m_{0i}$
m_{01i} = migrants aged i during period 01
$P_{t0+1} = \sum p_{0+1i}$
p_{0+1i} = people at time 0+1 of age i.

to provide a better basis for the understanding of the size of the flows in relation to the stocks of population.

3.2 Population Age and Changing Market Characteristics

3.2.1 Life Cycle Events

Populations are collections of living human beings and ageing is a feature of life. Stages in the life cycle correspond to phases in the ageing process that lead to demographic events such as family formation, reproduction, child rearing, possible family breakdown, nest-emptying and eventual death. The association between age and the timing of these events deserves closer examination as they have a bearing on consumption patterns and behaviour embedded in the age distribution of populations.

3.2.2 Fertility, Mortality and Population Age

Age-specific birth rates tend to vary, with fewer births both early and late in the female reproductive period (about 15 to 49 years of age) (Fig. 3.1). Although the levels and peaks in fertility may vary from one place to another, the hump-shaped,

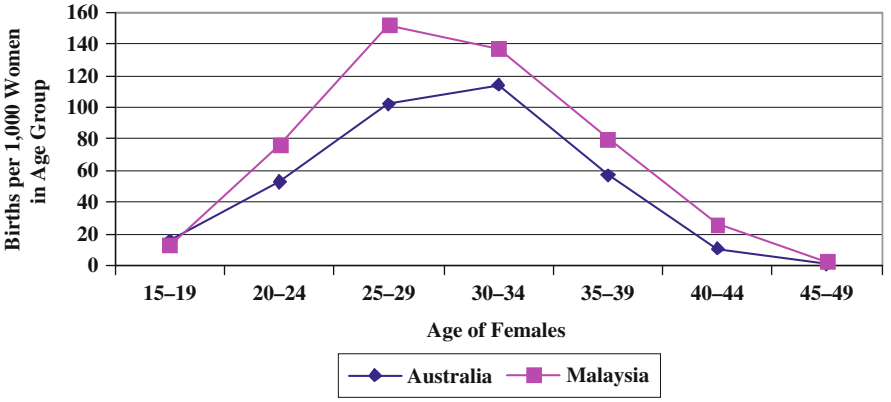


Fig. 3.1 Australia and Malaysia age-specific fertility rates per thousand women 2004
Source: ABS (2009) and DOS (2006).

age-specific fertility curve tends to have its peak in the 20s and in some cases in the 30s. Usually, the higher the level of total fertility the younger the peak in the reproductive period. As it will be discussed later, higher income countries tend to have lower mortality and lower fertility than medium and especially low income countries.

Australia's and Malaysia's fertility rates provide an illustration of the hump-shaped fertility pattern. In both countries, age-specific fertility rates follow a similar pattern. However, in Malaysia the peak in fertility comes earlier in the reproductive period of women than in Australia (Fig. 3.1). The difference in fertility has an impact on the age composition of the two countries and also on the number of dependent children with implications to the demand for goods and services related to child rearing.

Death-specific death rates also differ considerably from one community to another. More deaths take place in the first year of life than in other early years. Mortality tends to rise gradually with age and accelerates after 40 years of life. Age-specific mortality takes the shape of an asymmetrical U curve (Fig. 3.2), regardless of their relative levels. Obviously, the survival-rate curve follows an inverse shape.

Age-specific death rates in Australia and Malaysia provide, once again, an example of this pattern. The shape of the curve of the age-specific death rates is similar. However, Malaysia has higher age-specific mortality rates and overall lower survival rates that result in a lower proportion of older people than in Australia. Among other things, this influences the demand for services related to the support of older people.

The number of deaths and births, at any given point in time, is not only a function of the overall fertility and mortality rates but also of the age distribution of the population. This is a reason why, in some cases, the number of births and the crude birth rate may be high in spite of low age-specific fertility. It is also the reason why the crude death rate may be high in spite of reductions in age-specific mortality. In

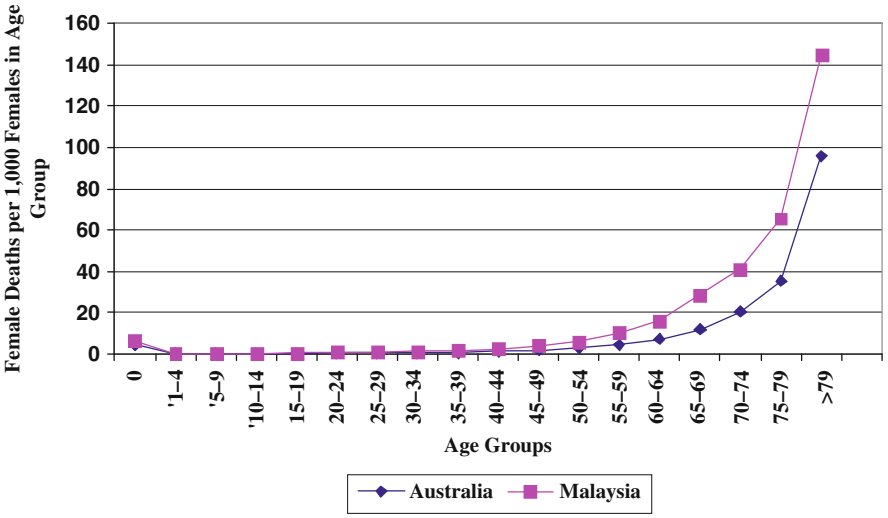


Fig. 3.2 Australia and Malaysia age-specific death rates per thousand people 2004
Source: ABS (2009) and DOS (2006).

turn, changes in overall fertility and mortality affect changes in the age distribution of populations over time. The High fertility rates and mortality rates tend to lead to an age distribution that is dominated by young people (Table 3.1). The example of Afghanistan illustrates clearly this relationship with a total fertility rate (TFR) of 7.4

Table 3.1 Fertility, life expectancy and age distribution in selected countries 2005

Demographic characteristics	Afghanistan	India	China	Italy
Age	Percentage of total population			
0–14	46.8	33.0	22.0	14.2
15–64	51.0	62.4	70.4	66.2
65 and over	2.2	4.6	7.6	19.6
Median age	Years			
	17	24	32	42
Total fertility rate	Average number of children per woman's life (2000–2005)			
	7.4	3.1	1.8	1.3
Life expectancy at birth	Average number of years (2000–2005)			
	42	62	72	80
Population growth rate	Percentage growth rate per year (average 2000–2005)			
	3.5	1.6	0.7	0.5

Note: The Total Fertility Rate is the average number of children per woman if the age-specific birth rates in the years 2000–2005 prevailed. The life expectancy is the average number of years that individuals would live if the age-specific death rates for the years 2000–2005 prevailed.
Source: UN (2009).

children per woman and a life expectancy of 42 years, nearly half (about 47 percent) of its population is under the age of 15 years and only about 2 percent are 65 years of age or over. Low fertility and long life expectancies lead to age distributions dominated by older adults. On the other end of the spectrum, in Italy with a TRF of 1.3 children per woman and a life expectancy of 80 years, only about 14 percent of the population is under the age of 15 years, while about 20 percent is aged 65 years and over. Other things being equal, Afghanistan and Italy are poised to have very diferent demands for age-related goods and services. These differences also affect the proportion of people of working age and, therefore, the potential production of commodities available for consumption.

Box 3.2 Synthetic Demographic Concepts of Fertility and Life Expectancy

Fertility and mortality are the two major components in the change of population size and its composition (Box 3.1). The Crude Birth Rate (the average number of births per head of population in a given period) and the Crude Death Rate (the average number of deaths per head of population) are two *crude* measures of these two variables, because the numbers of births and deaths are related, to some extent, to the age distribution of the population. Consequently, the same population size could have different crude birth and deaths rates because of dissimilar age distributions. To overcome this problem, two measures have been formulated:

Total Fertility Rate (TFR)
Life Expectancy(ex)

The *TFR* measures the average number of children that women have over their reproductive period (usually 15–49 years of age) in a defined population, and *ex* is the average number of years that people live also in a defined population. These two measures of fertility and mortality are related to events that occur over a lifetime. They are longitudinal concepts that would take many years to measure, while most of the information readily available is in terms of age-specific fertility and mortality of a cross-sectional nature. Demographers have evolved synthetic measures of fertility and life expectancy using these cross-sectional data. The first is the average number of children that women are likely to have based on the age-specific birth rates prevailing at a given period of time. The second is the average number of years that people are likely to live based on the age-specific death rates (or more specifically survival rates) prevailing at a given period of time.

It is apparent that the higher the level of age-specific fertility rates the higher the TFR. A TFR of about 2.1 represents replacement level of a population. TFRs below that point mean that births are not replacing the existing population. It is also obvious that as age-specific death rates decline the life

expectancy gets longer. Of particular importance is infant mortality (deaths during the first 12-months of life) because of its relatively high value. Usually, it explains major differences in life expectancy among different countries. These two synthetic measures based on current age-specific rates may over- or under-estimate the actual average fertility and life expectancy depending whether the actual trends are falling or on the rise.

The Total Fertility Rate is based on the following equation

$$\mathbf{TFR} = \sum \mathbf{b_i} \tag{1}$$

Where

TFR = Total Fertility Rate
$b_i = B_i/F_i$
B_i = number of births to all mothers of the specific age, during the given period of time
F_i = number of all women of the specific age, during the given period of time

As the number of births is often expressed in terms of births to mothers in five-year age groups and related to women in that 5-year age group, then

$$\mathrm{TFR} = 5 \sum b_{i5} \tag{2}$$

Where

b_{i5} = The age-specific birth rate for women in given 5-year age group, during the given period.
B_{i5} = number of births to all mothers of the specific 5-year age group, during the given period
F_{i5} = number of all women of the specific 5-year age group, during the given period.

Empirical evidence indicates that age-specific fertility rates vary considerably and that their distribution tends to follow an asymmetrical bell-shaped curve. The rates tend to be lower early in the reproductive cycle and increase to reach a peak in late 20s and early 30s and then drop. This pattern explains why sometimes a country has a high *CBR* due to large proportion of their population in the highly reproductive ages of 20–34, in spite of a low *TFR*.

Abridged life tables are commonly used to estimate life expectancy. There are more than one method of building abridged life tables to arrive at life expectancy estimates at given ages. They usually rely on the following two variables (Weeks, 1999):

nPx number of people in the given age interval of x and $(x + n)$ (n = usually five years)

nDx number of deaths of people in the given age interval of x and $(x + n)$

Estimates are then made for:

nMx – death rates for the specific age interval $= nPx/nDx$

nqx – probability of dying during the age interval $= [(n)\, nMx] / [1 + (a)\, (n)\, (nMx)]$ usually $(a) = 0.5$, but for first and second year of life 0.85 and 0.60 respectively because the bias in earlier deaths.

ndx – number of deaths during the interval out of 100,000 born alive $= (nqx)\, (lx)$

lx – number alive at the bigining of the interval out of 100,000 people born alive $(lx + n) = (lx) - (ndx)$

nLx – number of years lived during the period $= \{n[(lx)] - ((a)\, (ndx))]\}$

Tx – number of years lived in all subsequent age intervals $= [(Tx + n) + (nLx)]$

ex – expectancy of life at $x = (Tx)/(lx)$

The derived life expectancy estimate is a cross-sectional estimate of the real longitudinal average life expectancy. Single-year, age-specific numbers of deaths produce better estimates. However, the number of deaths in some ages may be relatively small, and deaths for 5-year age groups are often used. The first year of life is usually dealt with separately, because of its relative importance and the occurrence of infant deaths with a bias towards the early stages of life. The oldest cohort also tends to be dealt with differently because of its open-ended nature.

3.3 Demographic Events: Market Triggers

Demographic events that influence population size and characteristics are often themselves triggers for the consumption of goods and services. These events include the formation of households and families (marriage/partnerships), and the break-down of families by divorce or separation, births, deaths or widowhood, and either internal or international migration. From birth to death, demographic events involve related market transactions.

Pregnancy and birth trigger demand for health care, as well as the demand for pregnancy and baby clothing, toys, cots and, in some more affluent markets, prams and car safety seats for infants. Additional space for children may demand larger housing and furniture modification. The market for baby formulas, food and diapers are dependent on birth rates. Trends in fertility also influence demand for child care and education services. As infants grow into toddlers and eventually teenagers they have their own sets of demands for goods and services. These create market segments for food, beverages, clothing, footwear, education and recreation. They also lead to changing housing needs of families and their transport.

Marriages and other forms of family formation trigger demand for housing and utility services, furniture, household appliances and transport. Divorce or separation tend to lead to the creation of more households and trigger demand for additional and often different types of housing, and the duplication of utility and other housing services, as well as household furniture, appliances and transport.

Death triggers demand for funeral and other related services. It often also leads to widowhood and the downsizing of households that may trigger demand for different types of housing, furniture, household appliances and changes in the demand for utilities and even transport.

Although in some societies threatened by hunger and social stresses, migration may take place on foot, in most cases, migration either at international or domestic levels triggers the demand for transport services for people and their belongings. In addition, migration tends to make housing available at the point of origin and trigger the demand for additional housing at destination. While some people carry their belongings with them when they migrate, usually migrants increase demand for furniture, household appliances and transport at destination. By increasing the number of people in the market, migration triggers demand for the whole range of consumer goods and services.

Often, these effects are captured by the examination of expenditure patterns of households headed by people of varying ages.

3.4 Demographic Dynamics and Market Changes

Changing fertility rates and life expectancy have had a major impact on the number of people in world markets. The different rates of fertility and mortality experienced over time have also led to uneven distribution of people at varying stages of their life cycle with generation-specific preferences, and changing market segmentation. In addition, the diverse rates of fertility and life expectancy prevailing in countries at different stages of development have also resulted in considerable variances in the age distribution of consumers in countries across the world. Moreover, because of the relatively slow pace of demographic change (barring natural and human-made disasters), and its inherent iniertia, the lagged nature of impact of varying rates of chnage will ensure that considerable differences in age composition will persist across countries and regions. These suggest that age-segmented marketing will remain important. As it will be seen in the following chapters, there are associations between fertility, mortality and levels of economic development. Consequently, differences in market demographics will be accompanied by varying orders of purchasing power that will affect the demand for the wide range of products in world markets.

3.5 Gendered Effects

A demographic trend in many countries is the number and proportion of people living alone (ABS, 2003) (USCB, 2001). This is due partly to late family formation and also to the differential mortality between males and females. In households with

more than one person, adult male and female behaviour as conumers tends to be embedded in their family roles as husbands and fathers and wives and mothers. This might still influence their behaviour, in some cases, in one-person households, but it is more likely that any gendered consumer behaviour will become more appparent in the examination of consumer patterns of adult males and females living in one-person households. As is obvious, these gendered consumer behaviours will interact with age-related consumer behaviours.

3.6 Ageing and Substitution Effects

A feature of life is ageing. Accordingly, people go through an ageing process or life cycle that effects their perceptions of life and their perceived needs. This leads to them changing their preferences for given groups of goods and services at different stages of their life cycle – *a substitution effect*. For instance, as people age and are less mobile they may reduce the amount of eating away from home and increase eating at home. This would be a substitution-type effect. As implied in Section 3.5, these age-related behaviours will interact with gendered consumer behaviours.

3.7 Cohort Effects

However, each generation has some marked experiences that have a pervasive effect throughout their life cycle and influence the choices they exercise – *a cohort-effect*. An older generation may develop a taste for tea rather than coffee, and a younger generation a greater taste for coffee than tea. Although the older generation may drink less of either, it will nevertheless drink more tea than coffee, while the younger generation will tend to drink more coffee than tea throughout their life cycle. This is a cohort-type effect.

The substitution-effect is apparent in cross-sectional analysis of consumer preferences, but the cohort-effect is longitudinal in nature and is more difficult to identify in cross-sectional data. The latter requires information over periods of time, to differentiate between changes due to variations in income and other circumstances and consistent preferences over time for specific commodities, by people born and living through different experiences that influenced their motivation and preferences. It should be noted that cohort-based consumer behaviours will interact with both age-related and gendered consumer behaviours.

3.8 Demographic Factors and Consumer Behaviour

Markets are about people. Consequently, population size, composition and the factors that influence changes in them are an essential element in understanding market characteristics of relevance to consumption levels and patterns. Two major

perspectives are apparent: the first is concerned with the impact of population size and growth and the second with population composition.

1. *Population size* influences the size of markets. It also has an effect on the potential for specialisation and productivity related to economies of scale. However, the rate of *population growth* can hinder growth in income per head of population and have an effect on the level and the range of products that most individuals can afford.
2. *Population composition*

   - *Age distribution* of the population reflects the number and proportion of people in different stages of their *life cycle*, with varied life styles and related levels and patterns of consumption. Age of the household head[1] is often an indication of the household composition and income that is closely tracked by household consumption levels and preferences.
   - *Ageing* of population also has an impact on *product substitution* as people retire with different capacities for physical, social and economic activity.
   - *Population cohorts* often experience similar events and are subjected to prevailing cultures and social values. These leads to association between given cohorts and preference for certain product types during their life cycle.
   - *Sex* of individuals living alone may be reflected in preference for certain products as a result of engedered values and roles.

Among others, these population characteristics and related trends provide insights into the behaviour of groups of people with given demographic characteristics and expected changes as a result of demographic trends.

Appendix: Consumer Market Demographics in the United States

1 Development and Evolution

It was not until the latter part of the 20th century that statistics became a commodity independent of government and a statistical services industry developed. This development is pertinent because these services are primarily a business information industry (Starr & Corson, 1987). There are several aspects to the statistical services industry and while there are often less-than-clear-cut distinctions among them, several can be identified, including econometrics, database development and maintenance, survey research, and consumer market demographics. Of interest here is consumer market demographics. The focus on the United States is because of its early leadership in this field. However, it should be noted that today, many of the

[1] In some instances, instead of "household head" the term "reference person" is used.

major players are international and that the comments on current practices apply beyond the United States.

Starr and Corson (1987) have identified two factors significant to the development of market demographics: (1) the growing interest on the part of major corporations in market segmentation and targeted marketing, which emerged as mass marketing methods began to falter; and (2) the technology developed within the public sector that associated demographic characteristics with addresses.

2 Development and Evolution of Consumer Market Statistics

Two independent methodological streams can be identified as the methodological origins of the current state of the industry dealing with consumer market demographics, demographic and psychographic. The demographic stream came directly out of the two factors identified by Starr and Corson (1987) and although it came to prominence in the 1970s, its origin can be traced back to the 1950s (Pentilla, 2005; Morrison & Smith, 2003; Russell, 1984; Tripod, undated).

The psychographic stream emerged in the 1960s (Pentilla, 2005). Its origin, which was based on Maslow's (1943, 1971) *Hierarchy of Human Needs* (see Chapter 2) can be found in a 1960 report by Arnold Mitchell, Kenneth Cooper, and Hawkins Stern, *Consumer Values and Demands* (Mitchell, 1983). Ideas from this report were nourished at the Stanford Research Institute (SRI) through the 1960s and 1970s and became known as the *Values and American Lifestyles* (VALS) project. They emerged as a full scale VALS project in 1978 at SRI, which was sponsored by 39 corporations (Mitchell, 1983) and yielded the book by Arnold Mitchell (1983): *The Nine American Lifestyles*.

While the ideas underlying today's practice were generally around in the early stages, both the demographic and psychographic streams required computing power to be successful, which is why they really started to take off in the 1970s as computers became more powerful and accessible. The advent of modern computing power is closely associated with the emergence of companies that were designed to be providers of demographics and psychographics to marketing organizations and others in the business sector (Pentilla, 2005; Business Wire, 1997; Morrison & Smith, 2003; Russell, 1984).

Critical to the demographics stream was the 1970 United States census, which saw the first release of truly electronic files, 1st count through 4th count via DUALABS (Swanson & Stephan, 2004: 785). This coupled with the computer power of the time led to the first of the companies that became providers of *Zip Code*[2] *Demographics* to marketers. This was an important step in the development of targeted marketing (Russell, 1984). Critical to the psychographic stream was the advent of analytic programs such as *conjoint* analysis, which also required substantial number crunching ability (Carroll & Green, 1995). This led to the first of

[2]Postal codes in the United States are known as *Zip Codes*.

the companies that became providers of psychographics to marketers, which were largely based on VALS (Pentilla, 2005).

As these two streams matured, they started feeding into one another (Merrick & Tordella, 1988). The importance of this interaction is noted by Sternthal (undated): *. . .the primary analysis of segments and targets is typically performed using demographic data. Once a target is selected its demographic character is supplemented by psychographic data to offer additional insight about the goals and dispositions of consumers. This information is often useful in developing a brand's positioning and in the execution of creative strategy.*

Although zip code[1] demographics could carry a heavy load in terms of market segmentation and targeting, even when supplemented by psychographics, they could not cover all marketing needs. One of these needs was the ability to segment and target down to the level of the individual household and obtain information on its characteristics, such as income, number of working adults, and educational attainment (Merrick & Tordella, 1988; Morrison & Smith, 2003; Russell, 1984). As was the case for the zip code and psychographic providers the development of *household characteristics* required a substantial leap forward in data storage and manipulation in order for companies to become providers of this information to marketers.

The origins of the household characteristics stream can be traced to pre-computer times, but these attempts were very limited. The origins in terms of developing household files that started to compare in number to census counts can be found in the 1970s (Tripod, undated).

3 Data and Methods

The providers of zip code demographics rely on census data as the foundation for their work (Merrick & Tordella, 1988; Morrison & Smith, 2003; Russell, 1984). This holds for those whose data are supplemented by psychographics (Russell, 1984; Sternthal, undated). The providers of household characteristics rely heavily on credit reporting services to initially build their records (EPIC, undated; Teasley, 2004; Tripod, undated).

To update their records, the providers of household characteristics still rely on credit reporting services, but their reach has extended to many other sources of data, including purchase data, supermarket savings cards, white pages, telephone usage, surveys, sweepstakes and contest entries, medical records, dental records, insurance policies, financial records, property records, motor vehicle data, automatic number information, credit card transactions, phone records, credit records, product warranty cards, the sale of magazine and catalog subscriptions, customer loyalty cards and the United States Postal Service (EPIC, undated; Tripod, undated; USPS, 2011).

While the commercial sector provides characteristics of interest (e.g., age, race sex, recent purchases and income), the United States Postal Service is a major source of address updates (EPIC, undated; Pitney Bowes, 2008). This is important in the United States, where around 45 million people (about 15 percent) of the population aged one year and over is estimated to have moved in the past year (USCB, 2009).

As reported by EPIC (undated): *The National Change of Address Service (NCOA) is administered by the U.S. Postal Service. Groups that subscribe to the NCOA can obtain updates when a current customer makes a permanent change of address request to the Postal Service. This is the one of the primary methods by which companies obtain individuals' addresses after they move.*

4 The Current State of the Art and the Future

The field of consumer market demographics has a wide range of information providers and a wide range of expertise and capabilities. This overview has focused not only on this field as is currently found in the United States, but also on the more advanced and sophisticated aspects of the field.

In regard to current practice, advice given by Howell (undated) to marketers in the form of a marketing scenario captures very well what is possible. He states that, in the United States, every household can be classified according to one of 66 segments with given demographic characteristics. Business records at household level can be given a code of one of the 66 segments with a specific lifestyle. This can be used to target the segments that best the marketing strategy of individual business (Howell, undated).

In closing, Howell (undated) notes that there is a number of vendors who can provide not only the information, but the delivery mechanisms to needed by marketers and their clients to reach the individuals and households targeted by the segments.

Teasley (2004) provides similar advice to potential marketers in regard to information on individual households available from two providers. Acxiom Corp. claims to have information on 111 million households with 170 million people. Given a customer list, it can provide a wide range of information for each customer, such as household income, length of residency, education level, and ethnicity of the neighborhood. Alternatively, it can provide a list of names and addresses of interest with given characteristics, such as education level ad income for a defined location for a retail store or a geographical region (Teasley, 2004).

Experian is also a provider of household data, with a reputation for its financial information. It claims to have information on 110 million households with 215 million people. The information can be offered as customized applications, especially for the financial and auto markets (Teasley, 2004).

What of the future of consumer market demographics: what challenges and opportunities? In terms of challenges, reliability and validity are two challenges facing the consumer market demographics industry (Garfinkel, 1995; Swanson & Knight, 1998; EPIC, undated). Because much of what they do determines their profitability, providers of information are understandably reluctant to reveal all.

Given the material from Howell (undated) and Teasley (2004) just mentioned about the capabilities of *providers*, it is not surprising that a third challenge is privacy and confidentiality. *Privacy* represents the right of an individual to decide whether and to what extent he or she will divulge thoughts, opinions, feeling, and facts to others; while *confidentiality* is the idea that there should be restrictions on

how information is collected and used (Mayer, 2002). The maintenance of detailed information on individuals and households in the United States by the private sector (as well as governmental agencies) is of concern to many and attempts to obtain stronger safeguards to privacy and confidentiality on the part of the public are on-going. (El-Badry & Swanson, 2007; EPIC, undated; Garfinkel, 1995; Mayer, 2002).

In terms of future opportunities, it is likely that they will be found in the inevitable next *sea change* in computing and data crunching power. What might be found, as this occurs, is the widespread adoption of microsimulation techniques, which will allow virtually instant scenario building to see the effects of changes affecting the marketplace, such as government regulations, pricing changes, competitive environment, and product innovation (Griffith, Long, Swanson, & Knight, forthcoming).

References

Australian Bureau of Statisitcs (ABS). (2003). *Australian social trends 2003*. Canberra.

Australian Bureau of Statisitcs (ABS). (2009). *Australian historical population styatistics 2008*. Canberra.

Business Wire. (1997). *VNU Marketing Information Services Purchases Urban Decision Systems and National Research Bureau*. http://findarticles.com/p/articles/mi_m0EIN/is_1997_Jan_6/ai_18995406/. Retrieved 7 Mar 2011.

Carroll, J. D., & Green, P. (1995). Psychometric methods in market research: Part I, Conjoint analysis. *Journal of Marketing Research, 32*(November), 385–391.

Department of Statistics (DOS). (2006). *Vital statitics Malaysia – Special edition – 2001–2006*. Putrajaya: Australian Bureau of Statisitcs.

El-Badry, S., & Swanson, D. A. (2007). Providing census tabulations to government security agencies in the United States: The case of Arab-Americans. *Government Information Quarterly, 24*(2), 470–487.

EPIC. (Undated). *Privacy and consumer profiling*. http://www.scribd.com/doc/20289541/EPIC-Information-on-Consumer-Profiling. Retrieved 7 Mar 2011.

Garfinkel, S. (1995). Separating equifax from fiction. *Wired Magazine* (September). http://www.wired.com/wired/archive/3.09/equifax.html. Retrieved 7 Mar 2011.

Griffith, C., Long, B., Swanson, D., & Knight, M. (forthcoming). DOMICILE 1.0: An agent-based simulation model for population estimates at the domicile level. In N. Hoque & D. A. Swanson (Eds.), *Proceedings of the 2010 applied demography conference*. Dordrecht, The Netherlands: Springer.

Howell, L. (Undated). *Household level marketing*. http://ezinearticles.com/?Household-Level-Marketing&id=3730203. Retrieved 7 Mar 2011.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*, 370–396.

Maslow, A. H. (1971). *The further reaches of human nature*. New York: Viking Press.

Mayer, T. (2002). Privacy and confidentiality research and the U.S. Census Bureau: Recommendations based on a review of the literature. *Research Report Series. Survey Methodology Report #2002-01*. Statistical Research Division, U.S. Census Bureau. Washington, DC, U.S. Census Bureau. http://www.census.gov/srd/www/byyear.html. Retrieved 7 Mar 2011.

Merrick, T., & Tordella, S. (1988). Demographics: People and markets. *Population Bulletin, 43*(1). Washington, DC: Population Reference Bureau.

Mitchell, A. (1983). *The nine American lifestyles*. New York: Macmillan.

Morrison, P. A., & Smith, S. (2003). Business demography. In P. Demeny & G. McNicoll (Eds.), *Encyclopedia of population* (pp. 106–108). Farmington Hills, MI: Macmillan Reference.

Pentilla, C. (2005). A brief history of demographics. *Entrepreneur Magazine* (May). http://www.entrepreneur.com/article/77152-4#. Retrieved 7 Mar 2011.

Pitney Bowes. (2008). Pitney Bowes Group 1® Software Unveils Aura™, Industry's Most Comprehensive Address Automation Solution. http://www.pbinsight.com/about/newsroom/press-releases/detail/2466_pitney-bowes-group-1reg-software-unveils-auratrade/. Retrieved 7 Mar 2011.

Pollard, A. H., Yusuf, F., & Pollard, G. N. (1995). *Demographic techniques*. A. S. Wilson.

Russell, C. (1984). The business of demographics. *Population Bulletin, 39*(3). Washington, DC: Population Reference Bureau.

Starr, P., & Corson, R. (1987). Who will have the numbers? The rise of the statistical services industry and the politics of public data. In W. Alonso & P. Starr (Eds.), *The politics of numbers* (pp. 415–447). New York: The Russell Sage Foundation.

Sternthal, B. (undated). *Class case studies*. http://www.kellogg.northwestern.edu/faculty/sterntha/htm/module2/6.html. Accessed 7 Mar 2011.

Swanson, D. A., & Knight, M. (1998). *Metromail wealth estimation project final report: Recommendations, summary findings, and technical documentation*. Madison, WI: Third Wave Research.

Swanson, D. A., & Stephan, G. E. (2004). A demography timeline. In J. Siegel & D. A. Swanson (Eds.), *The methods and materials of demography* (2nd Ed., pp. 779–786). Amsterdam: Elsevier.

Teasley, B. (2004). *Data sources, Part 1: Consumer level*. http://www.clickz.com/clickz/column/1705566/data-sources-part-consumer-level. Retrieved 7 Mar 2011.

Tripod. (Undated). *Experian (Formerly TRW) Requesting all insider information (ASAP)*. http://nobillsman.tripod.com/experianmain.html. Retrieved 7 Mar 2011.

United Nations (UN). (2009). *World population prospects: The 2008 revision. Population database*. New York: Population Division. http://esa.un.org/unpp/index.asp?panel=5. Retrieved 26 June 2009.

United States Postal Service (USPS). (2011). *NCOALink® Systems*. http://www.usps.com/ncsc/addressservices/moveupdate/changeaddress.htm. Retrieved 7 Mar 2011.

US Census Bureau (USCB). (2001). *Statitical abstract of the United States: 2001*. Washington, DC: Bureau.

US Census Bureau (USCB). (2009). *Geographic mobility by selected characteristics in the United States*. S070. 2009 American Community Survey. http://factfinder.census.gov/servlet/STTable?_bm=y&-qr_name=ACS_2009_1YR_G00_S0701&-geo_id=01000US&-ds_name=ACS_2009_1YR_G00_&-_lang=en&-format=&-CONTEXT=st. Retrieved 7 Mar 2011.

Weeks, J. R. (1999). *Population – An introduction to concepts and issues*. Belmont, CA: Wadsworth Publising Company.

Part II
Demographic Change, Markets and Consumption

Chapter 4
Population Growth in Global Markets

4.1 Population Growth Over Time

Population and income are basic determinants of market size. The world's population grew very slowly during the early millennia. It has been estimated that about 8,500 years ago the world's population was in the range of 5 to 10 million people. Some 6,500 years later, it was in the range of 200 to 400 million. It took 1,650 years to double and reached about 545 million by 1650. It then doubled some 150 years later to about 1.1 billion,[1] and one and half centuries later it rose to 2.5 billion in 1950. The last five decades have been unique in human history. Population increased more than two fold in 50 years to 6.1 billion people in 2000, and reached about 6.5 billion in 2005 (Table 4.1).

Table 4.1 World's population estimates BC to 2005 AD

	Population in millions	
Year	Lower estimate	Upper estimate
–6500	5	10
1 AD	200	400
1650	470	545
1750	629	961
1800	813	1,125
1850	1,128	1,402
1900	1,550	1,762
1950	2,529	
2000	6,115	
2005	6,512	

Sources: USCB (2003), UN (2001, 2005, 2007 and 2009).

[1] As stated in Chapter 1, the term "billion" follows the convention that it is equal to one thousand millions i.e. "1" times "10^9" = "1,000,000,000".

J.M. Martins et al., *Consumer Demographics and Behaviour*, The Springer Series on Demographic Methods and Population Analysis 30, DOI 10.1007/978-94-007-1855-5_4,

4.2 Growing Population in Regional Markets

The growth in population has not been even throughout the globe. This has arisen mostly from differences in the rates of fertility and mortality experienced in different parts of the world, but also from significant international migration mostly from Europe and Africa to the Americas and Oceania. In recent years, emigration from Europe has become a lesser factor and emigration from Asia, Latin America and Africa to North America, Europe and Oceania has become the major flows.

Asia has, by far, the largest population with 60 percent of the total world population. Africa and Europe follow it with respectively 14 and 11 percent. Latin America and the Caribbean and North America have lower shares of 9 and 5 percent respectively. Oceania's share has remained stable at less than 1 percent (Table 4.2). Even though regional shares of the world's population have changed since 1950, all of the regions experienced population growth in terms of absolute numbers (Table 4.2).

Table 4.2 World population by region years 1650–2005

Region	1650	1750	1800	1850	1900	1933	1950	2005
World Population Millions	545	728	906	1,171	1,608	2,057	2,529	6,512
Percentage of World								
Africa	18.3	13.1	9.9	8.1	7.4	7.0	9.0	14.1
Asia	60.6	65.8	66.4	66.4	58.3	54.5	55.5	60.4
Europe	13.3	19.2	20.7	22.7	24.9	25.2	21.6	11.2
Latin America and Car.	2.2	1.5	2.1	2.8	3.9	6.1	6.6	8.5
North America	0.2	0.1	0.7	2.3	5.1	6.7	6.8	5.1
Oceania	0.4	0.3	0.2	0.2	0.4	0.5	0.5	0.5

Note: Figures may not add due to rounding.
Sources: Ray (1998), UN (2001, 2007, 2009). Computations made by the authors.

Box 4.1 Population Growth Rates

The population balancing equation discussed in Box 3.1 shows demographic stocks and flows and how they contribute to changes in population size and attributes over specified points in time. In some situations, it is useful to measure changes in the size of population stocks over a number of years and arrive at a rate of average growth or decline over time. A measure often used is the average rate of population growth over a number of years or some other periods. This measure is the same as that used to estimate growth in other stocks assuming a compound rate of growth (Shao, 1974) with the following equation

$$\bar{g} = \left[\sqrt[n]{(P_t + n/P_t)}\right] - 1$$

$\overline{g}$ = compound annual population growth rate
n = number of years in the period
P_t = population in the base year
P_{t+n} = population at the nth year

An alternative method of computation uses the equality

$$\boldsymbol{P_n = P_0\, e^{nr}}$$

$\boldsymbol{P_n}$ = population at nth year
$\boldsymbol{P_0}$ = population at base year
$\boldsymbol{n}$ = number of years
$\boldsymbol{r}$ = compound annual population growth rate
$\boldsymbol{e}$ = a mathematical constant = 2.71828 (natural number)

(Pollard, Yusuf, & Pollard, 1995)

$$\ln(\boldsymbol{P_n/P_0}) = \ln(\boldsymbol{e^{nr}})$$
$$\mathbf{r} = \ln(\boldsymbol{P_n/P_0})/\mathrm{n}$$

The results from the two computational methods are similar but the second method has a computational advantage because the natural logarithm *ln* of $e = 1$.

An example of the estimation of population growth rates is contained in Appendix to this chapter.

4.3 Population and Stage of Development

The unequal distribution of population is even more dramatic than found by region when the world's population is classified according to the stage of development of different countries. The largest proportion of the world's population (81 percent) in 2005 lived in *less developed* countries. It is worthwhile to note that the proportion of the world's population living in the *least developed* countries in 2005 was about 12 percent (Table 4.3).

Close to two thirds (60 percent) of the world's population in 2005 was concentrated in 10 countries and 46 percent in 5 less developed countries in Asia. China and India alone constituted 38 percent of the total. With the exception of China, the share of the world's population in less developed countries increased between 1950 and 2005 while that of the more developed countries was reduced (Tables 4.3 and 4.4).

Table 4.3 World population by development stage 1950–2005

Stage of development	Population millions		1950/2005 percentage of increase
	1950	2005	
More Developed	812	1,217	50
Less Developed	1,717	5,295	208
Least Developed	*200*	*762*	*281*
Other Less Developed	*1,517*	*4,533*	*199*
World	2,529	6,512	157
	Percent	Percent	
More Developed	32.1	18.7	
Less Developed	67.9	81.3	
Least Developed	*7.9*	*11.7*	
Other Less Developed	*60.0*	*69.6*	

Note: Figures may not add due to rounding.
Source: UN (2009). Computations made by the authors.

Table 4.4 Population in ten largest countries 2005

Country	Population			
	1950		2005	
	Millions	Percentage of total	Millions	Percentage of total
China	545	21.5	1,312	20.2
India	372	14.7	1,131	17.4
China and India	916	36.2	2,443	37.5
Indonesia	77	3.1	219	3.4
Pakistan	41	1.6	167	2.5
Bangladesh	44	1.7	153	2.4
Japan	83	3.3	127	2.0
Largest Asian	1,162	45.9	3,108	47.7
United States	158	6.2	303	4.6
Brazil	54	2.1	186	2.9
Russian Federation	103	4.1	143	2.2
Nigeria	37	1.5	141	2.2
Largest 10 Countries in 2005	1,513	59.8	3,881	59.6
Other:				
Less developed	548	21.7	1,988	30.5
More Developed	469	18.5	643	9.9
World	2,529	100.0	6,512	100.0

Note: Figures may not add due to rounding.
Source: UN (2009). Computations made by the authors.

4.4 Recent Population Growth

A review of the distribution of the world's population during the period 1950 to 2005 shows that not only has population more than doubled but also that its distribution has changed considerably, as has been implied earlier. For example, Europe's population declined from 22 percent of the world's population in 1950 to only 11 percent in 2005, while Africa's and Asia's increased respectively from 9 and 56 percent in 1950 to 14 and 60 percent in 2005 (Table 4.2).

These changes reflect dramatic differences in population growth rates between 1950 and 2005 (Tables 4.3 and 4.4). The overall average annual growth rate was a high 1.72 percent. The greatest rate of growth (1.89 percent per year) in the world's population took place during the initial 25-years period from 1950 to 1975, the average then declined to a still high average annual growth rate of 1.57 percent in 1975–2005. These averages mask considerable differences in the two periods. All regions with the exception of Africa experienced substantial declines in their growth rates. The two greatest contrasts are Europe that showed a reduction in its average annual population growth rate from 0.84 to 0.25 percent and Africa that increased from 2.44 to 2.63. Although Latin America and the Caribbean dropped their growth rate from the highest regional rate of 2.64 percent in 1950–1975, to 1.81 percent in 1975–2005, it had the second highest growth rate. Of great importance was the decline to a growth rate of 1.68 percent (still a high rate of growth) in Asia where almost two thirds of the world's population live (Table 4.5).

Table 4.5 World population growth 1950–2005

	Average annual population growth rates: Percentages		
Region	1950–1975	1975–2005	1950–2005
Africa	2.44	2.63	2.54
Asia	2.11	1.68	1.88
Europe	0.84	0.25	0.52
Latin America and Car.	2.64	1.81	2.19
North America	1.38	1.08	1.22
Oceania	2.03	1.52	1.75
Least Developed	2.31	2.52	2.43
Other Developing	2.24	1.78	1.99
More Developed	1.02	0.50	0.73
World	1.89	1.57	1.72

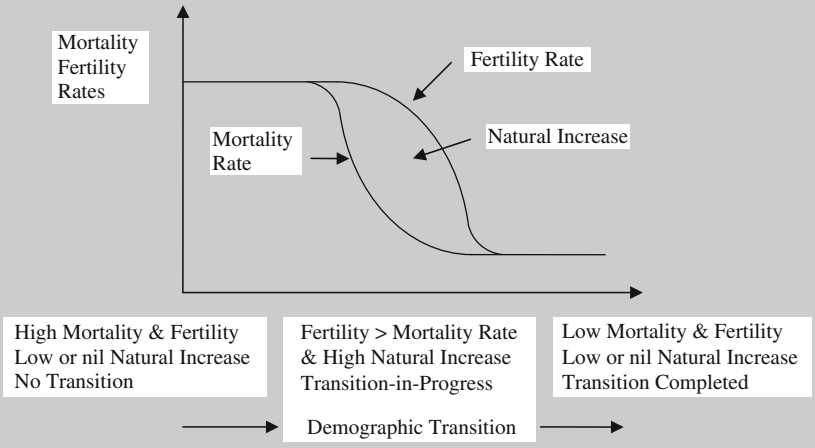
Source: UN (2009). Computations made by the authors.

Box 4.2 The Demographic Transition: Population Growth, Mortality and Fertility

In early times, population growth was relatively low. Although fertility rates were high by today's standards, high mortality rates kept population growth in check, with temporary spurts followed by declines due to famines, wars and epidemics. Malthus hypothesized mechanism for population change was characterised by "negative feedback loops". Like a thermostat on a cooling system that acts to reduce temperature when pre-set point is reached, an external event such as a famine or epidemic kicks in when a certain population size is reached. The Malthusian view of population change was called into question not only by increases in food production that occurred in the 19th century, but also by improvements in public health that led to declines in mortality – *Mortality Transition* – that has prevailed to the present. This was followed by a decline in fertility – *Fertility Transition*.

In 1929, Warren Thompson noted that there were three groups of countries with different demographic trends.

A. Countries that were experiencing declining mortality and fertility rates, and related falls in natural increase. For instance, Northern and Western Europe and countries with migrants from these areas, such as the United States.
B. Countries that were going through falling death and birth rates, but with greater drops in mortality than fertility, and possible large natural increase in the future, such as Italy, Spain and Central Europe.
C. Countries with no indication of falling death and birth rates, but showing early signs of falls in mortality such as Japan. (Thompson, 1929)



Shortly after World War II, Kingsley Davis (1945) pointed to the *demographic explosion* taking place. This large population growth was attributed to lags in the declines in fertility rates following falls in mortality rates – *Demographic Transition*. Analytical work by Coale (1973) and Van de Walle (1986) did not find sufficient evidence to support the notion that declines in fertility were the result of earlier falls in mortality. More recent studies continue to produce mixed results (Galloway, Lee, & Hammel, 1998; Palloni & Rafalimanana, 1999; Potter, Schmertmann, & Cavenaghi, 2002).

The observed lagged trends in mortality and fertility rates have led to large population growth, which were accentuated by a temporary increase in fertility during the *Baby Boom* in some countries, in a period of time after World War II. These trends also changed the age distribution of populations in different countries. Less developed countries usually started the demographic transition at a later stage and experienced the largest rates of population growth in the last six decades. Accordingly, depending on the timing of the onset of the mortality and fertility transitions, countries have experienced different rates of population growth and related age distributions. Generally, the least developed countries are at the initial stages of the fertility transition, have the largest population growth rates and the youngest populations, with a large proportion of dependent children. The more developed countries have completed the demographic transition with low or even negative natural increase and have the oldest age distributions, with increasing proportion of dependent older people. Other less developed countries are at varying stages of the mortality and fertility transitions. They are characterised by falling population growth rates, large proportions of young adults, and declining proportions of dependent children. The different stages of the demographic transition have affected countries ability to improve living standards and also preferences for different products reflecting varying levels of income per capita and different age distributions.

4.5 Demographic Transition and Differences in Age Distribution

The major reason for the different rates of population growth is the degree of change in the declines of mortality and fertility that have taken place since the 19th century. These lagged trends have been called the *Demographic Transition* (Box 4.1). Some countries experienced these changes earlier than others. The different circumstances have given rise to different rates of population growth and also to varying age distributions by country and region.

An examination of worldwide statistics (Table 4.6) shows that different mortality and fertility experiences have led to the clustering of countries with various patterns of age distribution. Four clusters are apparent.

Table 4.6 Age distribution, fertility and life expectancy in selected countries 2005

	Age distribution (percentage) 2005			2000–2005	
Country	0–14	15–64	65 and over	TFR[a]	Life exp. at birth (years)
Afghanistan	46.8	51.0	2.2	7.4	42.1
Ethiopia	44.9	52.0	3.1	5.9	52.5
Philippines	35.6	60.5	3.9	3.3	70.3
India	33.1	62.3	4.6	3.1	62.0
Brazil	27.5	66.3	6.2	2.3	71.0
Sri Lanka	24.6	68.6	6.8	2.3	73.0
Mauritius	24.7	68.8	6.5	1.9	71.8
China	22.0	70.4	7.6	1.8	72.0
New Zealand	21.5	66.4	12.1	2.0	79.3
United States	20.8	66.8	12.4	2.0	78.3
Australia	19.7	67.4	12.9	1.8	80.5
Canada	17.6	69.3	13.1	1.5	79.8
Sweden	17.4	65.4	17.2	1.7	80.1
Germany	14.3	66.8	18.9	1.4	78.7
Japan	13.8	66.3	19.9	1.3	82.1
Italy	14.2	66.2	19.6	1.3	80.2
World Average	28.3	64.4	7.3	2.7	66.4

[a] TFR: Total Fertility Rate (the average number of children per woman)
Note: Figures may not add due to rounding.
Source: UN (2009). Computations made by the authors.

- *Cluster I. High fertility and high mortality: Child populations*

  A cluster of countries, including Afghanistan and Ethiopia, has high fertility (TFR 6–7) and low life expectancies (40–50 years). They have almost half of their population under the age of 15 (40–50 percent) and a low proportion above 64 years of age (2–3 percent). These countries have not yet taken off on the fertility transition path.

  Other countries, such as India, have a lower but still above average fertility (TFR 3–4) and about average life expectancy (60–70 years). The proportion of people under the age of 15 continues to be high (30–40 percent) and the proportion above 64 is low (4–5). Some initial steps have been taken down the demographic transition path.
- *Cluster II. Converging fertility and mortality: Young adult populations*

  Another group of countries (including Brazil and Sri Lanka) has reduced their fertility close to replacement levels (TFR 2.0–2.5) and life expectancy has climbed above average around 70 years (65–75). Their population under 15 is below 30 percent (25–30) and people over 64 constitute about 6–7 percent of the total population. These countries are now on the demographic transition path.

  China stands out with fertility well below replacement level (TFR 1.8) and a life expectancy of about 72 years. The population under 15 is about a fifth of the total and those over 64 years about 8 percent.

- *Cluster III. Low fertility and low mortality: Replacement of young through immigration*

  Some countries, such as Canada and Australia, continue to experience relatively high levels of immigration. Immigrants tend to be young adults and their children who bias the population distribution towards the young, in spite of fertility rates below replacement levels (TFR 1.5–2.0) and life expectancies well above average around 80 years. Their population under 15 years of age constitute about a fifth of the total (18–22 percent) and people aged above 64 about 12–13 percent. Some of these countries are close to completing their demographic transition but they are adjusting their age distribution by adding young people.
- *Cluster IV. Very low fertility and low mortality: Older populations*

  The last cluster is made up of Japan and some western European countries with fertility considerably below replacement level (TFR 1.3–1.7) and long life expectancies of about 80 years. They are characterised by a low proportion of people less than 15 years of age (14–17 percent) and close to a fifth are over the age of 64 years of age (17–20 percent). These countries have usually completed their demographic transition.

4.6 Age Distribution and Stages of Development

It is apparent that the four clusters are closely associated with the stage of development. Thus, countries in Cluster I are usually the least developed countries, those in Cluster II tend to be other less developed countries and while those in Cluster III and Cluster IV are usually the more developed.

The continuation of high fertility rates in the least developed countries led to an actual lowering of the median age among them from 19.5 to 19.1 years, in the period 1950–2005. Other less developed countries, where most people live, showed ageing of about 5 years. The more developed countries that, in some cases have completed their demographic transition, however, became considerably older by almost 10 years with a median 39 years of age (Table 4.7).

Table 4.7 Median age of population by stage of development 1950–2005

	Median age (years)		
Stage of development	1950	2005	Change 1950–2005
Least Developed Countries	19.5	19.1	–0.4
Other Less Developed	21.9	26.5	+4.6
More Developed	29.0	38.6	+9.6
World Average	24.0	27.9	+3.9

Source: UN (2009). Computations made by the authors.

These relative changes in age distribution affect the need for different types of investment in human and physical capital, as well as the demand for consumer goods and services.

4.7 Future of the World's Population

4.7.1 Four Hypotheses

The United Nations has produced four hypothetical paths for the world's population in the 50 years to 2000–2050 (UN, 2007). All of them would lead to considerably larger populations than the present 6 billion (Fig. 4.1). A projection that keeps the rate of growth constant results in a population of 13 billion. This projection has generally been disregarded as presenting a possible but considered to be unrealistic future of the world's population. The other three hypotheses are:

- High – 10.8 billion people
- Medium – 9.2
- Low – 7.8

4.7.2 The Medium Projection

It is traditional to use the medium projection. According to Caldwell (2002), in the past this projection has been reasonably accurate. The projection adds about

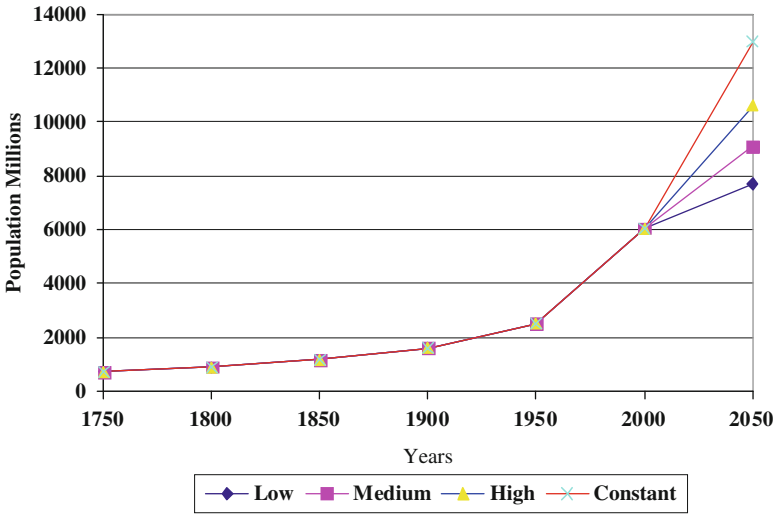


Fig. 4.1 Four hypotheses for the world's population 2000–2050
Source: UN (2007).

Table 4.8 Demographic factors and the world's medium population projection 2007–2050

	Population millions		2045–2050	2045–2050	2045–2050
Stage of development/region	2005	2050	Annual percent of growth rate	TFR	Life exp. (years) (at birth)
Least Developed	762	1,672	1.15	2.4	68.5
Other Less Developed	4,534	6, 202	0.21	1.9	75.9
More Developed	1,216	1,275	–0.07	1.8	82.8
Africa	921	1,998	1.14	2.4	67.4
Asia	3,936	5,231	0.15	1.9	76.8
Europe	729	691	–0.26	1.8	81.5
Latin America and Carab.	557	729	0.10	1.8	79.8
North America	335	448	0.37	1.9	83.5
Oceania	34	51	0.59	2.0	82.1
World	6,512	9,150	0.34	2.0	75.5

Note: Figures may not add due to rounding. TFR = average number of children in woman's life time.
Sources: UN (2009).

2.6 billion people (about 41 percent) to the world's population during the period 2005–2050 (Table 4.8).

It assumes that the TFR will decline further from an average of 2.7 children per woman in 2000–2005 to 2.0 (about replacement level) in 2045–50. Further, it assumes that mortality will continue to fall in spite of the impact of HIV/AIDS, and life expectancy will increase further from an average of 66 in 2000–2005 to 76 years in 2045–2050. This presumes almost the completion of the fertility transition in most of the less developed countries, with the exception of the least developed.

Birth and population growth rates will fall but remain high. The population momentum generated by the young age distribution will keep population growth rate at about 1 percent until 2020–2025, when it will fall below that rate, and reach an average of 0.34 percent in 2045–50 (UN, 2009) – similar to that experienced in the early 19th century.

A major assumption in this projection is the continuing decline in fertility. Caldwell (2002) has raised the possibility that fertility below replacement level might be a current phenomenon that may not be sustained in the future. He states that there are a number of factors that may lead to a stabilization and even a return of fertility above replacement level in both more and less developed countries. This includes the perceived threat that actual population reductions might pose to some countries. Further, the present fall in fertility in many countries involves the postponement of births partly due to later age of marriage by females. This may not continue indefinitely, and policies that provide greater opportunities for childcare may encourage fertility of 2 or more children per woman. This would lead to larger natural increases in population and larger growth rates than those assumed in the UN medium population projection for the next half-century.

Table 4.9 World age distribution, fertility and life expectancy 2005–2050

Year	Age distribution (percentage)			TFR[a]	Life exp. (years) at birth
	0–14	15–64	65 and over		
2005	28.3	64.4	7.3	2.7	66.4
2050	19.7	64.1	16.2	2.0	75.5

[a]TFR: Total fertility rate (the average number of children per woman). TFR and Life Expectancy are for five-year averages 2000–2005 and 2045–50. The age distribution, TFR and life expectancy are those for the medium projections of the UN
Note: Figures may not add due to rounding.
Sources: UN (2009).

4.7.3 Demographic Transition and Ageing of Global Markets

The lowering of the fertility rate and continuing fall in mortality is envisaged to result in a rise in the world's median age from 28 years in 2005 to 38 in 2050 (UN, 2009).

This ageing process will result in a major change in the age distribution of the world's population. Accordingly, it is forecast that the proportion of children under 15 years of age will decline from about 28 percent in 2005 to 20 percent in 2050. At the same time, the proportion of people 65 years and over will about double from 7 percent in 2005 to 16 percent in 2050 (Table 4.9). It is also apparent that the cohorts in the range 15–64 will also get considerably older.

4.7.4 Stage of Economic Development and Ageing

As expected, the ageing process throughout the world is not homogenous. The United Nations projections envisage that by 2050 about 26 percent of the population of the more developed countries will be 65 years of age and over. The older population will be greater than the number of children less than 15 years of age. In developing countries there will also be a major rise in the proportion of aged people from about 5 percent in 2005 to about 15 percent in 2050. The projected decline in fertility in the least and other developing countries will result in a decrease in the proportion of children and a slight rise in the proportion of people in working ages 15–64 (UN, 2009). The changes in the least developed countries will be substantial with a large decline in the proportion of children and a rise in the proportion of people in working age. This has a large effect on the potential for substantial increases in productivity in these countries.

4.8 Some Implications of World Ageing to Consumer Behaviour

First, it is apparent that the world population will continue to grow even though at a slower rate than in the past five decades. This should enlarge markets, especially in cases where lower fertility leads to a fall in the proportion of dependent children

and a higher proportion of people in working age. This potential for increases in productivity and income per capita could change not only the size of markets but also the type of products being sought by more people living above subsistence levels. In addition, changes in the age distribution of populations should also have an impact on the demand for different types of products related to changing preferences exercised during the life cycle.

4.8.1 More Developed Countries

The change in the population age distribution and family formation patterns will tend to have a major impact on the demand for goods and services. The continuing postponement of family formation to later ages and the smaller family size arising from lower fertility will change the demand for housing, furniture and other household goods. The ageing of the population will also change the demand for consumer products associated with young people such as some types of entertainment, alcoholic beverages and private transport, while it will increase demand for health related goods and services (Magnus, 2009). The large increase in the number of retired people will require substantial increases in productivity to maintain existing consumption levels, unless changes are made to employment and retirement practices. As income levels decline with retirement so will demand for a variety of goods and services. Market segmentation will be greater and require a wider variety of products designed for different market niches. Some of these shifts are already taking place in countries in Europe. The impact on global markets will be even greater when the Baby Boomer generation[2] in such countries as the United States, Canada and Australia reach the age of sixty and retire in larger numbers. They constitute a large proportion of consumers and their change in demand will be felt strongly because of an expected drop from their peak incomes in the last 20 years.

4.8.2 Least Developed Countries

It is projected that the least developed countries will continue to experience fertility rates above replacement level. This will slow down their ageing process in spite of envisaged declines in mortality. The lower growth rates and proportion of children should enable them to improve their income per capita and become more productive, as the proportion of aged people will continue to constitute less than 10 percent of the population. However, the increase in numbers of workforce age will demand investments in productive capacity and related infrastructure to take advantage of their larger stock of human capital. If productivity increases, disposable income should grow and markets for consumer goods above subsistence levels should become larger. Demand for commodities related to family formation should rise because of the relatively young population and increases in disposable income.

[2]Baby Boomers are people born during a resurge of fertility after the second world war in the late 1940s and 1950s.

Demand patterns may be similar to those experienced in the last twenty years in other less developed countries.

4.8.3 Other Less Developed Countries

Other less developed countries should experience a significant impact as the result of the ageing process in the next four decades. Especially in the latter half of that period. The reduction in the proportion of dependent children, and a continuing flow of better-educated people into the workforce, should lower the demand for the growth of primary and secondary education facilities. It should also improve the productivity of human capital. Smaller family size, as the result of lower fertility levels, should shift demand away from goods and services related to children and child rearing towards those related to young and middle aged adults. It should also affect the type of housing requirements and related goods. In addition, possible continuing increases in income per capita should give rise to greater capacity to buy progressive type of commodities. The substantial increase in the number and proportion of people over 64 years of age should cause greater demand for income and social support. The improved outlook for the workforce and lower demand from dependent children might allow for the implicit and warranted fiscal transfers from those in the workforce to those who retire or experience a higher degree of disability. These transfers will be necessary to maintain the purchasing power of the older generations. Income per capita growth should also increase demand for progressive commodities such as recreation and entertainment.

Appendix: Population Growth Rates Estimation – Example

The world's population was estimated by the United Nations to have grown from 2,529 millions in 1950 to 6,512 millions in 2005 (UN, 2009).

Following the equation and notation in Box 4.1,

$$\bar{g} = \left[\sqrt[n]{\left(P_{t+n}/P_t\right)}\right] - 1$$

$P_{t+n} = 6{,}512$ million
$P_t = 2{,}529$ million
$n = 2005 - 1950 = 55$

Accordingly, the average yearly rate of population growth over the 55-year period was

$$\bar{g} = \left[\sqrt[55]{\left(6{,}512/2{,}529\right)}\right] - 1$$
$$\bar{g} = \left[\sqrt[55]{2.57493}\right] - 1$$

$$\log \overline{g} = (1/55 \log 2.57493) - 1 = (1/55^{*}0.410765) - 1$$
$$= (\text{anti}\log 0.007468) - 1$$
$$\overline{g} = 1.0173 - 1 = \mathbf{0.0173\ or\ 1.73}\,\% \text{ per year}$$

Or using the alternative

$$r = (P_n/P_0)/n$$
$$P_{t+n} = 6{,}512 \text{ million}$$
$$P_t = 2{,}529 \text{ million}$$
$$n = 2005 - 1950 = 55$$
$$r = \ln(6{,}512/2{,}529)/n$$
$$r = \ln 2.57493/55$$
$$r = 0.94582/55 = \mathbf{0.0173\ or\ 1.73\%} \text{ per year}$$

Note: (log) is the logarithm of base 10. (ln) is the natural logarithm of base $e = 2.7182818\ldots$ and ln of $e = 1$.

Caution is required in the estimation and use of these population growth rates. The number of decimals either in the estimation of the rate or the number of decimals in the rate used in any extrapolation may make a substantial difference to the results obtained.

References

Caldwell, J. C. (2002). *The contemporary population challenge*. In the Report of the Expert Group Committee Meeting on Completing the Fertility Transition. New York: United Nations.

Coale, A. (1973). The demographic transition. In *Proceedings of the general population conference* (Vol. 1, pp. 53–72). Liege: International Union of for the Scientific Study of Population.

Davis, K. (1945). The world demographic transition. *The Annals of the American Academy of Political and Social Science, 237*, 1–11.

Galloway, P., Lee, R., & Hammel, G. (1998). Infant mortality and the fertility transition: Macro evidence from Europe and new findings from Prussia. In M. Montgomery & B. Cohen (Eds.), *From death to birth: Mortality decline and reproductive change*. Washington, DC: National Research Council.

Magnus, G. (2009). *The age of ageing. How demographics are changing the global economy and our world*. Singapore: Wiley (Asia).

Palloni, A., & Rafalimanana, H. (1999, February). The effects of infant mortality on fertility revisited; new evidence from Latin America. *Demography, 36*(1), 41–58.

Pollard, A. H., Yusuf, F., & Pollard, G. N. (1995). *Demographic techniques*. A. S. Wilson.

Potter, J. E., Schmertmann, C. P., & Cavenaghi, S. M. (2002, November). Fertility and development: Evidence from Brazil. *Demography, 39*(4), 739–761.

Ray, D. (1998). *Development economics*. Princeton: Princeton University Press.

Shao, S. P. (1974). *Mathematics for management and finance*. Cincinnati: South-Western Publishing Co.

Thompson, W. S. (1929). Population. *The American Journal of Sociology, 34*(6), 959–975.

United Nations (UN). (2001). *World population prospects – The 2000 revision highlights*. New York: Population Division.

United Nations (UN). (2005). *World population prospects – The 2004 revision – highlights*. New York: Population Division.
United Nations (UN). (2007). *World population prospects – The 2006 revision highlights*. New York: Population Division.
United Nations (UN). (2009). *World population prospects: The 2008 revision. Population database*. New York: Population Division. http://esa.un.org/unpp/index.asp?panel=5. Retrieved 26 June 2009.
US Census Bureau (USCB). (2003). *Historical estimates of world population*. www.census.gov. Retrieved 27 Aug 2003.
Van de Walle, F. (1986). Infant mortality and the European demographic transition. In A. J. Coale & S. C. Watkins (Eds.), *The decline of fertility in Europe* (pp. 390–419). Princeton NJ: Princeton University Press.

Chapter 5
Growth of Global Markets

5.1 Population Growth and Food Consumption: The Malthusian Perspective

In early times, the world's population remained relatively small because the number of births and deaths were not too different. A major factor was the scarcity of food or the effort involved in securing it until agriculture was established some 7,000 years ago. Even then, population growth was kept in check by limited yields, crop failures, disease and threats from macro fauna including other human beings. The apparent limited sources of food were the basis for the Malthus' concern, often cited, with population growth. Malthus claimed:

> First, That food is necessary to the existence of man.
> Second, That the passion between the sexes is necessary and will remain in its present state.

and postulated that

> Population when unchecked, increases in a geometric ratio.
> Subsistence increases only in arithmetic ratio.

In 1798 Malthus concluded that *. . .population constantly bears a regular proportion to the food that the earth is made to produce.* (Malthus, 1970)

In this sense, population growth was linked with the production of food and adequate consumption of it.

Although Malthus' understanding of the relative rates of population and food growth proved to be empirically incorrect, the concern with population growth and food production has continued to be a major preoccupation. It has re-emerged more recently in terms of the perceived problems arising from population growth, over-consumption and the impact on the environment. Ehrlich (1969) and Meadows, Meadows, Randers, and Behrens (1972) reflected these concerns and advocated a stationary population or *zero-population growth*. These sentiments are similar to those articulated by John Stuart Mill a century earlier (1848) when he advocated a *stationary state of population* in *Principles of Political Economy* (Mill, 1970).

J.M. Martins et al., *Consumer Demographics and Behaviour*, The Springer Series on Demographic Methods and Population Analysis 30, DOI 10.1007/978-94-007-1855-5_5,

5.2 Population and Income Per Capita Growth

Population growth has been seen as a major impediment to improvements in income per capita of poorer countries – an important factor in determining consumer demand and market size (Table 5.1 and Fig. 5.2). A model well-known to economists, developed independently by Harrod and Domar (Bannock, Baxter, & Davis, 1998) has been used to illustrate how population growth can retard economic growth and income per capita (Box 5.1). Under a restrictive set of assumptions, this model shows that the higher the population growth the more difficult it becomes to improve income per capita (Table 5.1).

Although this model has been criticized for its restrictive assumptions, it raises the problem of the growth of markets both in terms of population and income. A large growth in population can retard the development of markets, from a concern with mere subsistence to those where there is a surplus above subsistence, to allow for the growth in demand for a wider range of consumer goods and services.

Table 5.1 Population and income per capita growth: The Harrod-Domar model

		Gross income per capita growth rate ($g^{\#}$)			
Savings rate (s)	Gross income growth rate (g') ($q = 3$)	Population growth rate $n = 0.0090$	Population growth rate $n = 0.0135$	Population growth rate $n = 0.0248$	Population growth rate $n = 0.0346$
0.02	0.0067	***–0.0023***	***–0.0068***	***–0.0181***	***–0.0279***
0.03	0.0100	0.0010	***–0.0035***	***–0.0148***	***–0.0246***
0.04	0.0133	0.0043	***–0.0002***	***–0.0115***	***–0.0213***
0.05	0.0167	0.0077	0.0032	***–0.0081***	***–0.0179***
0.06	0.0200	0.0110	0.0065	***–0.0048***	***–0.0146***
0.07	0.0233	0.0143	0.0098	***–0.0015***	***–0.0113***
0.08	0.0267	0.0177	0.0132	0.0019	***–0.0079***
0.09	0.0300	0.0210	0.0165	0.0052	***–0.0046***
0.10	0.0333	0.0243	0.0198	0.0085	***–0.0013***
0.11	0.0367	0.0277	0.0232	0.0119	0.0021
0.15	0.0500	0.0410	0.0365	0.0252	0.0154
0.20	0.0667	0.0577	0.0532	0.0419	0.0321
0.25	0.0833	0.0743	0.0698	0.0585	0.0487
0.30	0.1000	0.0910	0.0865	0.0752	0.0657

$g^{\#}$ Gross Income per capita Growth Rate $= (s/q) - n$; g' Gross Income Growth Rate $= (s/q)$; s Savings Rate; q Capital:Output Ratio; n Population Growth Rate
See Box 5.1 for an explanation of the model
Source: Hypothetical cases by the authors ignoring depreciation of capital. In the not too distant past, China had a population growth rate of around 0.0090; Chile 0.0135; Costa Rica 0.0248; and Niger 0.0346.

Box 5.1 Harrod-Domar Model: Population and Income Growth

The Harrod-Domar model was developed independently by Harrod and Domar in 1939 and 1946 respectively (Bannock et al., 1998). It starts with Keynes (1967) two equalities

$$Y_t = C_t + S_t \tag{1}$$

where

Y_t is income during t
C_t is consumption during t
S_t is savings during t

$$Y_t = C_t + I_t \tag{2}$$

Where

I_t is investment during t

Therefore

$$S_t = I_t \tag{3}$$

If the stock of capital is introduced
where

K_t = the stock of Capital at t and
s = the savings rate = S_t/Y_t or $S_t = s\ Y_t$
q = the capital to output ratio = K_t/Y_t or $K_t = q\ Y_t$
d = the fraction of capital stock depreciation so that
$(1 - d)$ = capital stock left after depreciation

$$K_{t1} = (1-d)\ K_t + I_t \tag{4}$$

or
(K_{t1} = the stock of Capital at the following time of $t1$)

$$qY_{t1} = (1-d)\ qY_t + sY_t \tag{5}$$

or

$$qY_{t1}/q = \left[(1-d)\, qY_t + sY_t\right]/q$$

and
(Y_{t1} = income in the period $t1$)

$$(Y_{t1} - Y_t)/Y_t = (s/q) - d \tag{6}$$

if $\boldsymbol{g}$ = income growth rate = $(\boldsymbol{Y_{t1}} - \boldsymbol{Y_t})\,/\boldsymbol{Y_t}$ then

$$\boldsymbol{g} = (\boldsymbol{s/q}) - \boldsymbol{d} \tag{7}$$

$$\textit{Let } \boldsymbol{y_t} = \textit{income per capita at } t = Y_t/P_t \text{ or } \boldsymbol{Y_t} = \boldsymbol{y_t}\,\boldsymbol{P_t} \tag{8}$$

where

$\boldsymbol{P_t}$ = population at t and
$\boldsymbol{y_{t1}}$ = income per capita at $t1 = Y_{t1}/P_{t1}$ or $\boldsymbol{Y_{t1}} = \boldsymbol{y_{t1}}\,\boldsymbol{P_{t1}}$
$\boldsymbol{P_{t1}}$ =population at $t1$

from (5)

$$\boldsymbol{qY_{t1}} = (\boldsymbol{1} - \boldsymbol{d})\ \boldsymbol{qY_t} + \boldsymbol{sY_t} \tag{9}$$

and

$$\boldsymbol{q}\,\boldsymbol{y_{t1}}\,\mathbf{P_{t1}} = (\mathbf{1}-\boldsymbol{d})\ \boldsymbol{qY_t} + \boldsymbol{sY_t}$$

and

$$\left(\boldsymbol{y_{t1}/y_t}\right)\left(\boldsymbol{P_{t1}/P_t}\right) = (\mathbf{1}-\boldsymbol{d}) + (\boldsymbol{s/q})$$

$$\textit{Let } \boldsymbol{n} = \textit{Population growth rate} = (P_{t1}/P_t) - 1 \textit{ or } \boldsymbol{P_{t1}} = \boldsymbol{P_t}\,(\mathbf{1} + \boldsymbol{n}) \text{ and} \tag{10}$$

$\boldsymbol{g^*}$ = income per capita growth rate = $(y_{t1}/y_t) - 1$ or $\boldsymbol{g^*} + \mathbf{1} = \left(\boldsymbol{y_{t1}/y_t}\right)$

from (9) $\left(\boldsymbol{y_{t1}/y_t}\right)\left(\boldsymbol{P_{t1}/P_t}\right) = (\mathbf{1}-\boldsymbol{d}) + (\boldsymbol{s/q})$ and

$(\boldsymbol{g^*} + \mathbf{1})\ (P_{t1}/P_t) = (1 - d) + (s/q)$ and
$\boldsymbol{s/q} = -(1 - d) + (g^* + g^*n + 1 + n) = g^* + g^*n + 1 + n - 1 + d$
$= \boldsymbol{g^*} + \boldsymbol{g^*}\,\boldsymbol{n} + \boldsymbol{n} + \boldsymbol{d}$

if $\boldsymbol{g^*}$ and $\boldsymbol{n}$ are relatively small then their product $(\boldsymbol{g^*}\,\boldsymbol{n})$ is small and may be ignored and

$$s/q = g^* + n + d \text{ or}$$

$$\boldsymbol{g^*} = (\boldsymbol{s/q}) - \boldsymbol{n} - \boldsymbol{d}$$

(Ray, 1998)

When Gross Income is the measure of income, it is before depreciation and, therefore

$$g^{\#} = (s/q) - n$$

where $g^{\#}$ = rate of growth of gross income per capita

This would mean that the *income per capita growth rate is diminished* not only by the proportion of depreciation of the stock of capital but also *by the rate of population growth*. The savings rate (i.e. investment rate) and the capital to output ratio also affect it. So:

the higher the investment rate, the lower the (capital/output) ratio; and
the lower the population growth rate, the higher the income per capita growth rate is.

This model has been criticised for a number of reasons, including the fixed nature and aggregation of the capital output ratio, possible diminishing returns to capital and labour, and the age distribution of the populations involved. However, the model is a useful tool to show the importance of population growth, under restricted assumptions, on the growth of income per capita that has a substantial influence on the level of consumption and the range of products that people can afford.

5.3 Income and Global Markets

5.3.1 Languid and Brisk Growth

The population explosion and transition leads to the more difficult question of how the size of global and regional markets has evolved. This has proved difficult to assess due to the conceptual, temporal and cross-country problems referred to earlier (Section 1.3). However, work by Maddison (2003) has provided some estimates of how global and regional markets have changed, if Gross Domestic Product (GDP) is adopted as a proxy of market size, using purchasing power parities over time and across countries (Fig. 5.1).

The estimates indicate that in global terms GDP grew slowly until the onset of the Industrial Revolution in the 18th and 19th centuries, with annual average growth rates of 0.3 percent (1500–1820). The pace of development increased substantially during the 1800s with growth rates around 0.9 percent to reach 2.1 in the period 1870–1913. After that a slower rate of growth was experienced in the period that included the economic recession of the 1930s. The 1950s and 1960s had the highest average annual growth rate of 4.9 percent, with a still high but lower level of 3.1 percent in the following three decades to 2001.

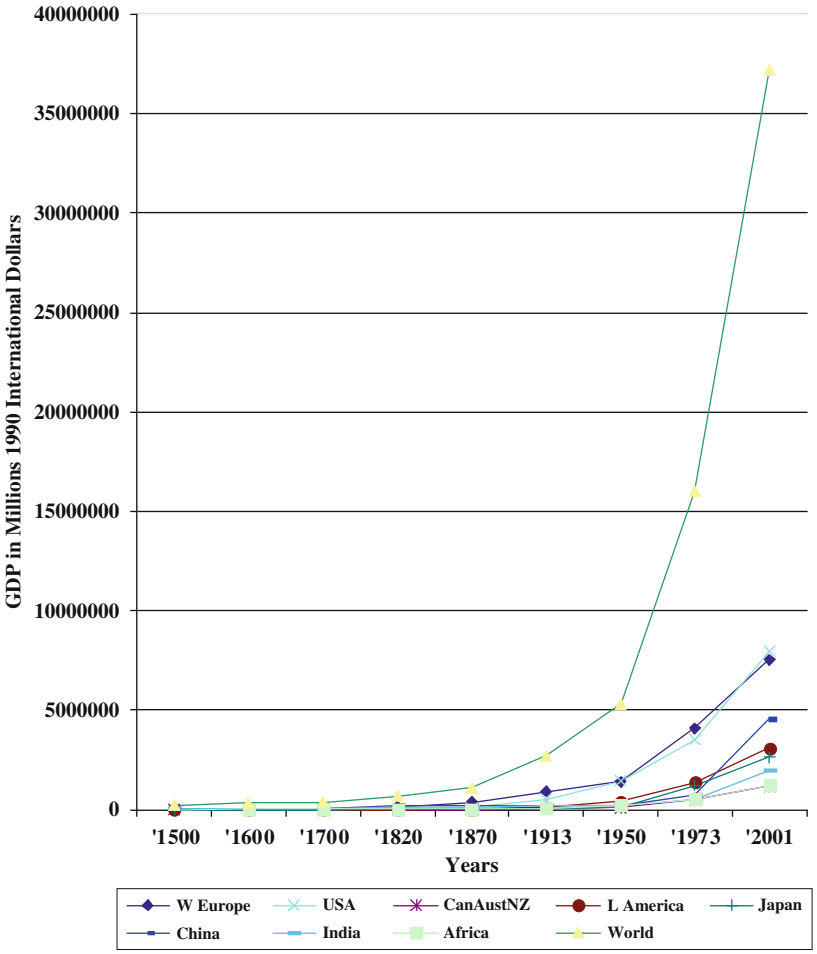


Fig. 5.1 World gross domestic product 1500–2001. 1990 International Dollars (Purchasing Power Parities)
Source: Maddison (2003).

In other words, it took two centuries for real GDP to double from the year 1500. Then GDP grew more than three times in the 23 years from 1950 to 1973, and more than doubled again in the 28-year period 1973–2001 (Table 5.2).

The United States, Canada, Australia and New Zealand as a group tended to outpace the rates of growth of Europe until the 1950s. In the post-war period of 1950–1973, Europe experienced higher rates of growth, but it was Japan, other Asian countries (including China) and Latin American countries that topped the rest of the world. In the following period of 1973–2001, China and other Asian countries increased or kept up the pace of GDP growth while other regions tended to experience lower rates of growth (Maddison, 2003).

Table 5.2 World gross domestic product 1500–2001 (1990 international dollars)

Year	GDP billions[1] 1990 int. dollars	Annual rate of growth in intervening period (percent)
1500	248.3	0.3
1600	331.0	
1700	371.3	
1820	695.3	
1870	1,112.7	0.9
1913	2,732.1	2.1
1950	5,329.7	1.8
1973	16,023.5	4.9
2001	37,193.9	3.1

[1]As stated previously, the term "billion" follows the convention that it is equal to one thousand millions i.e. 1 times $10^9 = 1{,}000{,}000{,}000$
Note: International dollars are based on 1990 Purchasing Power Parities using US as a basis.
Source: Maddison (2003).

5.3.2 The World's Largest Markets

The largest market is by far the United States with 23 percent of global GDP in 2005. China with the largest world population follows with 10 percent and Japan is third with 7 percent. Four large European countries together – Germany, France, United Kingdom and Italy – amount to about 15 percent. India's GDP accounts for 4 percent (the second largest population). The two large Latin American countries of Brazil and Mexico have GDPs that represent another 5 percent. The sum of the GDPs of Russia, Spain, Canada and Korea constitute 9 percent of the total. Thus, fourteen countries make up almost three quarters of the global GDP (Table 5.3).

5.3.3 Engel's Law and Market Diversity

As stated earlier, although aggregate income of a country is an important indicator of the size of the market, it does not give an idea of the extent of the disposable income of individuals and households that influence their preferences for a wide range of commodities. Income per head of population (per capita) provides a better indication of the capacity to go beyond the acquisition of basic commodities. In 1857, Ernst Engel formulated the proposition that as income rises the proportion spent on food declines (Bannock et al., 1998). This became known as "Engel's Law".

Data from a study of the purchasing power parities of 145 countries by the World Bank (2008) can be used to demonstrate Engel's Law. In 2005, while the US with a GDP per capita of US$ 41,674 spent only about 5 percent on food leaving 95 percent to spend on other commodities, Mozambique (GDP p.c. PPPUS$ 743) spent about 26 percent on food leaving only 74 percent to spend on other goods and services (Fig. 5.2). Engel's Law indicates that as the purchasing power per head of population rises there are increasing opportunities for the marketing of goods and services that are not basic in nature. Accordingly, the differences in disposable income per head

Table 5.3 Global largest markets in gross domestic product billions of international dollars 2005

	GDP	
Country	Billions international $ 2005	Percentage of total
United States of America	12,376	22.5
China	5,333	9.7
Japan	3,870	7.0
Germany	2,515	4.6
India	2,341	4.3
United Kingdom	1,902	3.5
France	1,862	3.4
Russian Federation	1,698	3.1
Italy	1,626	3.0
Brazil	1,583	2.9
Spain	1,184	2.2
Mexico	1,175	2.1
Canada	1,133	2.1
Korea	1,027	1.9
14-Largest GDPs	39,625	72.1
Rest of the World	15,351	27.9
World	54,976	100.0

Note: Figures may not add due to rounding. International dollars are based on 2005 Purchasing Power Parities using US as a basis.
Source: WB (2008).

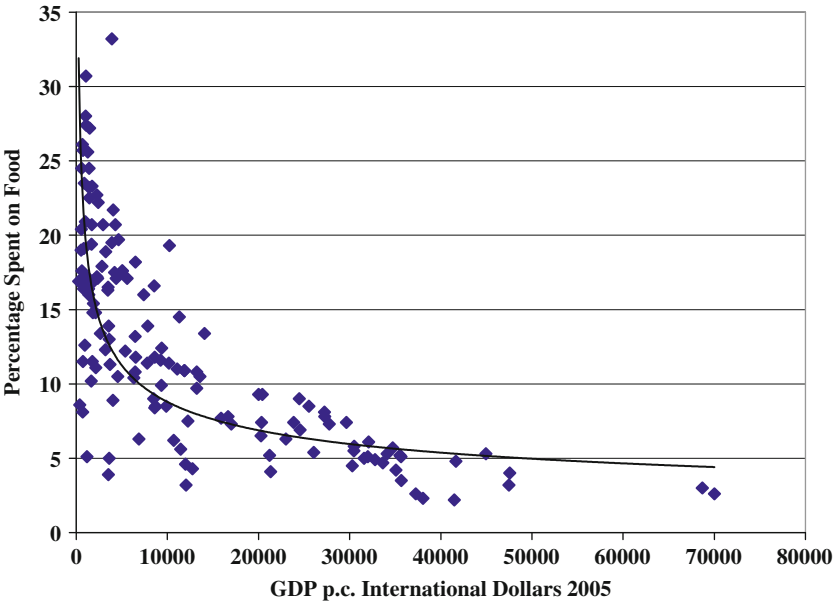


Fig. 5.2 Gross domestic product per capita (Purchasing Power Parties) and percentage spent on food 2005 – 145 Countries
Source: WB (2008).

of population in different countries, after the acquisition of basic commodities, have an impact on the size of the market for other commodities, in countries with varying income per capita.

5.3.4 Income Per Capita and Market Opportunities

It is noteworthy that only five of the fourteen largest markets in terms of GDP (Table 5.3) – USA, Canada, United Kingdom, Germany and Japan – figure in the list of 18 countries with the largest GDP per head of population (Table 5.4).

When GDP per capita is expressed in terms of international dollars per day, it is obvious that people in low-income countries with about 3 dollars per day have little or none to spare after buying bare necessities. These countries offer relatively small market opportunities for a wide range of commodities, in spite of inequalities of income that tend to be higher in low income countries (UNDP, 2006: 335–338) and create small market niches. The differences in market opportunities are stark

Table 5.4 Gross domestic product per capita 2005 (2005 international dollars)

Country/income level	GDP p.c. international $ 2005	GDP p.c. international $ per day
Norway	47,551	130.3
Kuwait	44,947	123.0
United States	41,674	114.2
Singapore	41,479	113.7
Ireland	38,058	104.2
Hong Kong (China)	35,680	97.8
Switzerland	35,520	97.3
Canada	35,078	96.1
Netherlands	34,724	95.1
Austria	34,108	93.5
Denmark	33,626	92.1
Australia	32,798	89.9
Belgium	32,077	87.9
Sweden	31,995	87.7
United Kingdom	31,580	86.5
Germany	30,496	83.6
Finland	30,469	83.4
Japan	30,290	83.0
High Income Countries	32,615	61.5
Middle Income Countries	4,658	12.8
Low Income Countries	1,162	3.2
World Average	8,971	24.6

Note: Countries with GDP p.c. of $30,000 and more, excluding five countries with less than one million people that represent 0.3 percent of the world's GDP and 0.1 percent of the world's population. International dollars are based on 2005 Purchasing Power Parities using US as a basis. The classification of low, middle and high income countries follows that of the World Bank (WB, 2009).

Source: WB (2008). Computations made by the authors.

even between middle and high-income countries. The latter have about 7 times the purchasing power (Table 5.4). Accordingly, the opportunities for the marketing of progressive consumer goods and services that rise with income are much greater in high-income countries.

5.3.5 *Relative Market Size and Income Level*

The value of commodities in global markets has taken a long evolution, GDP estimates and population figures show that income per capita is a powerful determinant of the size of markets.

Using 2005 purchasing power parities, it is estimated that the GDP of high-income constitute 62 percent of the world's total but these countries had only 17 percent of the world's population. On the other end of the range, the low-income countries with 12 percent of the population had only 2 percent of the global GDP. Even the middle-income countries had a lower share of the global GDP (37 percent) than their share of the world's population (72 percent) (Table 5.5). This is due to considerable lower GDP per capita of the middle and low-income countries (Table 5.4).

The decline in population growth in middle-income countries (Table 4.5) has contributed to the improvement of their performance in terms of growth of income per capita. Market growth in these countries has been more substantial than that of the high-income countries in the recent period of 1990–2004 (UNDP, 2006: 334).

These differences point to the potential for the future growth of world markets for progressive commodities, as population growth declines and income per capita grows in low and middle-income countries. This can be illustrated by the experience of India from the 1970s to the 2000s (Table 5.6).

In India, there was a substantial fall in fertility from 1970–71 to 2000–01 that slowed down the rate of population growth in spite of a rise in life expectancy during that period (MOS, 2006). This was accompanied by a two-fold growth in income

Table 5.5 World population and gross domestic product 2005 (2005 international dollars)

Countries income level	2005 population millions	2005 GDP international $ billions	Percentage of total	
			Pop.	GDP
Low	724.9	842.0	11.8	1.5
Middle	4,358.5	20,303.2	71.2	36.9
High	1,037.2	33,827.4	16.9	61.5
World	6,120.5	54,972.6	100.0	100.0

Pop.: Population.
Note: Figures may not add due to rounding International dollars are based on 2005 Purchasing Power Parities using US as a basis. The classification of low, middle and high income countries follows that of the World Bank (WB, 2009).
Source: WB (2008). Computations made by the authors.

Table 5.6 Population growth, income and consumption expenditure. India 1970s–2000s

	1961–71	1991–01
Population annual growth rate (percent)	2.48	2.15
	1970–71	2000–01
TFR	5.2	3.1
Income per capita 1993–94 prices Rs.	5,002	10,308
Item	Distribution of total consumption per person	
	1972–73	1999–2000
	Percent	Percent
Food	71.2	56.3
Fuel and power	5.6	7.6
Clothing and footwear	7.1	7.7
Other	16.0	28.5
All items	100.0	100.0

Note: TFR (total fertility rate) is the average number of children that women are expected to bear over their reproductive life time. The percentages for items of expenditure were estimated from the proportions for rural and urban populations using rural and urban populations as weights.
Source: MOS (2006). Computations made by the authors.

per capita. Following Engel's Law, the proportion spent on food declined from about 71 to 56 percent. Consumption of fuel, power, clothing and footwear rose slightly from about 13 percent to 15 percent, but consumption of all other items expanded substantially from about 16 to 29 percent (Table 5.6). The growth of the market for progressive commodities in India is reflected in the use of telephones (fixed line and cellular) that spread from 1.8 telephones per thousand people in 1971 to 35.8 in 2001 (MOS, 2006).

5.4 Factors Affecting Global Markets Size and Composition

Throughout the ages, population growth has been a concern because of the limits of the carrying capacity offered by food production. This concern has now shifted partly to threats to the environment caused by population growth and associated consumption. A stationary state has been advocated for more than a century but not been pursued. Since the 1940s, the planet has experienced a population explosion and phenomenal market growth achieved partly through technological change that improved food production and improved productivity in general. In more recent decades, there has been a decline in fertility and population growth. In spite of this, population is bound to rise in the foreseeable future. Past experience indicates that there are some factors that will affect markets and their composition as the world's population continues to grow:

- Countries at different stages of the demographic transition will experience different rates of population growth and age distribution.
- Population growth affects growth in income per capita.
- Engel's Law reflects empirical evidence that as income per capita rises a lower proportion is spent on food and more is available to spend on progressive commodities.
- Differences in income per capita among countries have led to inequalities in the size of markets in relation to their populations.
- Falls in fertility in most countries of the world are affecting population growth and the age composition of middle-income countries, with lower proportions of dependent child populations and a larger proportion in more productive ages. This has been called a "demographic bonus".
- Recent trends point to rising productivity, income per capita and household purchasing capacity that should lead to the growth of markets in middle income countries (with almost three quarters of the world population).
- Following Engel's Law, there should be a propensity to direct the additional household purchasing power away from basic necessities and the markets for progressive commodities in these countries should show considerable growth.

In addition to these generic factors, the size and composition of future markets will be affected by continuing technological advances and the differences in the varying stages of the life cycle of people living in different regions of the world.

References

Bannock, G., Baxter, R. E., & Davis, E. (1998). *The dictionary of economics*. London: Penguin Books.

Ehrlich, P. R. (1969). *The population bomb*. New York: Ballantine.

Keynes, J. M. (1967). *The general theory of employment interest and money*. London: Macmillan.

Maddison, A. (2003). *The world economy – Historical tables*. Paris: OECD.

Malthus, T. R. (1970). Chapters I, II. In A. Flew (Ed.), *An essay on the principle of population and a summary view of the principle of population* (pp. 67–72, 73–80). Harmondsworth: Penguin Books.

Meadows, D. H., Meadows, D. L., Randers, J., & Behrens, W. W. (1972). *The limits to growth*. London: Pan Books.

Mill, J. S. (1970). Of the Stationary State. In D. Winch (Ed.), *Principles of political economy* (pp. 111–117). Harmondsworth: Penguin Books.

Ministry of Statistics and Programme Implementation (MOS). (2006). *Selected socio-economic statistics India 2006*. Delhi: Central Statistical Organisation.

Ray, D. (1998). *Development economics*. Princeton, NJ: Princeton University Press.

United Nations Development Programme (UNDP). (2006). *Human development report 2006*. New York: Palgrave Macmillan.

World Bank (WB). (2008). *Global purchasing power parities and real expenditures – 2005 International Comparison Program*. Washington, DC: World Bank.

World Bank (WB). (2009). *World Bank list of economies (July 2009)*. Washington, DC: World Bank. www.worldbank.org. Retrieved 2 Jul 2009.

Chapter 6
Life Cycle: Consumption, Consumer Income and Savings

6.1 Consumption and Income

6.1.1 Rising Consumption Tracks with Income

In general, it can be asserted that there is a positive association between consumption and income: consumption increases as income rises. This association prevails across countries, as illustrated using World Bank (2008) estimates for 145 countries at different stages of development (Fig. 6.1).[1]

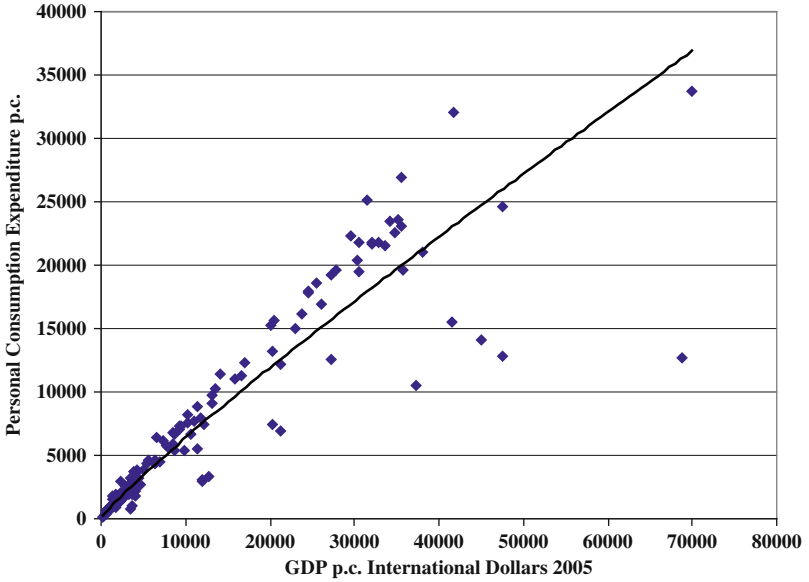


Fig. 6.1 Gross domestic product per capita and personal consumption per capita (purchasing power parities) 2005 – 145 countries
Source: WB (2008).

[1] The few outliers in Fig. 6.1 are usually small countries with special characteristics such as Macau (China) or oil-producing countries in the Middle East.

J.M. Martins et al., *Consumer Demographics and Behaviour*, The Springer Series on Demographic Methods and Population Analysis 30, DOI 10.1007/978-94-007-1855-5_6,

However, it also applies within countries, as it can be seen from estimates from such differing countries as Brazil and Japan (Figs. 6.2 and 6.3). The gradient of growth in household consumption is dependent on the propensity to save from incremental income; nevertheless, household average expenditure on consumption is higher at higher levels of income.

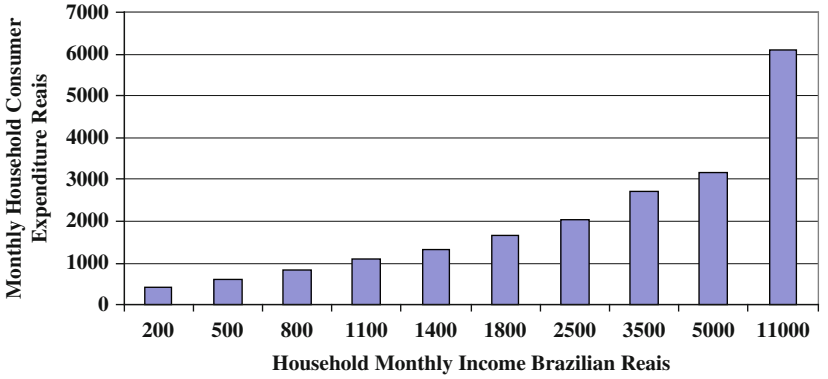


Fig. 6.2 Household income and consumer expenditure, Brazil 2002/3, monthly average in Brazilian Reais
Source: IBGE (2004).

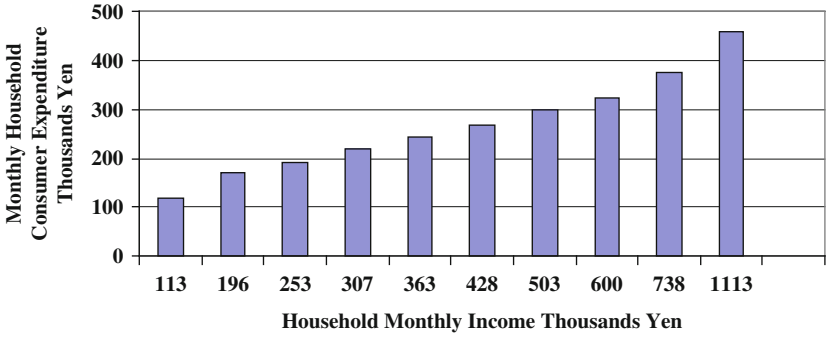


Fig. 6.3 Household income and consumer expenditure, Japan 2005, monthly average in thousands yen
Source: SBJ (2006).

Box 6.1 Life-Cycle Hypothesis: Consumption and Savings

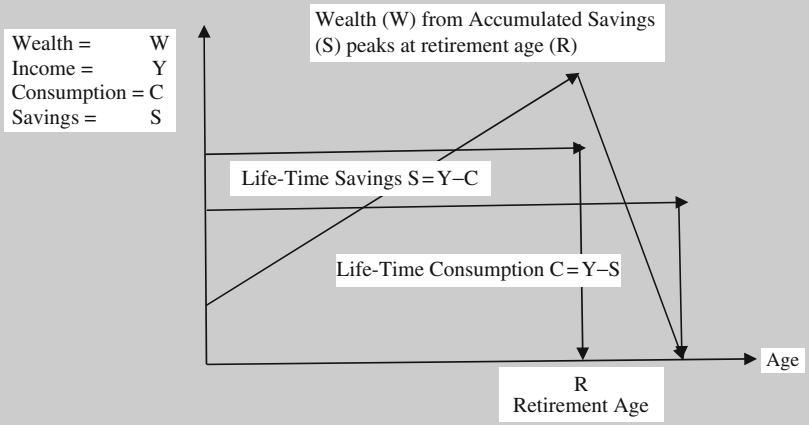
A basic Keynesian (Keynes, 1967) proposition is that household expenditure on consumer goods and services (C) is dependent on household income (Y).

$$C = (f)\, Y$$

This Keynesian concept has been a text-book model for many decades (for instance Allen, 1967). It is attractive because it is easily understood and measured from information on income and consumption now available for most countries.

This view of consumption was challenged by the Life-Cycle Hypothesis (LCH) put forward by Modigliani and Brumberg (1954)

Life-Cycle Hypothesis Graph Based on Modigliani's Nobel Prize Lecture (1986)



Y = Life-time Income
C = Life-time Consumption
S = Life-time Savings
W = Accumulated Wealth
R = Retirement Age

According to Modigliani (1986), three major findings challenged the Keynesian concept of the consumption function. Kuznets work indicated that the savings rate (Savings/Income) in the United States had remained constant over time. This was in conflict with the Keynesian proposition that implied an increasing savings to income ratio, as productivity and income rose over time partly due to technological gains. Another challenge was the proposition that

consumption related to *permanent* rather than current income. In other words, consumers smoothed their consumption in relation to their perceived income over time. This inspired the Friedman's (1957) *permanent-income hypothesis* that made consumption dependent on the life-time income of consumers rather than their current income.

In brief, the LCH assumed that consumers are life-time maximisers. LCH postulated that consumers will consider their life-time income (Y) and determine a saving rate that will enable them to maintain their maximum level of consumption (C) over their life time, including consumption after retirement. Under the original LCH restrictive assumptions, given their average income consumers will postpone consumption throughout their working life and accumulate wealth (W) to enable them to maintain their usual level of consumption after retirement. This means that consumption will remain constant over their life time but wealth from savings will peak at the time of retirement and then drop to zero at the time of death. This model provided a rational for household savings and an appealing model of consumption maximisation. It also meant that there was no rapid fall in consumption after retirement and that the savings rate was dependent on the length of retirement. This rationalisation has been challenged by more recent empirical work that shows a substantial drop in consumption and continuing savings after retirement.

6.1.2 Life-Cycle Humps in Household Consumption and Income

Empirical evidence indicates that household consumption tracks income closely and both show hump-shaped patterns during the life cycle with peaks usually around 50 years of age. This demographic feature is observed across countries with different income per capita, income security systems and cultures. Therefore, the empirical evidence is not entirely in line with the proposition originally put forward in Modigliani's Life-Cycle Hypothesis (LCH) that people tended to even out consumption levels in times of lower income after retirement by using wealth accumulated from savings during their working life before retirement (Box 6.1).

The hump-shaped pattern is similar in countries for which relevant information is available, although the peaks may be somewhat different depending on retirement practices and other factors (Fig. 6.4). In most cases, the pattern of household expenditure is closely associated with a similar income pattern during the life cycle (Table 6.1).

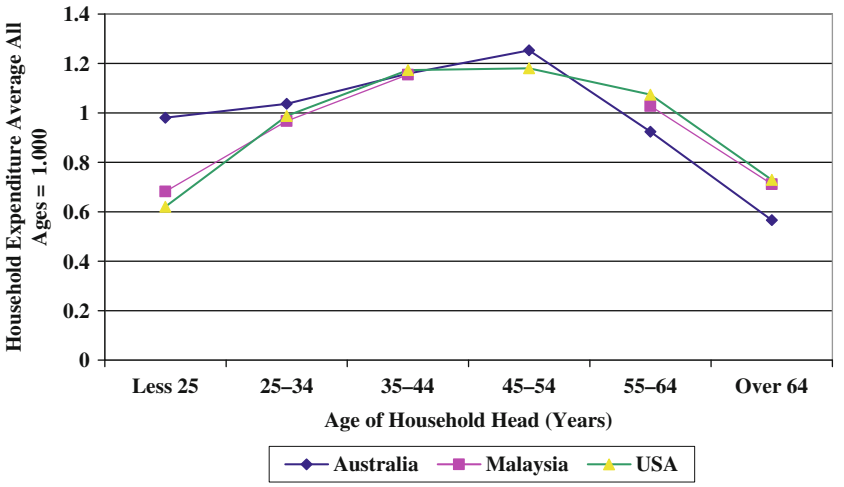
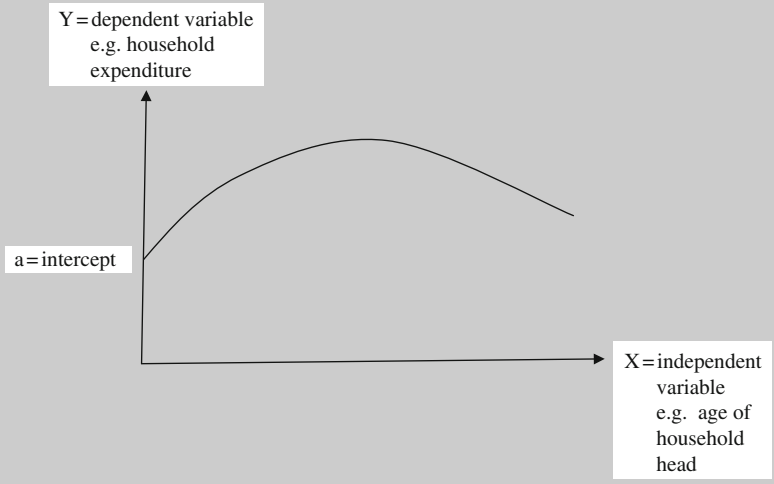


Fig. 6.4 Hump-shaped pattern of household expenditure by age of household head, average for all ages = 1.000. Australia 1998/9, Malaysia 1998/9 and United States 2002
Sources: ABS (2000), DOSM (2000), BOLS (2004).

Box 6.2 Life-Cycle Quadratic Equation

The life-cycle tends to follow hump-shaped trends that first rise with age and then decline. This applies to a number of variables such as household income and expenditure. These trends can be expressed in terms of a quadratic equation of the form:

$$y = a + bx - cx^2$$



Where

y is the dependent variable such as household income and expenditure
x is the independent variable such as the age of the head of the household
a is the intercept that may be positive or negative
b and c are the coefficients of respectively x and x^2

This is a useful equation in estimating values of the dependent variable for varying values of the independent variable (usually age) during the life-cycle. There are a number of quadratic regression applets available such as the one developed by Arsham (2004) http://home.ubalt.edu/ntsbarsh/Business-stat/otherapplets.

Table 6.1 Hump-shaped pattern of household income in selected countries – age of household head – results of quadratic regression analysis

		Quadratic regression results for household income by age of household head			
Country	Average household income year, income period and currency	*a* intercept	*b* coefficient of *x*	*c* coefficient of x^2	R^2 (coefficient of determination)
Australia	2003–04 Weekly AU$	–111.21	73.54	−0.89	0.8976
Chile	1996–97 Monthly CLPeso	272,216.26	7,762.96	−102.97	0.8591
New Zealand	2003–04 Weekly NZ $	−202.00	77.63	−0.91	0.9235
United Kingdom	2007 Weekly UK£	259.89	22.29	−0.27	0.8486
United States	2007 Yearly US$	−44,852.36	5,183.35	−54.64	0.9628

Note: The results were obtained using a quadratic regression applet provided by Arsham available in http://home.ubalt.edu/ntsbarsh/Business-stat/otherapplets. The results are similar to those obtained using applets from other sources. The data for Chile relates to Gran Santiago only.
Sources: ABS (2006); INE (undated); SNZ (2004); ONS (2008); BOLS (2009).

This pattern reflects lower household incomes and expenditures early in adult life. Both income and expenditures increase until around the middle fifties when people start to retire. Then, they drop considerably as more people leave the work force, especially after 60 years of age in most cases. Earlier or later retirement and payments at retirement may hasten or retard the drop in household consumer expenditure. For instance, a lump-sum payment at the time of retirement in Italy appears to retard the fall in household expenditure after retirement (Miniaci, Monfardini, & Weber, 2003).

6.2 Conceptual and Measurement Issues

6.2.1 Different People: Different Experiences

Most of the analyses of household consumer behaviour rely on household surveys at a point in time (usually over one-year periods). The surveys are cross-sectional in nature and comprise groups born at different points in time. There has been a trend for income to rise over time (Table 5.2), possibly as a result of productivity gains. This implies that people born in earlier times are *poorer* than people born more recently. Accordingly, the decline in household consumer expenditure late in life observed in the cross-sectional data might be considered the result of older cohorts' lower incomes over their lifetime, rather than a decline in consumption due to age. Further, different cohorts are exposed to different economic and income shocks over their lifetime that can also affect savings and their accumulated wealth. Consequently, these shocks affect their spending resources over their lifetime (Attanasio, 2000).[2] Thus, measurement of household consumer expenditure needs to take into consideration the effects of:

- Age (life cycle)
- Period (business cycle)
- Cohort (year of birth)

6.2.2 Panels and Pseudo Panels

The building of panels of people and their follow-up over their lifetime would be a lengthy and difficult task. The procedure usually followed to estimate the age profile of consumer expenditure is to use household surveys carried out at different points in time to form *pseudo panels*. Households are divided into groups (cohorts), according to the year of birth of the head (reference person) of the household (Banks, Blundell, & Stanner, 1998). Then, it is possible to follow each cohort in each survey taken at different points in time. Usually, cohort identification and time of the survey become dummy variables in the regression analysis carried out, while age of each cohort at the time of each survey and consumer expenditures are the other variables used. This allows for the control of the factors involved in the estimation of the age profile of household expenditure.

[2] A considered review of some theoretical and measurement issues of consumer behaviour is contained in Richard Blundell's article "Consumer Behaviour: Theory and Empirical Evidence – A Survey" in *The Economic Journal*, 98 (March 1988): 16–65.

6.2.3 Another Hump: Fertility and Family Size

Another measurement issue in the estimation of the age profiles of household expenditure is the impact of fertility during the life-cycle, and the consequent hump in the number of people in the household (Modigliani, 1986). The average number of people in the household increases as children are born or added through remarriage and drops when children leave to form their own households and families. Accordingly, household consumer expenditures ought to reflect the increasing needs of children as they grow up, but also their departure from home. This could lead first to a rise in household consumer expenditure and then to its decline as children leave home, and be a factor in the hump-shaped household expenditure observed.

Another factor to be considered is the possible cohabitation of less well-off elderly parents with their children, thus increasing the size of the relevant households. The cohabitation of adult children with parents also varies from country to country, thus affecting the household size and consumption during the life cycle of the parents. Miniaci et al. (2003) report substantial differences in the proportion of adult children living with their parents in the United Kingdom, United States and Italy. In the United Kingdom and United States respectively 21 and 19 percent of male children aged 25–29 years lived with their parents, while the proportion was 76 percent in Italy.

The average number of people in households follows the hump-shape pattern observed for household consumer expenditures. However, the peak in the age of the household head tends to come earlier in the forties (Table 6.2).

Table 6.2 Hump-shaped pattern of household size in selected countries – age of household head – results of quadratic regression analysis

				Quadratic regression results for household size by age of household head			
Country	Year	Life-cycle ave size h'hold	(Peak no.) age h'hold head	*a* intercept	*b* coefficient of *x*	*c* coefficient of x^2	R^2 (coefficient of determination)
Australia	2003–04	2.5	(3.3) 35–44	0.4672	0.1227	−0.0015	0.7890
Chile	1996–07	3.2	(3.7) 35–44	0.3683	0.1394	−0.0015	0.9194
Japan	2005	2.6	(3.6) 40–49	–1.3084	0.1781	−0.0018	0.6949
New Zealand	2003–04	2.7	(3.4) 35–44	0.8649	0.1175	−0.0015	0.8484
United Kingdom	2007	2.4	(2.9) 30–49	2.8524	0.0010	−0.0002	0.8536
United States	2007	2.5	(3.2) 35–44	0.5131	0.1154	−0.0014	0.7503

Note: The results were obtained using a quadratic regression applet provided by Arsham available in http://home.ubalt.edu/ntsbarsh/Business-stat/otherapplets. The results are similar to those obtained using applets from other sources. The data for Chile relates to Gran Santiago only.

Sources: ABS (2006); INE (undated); SBJ (2006); SNZ (2004); ONS (2008); BOLS (2009).

Box 6.3 Household Equivalence Measures and Economies of Scale

One way to account for the number of people in the estimation of the age profile of household expenditures would be to divide household expenditure by the number of people in the household and obtain expenditures per capita.

Selected household number equivalence scales

	Equivalent units		
Family size	OECD	DHHS	DOC
1	1	1	1
2	1.7	1.34	1.28
3	2.2	1.68	1.57
4	2.7	2.02	2.01
5	3.2	2.37	2.37
Increment			
1→2	0.7	0.34	0.28
2→3	0.5	0.34	0.29
3→4	0.5	0.34	0.44
4→5	0.5	0.35	0.36

Note: *OECD* Organisation for Economic Co-operation and Development; *DHHS* US Department of Health and Human Services; *DOC* US Department of Commerce.
Source: Fernandez-Villaverde and Krueger (2004).

However, it is apparent that there are some items of expenditure that relate to the household as a whole (family goods) while others are incremental depending on the number of people in the household. Further, there should be a factor that reduces expenditures because of economies of scale to a point (Fernandez-Villaverde & Krueger, 2004). Therefore, most equivalence scales tend to take into consideration these factors.

Internationally, the most recognised equivalence scale is that used by OECD. However, other scales are available. The OECD equivalence scale uses an incremental of 0.7 for the second person in the household and then adds 0.5 for each additional member. This scale is rather heavy on incremental values for each member of the household in comparison with other scales. The US Department of Health and Human Services uses increments that reflect greater economies of scale that add about one third of one unit after the first person. The US Department of Commerce scale has somewhat lower increments for the second and third members of the household and then increases the increments to reflect decreasing economies of scale for the fourth and fifth members of the household (table above).

Some have contended that the age of children is important in estimating the age profile of household consumer expenditure. It is argued that children under 2 years of age have a questionable incremental value of zero, that children 2–5 years would add 0.2 of an adult and that children over 15 are the equivalent of one adult (Fernandez-Villaverde & Krueger, 2004). Some

empirical evidence suggests that the OECD equivalence scale is rather heavy on its increments and that scales that take into account greater economies of scale are more likely to be closer to empirical findings (Miniaci et al., 2003; Banks et al., 1998).

Some equivalence-unit scales have been developed to take into account additional household expenditure arising from the varying number of people in the household Although the OECD[3] scales are widely used empirical evidence suggest that it is too generous and under-estimates economies of scale involved in the incremental number of people in the household (Box 6.3).

6.2.4 Differential Mortality

Some models relate household resources for consumption not only to their income but also to their accumulated wealth through life-time savings. Substantial empirical evidence indicates that, on average, people continue to save after retirement (Shorrocks, 1975; Banks et al., 1998; Attanasio, 2000) contrary to Modigliani's LCH. Shorrocks (1975) raised a demographic factor that could affect the aggregate saving rate as people age. He noted that wealthier individuals have higher survival rates. Consequently, older cohorts could become increasingly richer as the number of longer-living richer people became a larger proportion of older cohorts. As richer people have a higher propensity to save, the average saving rate of older cohorts would tend to rise. Accordingly, the lack of dissaving in older ages observed in cross-section data could be accounted for, at least in part, to the differential survival rather than aging. Shorrocks concluded that corrections need to be made to take into account this demographic factor in the estimation of age profiles of income and consumption. Although, this is a significant factor, empirical research indicates that it does not account fully for the drop in household consumption in old age and the continuing positive saving of older households (Banks et al., 1998; Attanasio & Hoynes, 2000; Halvorsen, 2003).

The differential mortality between males and females also leads to a larger number of females among people aged 65 years and over, in most countries. For instance, in the United States the average female to male ratio was 1.03 in 2000. However, the ratio rose to 1.43 for people aged 65 years and over (Hobbs & Stoops, 2002). This would imply there was a larger proportion of households headed by females, in the older population. In countries such as Australia males on average earn more than females throughout their adult life (Fig. 1.4). The differential in income between males and females tends to prevail or even increase after retirement. Thus, in the United States the household income of single males aged 65 years and over was 1.32 that of females in 2005–2006 (BOLS, 2008). This ratio was much higher than

[3]OECD is the Organization for Economic Co-operation and Development

that of 1.21 for single males and females aged 55–64. These differentials in mortality and income contribute to the decline in average household income after retirement age, in addition to the all important loss of income after retirement from gainful employment.

6.3 Demographic and Other Factors in Life-Cycle Consumer Behaviour

Empirical evidence has confirmed that various demographic and socio-economic factors affect the consumer behaviour of households during their life cycle. Stepwise regression analysis using an Australian Household Expenditure Survey (ABS, undated) indicated that the employment status of the head of the household explained most of variation in household consumer behaviour, this was followed by the number of people in the household, their income, marital status and age of the household head. Other variables such as occupation, gender of the household head made only small contribution. The independent variables related to:

- number of people in the household
- age of the head of the household
- household income

provided the best fit in explaining the variation in household consumer behaviour.[4]

6.3.1 People in the Household

Evidence from various econometric studies using data for Italy (Miniaci et al., 2003), Norway (Halvorsen, 2003), United Kingdom (Banks et al., 1998) and the United States (Wilkes, 1995; Attanasio, Banks, Meghir, & Weber, 1999; Miniaci et al., 2003; Fernandez-Villaverde & Krueger, 2004) is in line with the Australian experience. These studies show that much of the variation in household consumption is explained by the hump in the number of people in the household during the life cycle that, as seen earlier, tends to peak somewhat earlier than the peak in household income and consumption. Some cohort effects have been found in some instances, as fertility rates have changed over time. In some cases, cohorts born before the middle 1930s tended to have higher fertility and a larger number of children (Attanasio et al., 1999). The degree of explanation of consumer behaviour by the number of people – an important demographic factor – depends on the equivalence scale used and may account for as much as about 50 percent of the hump in household

[4]These are the results of analysis undertaken by the authors of Australian household expenditure. The adjusted regression coefficient was 0.547. The way in which durable goods and business-expense allowances were handled in the survey made consistency difficult to achieve.

consumption (Fernandez-Villaverde & Krueger, 2004). However, regardless of the weights of the equivalence scale used, it only explains part of the hump in consumption during the life cycle that peaks around the age of fifties of the household head, even when the heavy per capita weight is used (Miniaci et al., 2003).

6.3.2 Employment

An important factor in income generation and associated consumer behaviour is participation in the work force during the life cycle. Unemployment status may be *anticipated* as in the case of retirement or *unanticipated* due to transitory or permanent loss of employment. Evidence from the United Kingdom shows that participation in the work force is a significant determinant of income and consumption. Although unplanned unemployment has a greater impact on loss of income than retirement, the drop in consumption is higher for those who retire than those who are unemployed (Banks et al., 1998). Evidence from Italy also indicates that unemployment is accompanied by lower household consumption but the drop after retirement tends to be greater (Miniaci et al., 2003). The consumption of people working is higher than those who have retired. These studies suggest that the younger unemployed tend to smooth their consumption patterns better, while something of a more permanent nature takes place at or after retirement.

6.3.3 Work-Related Expenditures

It is apparent that participation in the work force influences household income, but it also gives rise to work-related expenditures. The results from the same studies (Banks et al., 1998; Miniaci, 2003) indicate that a significant part of the drop in consumption after retirement relates to expenditures related to work, examples being food consumed away from home, transport and clothing. Family size and work-related items influence the gradient of the rise in household consumption and its fall. The gradient may be steeper or more precipitous in some countries such as the United Kingdom and more gradual as in the case of Italy. Peaks may also take place earlier in the life cycle, such as in the case of Malaysia, because of a number of factors, including the fertility rate and the length of time that children cohabit with their parents, or even cohabitation of less-well-off older parents with their adult children. Nevertheless, neither family size nor work-related expenditures fully explain the hump pattern of household expenditure that rises early in the life cycle, reaches a peak in around 50-odd years of age and then declines (Banks et al., 1998).

6.3.4 Durable and Non-Durable Goods

Consumer household surveys measure expenditure rather than consumption. Durable goods such as refrigerators, household furniture and cars may be purchased in a given point in time but are consumed over a number of years. Accordingly,

the practice has often been to look at durable and non-durable goods separately or to look at non-durables only. However, a number of studies have looked at total expenditures, durables and non-durable goods at the same time. Arguments to follow this path include the presumption that the decisions to buy durables cannot be separated from decisions related to non-durables in the context of the constraints of the household budget. Further, there are complementarities between durables and non-durables; for instance a car (durable good) cannot be useful without fuel (a non-durable good) to run it. An attractive proposition is that households stock up on non-durable goods early in the life cycle and then just replace them as needed, with less replacement towards the end of the cycle. The evidence is mixed. For instance, evidence from the United States points to a hump-shaped pattern of household expenditure on durables that peaks in the late forties (Fernandez-Villaverde & Krueger, 2004). This implies that household expenditure on durables tracks income closely. Evidence from Italy, on the other hand, suggests that indeed households stock-up early in the life cycle and then expenditure on durables declines over the life cycle. The study for Italy, however, indicates that there are strong cohort effects that influence the pattern of durable goods acquisition in that country (Miniaci et al., 2003).

6.4 Retirement Puzzles: Consumption and Savings

6.4.1 Retirement and the Baby-Boom Generation

A major demographic feature of today is the considerable weight of the generation born in late 1940s until the early 1960s due to high fertility rates that prevailed after World War II. The so-called *Baby-Boomers* constitute a large proportion of the population in the massive markets of Europe, North America, Japan and Australia. These cohorts, in their fifties or early sixties, have reached the peak in their income and consumption life cycle. Most of them will be reaching age of retirement during the next two decades. Therefore, empirical findings related to consuming and savings behaviour before and after retirement are pertinent to the understanding of possible changes in market segmentation in the next two decades (Magnus, 2009).

6.4.2 Retirement: Consumption and Savings

Evidence from empirical studies indicates that the level of income during the life cycle, family size, employment and employment-related expenditures explain a considerable proportion of the hump-shaped age profile of household consumption during the life cycle. However, there remains a considerable residual hump in consumption that starts at a low point early in the life cycle, peaks about 50-odd years of age and then drops substantially after retirement. The substantial drop in consumption after retirement is contrary to the behaviour postulated by Modigliani's Life-Cycle Hypothesis and has been called the *consumption retirement puzzle*.

Another empirical finding is that on average households continue to save after retirement also contrary to the LCH and therefore adding to rather than decumulating their wealth. This has been called the *saving retirement puzzle*. A number of factors have been put forward to explain the observed hump and consumer behaviour after retirement.

- *Credit/liquidity constraints*: Credit markets vary from country to country and have placed different constraints on different cohorts' accessibility to credit. This has meant that young households have had greater difficulty in access to credit and have been forced to delay consumption early in the life cycle and save (Modigliani, 1986). This early constraint is reduced as their savings grow and credit becomes accessible and enables households to increase their consumption in the middle ages. The possibility could be raised that, although wealth has increased later in the life cycle, some of the assets, such as a house, are not in liquid form and therefore impose a liquidity constraint on household spending. The age-expenditure profile for durable goods observed in some countries shows that the credit constraint may affect some countries more than others in allowing young household to stock up early in the life cycle (Miniaci et al., 2003). It may also affect some cohorts more than others due to the time of deregulation of credit markets in different countries (Halvorsen, 2003).
- *Income uncertainty*: Early in the life cycle, households cannot predict their income potential or even certainty of employment. This income uncertainty leads to the postponement of consumption and precautionary saving (Banks et al., 1998; Halvorsen, 2003). Again, the degree of uncertainty tends to decline with age and allows an increase in consumption. In some countries, with employment-income related pension schemes (such as Social Security schemes in the US and most of Europe) labour-market income uncertainty ceases to exist as pension income is known at retirement. This factor is useful in explaining delayed consumption early in the life cycle but does not help explaining the drop in household consumption after retirement.
- *Life uncertainty*: The uncertainty about the length of life is another factor that can affect consumer behaviour (Modigliani, 1986; Banks et al., 1998). This uncertainty may lead households to reduce current expenditures during retirement as they do not know how long their savings will need to last under uncertain health conditions.
- *Differentials in life expectancy and income of males and females*: The documented differential in mortality and income of males and females may also contribute to a reduction in current expenditure by older couples. It could be hypothesised, retired couples might perceive that the female partner may outlive the male and this would lead to a drop in income for the surviving female. This realization may result in lower current household expenditure to save funds for this contingency.
- *Bequest motive*: In addition to uncertainty about the length of life, another possible motive for continuing savings after retirement is the desire to make a bequest.

This is an altruistic motive that places the desire to leave accumulated wealth to another generation or entity ahead of any gains from current consumption.

- *Leisure choice*: Another possible reason for the peak in consumption hump is the greater utility associated with consumption during the child-bearing years (Attanasio et al., 1999). While increased leisure time after retirement may induce home production of food and other household services (Banks et al., 1998; Miniaci et al., 2003), and consequently lead to a reduction in household expenditure on these items.
- *Unanticipated shocks*: Retirement can be a unique experience, and households may be faced, on retirement, with a situation that they may not have foreseen. For instance, they may have been myopic and have saved less than perceived needs for retirement (Modigliani, 1986). Studies of the United States consumer behaviour have provided some evidence that the level of pre-retirement consumption is not sustainable after retirement (Hamermesh, 1984). Other survey information suggests that people underestimate their retirement income and that there may be an *expectations gap* (Banks et al., 1998) that forces people to lower their expectations and lower their level of consumption after retirement. On retirement people may also become aware of increasing health and impairment risks that would make them more cautious and lead to lower levels of activity and consumption.

References

Allen, R. G. D. (1967). *Macro-economic theory – A mathematical treatment*. London: Macmillan.

Arsham, H. (2004). *Quadratic equations and its calculus*. http://home.ubalt.edu/ntsbarsh/Business-stat/otherapplets/QUADREG.HTM downloaded 13 Jan 2005.

Attanasio, O. P. (2000). Cohort analysis of saving behavior by U. S. households. *The Journal of Human Resources, XXXIII*(3), 575–609.

Attanasio, O. P., Banks, J., Meghir, C., & Weber, G. (1999, January). Humps and bumps in lifetime consumption. *Journal of Business & Economic Statistics, 17*(1), 22–35.

Attanasio, O. P., & Hoynes, H. W. (2000). Differential mortality and wealth accumulation. *The Journal of Human Resources, XXXV*(1), 1–29.

Australian Bureau of Statistics (ABS). (undated). *Household expenditure survey 1993–94*. CURF File No. 408.

Australian Bureau of Statistics (ABS). (2000). *Household expenditure survey 1998–99, summary of results*. Canberra.

Australian Bureau of Statistics (ABS). (2006). *2003–03 (Reissue) household expenditure survey – summary of results*. Catalogue No. 6530.0. Canberra.

Banks, J., Blundell, R., & Stanner, S. (1998, September). Is there a retirement-saving puzzle? *The American Economic Review, 88*(4), 769–788.

Blundell, R. (1988, March). Consumer behaviour: Theory and empirical evidence – a survey. *The Economic Journal, 98*, 16–65.

Bureau of Labor Statistics (BOLS). (2004). *Consumer expenditures in 2002*. Washington, DC: US Department of Labor.

Bureau of Labor Statistics (BOLS). (2008). *Consumer expenditures in 2006*. Washington, DC: US Department of Labor.

Bureau of Labor Statistics (BOLS). (2009). *Consumer expenditures in 2007*. Washington, DC: US Department of Labor.

Department of Statistics, Malaysia (DOSM). (2000). *Report on household expenditure survey, Malaysia 1998/99*. Kuala Lumpur.

Fernandez-Villaverde, J., & Krueger, D. (2004). *Consumption over the life cycle: Facts from consumer expenditure survey data*. September 14, 2004. Mimeo.

Friedman, M. (1957). *A theory of the consumption function*. Princeton, NJ: Princeton University Press.

Halvorsen, E. (2003). *A cohort analysis of household saving in Norway*. Discussion Paper No. 354. Oslo: Statistics Norway.

Hamermesh, D. S. (1984, February). Consumption during retirement: The missing link in the life cycle. *The Review of Economics and Statistics, 66*(1), 1–7.

Hobbs, F., & Stoops, N. (2002). *Demographic trends in the 20th century*. Census 2000 Special Report Series CEN SR-4. Washington, DC: U. S. Census Bureau.

Instituto Brasileiro de Geografia e Estatistica (IBGE). (2004). *Pesquisa de Orçamentos Familiares 2002–2003 – Primeiros resultados*. Rio de Janeiro: Ministerio de Planejamento, Orçamento e Gestão.

Instituto Nacional de Estadisticas (INE). (undated). *Quinta Encuesta de Presuestos Familiares 1996/97*. Santiago.

Keynes, J. M. (1967). *The general theory of employment, interest and money*. London: MacMillan.

Magnus, G. (2009). *The age of ageing. How demographics are changing the global economy and the world*. Singapore: Wiley (Asia).

Miniaci, R., Monfardini, C., & Weber, G. (2003). *Is there a retirement consumption puzzle in Italy?* Mimeo.

Modigliani, F. (1986, June). Life cycle, individual thrift, and the wealth of nations. *The American Economic Review, 76*(3), 297–313.

Modigliani, F., & Brumberg, R. (1954). Utility analysis and the consumption function: An interpretation of cross-section data. In K. K. Kurihara (Ed.), *Post Keynesian economics* (pp. 390–397). New Brunswick, NJ: Rutgers University Press.

Office of National Statistics (ONS). (2008). *Family spending: A report on the 2007 and food survey*. New York: Palgrave Macmillan.

Shorrocks, A. F. (1975, May). The age-wealth relationship: A cross-section and cohort analysis. *The Review of Economics and Statistics, 57*(2), 155–163.

Statistics Bureau of Japan (SBJ). (2006). *Family income and expenditure survey – 2005 yearly average*. Tokyo: Ministry of Internal Affairs and Communications. www.stst.go.jp?english/data/sousetai. Retrieved 19 June 2008.

Statistics New Zealand (SNZ). (2004). *Household economic survey year ended 30 June 2004*. Wellington. www.stats.gov.nz. Retrieved 10 July 2009.

Wilkes, R. E. (1995, June). Household life-cycle stages, transitions, and product expenditures. *Journal of Consumer Research, 22*, 27–42.

World Bank (WB). (2008). *Global purchasing power parities and real expenditures – 2005 International Comparison Program*. Washington, DC: World Bank.

Part III
Consumption, Income, Age, Cohort and Gender

Chapter 7
Consumer Allocation Patterns

7.1 Household Two-Stage Budgeting

In a generic sense, it has been proposed that consumers follow a *two-stage budgeting* process in the allocation of their purchasing-power resources. First they allocate expenditures to main commodity groups and then to items in those groups. Market prices determine what is bought within each group (Blundell, 1988).

This is a convenient way of examining the allocation of consumers' purchasing power from an analytical point of view. However, it is obvious that this two-stage process tends to gloss over the complementary nature of items of consumption in different groups. This is most apparent in the case of durables and non-durable goods and services. Many household appliances require electrical power to run. Food prepared at home requires pots and pans and heating. In spite of these linkages, it is helpful to see how households allocate their purchasing-power resources to commodity groups to gain insights into the relative size of their markets and consumer preferences.

It is clear that the relative prices of individual commodities influence consumer demand for given products or brands. The demand by individual consumers in face of relative and changing prices has traditionally been the subject of study in consumer demand in microeconomics. However, this issue is outside the focus of this text that is placed on the preferences of groups of people and their demographic and income characteristics. Readers interested in gaining an understanding of price theory are advised to consult readily available texts.[1]

[1] For instance, Quirk, James P. 1986. *Intermediate Microeconomics*. Chicago: Science Research Associates, Inc. For brief and basic perspectives on consumer behaviour in economics see Chapter 2 – Section 2.2.

J.M. Martins et al., *Consumer Demographics and Behaviour*, The Springer Series on Demographic Methods and Population Analysis 30, DOI 10.1007/978-94-007-1855-5_7,

7.2 Diversity

Data from seven countries will be used to illustrate similarities and differences in the allocation of household expenditure to main commodity groups. These countries have different population sizes and cultures. They are also located in different regions of the globe and have reached different stages of the demographic transition and economic development.

Australia and New Zealand are two high-income countries located in the South Pacific region with relatively small populations. However, Australia's population size and income per capita are substantially larger than New Zealand's. Australia also spreads over a larger climate zone from tropical to moderate climate. New Zealand stretching further south has, on average, a cooler climate. Australia and New Zealand are highly urbanised countries and well on the demographic transition path. Their fertility is below replacement level and the life expectancy in the two countries is high. These factors have led to a fall in the proportion of children and an increasing proportion of aged people in the population. However, immigration has kept their populations younger than would have otherwise been (Table 7.1).

Japan is located in the northern Pacific in Asia and has a highly distinct culture. Its climate ranges from relatively hot and humid summers in sub-tropical areas to rather cold winters in northern regions. It is one of the largest markets in the world with a substantial population and high income per capita. Nevertheless, the proportion of people living in rural areas is considerable by high-income country standards. Japan has the highest life expectancy in the world and one of the lowest fertility rates. It is well into the demographic transition. This has resulted in a low proportion of children and a large proportion of aged people (Table 7.1).

The United Kingdom is a European high-income country. It has relatively cool winters and mild summers. It has a sizeable population and it is a highly urbanised country. With low fertility and high life expectancy, it is well into the demographic transition. As in other countries experiencing this transition, the proportion of children is low and that of aged people high (Table 7.1).

The United States located in North America is the world's largest market with high income and a large population. The United States has a wide range of climate ranging from cold winters to hot summers. The rate of urbanisation is about average for high-income countries. Fertility is about replacement level and life expectancy is high. As in the case of Australia and New Zealand, immigration has contributed to the younging of the population (Table 7.1).

Chile is a middle-income country located in South America with a wide range of climates. However, most people live in the moderate climate of its central region and is highly urbanised. Its fertility rate has declined and is about replacement level. It has a relatively high life expectancy for a middle-income country. Although its population is larger than New Zealand's, it is relatively small. Past fertility has kept the proportion of children relatively high and the proportion of aged people relatively low (Table 7.1).

Malaysia is another middle-income country. It has a declining but still high fertility rate by middle-income country standards, but it has an increasing life

Table 7.1 Demographic and income indicators for selected countries

Country	Population millions 2005	TFR 2000/5	Life expect. years 2000/5	Percentage of total population 2005			Average no. people h'hold[a]	GDP p.c. (PPP) Int. $ 2005
				Under 15 years	65 years and over	Urban		
Australia	20.3	1.8	80.4	19.5	13.1	88.2	2.5	32,798
New Zealand	4.1	2.0	79.2	21.5	12.2	86.2	2.7	24,554
Japan	127.9	1.3	81.9	13.9	19.7	65.8	2.6	30,290
United Kingdom	60.2	1.7	78.5	18.0	16.1	89.7	2.4	31,580
United States	299.8	2.0	77.4	20.8	12.3	80.8	2.5	41,674
Chile	16.3	2.0	77.9	24.9	8.1	87.6	3.2	12,262
Malaysia	25.7	2.9	73.0	31.4	4.4	67.3	4.4	11,466
World	6,514.8	2.6	66.0	28.3	7.3	48.6	n.a.	8,971

[a]Dates relate to those of surveys used to estimate contents of Table 6.2. *n.a.* Not available

Note: TFR is the Total Fertility Rate. TFR and Life Expectancy concepts are explained in Box 3.2. PPPs are Purchasing Power Parities referred to in Section 1.3. GDP p.c. is Gross Domestic Product per head of population.

Sources: UNDP (2007); WB (2008); ABS (2006a); SNZ (2004); SBJ (2006); ONS (2008); BOLS (2009); INE (undated); and DOSM (2006).

expectancy. Like Japan it has a large proportion of its population still living in rural areas. The elevated fertility rate has resulted in a high proportion of children in the population, and conversely the fraction of aged people is relatively small (Table 7.1).

These differences in cultures, climate and stage of economic development have a major impact on the profiles of household consumption in the countries being reviewed. A more detailed examination of the implications of demographic and income characteristics in market segmentation will be the subject of other Chapters.

7.3 Household Consumer Profiles

7.3.1 Bare Essentials: Food, Housing, Domestic Fuel and Power

These seven countries spend between 36 and 46 percent of their household consumption expenditure on food and shelter (food and non-alcoholic beverages, housing, domestic fuel and power). With the exception of New Zealand, United Kingdom and the United States, the allocation to food is the largest of all main commodity items (Table 7.2). The allocation to food tends to follows Engel's Law:

Table 7.2 Household consumer profiles for selected countries

	Percentage of total household consumer expenditure						
Commodity Group	Aus	NZ	Japan	UK	US	Chile	Mal
Food	17.1	16.4	23.4	15.8	14.4	26.8[c]	34.7
Tobacco	1.3	1.0	0.5	1.0	0.8	0.9	1.6
Alcoholic beverages	2.6	2.4	1.2	3.2	1.1	–[c]	0.4
Housing	16.1	25.0[a]	10.0	20.1	24.6	10.2	7.6
Domestic fuel and power	2.6	3.2	5.7	3.8	4.6	3.8	4.0
Household services and operation	6.1	4.4	5.0	4.8	6.4	7.7	6.6
Household furn. and equipment	5.8	5.2	2.4	5.7	4.2	4.7	4.2
Clothing and footwear	4.0	3.5	4.7	4.9	4.4	8.8	3.4
Transport	15.6	13.2	10.1	15.4	20.6	12.7	19.9
Medical and health services	5.1	3.2	4.5	1.6	6.7	5.5	1.8
Education	2.0	2.3	3.7	1.5	2.2	5.9	2.2
Recreation and culture	12.8	10.4	11.5	16.3	6.6	5.5	5.8
Miscellaneous	8.8	9.8	17.4[b]	5.7	3.3	7.6	7.8
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: Figures may not add up due to rounding. [a]Includes principal payments for housing. [b]Miscellaneous includes pocket money (12.4 percent) for no specified purposes. [c]In the case of Chile, alcoholic beverages and food are aggregated. The data for Chile relates to Gran Santiago only. The data used in this analysis relates to the varying periods of the household surveys – mostly early to middle 2000s.

Sources: ABS (2006a); SNZ (2004); SBJ (2006); ONS (2008); BOLS (2009); INE (undated); and DOSM (2006). Computations made by the authors.

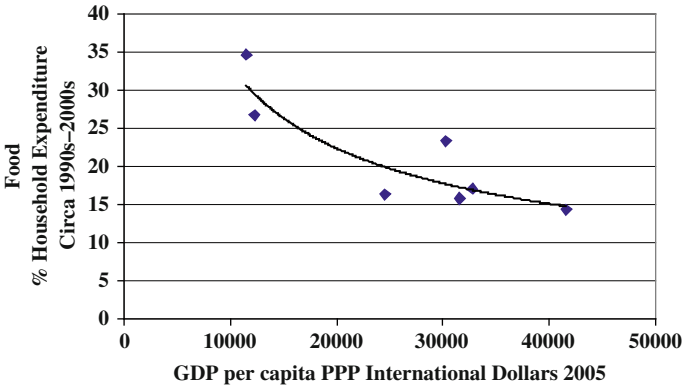


Fig. 7.1 Food share of household expenditure and gross domestic product per capita for selected countries
Note: The line in the graph represents the trend in the relationship between Gross Domestic Product per capita for the selected countries and the proportion of household expenditure spent on food. It follows Engel's Law that as income rises the proportion spent on food declines.
Source: Same as Table 7.2.

the lower the income the higher the food share (Fig. 7.1). Accordingly, Malaysia and Chile with the lowest incomes per capita spend respectively about 35 and 25 percent of household expenditure on food. Usually housing costs tend to be lower in rural areas. Malaysia and Japan with substantial rural populations also have the lowest expenditure on housing among the seven countries, respectively 8 and 10 percent. People living in areas with cold winters have a greater demand for heating power and fuels. This demand is reflected in the larger household allocations to domestic fuel and power in Japan and the United States (respectively 6 and 5 percent), and in the low allocation in Australia (3 percent) (Table 7.2).

7.3.2 Alcohol and Tobacco

Culture can play a major role in the consumption of alcoholic beverages. In Malaysia, with a large Muslim population, less than one percent of household expenditure is on alcoholic drinks. The United Kingdom, Australia and New Zealand have common cultural traditions and social rituals that involve the intake of alcoholic drinks. Households in these countries allocate between 2 and 3 percent of their expenditures to this item (Table 7.2).

Household allocation to tobacco is relatively small but varies considerably from country to country, from 2 percent of household expenditure in Malaysia to less than 1 percent in Japan. Part of the differences could be attributed to the success or otherwise of the marketing of tobacco products. However, the relatively low expenditure in Japan also involves a measurement question. This low expenditure may reflect a culture trait of males using a relative large proportion of household expenditure as *pocket money* (12 percent included in the exceptionally high miscellaneous item in

the case of the Japanese data) for a multitude of unspecified items such as tobacco, alcohol and entertainment (Table 7.2).

7.3.3 Household Furnishings, Equipment and Operation

The two commodity groups concerned with household fixtures and operation are somewhat different in nature. The first consists mostly of durable goods such as furniture and home appliances, while the second involves mostly services such as cleaning and other domestic services, telephone and postal charges. The use of domestic appliances, at times, can be a substitute for human domestic services. Accordingly, societies with large supplies of unskilled and low-cost labour may use more domestic services than appliances. However, the size and type of house and culture may also influence the use of appliances and domestic services. Accordingly, Japan with a relatively high proportion of rural population and smaller houses along traditional lines spends least on household furnishings and equipment (2 percent), in comparison with Australia, New Zealand, and United Kingdom that spend between 5 and 6 percent of their total expenditure on household furnishings and equipment.[2] Chile has a custom of using domestic services and spends a large proportion (8 percent) of household expenditure on household services and operation but a relatively low proportion on household furnishings and equipment (Table 7.2).

7.3.4 Clothing and Footwear

Climate influences the need for protective clothing and footwear. People living in warmer climates such as Malaysia spend less on clothing and footwear (3 percent) than those living in cold climates such as Japan (5 percent) (Table 7.2). A review of items in this group indicates that gender is important in the allocation of household expenditures with expenditure on female clothing and footwear being usually higher than that on male items (same sources as Table 7.2). An examination of the detailed items that make up this group shows that the higher proportion spent on this commodity group in Chile (9 percent) is partly explained by the high proportion spent on footwear (INE undated).

7.3.5 Transport

Transport is not a homogenous group as it contains durable-good items mostly private motor vehicles and non-durable goods and services such as fuel and maintenance, as well as public transport services. They can be used for essential

[2] Although the two-stage budgeting concept involves allocations being made to main commodities groups, and then to items within the group based on market prices, it is apparent that relative prices for say domestic appliances in different countries may influence the proportion spent on that group of commodities. See previous reference to price theory.

transport to and from employment or for social and recreational purposes. Household allocations vary considerably from as low as 10 percent of all expenditure in Japan to 21 percent in the Unites States[3] (Table 7.2). A review of the items in this group shows that most of the difference in the wide range of expenditures is related to outlays on private motor vehicles. Household preference for private vehicle ownership tends to increase total expenditure on transport, as is the case of the United States, while outlays on private motor vehicles in Japan are relatively small. Expenditure on public transport varies from country to country. It is less than 1 percent of total household expenditure in Australia (ABS, 2006b) and New Zealand (SNZ, 2004). Even in Japan with its low expenditure on private motor vehicles and consequent reliance on public transport, public transport accounts for only 3 percent of total household expenditure or 26 percent of the household expenditure on transport (SBJ, 2006). It should be noted that public subsidies play a role in keeping public transport prices usually lower than their cost.

7.3.6 Medical and Health Services

As it will be discussed later, the use of medical services is to a great extent dependent on demographic characteristics such as age. However, actual household expenditures on this commodity group is also greatly dependent on varying policy decisions made in countries related to public provision and funding of medical and other health services. Household expenditures on this commodity group vary from as little as 2 percent in the United Kingdom to 7 percent in the United States (Table 7.2). The United Kingdom has a medical scheme financed by the public purse that is by-and-large free, with co-payments for some of the services provided. In addition, households can use private medical services to complement those freely available in the public system. On the other extreme, medical services in the United States are mostly private and privately financed, although employers may pay a large proportion of the costs involved, leaving households to pay for only part of the services consumed. However, even in the United States close to half of medical care consumed by households is financed by the government. Malaysia with the second lowest expenditure (2 percent) has a relatively young population and an almost free service provided and funded by the public sector, that, as in the case of the United Kingdom, is complemented by privately provided and financed medical services. All the other countries have national health schemes usually provided by a mixture

[3]There is also a measurement question in the case of the United States, as it might include transport expenses incurred for holiday purposes usually included in recreation expenses in other surveys.

of public and private suppliers and funded mostly by the public sector with some copayments by households for the services consumed by them.[4]

7.3.7 Education

Expenditures on education range from 2 percent in the United Kingdom to 6 percent in Chile (Table 7.2). The level of public funded education is important but the use of private coaching also has a significant bearing on the observed differences. For instance, tutorial fees have been known to absorb a considerable proportion of household expenditure on education in Japan (SBJ, 2000).

7.3.8 Recreation

This group contains a mixture of durable goods of a recreational nature such as audiovisual equipment and services such fees for shows and concerts. Books, newspapers, discs and holiday expenses are also part of this commodity group. Household expenditure on recreation varies considerably from 16 percent in the United Kingdom to 6 percent in Chile (Table 7.2). The low allocation to recreation in the United States may involve a measurement question, as holiday transport costs may be included in transport and it is not clear how other holiday expenses such as food are classified. An examination of the detailed items indicates that part of the high level of expenditure on this group in the United Kingdom is partly due to substantial outlays on holidays. For instance, while Japanese households spend about 2 percent of household expenditure on holidays (SBJ, 2006) those in the United Kingdom spend as much as 7 percent (ONS, 2008).

7.3.9 Miscellaneous

Miscellaneous expenditures range from 3 percent in United States to 17 percent in Japan (Table 7.2). One item accounts for most of the outlying value of Japan: pocket money (SBJ, 2006). As alluded to earlier, the exceptional nature of the allocation to pocket money for unspecified purposes may account for the low level of expenditure recorded on alcoholic drinks and tobacco products, among others. This residual group includes a variety of items such as expenditure on various fees, cash and other gifts, and interest on credit (excluding mortgages on real estate), as well as personal

[4] A concise review of the issues involved in health care financing is contained in Martins (2004) *Health Financing – An International Perspective* in "Health Care Financial Management" edited by Courtney, M and D Briggs, Sydney: Elsevier Mosby.

care that is a relatively small commodity group in household expenditure made up of consumer products such as toiletries. It also involves hairdressing and other personal services. It ranges from 1 percent in the United States (BOLS, 2009) to 3.6 percent in Chile (INE, undated).

7.4 Household Allocation and Some Organising Factors

This preliminary analysis of household allocation of their consumer expenditures to different groups of commodities provides evidence that support some of the propositions made in the Chapter 2 concerned with perspectives on consumer behaviour. It also points to factors that influence household consumption behaviour such as culture and climate. In addition, it indicates the influence of social choices reflected in public financing that reduces private household expenditure on some commodities.

7.4.1 Engel's Law and Maslow's Hierarchy of Human Needs

The most perceptible feature is the priority in the allocation to food that closely follows Engel's Law and the basic physiological needs in Maslow's hierarchical framework. This is also apparent in household allocation to heating and protective clothing and footwear in cold climates.

7.4.2 Culture

Another factor that has an impact on household allocation is culture that may favour or hinder social acceptance of the consumption of some products such as alcoholic beverages. The data also points to another cultural issue as that of male and female roles in the household that leads to males in Japan asserting their independence by the use of *pocket money* to veil the nature of their personal consumption expenditures.

7.4.3 Stylisation and Conspicuous Consumption

Clothing and transport could be considered essential commodities in most societies. However, they can also be used as stylish or social differential factors. The high allocation of household expenditures in some countries to these two commodities may reflect the use of these commodities beyond their essential utility because of their social visibility and a means of social differentiation.

7.4.4 Public Policy and Meritorious Goods and Services

Some societies attach merit to some commodities that may be deemed essential or have a social value. Accordingly, health, education and public transport services have been accepted in some societies as meriting public or private provision either fully or partly financed by public funds. Differences in public policy in regard to these services influence the level of private household expenditure on these services in different countries.

References

Australian Bureau of Statistics (ABS). (2006a). *2003–04 (Reissue) household expenditure survey – summary of results*. Catalogue No. 6530.0. Canberra.

Australian Bureau of Statistics (ABS). (2006b). *Household expenditure survey, Australia: Detailed expenditure items, 2003–04 (Reissue)*. Catalogue No. 6535.0.55.001. www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue. Retrieved 22 Jul 2009.

Blundell, R. (1988, March). Consumer behaviour: Theory and empirical evidence – A survey. *The Economic Journal, 98*, 16–65.

Bureau of Labor Statistics (BOLS). (2009). *Consumer expenditures in 2007*. Washington, DC: US Department of Labor.

Department of Statistics Malaysia (DOSM). (2006). *Report on household expenditure survey 2004/05*. Putrajaya.

Instituto Nacional de Estadisticas (INE). (undated). *Quinta Encuesta de Presuestos Familiares 1996/97*. Santiago.

Martins, J. M. (2004). Health financing – An international perspective. In M. Courtney & D. Brigs (Eds.), *Health care financial management* (pp. 23–61). Sydney: Elsevier and Mosby.

Office of National Statistics (ONS). (2008). *Family spending: A report on the 2007 and food survey*. New York: Palgrave Macmillan.

Quirk, J. P. (1986). *Intermediate microeconomics*. Chicago: Science Research Associates Inc.

Statistics Bureau of Japan (SBJ). (2000). *National survey of family income and expenditure 1999*. Tokyo: Ministry of Internal Affairs and Communications.

Statistics Bureau of Japan (SBJ). (2006). *Family income and expenditure survey – 2005 yearly average*. Tokyo: Ministry of Internal Affairs and Communications. www.stst.go.jp?english/data/sousetai. Retrieved 19 June 2008.

Statistics New Zealand (SNZ). (2004). *Household economic survey year ended 30 June 2004*. Wellington. www.stats.gov.nz. Retrieved 10 Jul 2009.

United Nations Development Programme (UNDP). (2007). *Human development report 2007/2008*. New York: Palgrave Macmillan.

World Bank (WB). (2008). *Global purchasing power parities and real expenditures – 2005 International Comparison Program*. Washington, DC: World Bank.

Chapter 8
Market Segmentation and Income Distribution

8.1 Income and Preferences

Household income is one of the main factors influencing consumer behaviour. Engel's Law states that as income rises a lower proportion of household financial resources is spent on food (Fig. 5.2) and more becomes available for use on other consumer items. Historical information for the United Kingdom (Maddison, 2003) shows that as income per capita increased over time there was a disproportional rise in expenditure on *progressive* commodity groups such as education, health services, recreation and entertainment. Over the same period, households raised their consumption of *basic* commodities, such as food, beverages and tobacco,[1] domestic fuel and power at less than proportional rate (Table 1.1). Accordingly, it would be expected that the degree of equality in income distribution would affect the size of markets for given commodity groups. It should also lead to disproportional consumption of different commodities by people with different incomes.

Box 8.1 Measures of Concentration: The Lorenz Curve and the Gini Coefficient

An often used representation of income concentration is the *Lorenz Curve* and the related *Gini Coefficient*. The Lorenz Curve is drawn following the cumulative proportion of income (or some other variable) starting with the lowest (y_i) and the related cumulative proportion of households or individuals (x_i). Equality in the distribution of income among households would result in a 45-degree line, as a given proportion of households would have the same

[1] As stated in Chapter 1, the classification of tobacco as a basic commodity is not the opinion of the authors. Maddison (2003) in his historical review of expenditures in the United Kingdom aggregated tobacco with basic commodities such as food and beverages. A possible reason for this is the criteria followed by economists that commodities with an income elasticity of less than 1.00 are considered to be basic or inferior while those with an income elasticity above 1.00 are designated as progressive or superior commodities.

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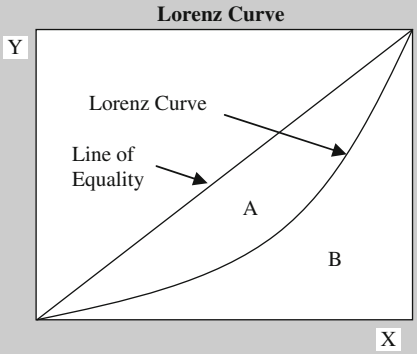
proportion of all income. The Lorenz Curve shows the actual distribution and the degree of inequality, as the actual distribution departs from the 45-degree line (figure below).



The Gini Coefficient is the quotient of the area between the Lorenz Curve and the 45-five degree line (A) and the area bounded by the 45-degree line and the Y and X axes (A+B). That is the Gini Coefficient = {A/(A + B)} (figure above). The Gini Coefficient is usually expressed as a percentage as it is bounded by zero and one. The higher the Gini Coefficient the higher the degree of inequality (Bannock, Baxter, & Davis, 1998).

The estimation of the Gini Coefficient can be carried out with the following equation:

$$G = 1 - \Sigma(y_{i+1} + yi)\,(x_{i+1} - x_i)$$

G = Gini Coefficient

$(y_{i+1} + yi)$ = Cumulative proportion of total Y (income, expenditure, assets or some other variable) up to the particular group plus that of previous groups

$(x_{i+1} - x_i)$ = Cumulative proportion of total population X up to the particular group minus that of previous groups

An example of the estimation of the Gini Coefficient is provided in Appendix 1.

8.2 Inequality in Income Distribution

Information from household surveys shows substantial income inequality within many countries. This implies a considerable variation in the purchasing power of households and in the disposable income after expenditure on basic commodities.

Table 8.1 Income distribution and Gini coefficients for selected countries

Cumulative percentage households	Japan 2005	New Zealand 2003–04	Australia 2003–04	United Kingdom 2007	United States 2007	Chile 1996/7
	Cumulative percentage of household gross income					
20	6.7	9.1	4.7	4.4	3.3	3.8
40	18.8	18.3	14.5	13.8	12.1	11.5
60	36.0	33.4	31.0	29.6	26.8	23.5
80	59.9	56.2	55.5	53.8	49.7	43.1
100	100.0	100.0	100.0	100.0	100.0	100.0
Gini Coefficient (percentage)						
	31.4	33.2	37.7	39.4	43.2	47.2
GDP per capita International (PPPs) $ 2005						
	30, 290	24, 554	32, 798	31, 580	41, 674	12, 262

Note: Information for Chile relates only to Gran Santiago. Percentages and Gini Coefficients were estimated by the authors.
Sources: SBJ (2006); SNZ (2004); ABS (2006); ONS (2008); BOLS (2009); INE (undated); and WB (2008).

These differences in income distribution result in market segmentation for different types of commodities. As discussed in previous chapters, this segmentation is often tied up to age and sex differences.

Among six selected countries[2] (Table 8.1), Japan and New Zealand have the lowest degree of household income inequality with Gini Coefficients[3] of 31 and 33 percent respectively. However, even in these two countries, the lowest 20 percent (quintile) of households, in terms of income, have only 7 and 9 percent of the aggregate household income, while the highest 20 percent have 40 and 44 percent of the total household income respectively. This represents a ratio of 5.9 and 4.8 between the highest and the lowest income quintiles in potential purchasing power. Chile with the lowest income (GDP) per capita of the six countries has the highest degree of income inequality with a Gini Coefficient of 47 percent (Table 8.1). In Chile, the highest income quintile has 57 percent of the aggregate household income, while the lowest quintile only 4 percent. The potential purchasing power ratio between the highest and the lowest quintile is 15.0. Thus, in Chile a combination of low income per capita and income inequality has led to a high proportion of resources being spent on food with fewer opportunities for the purchase of other commodities (Table 7.2). Income inequality in Australia and the United Kingdom with Gini Coefficients of 38 and 39 percent respectively is substantially higher than in New

[2]There is no similar household income information readily available for Malaysia, as the data from the household expenditure survey does not provide household incomes.

[3]See Box 8.1 for a definition of the Gini Coefficient.

Zealand and Japan. However, income inequality in these two countries is lower than in the United States that has a Gini Coefficient of 43 percent (Table 8.1).

Progressive direct taxation of income reduces the potential purchasing power of households, but it may also lead to lower inequalities. For instance, the Gini Coefficient of income after tax in Australia was substantially lower (34 percent) compared with its Gini Coefficient of income before tax (38 percent).[4]

8.3 Inequality in Household Consumer Spending

Empirical evidence indicates that as household income rises the proportion spent on consumer goods and services tends to fall. For instance, the United States' household expenditure survey for 2007 indicates that households with the lowest and second lowest fifths in terms of income (after tax), using some other resources such as savings or credit, spent more than one hundred percent of their income on consumer goods and services, while those in the third, fourth and top fifths spent only respectively 71, 70 and 52 percent (BOLS, 2009). Consequently, the inequality in household expenditure on consumer goods and services was considerably lower than that for income. Nevertheless, the pervasive influence of income inequality is reflected in the order of the Gini Coefficients for the six countries[5] in regard to

Table 8.2 Distribution of consumer expenditure and Gini coefficient for selected countries

Cumulative percentage households	Japan 2005	New Zealand 2003–04	Australia 2003–04	United Kingdom 2007	United States 2007	Chile 1996/7
	Cumulative percentage of household expenditure					
20	10.7	9.4	9.3	8.0	9.1	6.5
40	26.4	22.1	22.8	20.8	22.4	16.5
60	45.9	40.3	42.0	39.4	40.0	30.2
80	69.3	63.7	66.4	63.4	63.0	50.6
100	100.0	100.0	100.0	100.0	100.0	100.0
Gini coefficients (percentages)						
Household						
Expenditure	19.1	25.8	23.8	28.6	26.2	38.5
Income	31.4	33.2	37.7	39.4	43.2	47.2

Note: Information for Chile relates only to Gran Santiago. Percentages and Gini coefficients estimated by the authors.
Sources: SBJ (2006); SNZ (2004); ABS (2006); ONS (2008); BOLS (2009); and INE (undated).

[4]Estimate made by the authors from ABS (2006).

[5]Data from the household expenditure survey for Malaysia is not available in a format that could be used for the estimation of the Gini Coefficient.

household consumption. Chile with the highest level of income inequality also had the highest Gini Coefficient for total household expenditure on consumer goods and services while Japan and New Zealand with the lowest degree of income inequality also showed a low level of expenditure inequality (Table 8.2).

The ratio between the lowest and highest quintile in Chile for household consumer spending was now only 7.6 fold compared with 15.0 for household income. The prevailing inequality in household expenditures meant that in Chile 20 percent of households accounted for almost half of the market (49 percent) for consumer goods and services. Even in Japan and New Zealand, 20 percent of households represented about a third of the market (31 and 36 percent respectively).

Box 8.2 Commodity/Income Elasticity: Response in Household Consumer Expenditure to Rises in Income

The inequality of income and spending by different households raises the question of how they affect the demand for different commodities by households with varying levels of income. For instance, the income preference for *progressive* rather than *basic* commodities is documented in the historical evolution of the United Kingdom market (Table 1.1). Engel's Law is another manifestation of the response in household expenditures in relation to a basic commodity: food (Fig. 5.2). The concept of *income elasticity* has been used to assess how changes in income stimulate different responses in the demand for various commodities. An elasticity measure used is the quotient of a proportional change in the demand in a commodity from a given proportional increase in income (Bannock et al., 1998):

Income elasticity coefficient = (Proportional change in purchase of given commodity/Proportional change in income)

Commodities with coefficients of less than 1.00 are said to be *inelastic* because household expenditures on them is less than proportional to increments in income (or total expenditures), while those with coefficients greater than 1.00 are called *elastic*. A simple measure of the elasticity coefficient can be attained by estimating the *arc elasticity* (Allen, 1933). The formula for the arc elasticity coefficient is:

$$e = \{(y_1 - y_2)/[(y_1 + y_2)/2]\}/\{(x_1 - x_2)/[(x_1 + x_2)/2]\}$$

where

e = income elasticity coefficient
x_1 = income (or total expenditure) at initial point
x_2 = Income (or total expenditure) at final point
y_1 = expenditure on given item at initial point
y_2 = expenditure on particular item at final point

As income estimates from household surveys are often underestimated and/or unreliable, the sum of household expenditure on consumer commodities is often used instead of household income to measure elasticities for given commodities. In this context, *progressive* (*luxury, superior or affluence*) commodities are those which expenditures rise more than proportional when expenditure (or income) for all commodities grows. *Basic (inferior)* commodities are those which expenditures rise less than proportionately when expenditure for all commodities increases.

An example of the estimation of arc elasticity is provided in Appendix 2.

8.4 Basic and Progressive Commodities

As anticipated, the arc-elasticity coefficients (see Box 8.2 for an explanation of the concept) for seven countries using total household expenditure as the independent variable shows some similarities and some differences in consumer choices as the level of total expenditure rises (Table 8.3). Some of the commodity groups could be clearly classified as *basic* as their expenditures fall in proportional terms as total expenditure rises. Others could be said to be *progressive* (*superior, luxury or affluence*) commodities as their expenditure grows more than proportionately as total household spending on consumer goods and services increases.

8.4.1 Basic Commodities

The elasticity coefficients for *food, domestic fuel and power, tobacco, household services and operations* are below 1.00 that indicates that these commodities are *basic* in nature, as their expenditures grow less than proportionately. The exception is household services and operation in Chile (and possibly Malaysia) where expenditure on domestic services rises considerably in households of the higher income groups. *Housing* could also be placed in this category were it not for Chile (Table 8.3).

8.4.2 Progressive Commodities

Clothing and footwear, transport, education, recreation and miscellaneous could be classified as *progressive (luxury or affluence)* commodities as their arc elasticities are mostly above 1.00. However, there are some exceptions, such as clothing and footwear in Malaysia and education in the United States and New Zealand. *Household furnishings* and *equipment* could also be considered as progressive commodities except in Australia and the United Kingdom where spending on them is almost proportional to increases in household expenditure on all commodities (Table 8.3). The large arc elasticity for *miscellaneous* in Japan arises from the substantial rise in *pocket money* referred to previously (Table 7.2). Household consumption of *alcoholic beverages* in most of the seven selected countries shows

Table 8.3 Household consumer expenditure arc elasticities for selected countries

Commodity group	United States 2007	Australia 2003–4	United Kingdom 2007	Japan 2005	New Zealand 2003–4	Chile 1996–7	Malaysia 2004–5
	Arc elasticity coefficient						
Food	0.91	0.91	0.81	0.84	0.92	0.69[c]	0.82
Tobacco	0.03	0.45	0.18	0.05	0.80	0.65	0.82[d]
Alcoholic beverages	**1.12**	**1.18**	**1.08**	0.90	**1.20**	–[c]	–[d]
Housing	0.96	0.85	0.96	0.21	1.00[b]	**1.09**	0.98[e]
Domestic fuel and power	0.67	0.56	0.49	0.65	0.42	0.69	–[e]
Household ser. and operation	1.01	0.82	0.76	0.91	0.80	**1.05**	–[e]
Household furn. and equip.	**1.20**	0.96	0.97	**1.16**	**1.08**	**1.04**	**1.05**
Clothing and footwear	**1.11**	**1.20**	**1.08**	**1.28**	**1.26**	**1.03**	0.95
Transport	**1.09**	**1.06**	**1.21**	**1.26**	**1.11**	**1.13**	**1.09**
Medical and health services	0.80	0.99	**1.14**	0.82	0.79	**1.10**	**1.04**
Education	1.01	**1.37**	**1.24**	**1.95**	0.68	**1.23**	**1.10**
Recreation and culture	**1.20**	**1.18**	**1.13**	**1.08**	**1.15**	**1.09**	**1.10**[f]
Miscellaneous	**1.10**	**1.15**	**1.03**	**1.26**[a]	**1.04**	**1.15**	**1.08**
GDP p.c. International $ 000s (PPPs) 2005	41.6	32.8	31.6	30.3	24.6	12.3	11.5

[a]Miscellaneous in the Japanese data include pocket money for non-specified purposes
[b]Housing in the New Zealand data includes payments of a capital nature
[c]Food in the case of Chile includes alcoholic beverages
[d]Tobacco and alcoholic drinks are aggregated in the case of Malaysia
[e]Housing includes domestic fuel and power, household services and operation and imputed rent on owner occupied dwellings in Malaysia
[f]Recreation includes accommodation in hotels. The data for Chile includes only Gran Santiago
Note: Countries tend to group commodities in a variety of ways. It was possible in most cases to regroup items into similar groups. However, this was not possible in some cases.
Sources: BOLS (2009); ABS (2006); ONS (2008); SBJ (2006); SNZ (2004); INE (undated); DOSM (2006); WB (2008). Arc elasticities were estimated by the authors (see Box 8.2).

a substantial arc elasticity. The measurement in relation to Japan is affected by the possible use of pocket money for this purpose.

8.4.3 Mixed Commodities

The consumption of *medical services* in most countries involves some services that are provided free of charge and others that household need to pay for. Accordingly, household expenditures on medical services are affected by varying government

policies and employment benefits in each country; and income elasticities for medical services may be below or above 1.00 in different countries (Table 8.3). For instance, in the United States, health insurance, often provided by employers, is more likely to be given to the better off than those in low-paid jobs.

Box 8.3 Income Preference Ratios

Although arc elasticities provide a useful guide to the preferences of households for different commodities as their income (total expenditures on consumer commodities) rises, another helpful way of examining household behaviour is the analysis of preferences exercised by households using the average for all income as the reference group. This method can be used to identify types of household behaviour towards different commodities, at different levels of income (or total expenditure), as it has been done with the measurement of arc elasticity. However, this method provides greater perception of the progression in household behaviour. Using the elasticity concept, a ratio of change (Income Preference Ratio or IPR) can be devised

$$r_{i1}^{n} = \left(g_{in}/g_{i1}\right) \Big/ \left(G_{in}/G_{i1}\right)$$

where

r_{i1}^{n} = ratio of relative change for household average expenditure on commodity g_i from the average to point n
g_{i1} = average household expenditure on commodity g_i for all incomes
g_{in} = average household expenditure on commodity g_i at given point n
G_{i1} = sum of the average household expenditure on all commodities for all incomes
G_{in} = sum of the average household expenditure on all commodities at point n

Usually three types of commodities can be identified:

A (Affluence/Progressive) – commodities on which expenditures rise more than proportionately as total household expenditures increase.
B (Basic)– commodities on which expenditures rise less than proportionately as total expenditures grow.
C (Convenience) – commodities on which expenditures increase about proportionately as total expenditures rise or have a mixed pattern.

An example of the estimation of Income Preference Ratios is provided in Appendix 3.

8.5 Income Preferences

Further analysis can be made of household preferences as their income changes using Income Preference Ratios (IPR), which methodology is described in Box 8.3. Estimation of IPRs has been carried out for the seven selected countries. The following shows the detailed results for four countries with different income levels, cultural traits and climate: United States, United Kingdom, Malaysia and Chile. Income preference patterns for the seven countries following the IPRs analysis are provided in the following Section 8.6.

8.5.1 United States

The application of the Income Preference Ratios (IPR) to information from the United States household expenditure survey for 2007 shows that preferences for *food, tobacco, housing and domestic fuel and power* fall as household incomes rise. The aggregate IPR for these *basic* (B) commodities declines from 1.13 for the first household income quintile to 0.95 for the highest quintile (Table 8.4).

Table 8.4 Income preference ratios for commodity groups – United States 2007

Commodity group income preference type	Income preference ratios by household income level from average for all incomes				
	Q_1	Q_2	Q_3	Q_4	Q_5
Alcoholic beverages Household furn. and equip. Clothing and footwear Recreation and culture Miscellaneous *A (Affluence/Progressive)*	0.82	0.86	0.94	0.97	**1.14**
Food and non-alcoholic beverages Tobacco Housing Domestic fuel and power *B (Basic)*	**1.13**	1.05	1.01	0.99	0.95
Household serv. and operation Transport Medical and health services Education *C (Convenience)*	0.94	**1.01**	**1.01**	**1.03**	0.98

Note: The classification of Income Preference Type for each of the commodity groups was undertaken in accordance with the Income Preference Ratios for each commodity group. The table shows the Income Preference Ratios for the aggregated expenditures for each Income Preference Type.
(Q_1–Q_5): Household income quintiles.
Source: BOLS (2009). The Income Preference Ratios were calculated by the authors.

Household preferences for *alcoholic beverages, household furnishings and appliances, clothing and footwear, recreation and miscellaneous* good and services grow as their income increases. The IPR for these A (*affluence*) items climbs from 0.82 for the first household income quintile to 1.14 for the fifth (Table 8.4).

Household spending on *household services and operation, transport, medical and health services and education* follows a *mixed* (C) pattern of expenditure. The IPR ranges from 0.94 to 1.03 (Table 8.4).

8.5.2 United Kingdom

The household survey conducted in the United Kingdom in 2007 presents a relatively low progression for progressive commodities. Spending on *food, tobacco, housing, domestic fuel and power, household services and operation* rise less than proportionally as total household expenditure grows. The IPR for housing shows a spike for the third quintile. The IPR for these *basic* (B) commodities falls from 1.09 from the first income quintile to 0.90 for the highest quintile (Table 8.5).

Expenditures on *alcoholic beverages*, *clothing and footwear, transport, medical and health services, education, recreation and miscellaneous* goods and services climb more than proportionately as household spending on all commodities increases. The aggregated IPR for these *affluence* (A) commodities climbs from 0.78 for the first household income quintile to 1.10 for the highest quintile. Household expenditure on *furnishings and appliances* has a *mixed* spending pattern. The aggregated IPRs for these C commodities range from 0.93 to 1.09 (Table 8.5).

8.5.3 Malaysia

Malaysia's 2004/5 household expenditure survey reveals a substantial degree of progression as household expenditures rise. Expenditures on *food*, *housing, fuel and power, alcoholic beverages and tobacco* (the latter two are aggregated) grow less than proportionately as expenditures on all commodities increase. The IPR for these *basic* (B) commodities declines from 1.42 for the lowest income group to 0.74 for the highest income group (Table 8.6).

Household income preference for *furniture and appliances, transport, medical and health services, education, recreation and miscellaneous* goods and services rises considerably as total household expenditure grows. The aggregated IPR for these *affluence* (A) commodities increases about five fold from 0.33 for the lowest income group to 1.55 for the highest. Expenditure on *clothing and footwear* varied with a bias towards middle and lower income groups. The IPR for these C commodities range from 0.71 to 1.24 (Table 8.6).

Table 8.5 Income preference ratios for commodity groups – United Kingdom 2007

Commodity group income preference type	Income preference ratios by household income level from average for all incomes				
	Q_1	Q_2	Q_3	Q_4	Q_5
Alcoholic beverages Clothing and footwear Transport Medical and health services Education Recreation and culture Miscellaneous *A (Affluence/Progressive)*	0.78	0.90	0.95	1.00	**1.10**
Food and non-alcoholic beverages Tobacco Housing Domestic fuel and power Household serv. and operation *B (Basic)*	**1.09**	1.09	1.05	1.00	0.90
Household furn. and equipment *C (Convenience)*	1.03	0.93	0.99	**1.09**	0.96

Note: The classification of Income Preference Type for each of the commodity groups was undertaken in accordance with the Income Preference Ratios for each commodity group. The table shows the Income Preference Ratios for the aggregated expenditures for each Income Preference Type.
(Q_1–Q_5): Household income quintiles.
Source: ONS (2008). The Income Preference Ratios were calculated by the authors.

8.5.4 Chile

Information from the household survey carried out in Chile during 1996/7 shows strong household preferences for different commodities as income rises. Household behaviour in terms of IPRs follows a similar pattern to that of arc elasticities (Table 8.3). It indicates a greater degree of progression than in the selected developed countries. Household expenditures on *food, domestic fuel and power, and tobacco* behave in the fashion expected of *basic* (B) commodities. The aggregated IPR for these basic consumer goods and services falls considerably from 1.64 for the first household income quintile to 0.69 for the highest quintile (Table 8.7).

Table 8.6 Income preference ratios for commodity groups – Malaysia 2004/5

Commodity group income preference type	Income preference ratios by household expenditure levels from average for all incomes										
	1	2	3	4	5	6	7	8	9	10	11
H'hold furn. and equipment Transport Medical and health serv. Education Recreation and culture Miscellaneous *A (Affluence/ Progressive)*	0.33	0.44	0.51	0.53	0.60	0.67	0.80	0.96	1.09	1.17	**1.50**
Food Alcoholic bev. and tobacco Housing, water, com. and dom. fuel and power *B (Basic)*	**1.42**	1.34	1.30	1.28	1.24	1.20	1.12	1.03	0.95	0.90	0.74
Clothing and footwear *C (Convenience)*	1.05	1.14	1.17	1.19	**1.24**	**1.22**	1.14	1.03	0.88	0.93	0.71

Note: The classification of Income Preference Type for each of the commodity groups was undertaken in accordance with the Income Preference Ratios for each commodity group. The table shows the Income Preference Ratios for the aggregated expenditures for each Income Preference Type.
(1–11): Ascending household expenditure levels.
Source: DOSM (2006). The Income Preference Ratios were calculated by the authors.

As their income rises, Chilean households exhibit a strong preference for *housing, household services and operation, medical services, transport, medical services, education, recreation, and miscellaneous*. The aggregated IPR for these a*ffluence* (A) goods and services increases from 0.68 for the first household income quintile to 1.19 for the highest quintile (Table 8.7). The intensity of preference for *affluence* commodities mirrors the converse downgrading of the importance of *basic* commodities as total household expenditure grows. A *mixed* pattern of spending by different income quintiles characterises household expenditures on *clothing and footwear, and household furniture and appliances*. The aggregated IPR for C commodities ranges from 0.82 to 1.16 (Table 8.7).

Table 8.7 Income preference ratios for commodity groups – Chile 1996/7

Commodity group	Income preference ratios by household income level from average for all incomes				
	Q_1	Q_2	Q_3	Q_4	Q_5
Housing Household services and operation Transport Medical services Education Recreation Miscellaneous *A (Affluence/Progressive)*	0.68	0.73	0.79	0.90	**1.19**
Food and alcoholic beverages Tobacco Domestic fuel and power *B (Basic)*	**1.64**	1.47	1.32	1.10	0.69
Household furnishings and equipment Clothing and footwear *C (Convenience)*	0.82	1.01	**1.09**	**1.16**	0.93

Note: The classification of Income Preference Type for each of the commodity groups was undertaken in accordance with the Income Preference Ratios for each commodity group. The table shows the Income Preference Ratios for the aggregated expenditures for each Income Preference Type.
(Q_1–Q_5): Household income quintiles. Information relates only to Gran Santiago.
Source: INE (undated). The Income Preference Ratios were calculated by the authors.

8.6 Household Income Preference Patterns

8.6.1 Similarities and Differences

It is apparent from the analysis of household consumer behaviour in the seven countries that different preferences for varying commodities result in market segmentation. It is understandable that consumers in different communities may have different income preferences due to cultural, climate and other features. The considerable similarities revealed across countries suggest insights into household behaviour that are explored in more detail in this and subsequent sections.

8.6.2 Basic Commodities

Household expenditures on *food, housing, domestic fuel and power, household services and operation and tobacco* tend to increase less than proportionately as total household spending rises. In other words they follow a *basic* (B) commodity pattern.

The exceptions are spending on housing in Chile (and New Zealand that includes expenditure of a capital nature on housing), household services and operation also in Chile where expenditures behave like spending on affluence commodities. Expenditure on domestic help by the more affluent households contributes to this pattern in Chile. The pattern on this item is also mixed in the United States (Table 8.8).

Table 8.8 Household consumer expenditure income preference types for selected countries

	United States 2007	Australia 2003–4	United Kingdom 2007	Japan 2005	New Zealand 2003–4	Chile 1996–7	Malaysia 2004–5
Commodity group	Income preference types						
Food	B	B	B	B	B	B[c]	B
Tobacco	B	B	B	B	C	B	B[d]
Alcoholic beverages	A	A	A	C	A	–[c]	–[d]
Housing	B	B	B	B	C[b]	A	B[e]
Domestic fuel and power	B	B	B	B	B	B	–[e]
Household serv. and operation	C	B	B	B	B	A	–[e]
Household furn. and equipment	A	B	C	A	A	C	A
Clothing and footwear	A	A	A	A	A	C	C
Transport	C	A	A	C	C	A	A
Medical and health services	C	C	A	B	B	A	A
Education	C	A	A	A	B	A	A
Recreation and culture	A	A	A	A	A	A	A[f]
Miscellaneous	A	A	A	A[a]	A	A	A
GDP p.c. International $ 000s (PPPs) 2005	41.6	32.8	31.6	30.3	24.6	12.3	11.5

[a]Miscellaneous in the Japanese data includes pocket money for non-specified purposes
[b]Housing in the New Zealand data includes payments of a capital nature
[c]Food in the case of Chile includes alcoholic beverages
[d]Tobacco and alcoholic drinks are aggregated in the case of Malaysia
[e]Housing includes domestic fuel and power, household services and operation and imputed rent on owner occupied dwellings in Malaysia
[f]Recreation includes accommodation in hotels. The data for Chile includes only Gran Santiago.
Source: The sources of the classification of commodity groups are the Income Preference Ratios computed for each commodity group that were the basis for the classification of commodity groups by Income Preference Type in Tables 8.4, 8.5, 8.6, and 8.7 and for the other three countries. GDP p.c. WB (2008).

8.6.3 Affluence Commodities

Preference for *alcoholic beverages*, *clothing and footwear, education, recreation and miscellaneous* goods and services is inclined to rise more than proportionately as household expenditures grow (Table 8.8). There are some deviations. In Chile and Malaysia there are mixed patterns of spending on clothing and footwear. In Japan, there is a mixed pattern of expenditure on alcoholic beverages. The latter is likely to be the result of the understatement of spending on this item due to the use of *pocket money* included in miscellaneous in Japan. Preference for education in the United States has a mixed pattern and in New Zealand it declines as household incomes go up. Preference for *household furnishings and appliances* also tends to grow as household income gets higher but not in Australia, United Kingdom and Chile. Household preference for *transport* is also on the rise as incomes grow but it follows a mixed pattern in the United States, Japan and New Zealand due to a heightened preference by middle income households.

8.6.4 Medical and Health Services

Household spending on medical and health services has a varied pattern among the seven countries. As stated earlier, household spending is much affected by government policies and the availability of free services subsidised by the public purse. Subsidies may take a variety of forms with different degrees of attraction for specific services. This results in households in such countries as Japan and New Zealand, high income countries, showing a preference for medical and health services as a *basic* commodity, or as an *affluence* commodity in Chile and Malaysia, with the lowest income per capita among the seven countries. The same applies to the United Kingdom. Preference for expenditure on medical and health services is mixed in the United States and Australia with a bias towards middle and lower income households.

8.7 Income Preferences and Household Size

Analytical work clearly indicates that the number of people in a household has a significant impact on household expenditures. In addition, it has been documented that the hump in household income and expenditures is associated with another hump that is associated with the family/household life cycle. Therefore, it could be asked whether the preferences shown by different income groups are due to the varying number of people in the households of different income groups.

A review of this issue in six of the seven countries, for which there is readily available information, is useful to see whether income preferences for different commodities changes as a result of the usually increasing number of people in households with higher incomes and expenditures. To this end, the application of

the US Department of Commerce equivalent units (Box 6.3)[6] can be used to take into account household composition for each income group in the expenditures for each and all commodity groups.

This analysis indicates that, for these six countries, there are changes in the Income Preference Ratios for each commodity group. However, these changes have no major impact on the classification of A, B and C type commodities. This indicates that household size has an impact on the size of total household expenditures, but has no apparent major effect on the direction of household expenditures, nor on the income preference for the main commodity groups, as income rises. Similarly, an earlier study by Houthakker (1957) of a number of countries indicated that taking into consideration household size changed the degree of income elasticities but that they remained in the same direction, with food and housing (including domestic fuel and power) having, generally, the characteristics of basic goods, while clothing and other miscellaneous commodities have the attributes of affluence commodities.

8.8 Average Income, Inequality and Consumer Progression

The analysis indicates that households in Chile and Malaysia with lower incomes per capita and large income inequalities (as measured by the Gini Coefficient) tend to have a higher degree of progression in their preference for affluence commodities. Accordingly, households in Chile and Malaysia have large IPR progression from their lower to their highest income groups for *affluence* (A) commodities. A complementary pattern takes place for *basic* (B) commodities (Table 8.9). Part of the

Table 8.9 Inequality of income and preference ratios for selected countries

Country	GDP p.c. International $ 000s PPPs 2005	Gini coefficient percentage	IPRs	
			Type A	Type B
United States	41.6	43.2	1.14	1.13
Australia	32.8	37.7	1.08	1.16
United Kingdom	31.6	39.6	1.10	1.09
Japan	30.3	31.4	1.16	1.22
New Zealand	24.6	33.2	1.11	1.24
Chile	12.3	**47.2**	**1.19**	**1.64**
Malaysia	12.3	**49.2**[a]	**1.50**	**1.42**

[a]The Gini Coefficient for Malaysia was sourced from UNDP (2007). (GDP p.c.) gross domestic product per capita. (PPPs) purchasing power parities. (IPRs) income preference ratios based on average for all households. (A) affluence. (B) basic
Sources: WB (2008); UNDP (2007); BOLS (2009); ABS (2006); ONS (2008); SBJ (2006); SNZ (2004); INE (undated); DOSM (2006): Tables 8.1, 8.4, 8.5, 8.6, and 8.7 and analysis for the other three countries.

[6]Although the OECD equivalent units scale is widely used, empirical evidence points that it tends to understate household economies of scale (Miniaci, Monfardini, & Weber, 2003; Banks, Blundell, & Stanner, 1998).

high level of progression in Malaysia could be due to the larger number of income groups (from the available data) used in the analysis. This tends to accentuate the differences between the lowest and highest income groups.

8.9 Generic Propositions

A number of useful generic propositions can be made regarding market segmentation due to inequalities in income distribution, with some caveats.

1. Inequality of income distribution results in market segments made up of households with substantial variances in purchasing power and holding considerably different shares of the market for specific commodities.
2. Inequality of income leads to varying household behaviour towards different types of commodities as household income and total consumer expenditure rise.
3. It is possible to identify *basic* commodities such as food and shelter related goods and services on which expenditure rises less than proportionately as consumers' income (expenditures) grows.
4. *Affluence* or *progressive* commodities can be identified, such as the purchase of motor vehicles and recreation, on which expenditures climb more than proportionately as consumers' income (expenditures) increases.
5. Higher income inequality tends to be associated with low income per capita and results in smaller markets for *affluence/progressive* commodities, as consumers allocate a larger proportion of their income to *basic* commodities.
6. The combination of low income per capita and large inequality of income leads to a high degree of progression for *affluence/progressive* commodities and contraction for *basic* ones, as household income rises.

In general terms, as proposed by Maslow (1943 and 1971) and others,[7] it is apparent that a hierarchy of preferences is exercised as household income rises. After basic wants are fulfilled, as affluence rises, the preference for certain products captures household consumer behaviour. This pattern, no doubt, reflects the lack of the capacity of lower income people to gain access to these products. However, this preference could also be seen as a means of social differentiation partly because of the symbolic nature of these products as expressions of social status and or wealth (conspicuous consumption) (Veblen, 1919; Belk, 1988; Featherstone, 1987).[8] This may take the form of the hiring of domestic servants in some societies and or the buying of expensive cars in others. In addition, the craving for these affluence products is greater among those with lower incomes. From a demographic perspective, this is a factor in explaining the relative size of markets for certain products in countries with different income per head of population. It also points to the potential for

[7] See Chapter 2, Section 2.3.

[8] See Chapter 2, Sections 2.3 and 2.4.

the future growth of markets for affluence products, as income per capita rises, in the more populous and less developed countries in the world.

Appendix 1: Gini Coefficient Estimation – Example

The following example uses data from a household income and expenditure survey conducted by the Australian Bureau of Statistics (ABS, 2000).

Following the equation and notation in Box 8.1

$$\boldsymbol{G = Gini\ Coefficient} = 1 - \Sigma(y_{i+1} + y_i)\,(x_{i+1} - x_i)$$

Household income quintile	Proportion	
	Number of households	Household income
	x_i	y_i
Q_1	0.2	0.0366
Q_2	0.2	0.0933
Q_3	0.2	0.1621
Q_4	0.2	0.2537
Q_5	0.2	0.4543

	Cumulative		(a)	(b)	$(a)^*(b)$
Quintile	$x_i^\wedge$	$y_i^\wedge$	$x_{i+1}^\wedge - x_i^\wedge$	$y_{i+1}^\wedge + y_i^\wedge$	
Q_1	0.2	0.0366	0.2	0.0366	0.0073
Q_2	0.4	0.1299	0.2	0.1665	0.0333
Q_3	0.6	0.2921	0.2	0.4220	0.0844
Q_4	0.8	0.5458	0.2	0.8379	0.1676
Q_5	1.0	1.0000	0.2	1.5458	0.3092
				$\sum a^* b =$	0.6017

$$\boldsymbol{G} = 1 - 0.6017 = \quad \mathbf{0.3983\ or\ 39.8\%}$$

An alternative method for estimating the Gini Coefficient is using *Simpson's Rule*

Cumulative			
Quintile	$x_i^{\wedge}$	$y_i^{\wedge}$	$\left(y_{i+1}^{\wedge} + y_i^{\wedge}\right)/2$
Q_1	0.2	0.0366	0.0183
Q_2	0.4	0.1299	0.0833
Q_3	0.6	0.2921	0.2110
Q_4	0.8	0.5458	0.4189
Q_5	1.0	1.0000	0.7729

$$\sum\left[\left(y_{i+1}^{\wedge} + y_i^{\wedge}\right)/2\right] = 1.5044$$

$$\sum\left\{\left[\left(y_{i+1}^{\wedge} + y_i^{\wedge}\right)/2\right]/5\right\} = 0.30088$$

$$\boldsymbol{G} = 1 - \left(2 * 0.30088\right) = 1 - 0.6017 = \mathbf{0.3983\ or\ 39.8\%}$$

Appendix 2: Arc Elasticity Estimation – Example

The following example uses data from India's household expenditure survey for 2004–05 (NSSO, 2007) using total expenditures as surrogate for income.

Following the equation and notation in Box 8.2

$$\boldsymbol{e = arc\ elasticity = [(y_1 - y_2)/(y_1 + y_2)]/[(x_1 - x_2)/(x_1 + x_2)]}$$

Average 30-days household expenditure per capita (Rupees)		
Expenditure Item	Lowest 20 percent	Highest 20 percent
Food	235.91	763.40
Transport	7.90	207.28
All items	421.97	2,391.28

The arc elasticity for food between the lowest and the highest 20 percent of households is estimated as follows

$$\begin{aligned}\boldsymbol{e_f} &= \{(235.91 - 763.40)/(235.91 + 763.40)\}/ \\ &\quad \{(421.97 - 2,391.28)/(421.97 + 2,391.28)\} \\ \boldsymbol{e_f} &= (-527.49/999.31)/(-1,969.31/2,813.25) \\ &= -0.52785/-0.70001 = \mathbf{0.754}\end{aligned}$$

Note: The arc elasticity equation is slightly different from that in Box 8.2. The division by 2 of the numerator and denominator is not required.

The arc elasticity for transport between the lowest and the highest 20 percent of households is

$$\begin{aligned} e_t &= \{(7.90 - 207.28)/(7.90 + 207.28)\}/ \\ &\quad \{(421.97 - 2,391.28)/(421.97 + 2,391.28)\} \\ e_t &= (-199.38/215.18)/(-1,969.31/2,813.25) \\ &= -0.92657/-0.70001 = \mathbf{1.324} \end{aligned}$$

Thus, food with an arc elasticity of less than 1.00 is considered to be inelastic or a *basic* commodity, as household expenditures on food tend to rise less than proportional as total expenditures increase from the lowest to the highest 20 percent of households. Transport with an arc elasticity of more than 1.00 is designated as elastic or a *progressive (affluence)* commodity as household expenditures on transport grow more than proportionately as household total expenditures increase from the lowest to the highest 20 percent of households.

Appendix 3: Income Preference Ratio Estimation – Example

The following example uses data from the 1999 household expenditure survey of Japan (SBJ, 2000).

	Household monthly average expenditure (Yen)			
Households from lowest to highest 20 percent	Current housing	Clothing and footwear	Personal care	All items
Q_1	20,694	8,990	5,883	215,150
Q_2	22,882	12,365	7,101	272,198
Q_3	22,329	13,738	7,552	292,838
Q_4	19,570	19,547	9,755	369,895
Q_5	22,278	28,856	13,286	492,255
All households	21,408	17,024	8,809	335,115

Following the equation and notation in Box 8.3

$$r^n_{i1} = \textit{Income Preference Ratio} = (g_{in}/g_{i1})(G_{in}/G_{i1})$$

The IPRs for the *current housing* are

$$\begin{aligned} \text{IPR}_{Q1} &= (20{,}694/21{,}408)/(215{,}150/335{,}115) = 0.9666/0.6420 = \mathbf{1.506} \\ \text{IPR}_{Q2} &= (22{,}882/21{,}408)/(272{,}198/335{,}115) = 1.0689/0.8123 = 1.316 \\ \text{IPR}_{Q3} &= (22{,}329/21{,}408)/(292{,}838/335{,}115) = 1.0430/0.8738 = 1.194 \\ \text{IPR}_{Q4} &= (19{,}570/21{,}408)/(369{,}895/335{,}115) = 0.9141/1.1038 = 0.828 \\ \text{IPR}_{Q5} &= (22{,}278/21{,}408)/(492{,}255/335{,}115) = 1.0406/1.4689 = 0.708 \end{aligned}$$

The IPRs indicate that household expenditures on *current housing* fell more than proportionately as household income increased from the lowest to the highest 20 percent. This indicates that housing is a (B) *basic* commodity.

The IPRs for *clothing and footwear* are

$$\text{IPR}_{Q1} = (8{,}990/\ 17{,}024)/(215{,}150/335{,}115) = 0.5281/0.6420 = 0.823$$
$$\text{IPR}_{Q2} = (12{,}365/\ 17{,}024)/(272{,}198/335{,}115) = 0.7263/0.8123 = 0.894$$
$$\text{IPR}_{Q3} = (13{,}738/\ 17{,}024)/(292{,}838/335{,}115) = 0.8070/0.8738 = 0.924$$
$$\text{IPR}_{Q4} = (19{,}547/\ 17{,}024)/(369{,}895/335{,}115) = 1.1482/1.1038 = 1.040$$
$$\text{IPR}_{Q5} = (28{,}856/\ 17{,}024)/(492{,}255/335{,}115) = 1.6950/1.4689 = \mathbf{1.154}$$

The IPRs show that household expenditures on *clothing and footwear* rose more than proportionately as household income increased from the lowest to the highest 20 percent. This would make clothing and footwear an (A) *affluence/progressive* commodity.

The IPRs for *personal care* are

$$\text{IPR}_{Q1} = (5{,}883/8{,}809)/(215{,}150/335{,}115) = 0.6678/0.6420 = \mathbf{1.040}$$
$$\text{IPR}_{Q2} = (7{,}101/8{,}809)/(272{,}198/335{,}115) = 0.8061/0.8123 = 0.992$$
$$\text{IPR}_{Q3} = (7{,}552/8{,}809)/(292{,}838/335{,}115) = 0.8573/0.8738 = 0.981$$
$$\text{IPR}_{Q4} = (9{,}755/8{,}809)/(369{,}895/335{,}115) = 1.1074/1.1038 = 1.003$$
$$\text{IPR}_{Q5} = (13{,}286/8{,}809)/(492{,}255/335{,}115) = 1.5082/1.4689 = \mathbf{1.027}$$

The IPRs for *personal care* indicate that expenditures on this item vary little as income rises from the lowest to the highest 20 percent. It has no consistent pattern. This would indicate that this commodity has no progression characteristics either upwards or downwards as household income rises and could be considered a (C) commodity.

References

Allen, R. G. D. (1933). The concept of arc elasticity of demand. *Review of Economic Statistics, 1*(3), 226–269.

Australian Bureau of Statistics (ABS). (2000). *1998–99 household expenditure survey – summary of results*. Catalogue No. 6530.0. Canberra.

Australian Bureau of Statistics (ABS). (2006). *2003–04 (Reissue) household expenditure survey – summary of results*. Catalogue No. 6530.0. Canberra.

Banks, J., Blundell, R., & Stanner, S. (1998, September). Is there a retirement-saving puzzle? *The American Economic Review*, *88*(4), 769–788.

Bannock, G., Baxter, R. E., & Davis, E. (1998). *The dictionary of economics*. London: Penguin Books.

Belk, R. (1988, September). Possessions and the extended self. *Journal of Consumer Research, 15*, 139–168.

Bureau of Labor Statistics (BOLS). (2009). *Consumer expenditures in 2007*. Washington, DC: US Department of Labor.

Department of Statistics Malaysia (DOSM). (2006). *Report on household expenditure survey 2004/05*. Putrajaya.
Featherstone, M. (1987). Lifestyle and consumer culture. *Theory, Culture & Society, 4*, 55–70.
Houthakker, H. S. (1957, October). An international comparison of household expenditure patterns, commemorating the centenary of Engel's Law. *Econometrica, 25*(4), 532–551.
Instituto Nacional de Estadisticas (INE). (undated). *Quinta Encuesta de Presuestos Familiares 1996/97*. Santiago.
Maddison, A. (2003). *The world economy – Historical tables*. Paris: OECD.
Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*, 370–396. http://psychoclassics.yorku.ca/Maslow/motivation.hmt. Retrieved 15 Feb 2007.
Maslow, A. H. (1971). *The further reaches of human nature*. New York: Viking Press.
Miniaci, R., Monfardini, C., & Weber, G. (2003). *Is there a retirement consumption puzzle in Italy?* Mimeo.
National Sample Survey Organisation (NSSO). (2007). *Household consumption of various goods and services in India, 2004–05. Vol. I: Major States and All India*. New Delhi: Ministry of Statistics and Programme Implementation.
Office of National Statistics (ONS). (2008). *Family spending: A report on the 2007 and food survey*. New York: Palgrave Macmillan.
Statistics Bureau of Japan (SBJ). (2000). *National survey of family income and expenditure 1999*. Tokyo: Ministry of Internal Affairs and Communications.
Statistics Bureau of Japan (SBJ). (2006). *Family income and expenditure survey – 2005 yearly average*. Tokyo: Ministry of Internal Affairs and Communications. www.stst.go.jp?english/data/sousetai. Retrieved 19 June 2008.
Statistics New Zealand (SNZ). (2004). *Household economic survey Year ended 30 June 2004*. Wellington. www.stats.gov.nz. Retrieved 10 July 2009.
United Nations Development Programme (UNDP). (2007). *Human development report 2007/2008*. New York: Palgrave Macmillan.
Veblen, T. (1919). *The theory of the leisure class: An economic study of institutions*. New York: B. W. Huebsch.
World Bank (WB). (2008). *Global purchasing power parities and real expenditures – 2005 International Comparison Program*. Washington, DC: World Bank.

Chapter 9
Age, Preferences and Market Segmentation

9.1 Age Humps

9.1.1 Reinforcing Demographic and Socioeconomic Factors

A number of demographic and socioeconomic changes take place over the life cycle. As discussed in previous chapters, there are several life cycle changes that follow a hump-shaped pattern. One of these is the fertility-hump pattern already shown (Fig. 3.1). Associated with it is household size (Fig. 9.1). Employment during the life cycle also follows a similar pattern that is broken by women's periodic absence from the labour force due to child rearing and differences in age of retirement (Fig. 9.2). Tracking employment, household income follows a similar path (Fig. 1.4 and Table 6.1). Yet another is household expenditure on consumer goods and services already mentioned (Fig. 6.4).

The peaks for fertility and family size tend to come earlier in the life cycle, while the levels of household income and expenditure apex somewhat later around 40 to 50 years of age of the household head. Consequently, the age-consumption hump mirrors the influences of the other factors on the household consumption patterns. This is of importance by itself in market segmentation. However, there are additional insights that can be gained from the preferences shown by households headed by people at various stages of their life cycle related to the range of commodities available.

9.1.2 Average Household Expenditure and Life-Cycle Path

Household expenditure levels vary from country to country due to income, tastes, relative prices and other socioeconomic factors. However, the life-cycle path follows a similar pattern in most countries. This can be illustrated simply by relating the average consumer expenditure for all households to the average expenditure by households headed by people of similar age (Fig. 9.3).

In the case of four countries with different income per capita, culture, and number of people per household – Australia, Chile, Japan and United States – all show a

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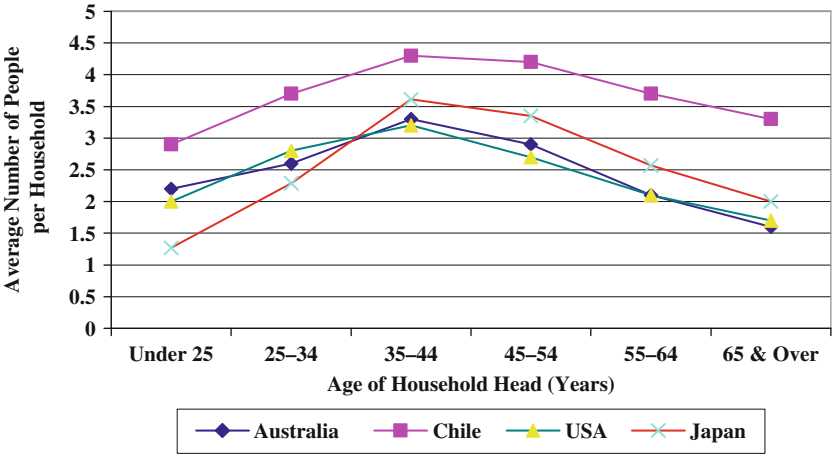

Fig. 9.1 Number of people per household by age of household head Australia (2003/4), Chile (1996/7), Japan (1999) and United States (2007)
Note: Although Chile has now fertility rates about replacement level, it had in the past substantially higher fertility than the other three countries. This and the social custom of single adult children living with parents until they form their own families tend to contribute to the larger number of people per household in Chile than in the other three countries.
Source: ABS (2006), INE (undated), SBJ (2006) and BOLS (2009). Computations made by the authors[1].

peak in the average household consumer expenditure in the 45–54 age group of the household head. These households spend about one fifth to a quarter above the average for all age groups. Households headed by people under 25 years of age tend to spend less than average – their income also tends to be considerably less than the average. Household expenditure declines to below average in late 50s and 60s. Households headed by people 65 years of age and over have expenditure levels well below average, about 40 percent lower in Australia (Fig. 9.3).

9.1.3 Largest and Best Customers

In the above four countries, the *best customer* (the largest average household expenditure) is not necessarily the *largest customer* or segment of the market (the largest aggregate household expenditure for an age group). The tendency is for the average household expenditure to peak when the household head is about 35–54 years of age. However, the largest customer group with the largest aggregated household expenditure may vary depending on the relative size of the age cohorts around the peak. In this example, in Australia the best customers were households headed by

[1]There are no readily available data in the same format for Malaysia, New Zealand and the United Kingdom.

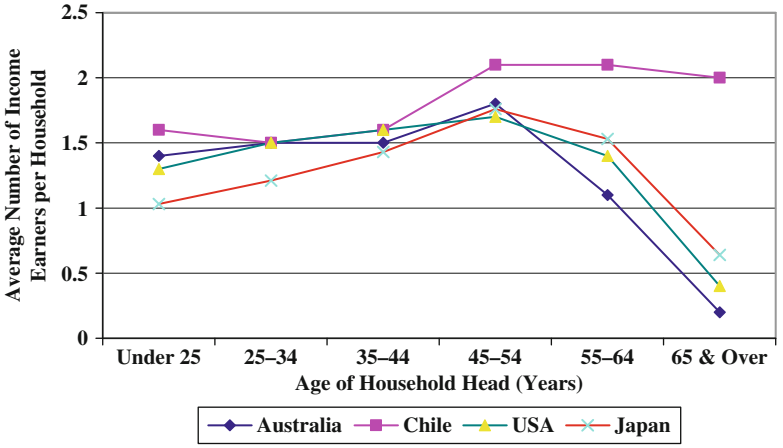

Fig. 9.2 Number of income earners per household by age of head of household – Australia (2003/4), Chile 1996/7, Japan (1999) and United States (2007)
Source: ABS (2006), INE (undated), SBJ (2006) and BOLS (2009). Computations made by the authors[2].

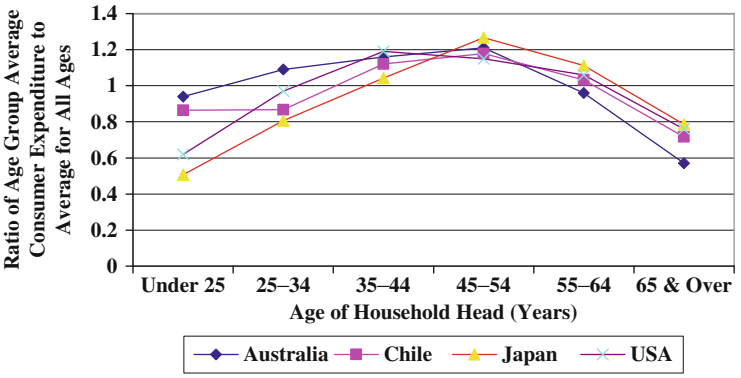

Fig. 9.3 Ratio of household consumer expenditure for household head age group to the average for all ages – Australia (2003/4), Chile (1996/7), Japan (1999) and United States (2007)
Source: ABS (2006), INE (undated), SBJ (2006) and BOLS (2009). Computations made by the authors[3].

people 45–54 years of age but the largest customers were households whose head was 35–44. In the United States, the inverse happened, the best customers were households whose head was 35–44 years of age but the largest customers were those headed by people aged 45–54 (Table 9.1).

[2]There are no readily available data in the same format for Malaysia, New Zealand and the United Kingdom.

[3]There are no readily available data in the same format for Malaysia, New Zealand and the United Kingdom.

Table 9.1 Largest and best customer households by age of household head Australia (2003/4), Chile (1996/7), Japan (1999) and United States (2007)

Country	Age of household head (Years)		
	Largest number of households	Largest aggregate household expenditure	Best average household expenditure
Australia (2003–4)	35–44	35–44	45–54
Chile (1996–7)	35–44	35–44	45–54
Japan (2005)	60–69	50–59	40–49
United States (2007)	45–54	45–54	35–44

Source: ABS (2006), INE (undated), SBJ (2006) and BOLS (2009). Computations made by the authors.[4]

9.2 Age Preferences

9.2.1 Varying Preferences and Apexes

The age-hump pattern in aggregated household expenditure, however, hides preferences exercised by households headed by people in different age groups along the life-cycle path. For instance, household average expenditure on medical services tends to peak later in life and housing expenses earlier at the time of family formation.

In some cases, cultural traits may accentuate age preferences. Another factor that influences age preferences is cohort effects. They lead to preferences for specific products acquired during formative years to surface throughout the life cycle.

The approach used to examine household preferences as income rises (Income Preference Ratios) (Box 8.3) can be used to review preferences exercised by households for different commodities as the age of the head of the household gets older[5] (Box 9.1: Age Preference Ratios – APRs). Accordingly, using the average for all households as the reference, it can be seen how household preferences (APRs) change over the life cycle in the selected seven countries, from a cross-sectional perspective.

Three major commodities groups tend to arise from the analysis designated *Y*, *M* and *S*. *Y* indicates that young people spend more than proportionately on these commodities. *S* shows a tendency for a more than proportional expenditure on these commodities by households headed by people 65 years of age and over. *M* points to a more than proportional expenditure on commodities by households headed by people in between the Y and M age groups. In some cases, mixed designations are found with more than proportional expenditures experience by more than any single

[4]There are no readily available data in the same format for Malaysia, New Zealand and the United Kingdom.

[5]This concept and methodology could be applied to assess preferences of households with other characteristics.

age group, such as commodities with more than proportional expenditures by young and seniors (YS), or commodities that are preferred by both young people and those at more mature age in the range 25–64 years of age (YM), or commodities with more than proportional expenditures by senior people and people in the middle age range (MS).

Box 9.1 Age Preference Ratios

The concept of changing preferences following different income levels is a useful tool to measure and identify commodities for which households change their preferences as they get older. The application of that methodology can be used to identify commodities that change more or less than proportionately in relation to total household expenditure variations over the life cycle. Accordingly, Age Preference Ratios (APRs) can be estimated for varying groups of commodities along the life cycle in relation to the average for all ages:

$$r_{i1}^{n} = \textit{Age Preference Ratio} = (g_{in}/g_{i1})/(G_{in}/G_{i1})$$

where

r_{i1}^{n} = ratio of relative change for household average expenditure on commodity g_i from average for all ages (the point of origin) to point n
g_{i1} = average household expenditure on commodity g_i for all ages
g_{in} = average household expenditure on commodity g_i at point n
G_{i1} = average household expenditure for all ages
G_{in} = average household expenditure at point n

Usually, three main types of commodities become apparent

Y (Young) – commodities for which expenditures decline more than proportionately as age rises.
M (Middle) – commodities for which expenditures rise more than proportionately until middle age is reached and then decline.
S (Senior) – commodities for which expenditures rise more than proportionately as age rises.

However, some mixed patterns may emerge.

An example of the estimation of Age Preference Ratios is contained in the appendix to this chapter.

9.2.2 United States

The United States household expenditure survey for 2007 displays some usual patterns but also some departures from them. Households headed by *younger* people have a preference for *food, tobacco, alcoholic drinks, clothing and footwear* – commodities (Y).

They share with households headed by *middle aged* people preference for *transport* and *education* (YM) (Table 9.2).

It is noteworthy that while food away from home is mostly a preference of households headed by young and middle age people, young and especially seniors show a preference for food at home (BOLS, 2009). In turn, households headed by *older* people increase more than proportionately their expenditures on *domestic fuel and power, medical and health services* and *miscellaneous items* (S), the latter includes personal care. Households headed by people 25–44 show preference for *housing, household furniture and appliances* and *recreation* (M) (Table 9.2). Senior preferences for medical and personal care are much is in line with expected patterns.[6] The same applies to domestic fuel and power as retired people tend to spend more time at home. Preference for *transport* (motor vehicles ownership mostly as public transport share is relatively small) is usually associated with middle age rather than young people in high income countries, when household incomes tend to be at their peak and tend to buy more expensive cars. However,

Table 9.2 Age preference ratios for commodity groups – United States 2007

Commodity group age preference type	Age preference ratios from the average all ages by age of the household head					
	<25	25–34	35–44	45–54	55–64	>64
Food and non-alcoholic beverages Tobacco Alcoholic beverages Clothing and footwear *Y (young)*	**1.16**	1.05	1.01	1.01	0.97	0.90
Transport Education *YM (young and middle)*	**1.24**	1.02	0.99	**1.04**	**1.03**	0.82
Housing Household furn. and equipment Recreation and culture *M (middle)*	0.94	**1.06**	**1.07**	1.00	0.95	0.91
Household services and operation *MS (middle and senior)*	0.81	**1.05**	1.04	0.93	1.00	**1.05**
Domestic fuel and power Medical and health services Miscellaneous *S (senior)*	0.63	0.74	0.81	0.94	1.12	**1.63**

Note: The classification of Age Preference Type for each of the commodity groups was undertaken in accordance with the Age Preference Ratios for each commodity group. The table shows the Age Preference Ratios for the aggregated expenditures for each type.
Source: BOLS (2009). The Age Preference Ratios were calculated by the authors.

[6] See Chapter 7, Section 7.3.

this preference is greatest among households headed by young people, in the 2007 United States' survey. Preference for this item is also shown in late middle age (Table 9.2). Although preference for household expenditure on *education* is greatest among those headed by young people, it is also important for those in middle age (YM). The latter could be attributed to expenditure on the college and other education of dependent children.

9.2.3 Australia

In the Australian context, the estimated APRs from the 2003/4 household expenditure survey show that younger households (up to 34 years of age) show a preference for *housing* (Y). In other words, the preference ratios decline substantially with age. Their preference for *tobacco* and *alcoholic beverages* is also substantial. Household headed by older middle aged people (55–64) also display a preference for these items. The same applies to *clothing and footwear* and *household furniture and appliances* (YM). On the other end of the age range, *food, domestic fuel and power, household services and operation, medical and health services* are commodities (S) for which preference rises with age (Table 9.3). Households headed by middle aged people (45–64) have a heighten preference for *transport* (M). This reflects expenditures related to the ownership of motor vehicles.

Some of the commodities for which both *young* and *senior* people show a preference are also *basic* commodities. *Housing, domestic fuel and power, food, household services and operation, and tobacco* are among the identified *basic* commodities in most countries (Table 8.8). Accordingly, it should be expected that young and older people with lower household incomes (Table 6.1) would show a preference for these commodities. In addition, the preference for *medical and health services* by older people reflects their greater rates of disability and need for such services. The APRs for *alcoholic drinks, clothing and footwear, transport, recreation and miscellaneous* goods and services indicate preference for these items by households headed by *middle aged* people (Table 9.3). Transport, including the use of motor vehicles, recreation and clothing and footwear are usually *affluence* type of commodities in high-income countries (Table 8.8). Therefore, their preference by middle age people with the highest average household income in Australia is to be anticipated.

9.2.4 United Kingdom

In the United Kingdom, the 2007 APRs indicate that households headed by people under 30 years of age had a preference for *education, housing* and *tobacco* (Y). The latter was also given a higher preference by households headed by people 50 years of age and over (Table 9.4).

Alcoholic beverages, clothing and footwear, and *transport* were expenditures favoured by households headed by middle aged people (M). Senior households headed by people aged 65 years and over showed a preference for *food, domestic*

Table 9.3 Age preference ratios for commodity groups – Australia 2003/4

Commodity group age preference type	Age preference ratios from the average of all ages by age of the household head					
	<25	25–34	35–44	45–54	55–64	>64
Housing *Y (young)*	**1.33**	**1.35**	1.10	0.82	0.69	0.83
Tobacco Alcoholic beverages Household furn. and equipment Clothing and footwear *YM (young and middle)*	**1.18**	0.97	1.01	1.00	**1.08**	0.87
Transport Miscellaneous *M (middle)*	0.99	1.00	0.96	**1.07**	**1.06**	0.86
Recreation and culture *MS (middle and senior)*	0.92	0.92	0.97	**1.07**	1.00	**1.07**
Food and non-alcoholic beverages Domestic fuel and power Household services and operation Medical and health services *S (senior)*	0.79	0.87	0.99	1.00	1.07	**1.24**

Note: The classification of Age Preference Type for each of the commodity groups was undertaken in accordance with the Age Preference Ratios for each commodity type. The table shows the Age Preference Ratios for the aggregated expenditures for each group. Miscellaneous includes education.
Source: ABS (2006). The Age Preference Ratios were calculated by the authors.

fuel and power, household services and operation, household furniture and equipment, as well as *medical and health services* and *recreation* (S) (Table 9.4). Unlike in some other societies, seniors showed a preference for food away from home, as well as food at home (ONS, 2008). The emphasis on medical services is as expected, as well as for house-oriented expenditures on domestic fuel and power, and household services and operations. The preference of households headed by middle aged people for transport and clothing and footwear is similar to that in the United States and Australia (Tables 9.2 and 9.3).

9.2.5 Japan

The assessment of age preferences in Japan for some commodities such as alcoholic beverages and recreation are hindered by the large amount of pocket money for unspecified purposes in the Japanese household expenditure. As in other countries, households headed by seniors in 2005 showed a preference for *food, domestic fuel and power,* and *medical and health services*. In the case of Japanese households,

Table 9.4 Age preference ratios for commodity groups – United Kingdom 2007

Commodity group age preference type	Age preference ratios from the average of all ages by age of the household head			
	<30	30–49	50–64	>64
Tobacco Housing Education *Y (young)*	**1.41**	1.11	0.881	0.72
Alcoholic beverages Clothing and footwear Transport Miscellaneous *M (middle)*	0.96	1.02	**1.06**	0.86
Food and non-alcoholic beverages Domestic fuel and power Household services and operation Household furn. and equipment Medical and health services Recreation and culture *S (senior)*	0.83	0.94	1.05	**1.23**

Note: The classification of Age Preference Type for each of the commodity groups was undertaken in accordance with the Age Preference Ratios for each commodity type. The table shows the Age Preference Ratios for the aggregated expenditures for each group.
Source: ONS (2008). The Age Preference Ratios were calculated by the authors.

seniors also demonstrated preference for *household furniture and equipment*, and *miscellaneous* items that included expense of a social nature (Table 9.5).

Households headed by young people under 40 years of age revealed their priorities for *housing, household services and operation,* and *transport*. Young households also showed a preference for items that have characteristics of self-identity creation such as *clothing and footwear*, and *recreation* activities. *Pocket money* for unspecified purposes disguised some of the preferences of households headed by middle aged people that also showed a preference for *alcoholic beverages*. These households also expressed a preference for expenditure on *education*. This could be attributed at the coaching and tuition of dependent children (Table 9.5), as is the case in the United States (Table 9.2) and other countries where parents with dependent children may be paying tuition in private schools or coaching for dependent children.

9.2.6 New Zealand

Age preferences in the New Zealand market reveal expected patterns but also some departures from household behaviour in high-income countries. The household survey of 2003/4 indicated that households headed by young and senior

Table 9.5 Age preference ratios for commodity groups – Japan 2005

Commodity group age preference type	Age preference ratios from the average of all ages by age of the household head					
	<30	30–39	40–49	50–59	60–69	>69
Clothing and footwear Recreation and culture *Y (young)*	**1.26**	1.08	1.05	0.93	0.97	0.93
Housing Household services and operation Transport *YM (young and middle)*	**1.52**	**1.30**	0.99	0.94	0.89	0.81
Alcoholic beverages Education Pocket Money *M (middle)*	0.34	0.94	**1.65**	**1.39**	0.65	0.35
Food and non-alcoholic beverages Domestic fuel and power Household furn. and equipment Medical and health services Miscellaneous *S (senior)*	0.80	0.85	0.87	0.98	1.12	**1.23**

Note: The classification of Age Preference Type for each of the commodity groups was undertaken in accordance with the Age Preference Ratios for each commodity type. The table shows the Age Preference Ratios for the aggregated expenditures for each group. Miscellaneous includes tobacco and money gifts that represent on average about 5 percent of the average household expenditure.
Source: SBJ (2006). The Age Preference Ratios were calculated by the authors.

people (YS) favoured expenditures on *transport*. Young and middle households (YM) accentuated expenditures on *tobacco, alcoholic beverages* and *education.* The latter is similar to the pattern in the United States and Japan where middle aged parents incur expenses for the education of dependent children. Middle households (M) also favoured expenditures on *housing*, *clothing and footwear*, and *recreation.* Households headed by late middle aged people and seniors (MS) showed a preference for expenditures on *household furnishings and equipment* (Table 9.6).

As in all countries, expenditures on *medical and health services* increased more than proportionately with age. Households headed by seniors (S) also favoured expenditures on *food, domestic fuel and power, household services and operation*, and *miscellaneous* items that include personal care (Table 9.6).

9.2.7 Chile

The Chilean household expenditure survey for 1996/7 displays a less elaborated pattern in terms of age preferences. *Food, domestic fuel and power, household services and operation,* and *medical and health services* were given preference in

Table 9.6 Age preference ratios for commodity groups – New Zealand 2003/4

Commodity group age preference type	Age preference ratios from the average of all ages by age of the household head					
	<25	25–34	35–44	45–54	55–64	>64
Tobacco Alcoholic beverages Education *YM (young and middle)*	**2.43**	0.90	0.95	**1.08**	0.86	0.51
Transport *YS (young and senior)*	**1.22**	0.91	0.94	1.00	1.02	**1.13**
Housing Clothing and footwear Recreation and culture *M (middle)*	0.93	**1.08**	**1.06**	0.99	0.98	0.80
Household furn. and equipment *MS (middle and senior)*	0.72	**1.07**	0.96	1.02	1.02	**1.07**
Food and non-alcoholic beverages Domestic fuel and power Household services and operation Medical and health services Miscellaneous *S (senior)*	0.81	0.92	0.96	0.98	1.04	**1.34**

Note: The classification of Age Preference Type for each of the commodity groups was undertaken in accordance with the Age Preference Ratios for each commodity type. The table shows the Age Preference Ratios for the aggregated expenditures for each group. Housing includes payment of principal of mortgages for houses.
Source: SNZ (2004). The Age Preference Ratios were calculated by the authors.

their spending decisions by seniors (S). Accordingly, the APRs for these commodities climb as the age of the household head increases. However the aggregation of food and alcoholic beverages may mask different preferences by seniors for food and alcoholic beverages. Young people showed preference for *recreation, clothing and footwear*. The APRs for these (Y) commodities fall for households headed by older people. Households headed by young and middle aged persons shared a preference for *education*, as was observed in other countries. Younger household (under 34 years of age) also spent more than proportionately on *housing* (Table 9.7).

It is noteworthy, again, that *basic* commodities such as *housing, domestic fuel and power, and food and housing related services* were preferred by younger or older people with lower household incomes. The preference for *medical and health services* by seniors despite their lower household income is understandable because of their growing disability.

Households headed by middle aged people show preferences for *transport,* mostly in the form of car ownership, and *household furniture and appliances* (Table 9.7).

Table 9.7 Age preference ratios for commodity groups – Chile 1996/7

Commodity group age preference type	Age preference ratios from the average of all ages by age of the household head					
	<25	25–34	35–44	45–54	55–64	>64
Clothing and footwear Recreation and culture *Y (young)*	**1.21**	0.99	1.03	1.01	0.99	0.88
Tobacco Housing Education *YM (young and middle)*	**1.60**	**1.13**	**1.15**	1.02	0.75	0.67
Household furn. and equipment Transport Miscellaneous *M (middle)*	0.86	0.99	0.96	1.03	**1.14**	0.88
Food and alcoholic beverages (a) Domestic fuel and power Household services and operation Medical and health services *S (senior)*	0.77	0.96	0.95	0.97	1.02	**1.24**

Note: The classification of Age Preference Type for each of the commodity groups was undertaken in accordance with the Age Preference Ratios for each commodity group. The table shows the Age Preference Ratios for the aggregated expenditures for each type. (a) Food includes alcoholic beverages.
Source: INE (undated). The Age Preference Ratios were calculated by the authors.

9.2.8 Malaysia

Age preferences in Malaysian households in 2004/5 showed many common patterns to those in other countries examined. The basic commodity *food* was preferred by the young and seniors with lower incomes. However, there was a basic difference in the preferences of these two age groups. While the young showed a preference for food away from home, seniors showed a preference for food consumed at home (DOSM), as observed in some other countries. Young households also revealed a preference for the aggregate of *alcoholic beverages*[7] *and tobacco*, as well as *clothing and footwear.* As in most cases, households headed by young people spend disproportionately more on *education*. This preference was shared with households headed by persons at middle age usually with dependent children (Table 9.8).

Malaysian households headed by middle aged people with higher incomes also spent more than proportionately on discretionary items such as *recreation and culture*. These households also showed a preference for *transport* (including car

[7]The importance of culture in Malaysia – with a majority of Muslim population – in relation to the consumption of alcoholic beverages has been mention in Chapter 7, Section 7.3.

Table 9.8 Age preference ratios for commodity groups – Malaysia 2004/5

Commodity group age preference type	Age preference ratios from the average of all ages by age of the household head				
	<25	25–34	35–44	45–64	>64
Alcoholic beverages and tobacco Clothing and footwear *Y (young)*	**1.68**	1.07	1.00	0.97	0.83
Education *YM (young and middle)*	**1.48**	0.66	**1.32**	1.03	0.35
Food and non-alcoholic beverages *YS (young and senior)*	**1.08**	1.00	0.96	1.01	**1.05**
Household furn. and equipment Transport Recreation and culture Miscellaneous *M (middle)*	0.81	1.01	**1.05**	1.00	0.91
Housing and related operation Medical and health services *S (senior)*	1.00	1.00	0.96	0.99	**1.14**

Note: The classification of Age Preference Type for each of the commodity groups was undertaken in accordance with the Age Preference Ratios for each commodity group. The table shows the Age Preference Ratios for the aggregated expenditures for each type.
Source: DOSM (2006). The Age Preference Ratios were calculated by the authors.

ownership) and *household furniture and appliances*. Expenditures of households headed by seniors focused on *medical and health services* and *housing* related expenses (Table 9.8).

9.3 Household Age Preference Patterns

The life-cycle income hump plays a major role in consumer preferences exercised by households headed by people of different ages. However, it is also obvious that priorities are different at different points of the life cycle in spite of income differences.

9.3.1 Young Commodities

Although households headed by young people with lower incomes give priority in their spending to *housing* and *tobacco*[8] two *basic* commodities, they also show preference for *alcoholic beverages, clothing and footwear*, a priority for

[8] Again, it should be stated that the authors are not of the opinion that tobacco is basic to life, the term *basic* is in the context that expenditures by households on tobacco products tend to behave as for other commodities such as food, i.e. expenditures on tobacco tend to increase less than proportionately as household income rises.

Table 9.9 Household consumer expenditure groups by age type for selected countries

	USA	Australia	UK	Japan	New Zealand	Chile	Malaysia
Commodity group	Commodity types						
Food	Y	S	S	S	S	S[c]	YS
Tobacco	Y	YM	Y	–[b]	YM	YM	Y[d]
Alcoholic beverages	Y	YM	M	M	YM	–[c]	–[d]
Housing	M	Y	Y	YM	M	YM	S[e]
Domestic fuel and power	S	S	S	S	S	S	–[e]
Household serv. and operation	MS	S	S	YM	S	S	–[e]
Household furn. and equipment	M	YM	S	S	M	M	M
Clothing and footwear	Y	YM	M	Y	M	Y	Y
Transport	YM	M	M	YM	YS	M	M
Medical and health services	S	S	S	S	S	S	S
Education	YM	–[a]	Y	M	YM	YM	YM
Recreation and culture	M	MS	S	Y	M	Y	M
Miscellaneous	S	M[a]	M	S[b]	S	M	M
GDP p.c. US$ 000s PPPs 2005	41.7	32.8	31.6	30.3	24.6	12.3	11.5

[a]Education is included in Miscellaneous
[b]Tobacco is included in Miscellaneous
[c]Alcoholic Beverages are included in Food
[d]Tobacco and Alcoholic Beverages are aggregated
[e]Housing includes Domestic Fuel and Power, Household Services and Operation items
Note: Countries tend to group commodities in a variety of ways. It was possible in most cases to regroup items into similar groups. However, this was not possible in some cases.
Sources: The sources of the classification of commodity groups are the Age Preference Ratios computed for each commodity group that were the basis for the classification of commodity groups by age preference types in Tables 9.2 to 9.8. GDP p.c. WB (2008).

affluence commodities. In some cases, these preferences are shared with households headed by middle aged people with higher incomes (Table 9.9). This could be related to stylisation and fashion involved in identification with so-called *imagined communities* of young people (Featherstone, 1987). The priority given to *education* is another preference they share with middle aged households often with dependent children.

9.3.2 Senior Commodities

On the other end of the age range, households headed by older people show preference for *basic* commodities associated with lower income households such as *food, household services, domestic fuel and power*. These preferences also reflect more time spent at home after retirement and constraints arising from lower physical mobility. In addition, their greater disability leads to their greater use of *medical and health services* (Table 9.9).

9.3.3 Middle Age Commodities

The preferences of households headed by middle aged people for *affluence* commodities are consistent with their higher income. They include *transport* which preference they share with younger people, as well as *recreation* for which older people also show a preference. In addition, *alcoholic drinks* and *tobacco* are also commodities for which middle aged people have a preference shared by younger people. *Household furniture and appliances* are affluence commodities preferred by households headed by middle age people (Table 9.9).

9.4 Age Preferences and Household Size

It is apparent that the average number of people per household varies during the life cycle (Fig. 9.1). Consequently, it is relevant to examine whether this has an impact on the preferences shown by households headed by people at different stages of the life cycle displayed by the Age Preference Ratios. An assessment can be made by applying the equivalent-person measures (Box 6.3) that take into consideration household economies of scale.

Results of this analysis indicate that the pattern of the average household expenditure per equivalent-person tends to be somewhat smoother, and in some cases there

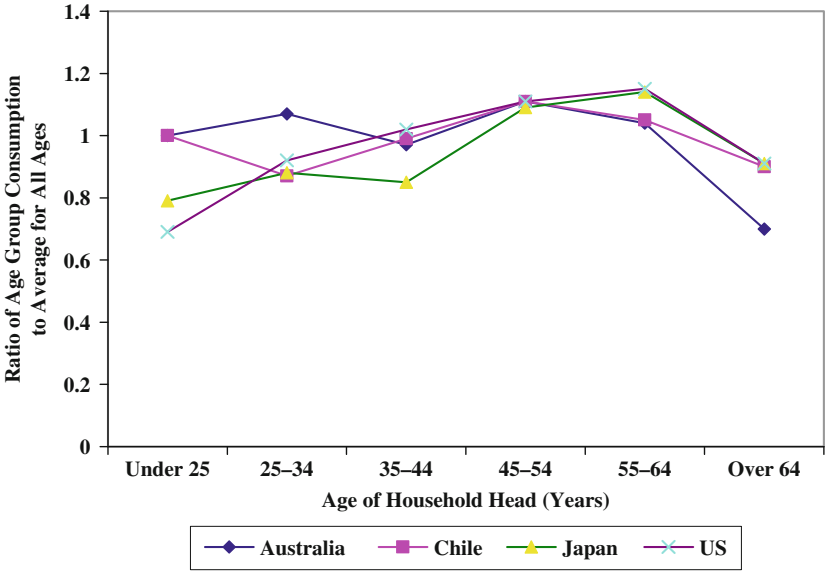

Fig. 9.4 Household consumer expenditure per equivalent persons by age of household head – Australia (2003/4), Chile (1996/7), Japan (2005) and United States (2007)
Source: ABS (2006), INE (undated), SBJ (2006) and BOLS (2009). Computations made by the authors[9].

is a decline in the average expenditure per equivalent-person from the youngest age group to middle age (Fig. 9.4). However, the peak in the average expenditure tends towards the 45–54 age group when average household income also peaks.

In spite of this flattening of the hump towards the average for all age groups, households continue to show the same pattern of preference for the different commodities. In other words, the level of expenditure changes but the preferences shown by households headed by people at different stages of the life cycle remain constant, after taking into account the varying number of equivalent-persons in the household. These findings are similar to those found in studies referred to in Chapter 6 (e.g. Miniaci, Monfardini, & Weber, 2003).

9.5 Generic Features

A number of observations can be made from the seven case studies:

- Households headed by young and older people with lower incomes give priority to basic commodities.
- Households headed by middle-aged people with higher incomes tend to show preference for progressive (affluence) commodities, as expected.
- Households in the two less developed countries display similar age preferences to those in the higher income countries.
- The life cycle involves different degree of workforce participation and socialisation. Young and middle-aged people give priority to clothing and transport usually associated with higher levels of both.
- Older people with greater levels of disability give priority to medical and health services.
- Progression for medical services tends to be the highest for all commodities.

The life cycle contains a number of reinforcing demographic and economic features. They relate to family formation that is reflected in the fertility patterns and the number of people in households, but also to workforce participation and income earning capacity during the life cycle. Another feature of the life cycle is the growing proportion of people affected by disability that affects not only their work but also their capacity for certain activities and degree of socialisation. These patterns show how population ageing has and will continue to have a large impact on the demand for products and services around the world, as middle age and older people become more prevalent, both absolutely and relatively.

[9]There are no readily available data in the same format for Malaysia, New Zealand and the United Kingdom.

Appendix: Age Preference Ratio Estimation – Example

The following example uses data from a household expenditure survey for New Zealand (SNZ, 1998).

	Average weekly expenditure in New Zealand dollars			
Age household head (Years)	Dom. fuel and power	Alcoholic beverages	Recreation	All items
Less than 25	22.0	25.4	59.4	659.4
25–29	21.7	21.5	76.6	674.2
30–39	25.4	18.6	89.2	735.0
40–49	27.8	21.4	125.4	871.7
50–59	25.1	16.5	113.2	652.2
60–64	22.4	13.2	83.1	544.7
65 and over	19.2	7.3	57.0	381.1
All Ages	24.0	16.9	93.2	660.9

Following the equation and notation in Box 9.1

$$r^{n}_{i1} = \textit{Age Preference Ratio} = (g_{in}/g_{i1})/(G_{in}/G_{i1})$$

The APRs for *domestic fuel and power* are

$\text{APR}_{<25} = (22.0/24.0)/(659.4/660.9) = 0.9167/0.9977 = 0.92$
$\text{APR}_{25–29} = (21.7/24.0)/(674.2/660.9) = 0.9042\ /1.0201 = 0.89$
$\text{APR}_{30–39} = (25.4/24.0)/(735.0/660.9) = 1.0583/1.1121 = 0.95$
$\text{APR}_{40–49} = (27.8/24.0)/(871.7/660.9) = 1.1583/1.3190 = 0.88$
$\text{APR}_{50–59} = (25.1/24.0)/(652.2/660.9) = 1.0458/0.9868 = 1.06$
$\text{APR}_{60–64} = (22.4/24.0)/(544.7/660.9) = 0.9333/0.8242 = 1.13$
$\text{APR}_{>64} = (19.2/24.0)/(381.1/660.9) = 0.8000/0.5766 = \mathbf{1.39}$

The APRs for *domestic fuel and power* show that expenditure on this item rises more than in proportion to changes in household total expenditures and could be designated a *senior* (*S*) commodity.

The APRs for alcoholic beverages are

$\text{APR}_{<25} = (25.4/16.9)/(659.4/660.9) = 1.5030/0.9977 = \mathbf{1.51}$
$\text{APR}_{25–29} = (21.5/16.9)/(674.2/660.9) = 1.2722\ /1.0201 = 1.25$
$\text{APR}_{30–39} = (18.6/16.9)/(735.0/660.9) = 1.1006/1.1121 = 0.99$
$\text{APR}_{40–49} = (21.4/16.9)/(871.7/660.9) = 1.2663/1.3190 = 0.96$
$\text{APR}_{50–59} = (16.5/16.9)/(652.2/660.9) = 0.9763/0.9868 = 0.99$
$\text{APR}_{60–64} = (13.2/16.9)/(544.7/660.9) = 0.7811/0.8242 = 0.95$
$\text{APR}_{>64} = (7.3/16.9)/(381.1/660.9) = 0.4320/0.5766 = 0.75$

The APRs for *alcoholic beverages* indicate that expenditure on this item falls with age and could be considered a *young* age (*Y*) commodity.

The APRS for *recreation* are

$$APR_{<25} = (59.4/93.2)/(659.4/660.9) = 0.6373/0.9977 = 0.64$$
$$APR_{25–29} = (76.6/93.2)/(674.2/660.9) = 0.8219\ /1.0201 = 0.81$$
$$APR_{30–39} = (89.2/93.2)/(735.0/660.9) = 0.9571/1.1121 = 0.86$$
$$APR_{40–49} = (125.4/93.2)/(871.7/660.9) = 1.3455/1.3190 = 1.02$$
$$APR_{50–59} = (113.2/93.2)/(652.2/660.9) = 1.2146/0.9868 = \mathbf{1.23}$$
$$APR_{60–64} = (83.1/93.2)/(544.7/660.9) = 0.8916/0.8242 = 1.08$$
$$APR_{>64} = (57.0/93.2)/(381.1/660.9) = 0.6116/0.5766 = 1.06$$

The APRs show that expenditure on *recreation* tends to rise more than proportionately to changes in household expenditures for all items and reaches a peak in middle age (50–59) and then declines. This commodity could be designated as *middle age (M)* type commodity.

References

Australian Bureau of Statistics (ABS). (2006). *Household expenditure survey – summary of results – Australia 2003–04 (reissue)*. Catalogue No. 65305.0. Canberra.

Bureau of Labor Statistics (BOLS). (2009). *Consumer expenditures in 2007*. Washington, DC: US Department of Labor.

Department of Statistics Malaysia (DOSM). (2006). *Report on household expenditure survey 2004/05*. Putrajaya.

Featherstone, M. (1987). Lifestyle and consumer culture. *Theory, Culture & Society, 4*, 55–70.

Instituto Nacional de Estadisticas (INE). (undated). *Quinta Encuesta de Presuestos Familiares 1996/97*. Santiago.

Miniaci, R., Monfardini, C., & Weber, G. (2003). *Is there a retirement consumption puzzle in Italy?* Mimeo.

Office of National Statistics (ONS). (2008). *Family spending: A report on the 2007 expenditure and food survey*. London: Palgrave Macmillan.

Statistics Bureau of Japan (SBJ). (2006). *Family income and expenditure survey 2005*. Tokyo: Ministry of Internal Affairs and Communications.

Statistics New Zealand (SNZ). (1998). *Household economic survey 1997/98*. Wellington.

Statistics New Zealand (SNZ). (2004). *Household economic survey – Year ended 30 June 2004*. Wellington. www.ststs.gov.nz/store/2006/06/household-economic-survey-yejun04. Retrieved 10 June 2009.

World Bank (WB). (2008). *Global purchasing power parities and real expenditures – 2005 International Comparison Program*. Washington, DC: World Bank.

Chapter 10
Gendered Preferences and One-Person Households

10.1 Embedded Consumer Characteristics and Roles

It has been posited by psychologists, sociologists and others that males and females have different personality attributes and social functions that influence their behaviour. Among other characteristics *males* are said to be more *independent* and *self-centred* while *females* are seen as being more *emotionally connected* and have a greater *interest in others* (Palan, 2001; England & Kilbourne, 1990). These attributes are seen to influence male and female roles as consumers of goods and services. It is suggested that both personality and socially perceived roles have led to *specialisation* of males making decisions about their own and important items while females are left with responsibility for communal and their own needs (Chaney, 1998). Further, it is asserted that *females' behaviour in the market place* is difficult to separate from their roles as daughters, wives and mothers (Swedberg, 1987). It has also been suggested by Krugman (1965) that consumers may make more conscious decisions when they are more *involved in given contexts*. Further, it has been argued that *gendered* consumer behaviour may only be triggered in specific situations or in relation to some products (Palan, 2001). In addition, it is maintained that both male and female roles as consumers are *embedded* in their social environment and their perceived social functions (Swedberg, 1987).[1] Added to these the views of the consumer dominated by the market, the more recent stance that consumers now dominate the market, and the complexities of consumer behaviour become apparent (Zukin & Maguire, 2004). This makes the examination of the influence of gender traits in consumer behaviour difficult, as most people live in households of mixed sexes. However, one approach to at least partially overcome these difficulties is to consider single person households that can be done by sex.

In light of this, it is most likely that differences between males and females in consumer behaviour will be most accentuated in single-person households. This approach has the inherent social and economic specification of people living alone. In spite of this constraint, it should be useful to see how males and females differ in their choices of goods and services when they are not sharing their household with

[1] A review of perspectives on sex differentiation is contained in Chapter 2.

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other people and can manifest their preferences in a manner that does not impinge on the tastes and interests of others living with them. This perspective will also allow the analysis of consumer preferences of a growing demographic group in industrialised countries: people living on their own.

The following analysis of male and female in single-person households relates to two countries for which data with similar specifications is available: United States and Australia. Both countries have gone through the Demographic Transition that has resulted in long life expectancies and low fertility. They have also experienced large inflows of migrants that have also influenced the similar age distributions (Table 4.6). Although the United States has a higher income per capita than Australia (Table 5.4) both are high income countries.

Box 10.1 Social Fragmentation: The Rise of One-Person Households

There has been a rise in life expectancy from about 47 to 66 years, at birth, and a fall in fertility from 4.9 children per woman to 2.7, on average in the world, in the five decades from 1950–55 to 2000–05 (UN, 2009) This is a manifestation of what has become known as the Demographic Transition (Box 4.2). The more industrialised countries have been at the forefront of this Transition. Many developing countries are at different stages of the Transition (Chapter 4). Consequently, the demographic changes that have taken place in the more industrialised countries have a wider relevance to the rest of the world. In addition, to population growth experienced because of the gap between the onset and pace of the falls in fertility and mortality, followed by ageing populations, most industrialised countries have gone through considerable structural changes in household formation. The fertility decline is partly a reflection of late family formation. In some cases, relatively high divorce rates might also have played a role to a lesser extent. These trends have been influenced by improvements in female education, their greater participation in the workforce and related economic independence, as well as improved access to contraception and a drop in the desired family size. Differential mortality has also resulted in a large number of females becoming widows.

	Australia		United States	
	1985–90	2000–05	1985–90	2000–05
Life expectancy (years)				
Males	73.0	78.0	71.5	75.8
Females	79.4	83.0	78.4	80.6
Persons	*76.2*	*80.5*	*75.0*	*78.3*
Total fertility rate (No. of children per woman)	*1.9*	*1.8*	*1.9*	*2.0*
Median age (years)	*32.2*	*35.4*	*32.8*	*36.0*

Source: UN (2009).

The outcome of these events has been lower rates of population growth and ageing populations accompanied by major shifts in household composition. These structural changes can be illustrated with reference to two industrialised countries: Australia and the United States. Both mortality and fertility have declined in these counties In Australia fertility is well below conventional replacement levels of an average of 2.1 children per woman, and the United States is at about replacement level. Life expectancy in Australia is somewhat longer than that in the United States. In both countries, there is a substantial differential mortality between males and females.

	Percentage increase 1990–2005	
	Australia[a]	United States
Population	***19.8***	***18.8***
One-person	**33.6**	**33.2**

[a]Australia 1991–2006.
Source: ABS (2000 and 2008), USCB (2006).

These factors have led to the formation of a larger number of households with significant social and market effects. The growth in the number of households has outpaced considerably the growth in population. The growth in population, in spite of low fertility rates has been boosted by immigration that keeps populations younger notwithstanding ageing due to longer life expectancies. Nevertheless, in both countries, the growth rate of one-person households rose substantially faster than that of the total population and the number of all households. The rate of growth of one-person households has been affected by the mentioned late family formation and the wide gap in differential mortality between males and females. The fragmentation of social living arrangements has implications for the provision of social support in the absence of mutual help given by people living together. Economies of scale in housing and related services are also affected (Box 6.3), as well as the benefits of shared household activities and the social rituals involved. The growth in the number of households, in general, and one-person households in particular, results in greater individualisation and fragmentation of social and market transactions (Box 2.3).

10.2 Sex, Income and Ownership in US One-Person Households

A major difference between one-person households in the United States is the higher earning of males from the age of 25 years onwards.[2] The difference from female earnings under 25 years of age is relatively small. It is also noteworthy that the average proportion of females with a college education is higher up to the age of 44. Workforce participation indicates that the average number of earners is about the same for both sexes. As education and income are usually closely associated, and workforce participation is about the same, this would imply that there are other reasons for the lower income of females that on average is about 74 percent of males'. This could reflect female specialisation in lower paid *female occupations,* in spite of their similar level, but possibly different type, of education, or low representation of females in high-income level occupations and . . .*women being treated as representatives of a social category rather than individuals* (Swedberg, 1987: 75)

Table 10.1 One-person household characteristics – United States consumer expenditure survey 2000–2001

	Age of householder						
Characteristic	<25	25–34	35–44	45–54	55–64	>64	All ages
Average age:							
Males	21	29	40	50	59	76	45
Females	21	29	40	50	59	77	57
Percent with college education							
Males	81	75	63	63	53	34	62
Females	82	81	68	61	53	32	53
Average annual income after taxes US$ 000s							
Males	11.6	33.3	36.2	35.5	33.0	20.4	27.9
Females	11.6	29.4	31.5	29.6	25.1	15.0	20.7
Average No .of earners							
Males	0.9	0.9	0.9	0.8	0.7	0.2	0.7
Females	0.9	0.9	0.9	0.8	0.7	0.1	0.5
Percent with homeowners							
Males	8	31	47	51	60	70	44
Females	4	28	49	62	72	71	56
Average No. of motor vehicles							
Males	0.8	1.3	1.3	1.4	1.7	1.3	1.3
Females	0.6	1.0	1.0	1.0	1.1	0.8	0.9

Note: The longer life expectancy of females leads to a wider spread of female ages especially over 64 years of age, and may explain the large difference in the average age for males and females for all age groups. This might also explain the substantial difference in education for all age groups.
Source: BOLS (2003).

[2] In general, male headed households have on average higher incomes (USCB, 2000).

There is also a considerable disparity in home and motor vehicle ownership between males and females living in one-person households. After the age of 34 a larger proportion of females are home owners than males, while males own more motor vehicles than females (Table 10.1). This points to a difference in the preference of female for home-oriented security and male preference for active-outward-oriented recreation. It has also been suggested that . . .*for many American males, the automobile is a part of their extended selves and their ego ideals* (Belk, 1988: 143).

10.3 Male and Female Consumer Allocations and Progression

10.3.1 Allocations

As expected from their higher income (BOLS, 2003; ABS, 2007), males living in one- person households spend, on average, more than females in both the United States and Australia (about 14 percent in the United States and 19 percent in Australia). It should be noted that differences in climate could account for the relative lower allocation in Australia by both sexes to housing, especially domestic fuel and power for heating during the more rigorous winters in most of the United States. The same applies to clothing and footwear.

An examination of the allocations for given items of household expenditure shows substantial differences in the proportional spending by each sex on given items, especially in the case of the United States. In general, the largest allocations by males and females are to housing and transport followed by food. These account for almost three quarters of household expenditures by males and females in the United States and about two thirds in Australia (Table 10.2).

Each of these items reflects different male and female preferences. *Female home-orientation* and concern for *security* is suggested by their higher allocation to *home-ownership* and *other housing related expenditures* in both countries. The home-orientation is also reflected in female's greater allocation to *food for home consumption. Male* spending patterns imply a lesser home-orientation and concern for the security of home ownership. Accordingly, they allocate more to *food away from home* and *rent and lodging*. Especially in the United States, male greater *outward-orientation* is suggested by their expenditure related to transport in general and *motor vehicles* in particular. *Males* also spend considerably more than females on *alcoholic beverages*, especially in Australia. This gendered consumer behaviour also applies to *tobacco* (Table 10.2).

Allocations to *health and medical care* are influenced by different public policies in Australia and the United States. In Australia, all residents are covered by government financial subsidies for a range of medical services, while in the United States these usually only apply to poor and aged people. The allocations of males and females to health and medical care are similar in Australia, but substantially different in the United States (Table 10.2). The higher allocation by females in the

Table 10.2 Male and female one-person household average annual consumer expenditure – United States (2000–2001) and Australia (2003/4)

	Household expenditure allocation as percentage of total			
	United States		Australia	
Item	Males	Females	Males	Females
Food	**15.1**	**13.4**	**14.5**	**15.5**
At home	*6.7*	*8.3*	*11.9*	*13.6*
Away from home[a]	*8.4*	*5. 2*	*2.6*	*1.8*
Alcoholic beverages	**2.5**	**0.9**	**4.7**	**1.4**
Tobacco	**1.2**	**0.8**	**2.2**	**0.9**
Housing	**36.8**	**42.1**	**38.0**	**40.6**
Owned and rented	*23.8*	*24. 8*	*24.2*	*22.1*
Owned dwelling	10.1	12.3	13.2	13.5
Rented and lodging[a]	12.3	11.0	11.0	8.7
Dom. fuel and power	*3.7*	*4. 9*	*3.1*	*3.4*
Household operation and supplies	*5.5*	*8. 1*	*5.6*	*7.7*
H'hold furnishing and equipment	*3.9*	*4. 4*	*5.1*	*7.3*
Clothing and footwear	**4.0**	**5.8**	**1.3**	**3.8**
Transportation	**22.3**	**16.4**	**15.4**	**12.4**
Vehicle purchase (net)	*10.4*	*6. 2*	*4.7*	*4.6*
Other vehicle and transport expenses	*10.7*	*8.5*	*10.4*	*7.3*
Public transport[a]	*1.2*	*1. 6*	*0.4*	*0.4*
Health and medical care	**5.4**	**8.7**	**5.8**	**5.6**
Personal care	**1.0**	**2.2**	**0.8**	**2.5**
Recreation (incl. reading)	**6.3**	**5.5**	**7.0**	**7.0**
Holidays[a]	–[a]	–[a]	**3.6**	**4.0**
Gambling[b]	–[b]	–[b]	**0.8**	**0.6**
Miscellaneous (incl. education)[b]	**5.2**	**4.2**	**6.0**	**5.7**
Total household expenditure $000s	***US$22.7***	***US$ 20.0***	***AUS$ 27.3***	***AUS$ 22.9***

[a]Expenditures for holidays in the US are included in food consumed away from home, rented dwellings and lodging, and public transport

[b]Expenditures on gambling are included in miscellaneous. There is no readily available data for one-person households that allows for the separate identification of these detailed items for the US. However, data for all households in the US indicate that holiday expenditures account for most of the public transport expenses, a large proportion of food away from home and lodging. Figures may not add up due to rounding

Sources: BOLS (2003) and ABS (2007). Computations made by the authors.

United States could be seen as their greater concern for security and personal care, but it may also arise from the nature of female employment and health insurance coverage by employers, the major source of health insurance in the United States, before the government Medicare cover kicks in at retirement age.

Vigneron and Johnson (1999) have noted that some products have an emotional value in addition to any functional utility. Further, they have also suggested that

some individuals are self-conscious about the *way that other people see them*, and may also be concerned with *sensory* and *aesthetic* attributes of the products they consume *to enhance their self concept*. Some of these attributes have been associated with females. The higher spending by females on *clothing and footwear* and *personal care* is an illustration of gendered consumer behaviour.

The allocations to *recreation* are similar for both sexes in Australia but higher for males than females in the United States. Males allocate more to audio-visual appliances and admission to shows, especially sport, while females allocate more to pets and their care in both countries (BOLS, 2003; ABS, 2007).

It has been suggested that . . .*The modern individual within consumer culture is made conscious that he speaks not only with his clothes, but with his home, furnishings, decoration, car and other activities which are to be read and classified as the presence or absence of taste* (Featherstone, 1987: 59). However, the review of household expenditures by males and females living on their own in the United States and Australia indicates that there are gendered differences in the media they use to express their personalities, as well as the context in which they make it and on their concern for security.

These differences are apparent both in expressed preferences within given income constraints, but also in the propensity for incremental expenditure on specific items as their individual income and total expenditures rise. The differences could be looked at from two perspectives:

- Allocation preferences
- Progression preferences

The first is manifested by the proportion of the total household consumer expenditure allocated to a given item/s and the second to the more or less than proportional incremental expenditure on specific products as income rises. The allocation differences between males and females are substantial in both countries. The same applies to the differences in the progression trends.

As it has been mentioned, *males* make larger allocation from their total expenditures to:

- food away from home
- rent and lodging
- alcoholic beverages
- tobacco
- motor vehicles and related products
- miscellaneous items

Females spend more on:

- food for home consumption
- home ownership
- household goods and services

- clothing and footwear
- personal care.

10.3.2 Progression

The progression in expenditure by each sex on individual items as income and total expenditure rise shows a more diverse pattern in both countries. An examination of the income arc elasticities indicates that *males and females* in both countries consider

- food for home consumption
- tobacco
- rented housing and lodgings
- domestic fuel and power and supplies
- motor vehicle fuel and oil
- personal care

to be *basic* commodities on which they tend to spend proportionately less as their income and total expenditure rise. They spend more on *motor vehicle ownership* as their affluence and total expenditures increase (Table 10.3).

Alcoholic beverages would also be considered a basic[3] commodity were it not for the considerable progression in female expenditure on this item in Australia. Similarly, expenditures on *home ownership* rise considerably as income and total consumer expenditures of both sexes grow in the United States. This applies to a lesser extent in the case of Australian females but the Australian male income arc elasticity for this item is less than one. Expenditure on related *household furnishing and equipment* tends to be less than proportional to rises in income and total expenditures, but is highly progressive in the case of female expenditure in the United States (Table 10.3).

Expenditures on *clothing and footwear* are usually associated with females who spend a larger proportion of their overall expenditure on this item in both countries. The higher allocation by females is associated with a more than proportional rise in their expenditure on this item as their affluence grows in both countries. However, the low allocation of males to clothing and footwear in Australia is accompanied by a considerable rate of progression as their income and total expenditures increases (Table 10.3).

It has been discussed earlier that the allocation by both sexes to *health and medical care* is affected by different social policies and practices, which result in a lower allocation in Australia to this item. However, males show a much higher degree of progression in spending on these services than females in both countries (Table 10.3).

[3]The term *basic* in this context refers to commodities on which household expenditures rise less than proportionally as household income increases.

Table 10.3 Male and female one-person household average annual consumer expenditure – income arc elasticities – United States (2000–2001) and Australia (2003/4)

	Income arc elasticity			
	United States		Australia	
Item	Males	Females	Males	Females
Food	**0.84**	**0.75**	**0.61**	**0.66**
At home	*0.72*	*0.58*	*0.42*	*0.49*
Away from home[a]	*0.91*	*0.95*	*1.42*	*1.53*
Alcoholic beverages	**0.74**	**0.72**	**0.85**	**1.64**
Tobacco	**0.22**	**0.06**	**0.50**	**0.48**
Housing	**1.08**	**1.05**	**0.78**	**0.89**
Owned and rented	*1.14*	*1.07*	*0.86*	*1.03*
Owned dwelling	1.66	1.58	0.88	1.36
Rented and lodging[a]	0.70	0.46	0.84	0.32
Dom. fuel, power	*1.04*	*0.73*	*0.32*	*0.38*
Household operation and supplies	*1.07*	*0.96*	*0.49*	*0.54*
H'hold furnishing and equipment	*0.90*	*1.41*	*1.01*	*0.98*
Clothing and footwear	**0.82**	**1.24**	**1.38**	**1.15**
Transportation	**1.29**	**1.25**	**1.31**	**1.01**
Vehicle purchase (net)	*1.35*	*1.39*	*1.85*	*1.13*
Other vehicle expenses	*1.24*	*1.16*	*1.03*	*0.93*
Public transport[a]	*1.23*	*1.21*	*1.13*	*0.81*
Health and medical care	**1.32**	**0.75**	**1.60**	**0.88**
Personal care	**0.55**	**1.01**	**0.91**	**1.07**
Recreation (incl. reading)	**1.06**	**1.19**	**1.22**	**1.77**
Holidays[a]	–[a]	–[a]	**1.85**	**1.15**
Gambling[b]	–[b]	–[b]	**1.52**	**1.04**
Miscellaneous (incl. education)[b]	**0.21**	**0.24**	**1.59**	**1.48**
Total household expenditure	***1.00***	***1.00***	***1.00***	***1.00***

[a,b]See note in Table 10.2 on household spending on holidays and gambling. The income arc elasticities were calculated following the method in Box 8.2
Sources: BOLS (2003) and ABS (2007). Computations made by the authors.

There are different progression trends in the two countries in relation to some items of expenditure. *Food consumed away* from home increases less than proportionately with income and household expenditures in the United States, as far as both sexes are concerned, but rises substantially in Australia as people become more affluent and spend proportionately more. The higher progression in Australia for this item is accompanied by a lower allocation than that in the United States for food consumed away from home by both sexes. The different treatment of food consumed while on holidays in the data sets for the two countries accounts partly for the recorded differences. *Recreation* is more sought after in Australia than the United States as income rises, especially in the case of Australian females who spend considerably more on recreation as they become more affluent. Spending on *holidays* and *gambling* are two highly progressive items in the case of Australian

males and to a lesser extent in the case of females (Table 10.3). There is no readily available data to examine the rate of expenditure progression for these two items by one-person households in the United States. However, the highly progressive nature of male and female expenditure on public transport, that includes holiday fares in the United States, points to more than proportional increments in expenditure on holidays as their affluence rises.

10.4 Gendered Preferences and Age

10.4.1 Higher Female Life Expectancy and Numbers

An observed demographic phenomenon is that, in most countries including the United States and Australia, females have a higher life expectancy than males. A consequence is that there are more females living alone than males in older age groups (BOLS, 2003; ABS, 2007). Accordingly, the possibility could be contemplated that some of the differences in allocation preferences observed between males and females might be influenced by the behaviour of the large proportion of females in older age groups. The analysis of the pattern of age-specific expenditures for each sex should clarify whether the differences observed are due to the aggregation of data for all age groups or whether the differences persist when the age-specific patterns for each sex are taken into consideration.

10.4.2 Sex Preferences and Age in the United States

The examination of household consumer expenditure patterns for one-person households in the United States indicates that consumer expenditure in total tends to track income at different ages following the already mentioned hump-shaped pattern (Chapter 6), with aggregate expenditures rising to middle age and then falling. However, the peak in consumer expenditure in the United States tends to come earlier for one-person households than for the average for all households (BOLS, 2003).

The analysis of the allocation of consumer expenditures to specific consumer items indicates that, as observed, on average, for all households (Chapter 9), some items such as:

- food for home consumption
- health and medical care

are given a larger proportional allocation *late in life*, while:

- eating away from home
- alcoholic beverages
- clothing and footwear

Table 10.4 Male and female one-person household average annual consumer expenditure – selected items as a proportion of total expenditure by age of the householder – United States 2000–2001

	Age of householder (Years)						
	<25	25–34	35–44	45–54	55–64	>64	
	Percentage of all household consumer expenditure						All Ages
Food at home							
Males	4.6	5.6	6.2	8.5	7.3	7.9	6.5
Females	*5.6*	*5.1*	*7.5*	*8.3*	*7.9*	*10.0*	*8.2*
Food away from home							
Males	9.0	9.4	8.3	7.9	6.9	5.7	8.0
Females	*8.0*	*6.8*	*5.4*	*5.3*	*4.6*	*3.7*	*5.1*
Alcoholic beverages							
Males	3.2	2.5	2.4	2.2	2.0	1.5	2.3
Females	*1.6*	*1.6*	*0.9*	*0.9*	*0.5*	*0.6*	*0.9*
Tobacco							
Males	1.1	0.9	1.4	1.8	1.3	1.0	1.2
Females	*0.9*	*0.7*	*1.1*	*1.1*	*0.9*	*0.5*	*0.8*
Own dwelling							
Males	1.8	9.5	12.8	12.5	13.8	12.8	10.7
Females	*2.2*	*7.8*	*15.7*	*16.8*	*16.5*	*13.0*	*12.8*
Rented dwellings							
Males	15.1	16.8	12.7	12.5	8.0	8.7	12.6
Females	*20.2*	*19.2*	*13.1*	*9.8*	*7.8*	*9.4*	*11.7*
Clothing and footwear							
Males	5.1	4.7	4.0	3.6	3.1	1.9	3.8
Females	*7.4*	*6.3*	*6.2*	*6.1*	*5.1*	*4.3*	*5.5*
Motor vehicle purchase							
Males	15.5	10.0	10.8	7.3	11.3	9.8	10.5
Females	*8.5*	*10.4*	*5.1*	*5.6*	*7.5*	*3.5*	*5.8*
Public transport							
Males	1.0	1.6	1.4	1.1	1.4	1.0	1.3
Females	*1.5*	*2.0*	*1.4*	*1.6*	*1.5*	*1.6*	*1.6*
Health care							
Males	1.7	2.6	3.8	5.2	5.9	13.6	5.3
Females	*2.1*	*3.5*	*5.1*	*5.9*	*7.7*	*15.3*	*8.9*
Personal care							
Males	0.9	1.0	0.9	1.0	1.5	0.8	1.0
Females	*2.2*	*2.0*	*2.0*	*2.2*	*2.0*	*2.0*	*2.1*

Source: BOLS (2003). Calculations made by the authors.

are given a greater proportional allocation at *younger ages* (Table 10.4).

Nevertheless, the analysis of the allocation of expenditures by males and females living alone to specific items indicates that, on average, the differences in the proportional allocations by males and females prevail throughout the life cycle and that the variations are not a result of differences in the age distribution of males and females. This applies to:

- food away from home
- alcoholic beverages
- tobacco
- clothing and footwear
- health and medical care
- personal care

and to almost every age group in relation to:

- food consumed at home
- motor vehicle purchases

Rubin and Nieswiadomy (1994) found similar differences in the consumer patterns of retired and non-retired single males and females in an earlier analysis of household expenditure for 1986/7.

However, there are shifts in the case of expenditures on *owned* and *rented dwellings*. Females spend a larger proportion of their household expenditure on the aggregate of owned and rented dwelling throughout their life cycle. Nevertheless, there is a major shift in the allocation of household expenditure between renting and ownership during the life cycle of both males and females. In their late thirties and early forties (35–44 years of age), females' larger allocation to renting changes and their allocation to home ownership becomes greater than for renting, on average. This pattern prevails during the remainder of their life cycle. Males' lower allocations to both items also changes but their shift from renting to ownership occurs at a latter age in their late fifties and early sixties (55–64 years) (Fig. 10.1). Although expenditures by females on housing remain higher than those of males, the allocations to renting and ownership by males and females tend to converge after retirement age (Fig. 10.1).

The age-specific analysis of expenditure on given items confirms the home-orientation of females observed initially, their greater attention to the quality of their living environment and an earlier tendency to be concerned with the security of home ownership. The earlier decision made by single-person households headed by females to shift from renting to ownership (a big ticket item) does not follow suggestions that males take the initiative and make the decisions regarding big ticket items in the family context (Chaney, 1998). It also provides additional evidence of gendered preferences for given products expressed in their dissimilar allocation and progression for different items of expenditure. The age-specific analysis also indicates that the gendered distinctions in relation to some items may assume different importance during the life cycle of males and females (Table 10.4) as suggested by Palan (2001).

10.4.3 Sex Preferences and Age in Australia

The age-specific analysis of the Australian one-person household expenditure confirms differences and similarities in the consumer behaviour towards specific consumer items in the two countries.

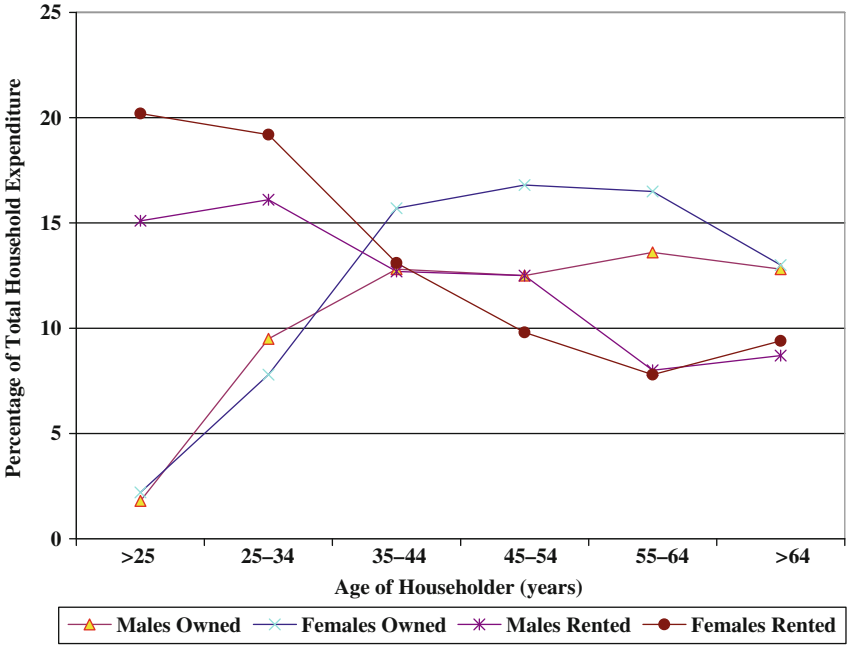

Fig. 10.1 Expenditure on owned and rented dwellings one-person households male and female allocations as percentage of total consumer expenditure – United States 2000–2001
Source: BOLS (2003). Computations made by the authors.

Accordingly, *alcoholic beverages*, *clothing and footwear* and *personal care* tend to be consumed, proportionately, more by *young people*, while *older people* allocate more to *food for home consumption*, *domestic fuel and power* and *health and medical services*. The age-specific analysis also indicates that the consumption of *tobacco* is highest among *middle age* males and females in both countries.

This analysis corroborates that *females* living alone in Australia show a consistently greater preference than males for:

- Clothing and footwear
- Personal care

and in most cases for:

- Food consumed at home

The inverse applies to:

- Food away from home
- Alcoholic beverages
- Tobacco
- Rented dwellings

Table 10.5 One-person household average annual consumer expenditure selected items as a proportion of total expenditure by age of male and female householders
Australia household expenditure survey 2003/4

	Age of householder (Years)					
	< 35	35–44	45–54	55–64	>64	
	Percentage of all household consumer expenditure					All ages
Food at home						
Males	10.5	10.7	12.1	13.8	14.2	11.9
Females	*10.7*	*12.2*	*11.9*	*12.8*	*17.2*	*13.6*
Food away from home						
Males	2.3	2.5	2.3	2.3	3.6	2.6
Females	*2.4*	*1.6*	*1.4*	*1.7*	*1.9*	*1.8*
Alcoholic beverages						
Males	5.2	4.5	4.7	5.1	3.9	4.7
Females	*2.1*	*1.8*	*1.6*	*1.3*	*0.9*	*1.4*
Tobacco						
Males	1.5	2.6	2.8	3.5	1.1	2.2
Females	*1.1*	*1.2*	*1.4*	*1.3*	*0.3*	*0.9*
Own dwelling						
Males	11.7	13.6	12.4	12.5	16.0	13.2
Females	*8.2*	*14.9*	*11.6*	*15.2*	*15.2*	*13.5*
Rented dwellings						
Males	16.2	12.2	9.5	7.1	6.0	11.0
Females	*16.7*	*12.6*	*8.9*	*4.8*	*5.4*	*8.7*
Clothing and footwear						
Males	1.4	1.5	1.0	1.7	1.0	1.3
Females	*5.9*	*2.5*	*3.6*	*3.4*	*3.7*	*3.8*
Motor vehicle purchase						
Males	5.6	6.8	2.6	5.3	2.0	4.7
Females	*5.8*	*3.4*	*7.4*	*4.7*	*3.2*	*4.6*
Public transport						
Males	0.6	0.2	0.6	0.2	0.3	0.4
Females	*0.7*	*0.4*	*0.4*	*0.5*	*0.4*	*0.4*
Health care						
Males	2.1	3.4	7.3	5.0	13.4	5.8
Females	*3.0*	*5.3*	*4.9*	*6.1*	*6.9*	*5.6*
Personal care						
Males	0.8	1.0	0.6	0.6	0.7	0.8
Females	*2.9*	*2.1*	*2.7*	*2.0*	*2.7*	*2.5*

Note: The Australian Household Expenditure Survey has some limitations in terms of sample size for some age groups for one-person dwellings. Consequently, the under 25 and 25–34 ages groups have been aggregated to make the estimates more reliable.
Source: ABS (2007). Computations made by the authors.

Previous analysis indicated that the substantial gender differences in the United States regarding home ownership did not apply to the same degree in the current Australian context. The age-specific analysis shows that males in Australia follow closely female behaviour in moving from spending more on rent early in the life cycle to spending more on home ownership (Table 10.5). Nevertheless, males in one-person households in Australia like their peers in the United States spend more on renting than females throughout their lives after they reach their middle ages (Tables 10.4 and 10.5).

10.5 Gendered Consumer Behaviour of People Living Alone

10.5.1 General Structural and Context Issues

In this examination of gendered consumer behaviour in one-person households in the United States and Australia, it has been necessary to take note of previous findings regarding the influence of demographic and income factors on consumer behaviour and also relevant characteristics of this population group. These factors are:

- Consumption tracks closely household income
- Males usually have higher average incomes than females
- Females generally have longer life expectancies than males
- Females tend to live in one-person households more than males
- Females tend to be older than males, on average

In addition, currently, income per capita in the United States is substantially higher than in Australia (Table 7.1). Further, although there are varied climate zones in the two countries, in general, the United States has colder winters than Australia. Inevitable cultural diversity and different government policies also play a role in consumer outlays in the two countries. In view of life-cycle patterns of consumption and income (Fig. 6.4 and Table 6.1), the search for gendered differences in consumer behaviour requires that attention be given to male and female behaviour at separate stages of their lives and levels of income.

10.5.2 One-Person and Average Households

One-person householders in the United States and Australia experience the same hump-shaped variation in income and consumption as average householders. However, income and consumption peak earlier in one-person households than on average for all households. Like the average for all householders, one-person householders tend to spend most of their total consumer expenditures on housing, transport and food.

One-person householders tend to show similar preferences to the average for basic and affluence type of commodities as their income rises. Accordingly, expenditures on food for home consumption, tobacco, household operation and supplies, including domestic fuel and power, tend to increase less than proportionately as household income rises. While spending on recreation, and usually on motor vehicles, clothing and footwear is inclined to increase as household affluence grows.

Similarly, young one-person householders share the general preference trend for rented dwellings, alcoholic beverages, clothing and footwear, personal care and older one-person householders show a preference for home ownership, household operation and supplies, including domestic fuel and power, food consumed at home, and health and medical care. In these two countries, middle aged people show a marked preference for tobacco consumption.

10.5.3 Gendered Consumer Behaviour

The review of consumer behaviour of people living alone in the United States and Australia indicates that consumers vary in their preferences for given consumer items according to their sex. These gendered behaviours are of interest, especially given some social, economic and demographic similarities of these two countries. Insights into some of the reasons for these differences may be found in the theoretical and conceptual observations found in Zukin and Maguire (2004).[4] Gendered behaviour may be expressed differently in different social contexts.

Ownership. There are marked differences in the preferences for ownership of housing (females) and of motor vehicles (males) in the United States; but males and females in Australia behave similarly in regard to the ownership of these two big-ticket items.

Home-orientation. Female's home-orientation is expressed in their relatively larger spending on food for home consumption than males, but also in their greater concern for household furnishings, equipment, services and supplies, including domestic fuel and power.

Outward-orientation. The lower focus of males on the home and greater outward-orientation is manifested in their lower expenditures on housing and also on their higher spending for transport. Their greater expenditure on food away from home is another expression of a gendered trait.

*Appearance to others***.** Females' concern with the way they appear to others and projection of self is apparent in their spending on clothing, footwear and personal care.

Stylisation. Male stylisation is expressed in their relatively larger expenditures on alcohol and tobacco consumption. However, the perceived role of males in their social interaction with females, in the two countries, may also lead

[4] Chapter 2 discusses different perspectives on consumer and gendered behaviour.

to them paying traditionally for meals away from home, alcoholic beverages and providing transport to females in their social rituals.

Extension of self. It has been noted that some commodities are used for other purposes in addition to any functional utility they may have. Their consumption can have semiotic significance in projecting self-perceived male and female characterisations and roles. These ways of self-expression may vary depending on local cultures. The female concern for clothing and personal care and the male spending on alcohol and smoking could be projections of female and male self-images. Further, the common and growing trend in spending on recreation, motor vehicles, clothing and footwear may be the media used for the expression of male and female identities and life styles *. . .manifested in choice of clothing [and] leisure activities* (Featherstone, 1987: 55).

Thus, there are substantial differences identified in male and female consumer behaviour, when close attention is given to income and age during their life cycle. These gendered differences are useful to give an additional demographic perspective and specification to consumer behaviour. As the comparison of one-person households in the United States and Australia indicates, some of this gendered behaviour may be specific to a given country or culture. However, there are major commonalities that prevail across countries with different climate, income per capita, social policies and cultures.

References

Australian Bureau of Statistics (ABS). (2000). *Australian social trends 2000*. Catalogue No. 4102.0. Canberra.

Australian Bureau of Statistics (ABS). (2008). *Australian social trends 2006*. Catalogue No. 4102.0. Canberra.

Australian Bureau of Statistics (ABS). (2007). *Household expenditure survey 2003–04*. Canberra. Tabulations of detailed items of household expenditure for one-person households.

Belk, R. W. (1988, September). Possessions and the extended self. *Journal of Consumer Research, 15*, 139–168.

Bureau of Labor Statistics (BOLS). (2003). *Consumer expenditures in 2001*. Washington, DC: US Department of Labor. Downloaded 2 October 2003.

Chaney, D. (1998). The new materialism? The challenge of consumption. *Work, Employment and Society, 12*(3), 533–544.

England, P., & Kilbourne, B. S. (1990, April). Feminist critiques of the separative model of self: Implications for rational choice theory. *Rationality and Society, 2*(2), 156–171.

Featherstone, M. (1987). Lifestyle and consumer culture. *Theory, Culture & Society, 4*, 55–70.

Krugman, H. E. (1965, Autumn). The impact of television advertising: Learning without involvement. *Public Opinion Quarterly, XXIX*, 349–356.

Palan, K. M. (2001). Gender identity in consumer behaviour research: A literature review and research agenda. *Academy of Marketing Science Review*, *10*, 1–28.

Rubin, R. M., & Nieswiadomy, M. (1994, April). Expenditure patterns of retired and nonretired persons. *Monthly Labor Review*, 10–21.

Swedberg, R. (1987, Spring). Economic sociology: Past and present. *Current Sociology, 35*(1), 1–144.

United Nations (UN). (2009). *World population prospects: The 2008 revision Population database*. New York: Population Division. http://esa.un.org/unpp/p2k0data.asp. Retrieved 26 June 2009.
US Census Bureau (USCB). (2000). *Money income in the United States 1999*. Current Population Reports, P60-209. Washington, DC: US Department of Commerce.
US Census Bureau (USCB). (2006). *Statistical abstracts of the United States*. Washington, DC: US Department of Commerce.
Vigneron, F., & Johnson, L. W. (1999). Review and a conceptual framework of prestige-seeking consumer behavior. *Academy of Marketing Science Review* (online 1999). Downloaded 3 December 2006.
Zukin, S., & Maguire, J. S. (2004). Consumers and consumption. *Annual Review of Sociology, 30*, 173–197.

Chapter 11
Age and Product Substitution and Cohort Preferences

11.1 Ageing: Role Change, Limitations and Product Substitution

One of the demographic characteristics of consumer behaviour is product substitution, as people age. In many countries, retirement tends to take place around 60–65 years of age.[1] Usually, retirement implies a major shift in life style with an associated change in the pattern of household consumption. It has been observed that older people change their preference for given consumer goods and services (Chapter 9). As the world population ages, especially in high income countries (Chapter 4), and people 65 years of age and over become a larger proportion of the population (Fig. 11.1), this trend will affect the demand for a range of products.

At older ages, the level of physical and other disabilities also impose substantial limitations on activity and influence the demand for different types of commodities. For instance, in the United States limitation in usual activities rose from an average of 17 percent of the non-institutionalised population at 45–64 years of age in 2002 to 35 percent at 65 and over years of age (DHHS, 2004). In Australia, about 23 percent of the non-institutionalised population aged 65 years and over had core activity limitation of a severe or profound nature in 2003 (AIHW, 2008).

After retirement, the usual decline in household income also forces not only a waning in overall consumption expenditure – even after taking into consideration the number of people in the household (Chapter 6) – but also product substitution to meet altered physical, social and economic functioning.

[1] Many agencies, such as the UNDP (United Nations Development Program), divide the age distribution in three segments of dependent children under 15 years of age, the old 65 years of age and over, and those 15–64 years of age presumed to be in work force age and less dependent on others (UNDP, 2007). With some exceptions, most analyses of household consumer expenditures tend to use the age of 65 as the lower limit of the old population. See for example Paulin (2000).

J.M. Martins et al., *Consumer Demographics and Behaviour*, The Springer Series on Demographic Methods and Population Analysis 30, DOI 10.1007/978-94-007-1855-5_11,

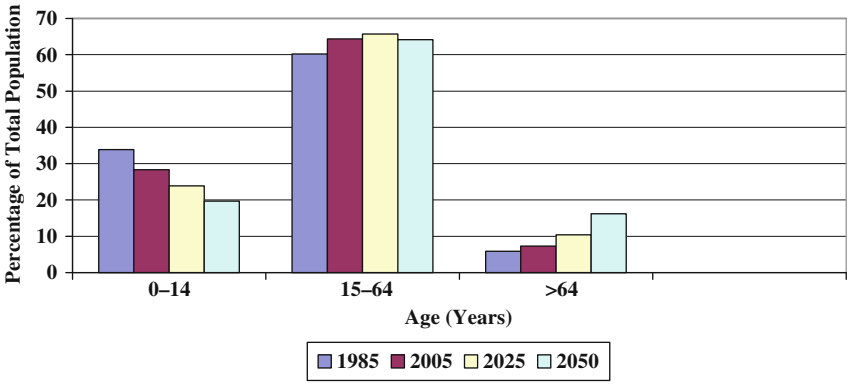

Fig. 11.1 Age distribution of world population – percentages 1985, 2005, 2025 and 2050
Source: UN (2009).

11.2 A Framework for Older Age Product Substitution

It could be posited that changes experienced by households after retirement have an effect on their preferences (Chapter 9) and that product substitution takes place according to increasing preferences for some products and decreasing preferences for others. These trends suggest a framework where households headed by people 65 years of age and over would have rising preferences for some products due to:

- Home orientation
- Increasing disability
- Alternative time use

They would have decreasing preferences for others because of lower:

- Work related activities
- Capacity for some pursuits
- Ownership drive

This framework has been used to assess the degree of product substitution in three countries: United States, Australia and the United Kingdom. These countries have been selected because of their common progression in the demographic transition that has led to a degree of ageing of their population. They are also high income countries with similar retirement ages and social security systems that ensure a degree of income security after retirement.[2]

[2]In addition, they have the advantage of offering readily accessible data of relevance to the analytical framework.

Box 11.1 Age Product Substitution Index

Product substitution and retirement involves questions of changing levels of household expenditure and how households ration lower household budgets in relation to given items of consumption. Using the age preference ratios (Box 9.1) that take into consideration proportional household consumption expenditure preferences changes with age, an index of product substitution can be built that reflects the ratio of age preferences for groups of products related to *greater home orientation*, *increasing disability*, and *alternative uses of time* to the age preferences for the group of products related to *lower work-related activities*, *capacity to consume certain products* and a *lower ownership drive*.

The **Age Product Substitution Index** (APSI) is defined as

$$\textbf{APSI} = \text{APR}^{\text{r}}/\text{APR}^{\text{w}}$$

where

$\textbf{APR}^{\textbf{r}}$ = Age Preference Ratio for retirement associated products

$$= \left[\left(g_n^r/g_a^r\right) / \left(g_n^{rw}/g_a^{rw}\right)\right]$$

g_n^r = Average household expenditure for *retirement-related* commodities for a given age n

g_a^r = Average household expenditure for *retirement-related* commodities for all ages

g_n^{rw} = Average household expenditure for *retirement* plus *work-related* commodities for a given age n

g_a^{rw} = Average household expenditure for *retirement* plus *work-related* commodities for all ages

$\textbf{APR}^{\textbf{w}}$ = Age Preference Ratio for work and pre-retirement related products

$$= \left[\left(g_n^w/g_a^w\right) / \left(g_n^{rw}/g_a^{rw}\right)\right]$$

g_n^w = Sum of the average household expenditure for *work-related* commodities for a given age n

g_a^w = Sum of the average household expenditure for *work-related* commodities for all ages

g_n^{rw} = Sum of the average household expenditure for *retirement* plus *work-related* commodities for a given age n

g_a^{rw} = Sum of the average household expenditure for *retirement* plus *work-related* commodities for all ages

The selected retirement preferred household expenditures are

Home orientation

- Food at home
- Utilities and other household operation goods and services

Increasing disability

- Medical and health services

Alternative time use

- Reading materials

The selected products with falling preferences in retirement are

Work related activities and different time use

- Clothing and footwear
- Current transport costs

Capacity for some pursuits

- Alcohol beverages
- Tobacco

Ownership drive

- Mortgage interest and charges
- Vehicle purchases
- Household furnishings and equipment

The $\mathbf{APR_r}$ should rise at 65 and over years of age
The $\mathbf{APR_w}$ should decline at 65 and over years of age
And the ***Age Product Substitution Index*** **APSI** should show an increase for ages 65 years and over.

An example of the estimation of the Age Product Substitution Index is given in Appendix 1.

11.3 Product Substitution by Older People in Selected Countries

11.3.1 Home Orientation

Retirement and other age factors tend to increase the time that people spend on domestic activities (Krantz-Kent, 2005; ABS, 2008; Lader, Short, & Gershuny, 2006) and their greater consumption of home related products and services such as *food consumed at home, domestic fuel and power,* and goods and services related to *household operation*. The application of the methodology in Box 11.1 indicates that in the three selected countries – United States, Australia and United Kingdom – preferences for these commodities rise considerably in households headed by people aged 65 years and over.

Although, this increasing preference is apparent in the three countries, the home orientation is considerably higher in Australia and the United Kingdom than in the United States (Table 11.1).

11.3.2 Increasing Disability

One of earlier features of the Demographic Transition was improvements in public health practices that led to a decline in mortality from infectious diseases that tend to be most important in early childhood while the immune system fights disease agents and builds up immunity to them. Continuing success in the control of infectious diseases with the advent of antibiotics and other drugs, better nutrition and living conditions have led to higher survival rates in childhood and longer life expectancies for adults. However, longer life expectancies have led to cumulative exposure to environmental and life-style risks that have resulted in a greater prevalence of non-communicable diseases that rises with age in the larger adult population, some of which become chronic (Pol & Thomas, 2002). This change in prevalence from communicable to non-communicable diseases, after controlling for change in age composition, has been called the *Epidemiological Transition* (WHO, 1997).

Table 11.1 Home orientation age preferences – United States (2007), Australia (2003/4) and United Kingdom (2007)

	Age preference ratios according to the age of the household head (years)				
Country	<35	35–44	45–54	55–64	>64
United States	0.97	0.97	0.99	0.99	**1.13**
Australia	0.88	1.01	0.95	0.99	**1.33**
United Kingdom	0.93[a]	0.92[a]	1.03[a]	–[a]	**1.30**

Note: The age distribution of the household head is as shown but that for the United Kingdom is [a]less than 35 years, 30–49, 50–64. The age preference ratios were estimated according to the methodology in Box 11.1.
Sources: BOLS (2009), ABS (2007) and ONS (2008). Computations made by the authors.

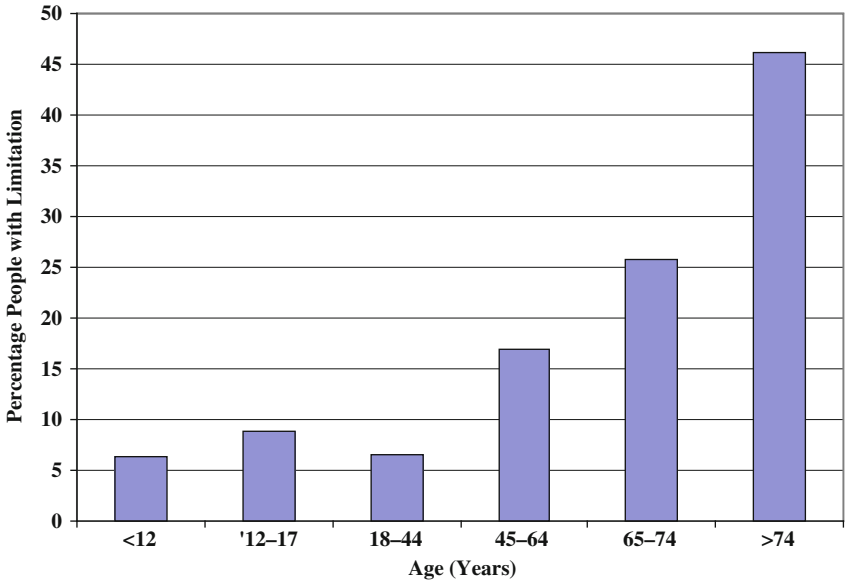

Fig. 11.2 Limitation of usual activity by age – United States, 2002
Source: DHHS (2004).

The increasing disability of people 65 years and over (Fig. 11.2) is accompanied by rising preference for household expenditure on *medical and health services.* The growing preference for expenditure on medical and health services is particularly high in the United States, but also considerable in the other two countries (Table 11.2).

It is important to note, this relative rise in household expenditures on medical and health services takes place in spite of the systematic and heavy subsidies for older people in the three countries for these services (Medicare in the United States,

Table 11.2 Increasing disability – age preferences – United States (2007), Australia (2003/4) and United Kingdom (2007)

	Age preference ratios according to the age of the household head (years)				
Country	<35	35–44	45–54	55–64	>64
United States	0.61	0.66	0.86	1.15	**2.12**
Australia	0.68	0.83	1.07	1.27	**1.51**
United Kingdom	0.63[a]	0.68[a]	1.38[a]	–[a]	**1.67**

Note: The age distribution of the household head is as shown but that for the United Kingdom is [a]less than 35 years, 30–49, 50–64. The age preference ratios were estimated according to the methodology in Box 11.1.
Sources: BOLS (2009), ABS (2007) and ONS (2008). Computations made by the authors.

Medicare and other programs in Australia, and the National Health Service in the United Kingdom).

11.3.3 Alternative Time Use

More time for leisure pursuits but lower physical capacity lead people in the three countries to show a greater preference for *reading* material, as an alternative use of time that does not demand physical exercise (Table 11.3).

11.3.4 Work Related Activities and Different Time Use

Retirement allows people to be less concerned with formal and often more costly *clothing and footwear*. Also, it diminishes the use of every day *transport* to and from work either by public or private means (Fig. 11.3).

Accordingly, people 65 years of age and over show a substantial decline in their preferences for these work-related commodities (Table 11.4).

11.3.5 Capacity for Some Pursuits

Socialisation and experimentation by younger people result in preferences for expenditure on some products such as *alcoholic beverages* and *tobacco*. Retirement tends to change some social activities of older people in the three countries (Krantz-Kent, 2005; ABS, 2008; Lader et al., 2006). In addition, greater concern for the effects of smoking and lower capacity for alcoholic consumption also plays a role in the decline of household expenditure preferences for these two products (Table 11.5).

Table 11.3 Alternative time use – age preferences – United States (2007), Australia (2003/4) and United Kingdom (2007)

	Age preference ratios according to the age of the household head (years)				
Country	<35	35–44	45–54	55–64	>64
United States	0.66	0.74	1.02	1.21	**1.58**
Australia	0.86	0.88	1.00	1.08	**1.43**
United Kingdom	0.57[a]	0.81[a]	1.19[a]	–[a]	**1.80**

Note: The age distribution of the household head is as shown but that for the United Kingdom is [a]less than 35 years, 30–49, 50–64. The age preference ratios were estimated according to the methodology in Box 11.1.
Sources: BOLS (2009), ABS (2007) and ONS (2008). Computation made by the authors.

Fig. 11.3 Time spent on paid work/study, domestic work and travel by age – average minutes per day, United Kingdom 2005
Source: Lader et al. (2006).

Table 11.4 Work related activities and different time use – age preferences – United States (2007), Australia (2003/4) and United Kingdom (2007)

	Age preference ratios according to the age of the household head (years)				
Country	<35	35–44	45–54	55–64	>64
United States	1.05	0.97	1.06	1.04	**0.86**
Australia	1.03	0.97	1.04	1.03	**0.89**
United Kingdom	1.07[a]	0.86[a]	1.09[a]	–[a]	**0.83**

Note: The age distribution of the household head is as shown but that for the United Kingdom is [a]less than 35 years, 30–49, 50–64. The age preference ratios were estimated according to the methodology in Box 11.1.
Sources: BOLS (2009), ABS (2007) and ONS (2008). Computation made by the authors.

Table 11.5 Capacity for some pursuits – age preferences United States (2007), Australia (2003/4) and United Kingdom (2007)

	Age preference ratios according to the age of the household head (years)				
Country	<35	35–44	45–54	55–64	>64
United States	1.23	0.89	1.00	1.08	**0.77**
Australia	1.12	0.93	1.04	1.09	**0.72**
United Kingdom	1.15[a]	0.93[a]	1.18[a]	–[a]	**0.92**

Note: The age distribution of the household head is as shown but that for the United Kingdom is [a]less than 35 years, 30–49, 50–64. The age preference ratios were estimated according to the methodology in Box 11.1.
Sources: BOLS (2009), ABS (2007) and ONS (2008). Computation made by the authors.

11.3.6 Ownership Drive

Home ownership is widespread in the three selected countries (BOLS, 2009; ABS, 2006; ONS, 2008). However, there is a tendency for the proportion of homes with mortgages to decline as people get close to retirement (Fig. 11.4).

This leads to lower expenditures on *mortgage interest and charges* in older ages. There is an associate decline on preference for expenditures on *household furnishings and equipment.*

Further, difference in life styles and use of transport leads to lower preference for expenditure on the purchase of *motor vehicles* (Table 11.6).

11.3.7 Age Product Substitution Index

The preference for products associated with retirement grows substantially when the head of the household reaches the age of 65 and over. The rise in the age preference ratios for these products that take into consideration both retirement and work-related products is consistent in the three countries, but more marked in the United Kingdom (Table 11.7).

The inverse is observed in the case of work-related products. The age preference ratios for these products fall noticeably for households whose head is 65 years of age and over. Again, the drop is consistent in the case of these three countries (Table 11.8).

Differential mortality for male and females leads to a larger proportion of households headed by people 65 years of age and over to be headed by females. Their greater home-orientation could influence the observed growing preference for retirement-related products and decline for work-related products. However, the analysis of data for expenditures by males and females during the life cycle indicates that although the values are of a different scale, the trends are the same for the two sexes for these products in the older age group of 65 years and over (Chapter 10).

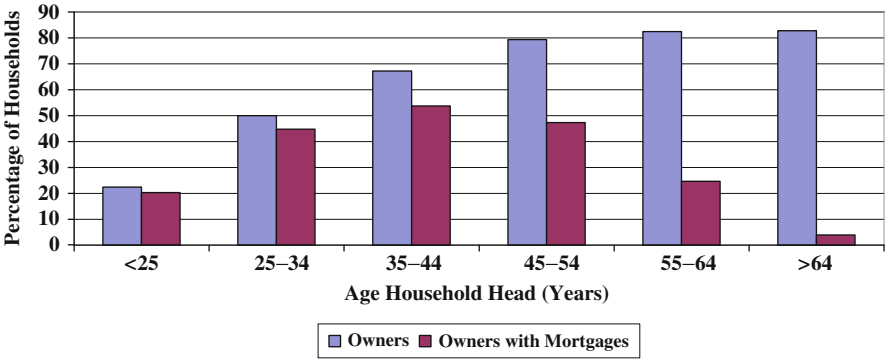

Fig. 11.4 Home ownership and mortgages by age of household head – Australia 2003/4
Source: ABS (2006).

Table 11.6 Ownership drive – age preferences
United States (2007), Australia (2003/4) and United Kingdom (2007)

	Age preference ratios according to the age of the household head (years)				
Country	<35	35–44	45–54	55–64	>64
United States	1.12	1.16	1.01	0.92	**0.66**
Australia	1.12	0.93	1.04	1.09	**0.72**
United Kingdom	1.10[a]	1.24[a]	0.84[a]	–[a]	**0.54**

Note: The age distribution of the household head is as shown but that for the United Kingdom is [a]less than 35 years, 30–49, 50–64. The age preference ratios were estimated according to the methodology in Box 11.1.
Sources: BOLS (2009), ABS (2007) and ONS (2008). Computation made by the authors.

Table 11.7 Age preference ratios for retirement products
– United States (2007), Australia (2003/4) and United Kingdom (2007)

	Age preference ratios according to the age of the household head (years)				
Country	<35	35–44	45–54	55–64	>64
United States	0.87	0.90	0.96	1.03	**1.37**
Australia	0.84	0.98	0.98	1.03	**1.36**
United Kingdom	0.87[a]	0.88[a]	1.07[a]	–[a]	**1.48**

Note: The age distribution of the household head is as shown but that for the United Kingdom is [a]less than 35 years, 30–49, 50–64. The age preference ratios were estimated according to the methodology in Box 11.1. Retirement products as defined in Box 11.1: home orientation, increasing disability and alternative use of time.
Sources: BOLS (2009), ABS (2007) and ONS (2008). Computation made by the authors.

Table 11.8 Age preference ratios for work related products
– United States (2007), Australia (2003/4) and United Kingdom (2007)

	Age preference ratios according to the age of the household head (years)				
Country	<35	35–44	45–54	55–64	>64
United States	1.09	1.07	1.03	0.98	**0.75**
Australia	1.10	1.01	1.01	0.98	**0.76**
United Kingdom	1.07[a]	1.06[a]	0.96[a]	–[a]	**0.74**

Note: The age distribution of the household head is as shown but that for the United Kingdom is [a]less than 35 years, 30–49, 50–64. The age preference ratios were estimated according to the methodology in Box 11.1. Retirement products as defined in Box 11.1: work related activities, capacity for some pursuits and ownership drive.
Sources: BOLS (2009), ABS (2007) and ONS (2008). Computation made by the authors.

Table 11.9 Age product substitution index – United States (2007), Australia (2003/4) and United Kingdom (2007)

	Age preference ratios according to the age of the household head (years)				
Country	<35	35–44	45–54	55–64	>64
United States	0.80	0.84	0.93	1.05	**1.84**
Australia	0.76	0.97	0.97	1.05	**1.77**
United Kingdom	0.82[a]	0.83[a]	1.11[a]	–[a]	**1.99**

Note: The age distribution of the household head is as shown but that for the United Kingdom is [a]less than 35 years, 30–49, 50–64. Age Product Substitution Index (APSI) was estimated according to the methodology in Box 11.1. As defined, the APSI is the quotient of the age preference ratios for retirement products by those for work related products for each age group. The APSI in this table uses APRs for the two types of products before decimals were rounded in Tables 11.7 and 11.8.
Sources: BOLS (2009), ABS (2007) and ONS (2008). Computation made by the authors.

The Age Product Substitution Index (APSI) shows a large substitution of work-related by retirement-related products for households headed by people 65 years of age and over. The trend prevails in the three countries (Table 11.9).

Although the APSI grows dramatically after 64 years of age, the APSI indicates that substitution between these two groups of goods and services is already taking place (Fig. 11.5 and Table 11.9), but to a much lesser extent, in older ages prior to 65 years of age (Table 11.9). No doubt, age product substitution involves different products in different countries with varying retirement ages, income maintenance in old age and cultural traits that affect the use of leisure time and demand for the range

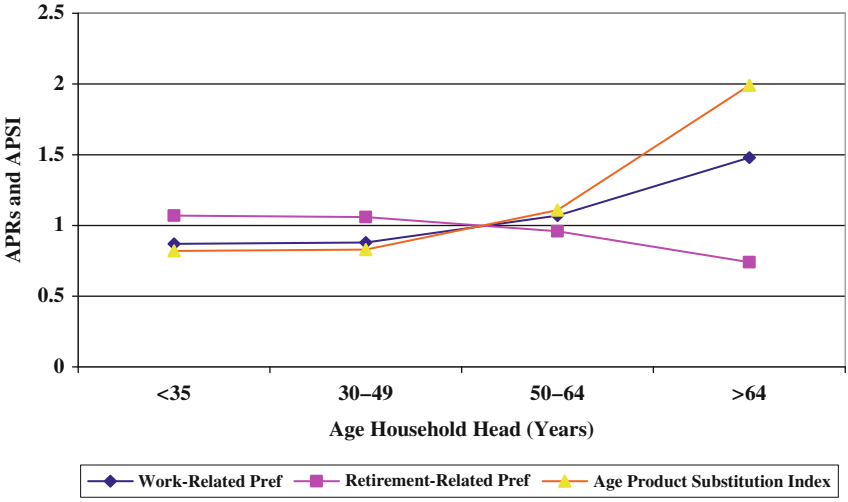

Fig. 11.5 Work and retirement related preferences (APRs), age product substitution index (APSI) by age of household head – United Kingdom 2007
Source: ONS (2008). Computation made by the authors.

of goods and services. Nevertheless, ageing influences economic and social roles and their evolution with consequent impact on preferences for different products and substitution of one for another.

The inevitable change in the age structure of the world population and the growth in the number and proportion of households headed by older people will affect product substitution in world markets. These demographic trends will increase the importance of older people in world markets (Magnus, 2009) with different life styles, needs and with lower purchasing power than when they were in gainful employment. These changes will pose challenges but also opportunities. Some of the challenges will be related to the growing social costs of disability that will raise the demand for social support, relevant housing and medical care, as older people with lower incomes may not have the ability to fully pay for them. Some of the opportunities relate to products and services that the life-styles of older people will offer. The greater leisure time of older adults should lead to a demand for recreational services that take into account lower incomes and greater physical disability. The different economic and social functioning should also lead to demand for different type of clothing and footwear, as well as transport services. Further, the greater home orientation should also lead to related demand for food products that meet older people changed needs, as well as personal care products and services.

11.4 Cohort Preferences: The Identification Problem

11.4.1 Cross-Sectional and Longitudinal Held Preferences: Pseudo-Panels

The life cycle is a major determinant of consumer behaviour. However, people of a given age group may experience major events in their formative years that influence their behaviour as consumers during the rest of their lives. They may also be subjected to prevailing tastes during these formative years that future generations may not, as new products become available or in more common use.

Cross-sectional surveys tend to capture consumer preferences according to their current income, age or some other demographic characteristic such as sex. However, cohort (people born during a defined period of time) preferences are more difficult to identify because of the variables involved such as change in age, transient temporal effects, and in the case of household consumer expenditures changes in the prices of given commodities over time. They also require more elaborated analytical methods involving multi-variable regression analysis, because of number of variables that need to be dealt with: age, period and cohort.

The longitudinal follow-up of given cohorts and their consumer preferences over time can be used to assess preferences that given cohorts hold constant during their life cycle. These studies tend to be costly and difficult to maintain over the time required. However, these studies also face the same problems in setting apart the

effects of period, age and cohort on consumer behaviour. A less costly and more accessible alternative is to use cross sectional surveys carried out at regular intervals as *pseudo-panels* and examine the preferences of a group in the population born during a given period as they age.

A number of assumptions are implicit. An important one is that people in a given age group remain homogeneous in spite of flows in and out due to migration and mortality. This may not hold if the geographical area and the population concerned are relatively small. Thus, the use of national surveys that cover large geographical areas and have low migration levels in relation to the total population is more likely to provide more reliable data bases for the assessment of cohort effects. There are also a number of statistical issues that need to be taken into consideration to separate any cohort effect from period and age effects. A discussion of the statistical issues involved is beyond the scope of this text. A considered review of these questions is contained in a paper by Mason and Wolfinger (2001). One of the issues is that the data structure for measurements related to cohorts relies on age at a given period of time. The relationship could be expressed as

$$\text{Cohort} = \text{Period} - \text{Age}$$

This relationship between age, period and cohort leads to co-linearity between the three variables and what has been called the *identification problem* in cohort analysis (Mason & Wolfinger, 2001). Reitz, Reynolds, and Stout (1983) also reviewed related issues and their summation was that the *constrained multiple regression model* is the most attractive from a conceptual and statistical perspective among the methods offered.

11.4.2 Cohort, Period and Age Effects: Constrained Models

It is in this later context that the experience of household expenditures on poultry in the United States over the years 1984, 1994 and 2004 has been reviewed to assess the presence of any cohort effect. The same assessment was undertaken for household expenditures on alcoholic beverages in Australia over the same period.

The average expenditures by age of the household head for the three periods were adjusted to 1984 prices using the consumer price indexes for poultry in the United States and alcoholic beverages in Australia.

It is apparent that in the United States, households headed by younger people (Cohorts 7, 8 and 9) had a tendency to increase or maintain expenditures on poultry while those headed by older people followed a different pattern with rises in 1994 and drops in 2004 (Table 11.10). The question remains whether these observed patterns are the effects of changes in age, period or cohort. The average household expenditure on alcoholic beverages in Australia shows mixed patterns, in spite of a general tendency for lower expenditure on alcoholic beverages at 65 years of age and over (Table 11.11).

Table 11.10 Average annual household expenditure on poultry, age of household head, United States 1984, 1994 and 2004, at 1984 Prices ($US)

Age	Period 1984 (1)	Period 1994 (2)	Period 2004 (3)	Cohort
Less than 25 (1)	42	53	60	C9
25–34 (2)	81	94	91	C8
35–44 (3)	112	133	107	C7
45–54 (4)	105	139	116	C6
55–64 (5)	94	108	92	C5
65–74 (6)	69	77	73	C4
75 and over (7)	55	67	55	C3
Cohort		C1	C2	

Note: Cohort 1 (C1) born before 1919, Cohort 2 (C2) born between 1920 and 1929, Cohort 3(C3) born between 1930 and 1939, Cohort 4 (C4) born between 1940 and 1949, Cohort 5 (C5) born between 1950 and 1959, Cohort 6 (C6) born between 1960 and 1969 about 1964, Cohort 7 (C7) born between 1970 and 1979 and Cohort 8 (C8) born after 1980.
Source: BOLS (2010a, 2010b, 2010c, 2010d). Computations made by the authors.

Table 11.11 Weekly average household expenditure on alcoholic beverages, age of household head, Australia 1984, 1994 and 2004, at 1984 prices ($AUS)

Age	Period 1984 (1)	Period 1994 (2)	Period 2004 (3)	Cohort
Less than 25 (1)	15.29	12.65	12.49	C8
25–34 (2)	12.86	10.53	10.19	C7
35–44 (3)	13.46	9.90	9.51	C6
45–54 (4)	16.75	11.51	12.14	C5
55–64 (5)	12.87	9.19	10.35	C4
65 and Over (6)	5.29	5.47	4.38	C3
Cohort		C1	C2	

Note: Cohort 1 (C1) born before 1919, Cohort 2 (C2) born between 1920 and 1929, Cohort 3(C3) born between 1930 and 1939, Cohort 4 (C4) born between 1940 and 1949, Cohort 5 (C5) born between 1950 and 1959, Cohort 6 (C6) born between 1960 and 1969 about 1964, Cohort 7 (C7) born between 1970 and 1979 and Cohort 8 (C8) born after 1980.
Source: ABS (1987, 1996, 2006, 2010). Computations made by the authors.

Following Reitz et al. (1983), two data bases were built using household expenditures on poultry in the United States and alcoholic beverages in Australia to assess the relative effect of age, period and cohort on the average household expenditures by age of the household head. For each of the two items, age, period and cohort constrained models were used with household expenditures as the dependent variables and age, period and cohort as the independent variables.

Table 11.12 Analysis of variance results for constrained period, age and cohort models, household expenditures by age of the household head, poultry in the United States and alcoholic beverages in Australia 1984, 1994 and 2004, at 1984 prices

	ANOVA results for poultry			ANOVA results for alcoholic beverages		
	Adjusted R^2	Standard error of estimate	Significance	Adjusted R^2	Standard error of estimate	Significance
Period	0.911	8.050	0.001	0.278	2.806	0.331
Age	0.908	8.184	0.002	0.934	0.851	0.002
Cohort	0.931	7.079	0.001	0.163	3.561	0.653

Source: Computations of the authors using SPSS (Statistical Package for the Social Sciences) and the Reitz et al. (1983) approach.

The analysis of variance indicates that the cohort model is the best fit of the three models of period, age and cohort in the case of household expenditures on poultry in the United States in the periods 1984–1994–2004. However, the results for alcoholic beverages in Australia show that the age model is the best fit with poor period and cohort results (Table 11.12).

The use of average household expenditures do not take into consideration the varying number of people in households as the age of the household head changes over time. To test the nature of the results following the Reitz et al. (1983) approach, the data for household expenditure on poultry in the United States, that showed the cohort model as that with best fit, was changed to show average expenditures per person in the household (per capita) using the number of people in households for the seven age groups in 1984, 1994 and 2004.

The results from the analysis of variance show that the order of the coefficient of determination (R^2) changed substantially with the period model being the best fit followed by age and cohort (Table 11.13). This example illustrates the difficulties in the identification problem of cohort effects.

Table 11.13 Analysis of variance results for constrained period, age and cohort models, household expenditures on poultry by age of the household head per capita in the United States, 1984, 1994 and 2004, at 1984 prices

	ANOVA results for period, age and cohort constrained models		
	Adjusted R^2	Standard error of estimate	Significance
Period	0.909	2.118	0.002
Age	0.726	3.672	0.032
Cohort	0.720	3.715	0.034

Source: Computations of the authors using SPSS (Statistical Package for the Social Sciences) and Reitz et al. (1983) approach.

Box 11.2 Generational Cohorts

The behaviour of different generations has been the subject of social comment throughout history. From an analytical perspective, it is important to differentiate between the term generation in relation to family structures such as grandparent, parent and child generations (Hobbs, 2005) and generation as a demographic and social cohort. The use of generation (cohort) as a method of social analysis has been attributed to Mannheim (Abercrombie, Hill, & Turner, 2000). A generational cohort is seen as a group of people who have been exposed to similar events that affect their consciousness and collective behaviour. Mannheim's concepts involve:

- G*enerational site* or *location*: generations as age groups that are exposed in their formative years to common events.
- *Generation as actuality*: these events influence their consciousness and collective behaviour.
- *Generational units*: the collective exposure and consciousness does not preclude the existence of generational units within the cohort that may not address issues in the same way (Mannheim, 1970).

In addition to sociology, the generational cohort approach has been used in epidemiology, such as in the case of the British cohort studies (e.g. Bartley, Power, Blane, Smith, & Shipley, 1994), and also in marketing (Moore & Pareek, 2010). The generational approach has been given considerable currency in the United States and has resulted in a substantial literature (e.g. Ryder, 1965; Schuman & Scott, 1989; Strauss & Howe, 1997; Carlson, 2008). It is of particular interest here because of its relevance to the demographic analysis of consumer behaviour and its wide use in marketing. The increasing globalisation of marketing has contributed to the spread of the characterisation of generations regarding their consumer behaviour in other countries (e.g. Heaney, 2007).

An issue has been the definition of the periods and also the multitude of names given to the same generational cohorts. Much of this definitional work has taken place in the United States. Therefore, their application elsewhere may require validation from empirical evidence. In the United States, there is greater agreement on the definition of generational cohorts for the post World War II period than before it. Usually, it is accepted that there are four major generational cohorts from 1946 to 2000. They are:

Baby Boomers Generation – born about 1946–1964
X Generation – born about 1965–1979
Y Generation – born about 1980–2000

The Y Generation has also been known as the *Echo Generation* (children of the Boomers) and as the *Millennial Generation*. In some cases, the Boomers are divided into two groups those born 1946–1954 and those born 1955–1964. However, none of these definitions are held consistently in the literature and overlaps occur.

There is less agreement on the definition of generational cohorts for those born in previous periods. Those born between 1929 and 1945 have sometimes been labelled as the *Silent Generation* and have been considered the *Lucky Few* (Carlson, 2008) because of their small numbers and opportunities available to them in the post-war period. This group has also been divided in two comprising those born during World War II (1939–1945), as those born 1930–1939 as the *Depression Generation.* People born about 1912–1929 have been less consistently characterised as the *Lost Generation* by some and *Greatest Generation* by others.

In terms of characterisation, the *Depression Generation* was exposed to the economic difficulties of the Depression of the 1930s and the experience of growing up during World War II and the Korean War. They benefited from the improved economic and employment conditions of post World War II with growing exposure to television and popular music. The *Baby Boomers* grew in times of relative economic security and employment. They were exposed to events related to the Cold and the Vietnam Wars. They also faced social changes that led to greater participation of females in the workforce, family breakdown through divorce and changing social attitudes towards sexual relationships and drug taking. These were accompanied by new music tastes and informal clothing. *Generation X* was raised in families with dual-incomes but insecure family structures. They experienced the fluctuating economic and employment conditions of the 1990s, the end of the Cold War but also the impact of AIDS. They also experienced the growing trend towards globalisation of business, employment opportunities and international travel and outsourcing. Although the computer revolution started earlier, the *Y Generation* grew up engaged with new forms of information technology that changed the educational and work environment, as well as entertainment and communication. The exposure to different events is believed to have led to differing social stances regarding their attitudes and decisions as consumers by each generational cohort (Williams, Page, Petrosky, & Hernandez, undated). However, much of the stereotyping of the different generational cohorts is controversial because of the difficulty in separating the effects of period, age and cohort. In addition, the homogeneous nature of the individual generations can also be questioned because of what Mannheim called generational units within each cohort with different incomes and identification with particular social classes or groups.

11.5 Cohort Effects: Reading Material in the United States

Another example could be used to examine the possible presence of cohort effects in consumer behaviour. The advent of television and other sources of information and recreation such as the internet have been accompanied by a decline in household expenditures on reading material, such as books and magazines, in the United States in the years 1984–2004.

These lower expenditures, after adjustment for price changes and the number of people in the household, have been common to most age groups in these three decades (Fig. 11.6). This indicates what could be called a strong period effect. A question that could be raised is whether there are any cohort effects as reading habits

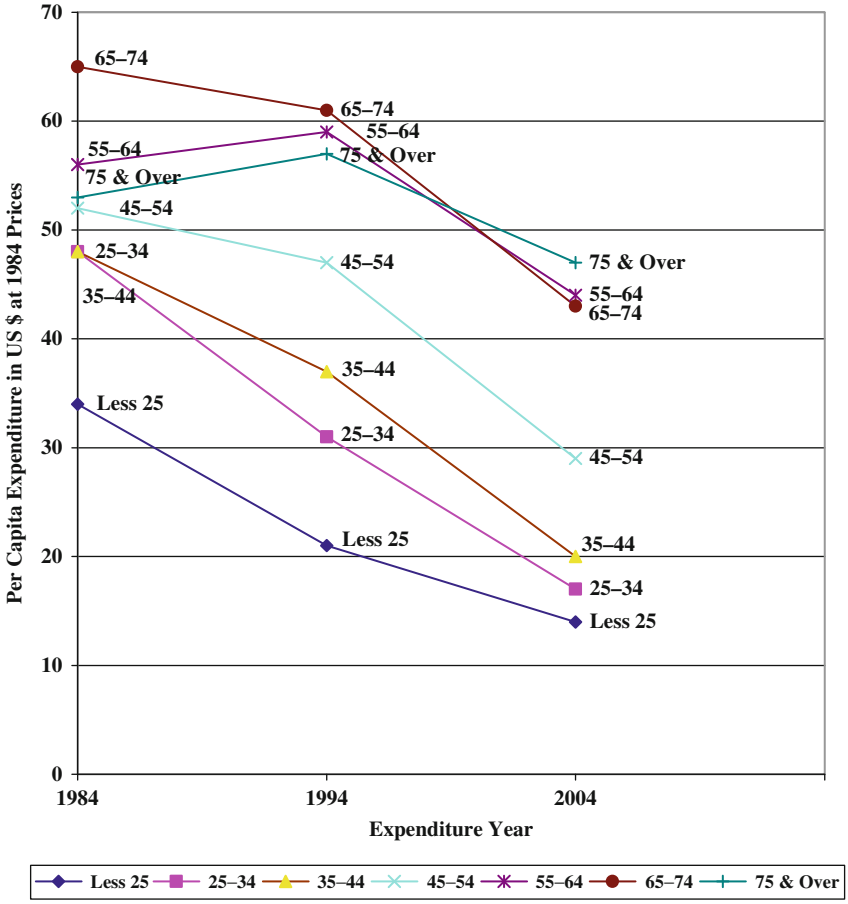

Fig. 11.6 United States household expenditure on reading materials per capita, at 1984 prices, by age of household head 1984, 1994 and 2004
Source: BOLS (2010a, 2010b, 2010c, 2010d). Computations made by the authors.

acquired during formative years might also have had an influence on consumer behaviour.

A review of the average household expenditure (per capita) at constant 1984 prices according to the age of the household head shows that older cohorts have tended to incur larger expenditures per capita, at 1984 prices, at the same ages than those cohorts born more recently (Fig. 11.7).

As stated earlier, the question of co-linearity between period, age and cohort presents an identification problem for any cohort effects. With some caveats, a possible test is to examine the best fit of models that relate, in the first instance, period (independent variable) to the dependent variable, in this case, household expenditure per capita by age of the household head at 1984 prices, and then period and cohort as independent variables to the dependent variable. The aim of this test is to assess whether the addition of the cohort variable improves the statistical fit of the model.

Analysis of variance results indicates that the coefficient of determination (R^2) improves when cohort is added as an independent variable to the period model

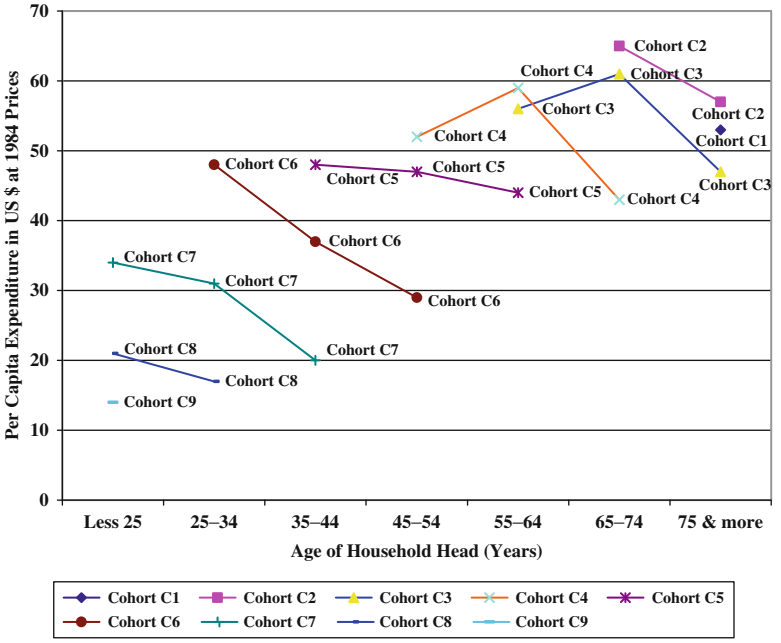

Fig. 11.7 United States household expenditure on reading materials per capita, at 1984 prices, by age of household head 1984, 1994 and 2004

Note: (a) Cohort 1 (C1) born before 1919, Cohort 2 (C2) born between 1920 and 1929, Cohort 3(C3) born between 1930 and 1939, Cohort 4 (C4) born between 1940 and 1949, Cohort 5 (C5) born between 1950 and 1959, Cohort 6 (C6) born between 1960 and 1969 about 1964, Cohort 7 (C7) born between 1970 and 1979 and Cohort 8 (C8) born after 1980.

Source: BOLS (2010a, 2010b, 2010c, 2010d). Computations made by the authors.

Table 11.14 Analysis of variance results for period, period and cohort models household expenditures on reading materials by age of the household head per capita in the United States, 1984, 1994 and 2004, at 1984 prices

Models (independent variables)	ANOVA results		
	Adjusted R^2	Standard error of estimate	Significance
Period	0.250	13.220	0.029
Period and Cohort	0.921	4.276	0.000

Source: Computations made by the authors using SPSS (Statistical Package for the Social Sciences).

(Table 11.14). This supports the contention that although there have been changes in household expenditures on reading materials in the United States during the periods from 1984 to 2004, there have also been substantial cohort effects, as observable in the graphical representation of the data (Fig. 11.7).

11.6 Life-Cycle Transformations: Product Substitution and Kept Habits

People's life cycle influences their demand for different commodities reflecting their social and economic roles, as well as their capacity for different activities that have a direct impact on their gainful employment as well as their leisure. Thus, the age of the household head is a major determinant of household consumption (Chapters 6 and 9). Retirement is a most important event in the life cycle leading to substantial life-style changes. The change in economic-related activity provides greater leisure time but also lower incomes. In addition, physical and social functioning is affected by rising disability that tends to increase in older age. These life-style transformations lead to product substitution to meet different capacity and needs (Table 11.9). However, some acquired preferences during formative years also influence consumer behaviour as people get older (Table 11.14).

The increased home-orientation after retirement leads to a greater preference for food to be consumed at home, as well as relatively larger expenditures on domestic fuel and power, and expenditures associated with household operations. The orientation away from gainful employment, in the selected countries, allows for more casual dressing and lower expenditures on clothing and footwear. This orientation also reduces the demand for transport and related expenditures. The lesser capacity to consume alcoholic beverages but greater leisure time influence the reduced expenditures on alcohol beverages and preference for expenditures on reading materials. Among other things, increasing disability also raises the demand for medical care and related household expenditures. Thus, life-style transformations that accompany retirement have a substantial impact on demand for goods and services and lead to

product substitution to accommodate changed needs within the context of smaller household budgets.

Although cohort held preferences for some products are more difficult to identify, they are important in the examination of household consumption patterns and market positioning to respond to the continuing demand for some goods and services that are not favoured equally by each cohort that make up the entire population. This might apply to the type of beverages that people consume, such as non-alcoholic beverages, food ingredients, for instance red meat and poultry, and different recreation pursuits such as reading, television viewing and internet use.

Appendix 1: Age Product Substitution Index Estimation – Example

An example is shown below of the estimation of the Age Product Substitution Index using data from a United States household expenditure survey (BOLS, 2009).

Type of expenditure	Average household expenditures by age of household head					
	<35	35–44	45–54	55–64	>64	All ages
Home-orientation	7,045	10,121	9,647	8,973	7,409	8,565
Increasing disability	1,473	2,315	2,792	3,476	4,631	2,853
Alternative time use	66	107	137	151	143	118
Retirement preferences	*8,584*	*12,543*	*12,576*	*12,600*	*12,183*	*11,536*
Work related act. and dif. time use	6,578	8,711	8,911	8,148	4,849	7,395
Capacity for some pursuits	818	848	886	886	461	780
Ownership drive	8,505	12,620	10,249	8,713	4,532	8,931
Work-related	*15,902*	*22,179*	*20,046*	*17,747*	*9,842*	*17,106*
Total retirement and work	*24,486*	*34,722*	*32,622*	*30,347*	*22,025*	*28,642*

The following example uses the definitions and notation in Box 11.1

$$APSI = Age\ Product\ Substitution\ Index = APR^r / APR^w$$

$$APR^r = Age\ Preference\ Ratio\ for\ retirement\ associated\ products$$

$$= \left[\left(g_n^r / g_a^r\right) / \left(g_n^{rw} / g_a^{rw}\right)\right]$$

$$APR^w = \textit{Age Preference Ratio for work and pre-retirement related products}$$

$$= \left[\left(g_n^w / g_a^w\right) / \left(g_n^{rw} / g_a^{rw}\right)\right]$$

(see Appendix 1 in Chapter 9 for an example of the estimation of Age Preference Ratios)

	Age Preference Ratios (APRs)					
	<35	35–44	45–54	55–64	>64	All ages
Home-orientation	0.97	0.97	0.99	0.99	1.13	1.00
Increasing disability	0.61	0.66	0.86	1.15	2.12	1.00
Alternative time use	0.66	0.74	1.02	1.21	1.58	1.00
Retirement preferences	*0.87*	*0.90*	*0.96*	*1.03*	*1.37*	*1.00*
Work related act. and dif. time use	1.05	0.97	1.06	1.04	0.86	1.00
Capacity for some pursuits	1.23	0.89	1.00	1.08	0.77	1.00
Ownership drive	1.12	1.16	1.01	0.92	0.66	1.00
Work-related	*1.09*	*1.07*	*1.03*	*0.98*	*0.75*	*1.00*
Age product substitution index	*0.80*	*0.84*	*0.93*	*1.05*	*1.84*	*1.00*

The index show increasing substitution with age of work-related to retirement preferences, especially at the age of 65 and over (1.84).

Appendix 2: Age, Period, Cohort Analysis Constrained Multiple Regression – Example

The passage of time exposes people born in different periods to diverse events and changing environments. Cohort analysis is concerned with the identification of behaviour of people *entering a system at the same time* (Mason & Wolfinger, 2001), usually birth, that differs from that related to their changing age or the period

when it takes place. Thus, cohort analysis involves three interrelated independent variables: age, period and cohort that affect behaviour expressed in terms of a dependent variable. The co-linearity of the three temporal variables leads to identification problems of the effects of each of the three variables on behaviour. Cohort analysis relies on consistent data collection either from panel surveys or pseudo-panels from cross-sectional surveys. Panel surveys are less common than cross-sectional surveys carried out at regular intervals and provide age, period and cohort data. The following example shows a pathway to a statistical method that has been used to identify cohort effects. It is outside the scope of this text to provide an explanation of the statistical issues involved. A review of these issues is contained in Mason and Wolfinger (2001). A paper by Reitz et al. (1983) also reviews the statistical issues and proposes an approach to assess cohort effects.

Average annual household expenditure on poultry age of the household head, United States, 1984, 1994 and 2004 at 1984 Prices ($US)

Age	Period 1984 (1)	Period 1994 (2)	Period 2004 (3)	Cohort
Less than 25 (1)	42	53	60	
25–34 (2)	81	94	91	C9
35–44 (3)	112	133	107	C8
45–54 (4)	105	139	116	C7
55–64 (5)	94	108	92	C6
65–74 (6)	69	77	73	C5
75 and over (7)	55	67	55	C4
				C3
Cohort		C1	C2	

Note: Cohort 1 (C1) born in 1909 or earlier, Cohort 2 (C2) born between 1910 and 1919, Cohort 3 (C3) born between 1920 and 1929, Cohort 4 (C4) between 1930 and 1939, Cohort 5 (5) between 1940 and 1949, Cohort 6 (C6) between 1950 and 1959, Cohort 7 (C7) between 1960 and 1969, Cohort 8 (C8) between 1970 and 1979, and Cohort 9 (C9) born after 1979.
Source: BOLS (2010a, 2010b, 2010c, 2010d).

The above table gives an example on how pseudo-panels can be built from three cross-sectional surveys, such as the CEX (Consumer Expenditure Survey) carried out in the United States by the Bureau of Labor Statistics in the years 1984, 1994 and 2004. The data provides information on age, the period and by implication cohort on the diagonal. The *identification problem* lies in the linear dependency of the three variables.

A constrained multiple regression model has been used to overcome the co-linearity problem of the form

$$Y_{ap} = \mu + \beta_a + \gamma_p + \delta_c + \varsigma_{ap}$$

Y_{ap} = dependent variable for each age group and period
β_a = age effect
γ_p = period effect
δ_c = cohort effect
μ = grand mean of the dependent variable
ς_{ap} = random error
(*Source*: Reitz et al., 1983)

The above data can be used to build a data base as inputs in the constrained models for age, period and cohort for the analysis of variance (ANOVA) using a statistical package such as SPSS.

Data base
(a1–a7, p1–p3 and c1–c9 refer respectively to dummy variables for age, period and cohort)

y	Age (x1)	Period (x2)	Cohort (x3)	a1	a2	a3	a4	a5	a6	a7	p1	p2	p3	c1	c2	c3	c4	c5	c6	c7	c8	c9
42	1	1	7	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
81	2	1	6	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	
112	3	1	5	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	
105	4	1	4	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	
94	5	1	3	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	
69	6	1	2	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	
55	7	1	1	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	
53	1	2	8	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	
94	2	2	7	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	
133	3	2	6	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	
139	4	2	5	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	
108	5	2	4	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	
77	6	2	3	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	
67	7	2	2	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	
60	1	3	9	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
91	2	3	8	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
107	3	3	7	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
116	4	3	6	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0
92	5	3	5	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0
73	6	3	4	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0
55	7	3	3	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0

From this data base three constrained models can be built. The constraints consist of the exclusion of at least one variable from each of the three matrices. A criterion for the selection in this case was the exclusion of older ages, older periods and older cohorts.

Age model (dropping the oldest age group, two oldest periods and two oldest cohorts)

y	a1	a2	a3	a4	a5	a6	p3	c3	c4	c5	c6	c7	c8	c9
42	1	0	0	0	0	0	0	0	0	0	0	1	0	0
81	0	1	0	0	0	0	0	0	0	0	1	0	0	0
112	0	0	1	0	0	0	0	0	0	1	0	0	0	0
105	0	0	0	1	0	0	0	0	1	0	0	0	0	0
94	0	0	0	0	1	0	0	1	0	0	0	0	0	0
69	0	0	0	0	0	1	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	1	0	0	0	0	0	0	0	0	0	0	0	1	0
94	0	1	0	0	0	0	0	0	0	0	0	1	0	0
133	0	0	1	0	0	0	0	0	0	0	1	0	0	0
139	0	0	0	1	0	0	0	0	0	1	0	0	0	0
108	0	0	0	0	1	0	0	0	1	0	0	0	0	0
77	0	0	0	0	0	1	0	1	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	1	0	0	0	0	0	1	0	0	0	0	0	0	1
91	0	1	0	0	0	0	1	0	0	0	0	0	1	0
107	0	0	1	0	0	0	1	0	0	0	0	1	0	0
116	0	0	0	1	0	0	1	0	0	0	1	0	0	0
92	0	0	0	0	1	0	1	0	0	1	0	0	0	0
73	0	0	0	0	0	1	1	0	1	0	0	0	0	0
55	0	0	0	0	0	0	1	1	0	0	0	0	0	0

Period model (dropping two oldest age group, one oldest period and two oldest cohorts)

y	a1	a2	a3	a4	a5	p2	p3	c3	c4	c5	c6	c7	c8	c9
42	1	0	0	0	0	0	0	0	0	0	0	1	0	0
81	0	1	0	0	0	0	0	0	0	0	1	0	0	0
112	0	0	1	0	0	0	0	0	0	1	0	0	0	0
105	0	0	0	1	0	0	0	0	1	0	0	0	0	0
94	0	0	0	0	1	0	0	1	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	1	0	0	0	0	1	0	0	0	0	0	0	1	0
94	0	1	0	0	0	1	0	0	0	0	0	1	0	0
133	0	0	1	0	0	1	0	0	0	0	1	0	0	0
139	0	0	0	1	0	1	0	0	0	1	0	0	0	0
108	0	0	0	0	1	1	0	0	1	0	0	0	0	0
77	0	0	0	0	0	1	0	1	0	0	0	0	0	0
67	0	0	0	0	0	1	0	0	0	0	0	0	0	0
60	1	0	0	0	0	0	1	0	0	0	0	0	0	1
91	0	1	0	0	0	0	1	0	0	0	0	0	1	0
107	0	0	1	0	0	0	1	0	0	0	0	1	0	0
116	0	0	0	1	0	0	1	0	0	0	1	0	0	0
92	0	0	0	0	1	0	1	0	0	1	0	0	0	0
73	0	0	0	0	0	0	1	0	1	0	0	0	0	0
55	0	0	0	0	0	0	1	1	0	0	0	0	0	0

Cohort model (dropping two oldest age group, two oldest periods and one oldest cohort)

y	a1	a2	a3	a4	a5	p3	c2	c3	c4	c5	c6	c7	c8	c9
42	1	0	0	0	0	0	0	0	0	0	0	1	0	0
81	0	1	0	0	0	0	0	0	0	0	1	0	0	0
112	0	0	1	0	0	0	0	0	0	1	0	0	0	0
105	0	0	0	1	0	0	0	0	1	0	0	0	0	0
94	0	0	0	0	1	0	0	1	0	0	0	0	0	0
69	0	0	0	0	0	0	1	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	1	0	0	0	0	0	0	0	0	0	0	0	1	0
94	0	1	0	0	0	0	0	0	0	0	0	1	0	0
133	0	0	1	0	0	0	0	0	0	0	1	0	0	0
139	0	0	0	1	0	0	0	0	0	1	0	0	0	0
108	0	0	0	0	1	0	0	0	1	0	0	0	0	0
77	0	0	0	0	0	0	0	1	0	0	0	0	0	0
67	0	0	0	0	0	0	1	0	0	0	0	0	0	0
60	1	0	0	0	0	1	0	0	0	0	0	0	0	1
91	0	1	0	0	0	1	0	0	0	0	0	0	1	0
107	0	0	1	0	0	1	0	0	0	0	0	1	0	0
116	0	0	0	1	0	1	0	0	0	0	1	0	0	0
92	0	0	0	0	1	1	0	0	0	1	0	0	0	0
73	0	0	0	0	0	1	0	0	1	0	0	0	0	0
55	0	0	0	0	0	1	0	1	0	0	0	0	0	0

The analysis of variance (ANOVA) for the three models can be carried out to assess the coefficients of determination (R^2) for each model. Following Reitz et al. (1983), if the cohort effect is the one that fits best then the R^2 for the cohort model should be the highest of the three coefficients of determination.

ANOVA Results

Model	Adjusted R^2	Standard error of estimate	Significance
Period	0.911	8.050	0.001
Age	0.908	8.184	0.002
Cohort	0.931	7.079	0.001

In this case, the cohort model is the best fit with a R^2 of 0.931 that it is higher than those for the period and age models.

It is important to state that this method can give different results depending on the choices made in the selection of the constrained models.

References

Abercrombie, N., Hill, S., & Turner, B. S. (2000). *The Penguin dictionary of sociology*. London: Penguin Books.

Australian Bureau of Statistics (ABS). (2006). *Household expenditure survey – summary of results – Australia 2003–04 (reissue)*. Catalogue No. 65305.0. Canberra.

Australian Bureau of Statistics (ABS). (2007). *Household expenditure survey 2003–04*. Canberra. Tabulations of detailed items of household expenditure for all and one-person households.

Australian Bureau of Statistics (ABS). (2008). *How Australians use their time, 2006*. Catalogue No. 4153.0. Canberra.

Australian Institute of Health and Welfare (AIHW). (2008). *Australia's health 2008*. Canberra.

Bartley, M., Power, C., Blane, D., Smith, G. D., & Shipley, M. (1994, December). Birth weight and later socioeconomic disadvantage: Evidence from the 1958 British cohort study. *British Medical Journal, 309*, 1475.

Bureau of Labor Statistics (BOLS). (2009). *Consumer expenditures in 2007*. Washington, DC: US Department of Labor.

Bureau of Labor Statistics (BOLS). (2010a). *Consumer expenditure survey 1984*. Washington, DC: US Department of Labor. http://stats.bls.gov/cex. Accessed 28 July 2007.

Bureau of Labor Statistics (BOLS). (2010b). *Consumer expenditure survey 1994*. Washington, DC: US Department of Labor. http://stats.bls.gov/cex. Accessed 28 July 2007.

Bureau of Labor Statistics (BOLS). (2010c). *Consumer expenditure survey 2004*. Washington, DC: US Department of Labor. http://stats.bls.gov/cex. Accessed 28 July 2007.

Bureau of Labor Statistics (BOLS). (2010d). *Consumer price index – All urban consumers*. Washington, DC: US Department of Labor. cpi_info@BLS.gov. Accessed 22 Sep 2010.

Carlson, E. (2008). *The lucky few: Between the greatest generation and the baby boom*. New York: Springer.

Department of Health and Human Services (DHHS). (2004). *Summary health statistics for the U.S. population: National Health Interview Survey, 2002*. Hyattsville, MD: May 2004.

Heaney, J. (2007). Generations X and Y's internet banking usage in Australia. *Journal of Financial Services Marketing, 11*, 196–210. doi:101057/palgrave.fsm.4760052.

Hobbs, F. (2005). *Examining American household composition: 1990 and 2000*. Census 2000 special Reports CENSR-24. Washington, DC: US Printing Office.

Krantz-Kent, R. (2005, September). Variations in time use at stages of the life cycle. *Monthly Labor Review*, 38–45.

Lader, D., Short, S., & Gershuny, J. (2006). *The time use survey, 2005*. London: Office of National Statistics.

Magnus, G. (2009). *The age of ageing. How demographics are changing the global economy and the world*. Singapore: Wiley (Asia).

Mannheim, K. (1970). The problem of generations. *The Psychoanalytical Review, 57*, 378–404.

Mason, W. M., & Wolfinger, N. H. (2001). *Cohort analysis*. CCPR-005-01, April 2001. Los Angeles: University of California. On-line Working Paper Series http://escholarship.org/uc/iem/8wc8v8cv. Accessed 4 Jan 2011.

Moore, K., & Pareek, N. (2010). *Marketing: The basics*. New York: Rutledge.

Office of National Statistics (ONS). (2008). *Family spending: A report on the 2007 Expenditure and Food Survey*. London: Palgrave Macmillan.

Paulin, G. D. (2000, May). Expenditure patterns of older Americans, 1984–97. *Monthly Labor Review*, 3–28.

Pol, L., & Thomas, R. (2002). *The demography of health and health care*. Boston, MA: Kluwer Academic/Plenum Publishers.

Reitz, J. O., Reynolds, F. D., & Stout, R. G. (1983, February). Analysing changing consumption patterns with cohort analysis. *Journal of Marketing Research*, *xx*, 12–20.

Ryder, N. B. (1965). The cohort as a concept in the study of social change. *American Sociological Review, 30*, 843–861.

Schuman, H., & Scott, J. (1989). Generations and collective memories. *American Sociological Review, 54*, 359–381.

Strauss, W., & Howe, N. (1997). *The fourth turning*. New York: Broadway Books.

United Nations (UN). (2009). *World population prospects: The 2008 Revision Population Data Base*. New York. http://esa.un.org/unpp/p2k0data.asp. Accessed 26 June 2009.

United Nations Development Program (UNDP). (2007). *Human development report 2007/2008*. New York: Palgrave Macmillan.

Williams, K. C., Page, R. A., Petrosky, A. R., & Hernandez, E. H. (undated). Multi-generational marketing: descriptions, characteristics, lifestyles and attitudes. *Journal of Applied Business and Economics, 11*(2). www.na.businesspress.com.JABE/Jabe112/WilliamsWebb.pdf.

World Health Organization. (1997). *The world health report 1997*. Geneva: World Health Organization.

Chapter 12
Demographic Perspectives on Consumer Behaviour and Implications for the Future

12.1 Demographic Transition and Household Purchasing Power

The Demographic Transition in the 20th century was accompanied by an almost four- fold growth in the world's population from 1.6 to 6.1 billion people (Table 4.1). However, the growth in world markets was even greater (Fig. 12.1). This represented among other things a dramatic rise in productivity and allowed substantial increments in average household consumption in general and food in particular, well above that envisaged by Malthus.

Population growth was not evenly distributed because countries started their decline in mortality and fertility at different points in time, and found themselves at different stages of the Demographic Transition at the end of the 20th century with varying degrees of population growth (Table 4.6). The disparities in the fall of mortality and fertility affected not only population size but also resulted in clusters of societies with different age composition (Table 4.6) and markets with varying emphases on demand for goods and services. Further, under restrictive

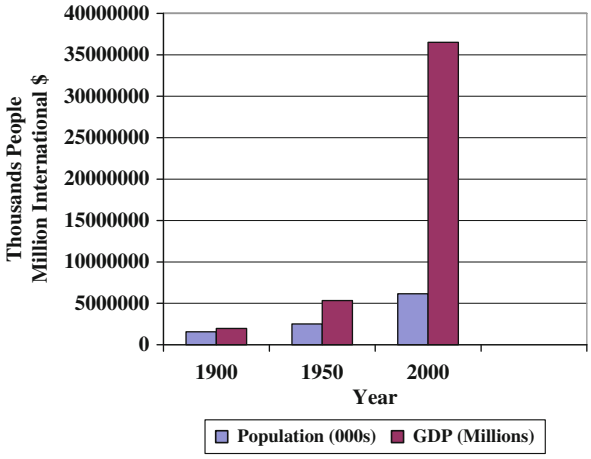

Fig. 12.1 World population and gross domestic product 1900–2000 – population in thousands of people and GDP in millions international 1990 dollars (purchasing power parities)
Source: USCB (2003); UN (2001, 2005, 2007, 2009); Maddison (2003).

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assumptions, it can be shown that rapid population growth can affect the rate of growth in income per head of population (Table 5.1) that influences the purchasing power of households and the size and composition of markets for different types of commodities.

12.2 Population Growth, Age Distribution and Demand for Basic and Progressive Commodities

Population growth and age distribution have an impact not only on the size of markets but also on consumer preferences. Countries experiencing large population growth from natural increase have usually a larger proportion of dependent children and lower productivity per head of population. This affects household purchasing power and raises concerns with basic necessities such as food. Engel's Law reflects this priority in consumer behaviour: the lower the income of households the larger the proportion of their income they spend on food (Fig. 5.2) and consequently the less they have for other commodities. This progression is also explicit in Maslow's hierarchy of human needs that starts with physiological wants (Fig. 2.1).

During the 20th century there was an association between population growth and income per head of population. In general, countries with high population growth also had lower incomes per capita while countries with low population growth had higher income per capita (Table 12.1). Following Engel's Law, countries with low income per head of population spent a larger proportion on food than those with high incomes (Fig. 5.2). For instance, in India on average more than half of the household budget was spent on food in 2000 (Table 5.6) while in the United States it was less than a sixth (Table 7.2). This implies that households in high income countries have disposable purchasing power that they use to consume a larger proportion of progressive commodities than households in countries with lower incomes. This progression is found consistently in cross-sectional comparisons of countries with different incomes per head of population such as the World Bank study of purchasing power parities for 2005 (Fig. 5.2) and by longitudinal studies of purchasing power parities such as Maddison's (2003) study of the United Kingdom 1668–1996 (Table 1.1).

Table 12.1 Gross domestic product per capita (2005 purchasing power parities), annual percentage population growth (1975–2005) in low, middle and high income countries

Income level	GDP per capita PPPs 2005 $000s	Annual average population growth 1975–2005 (percent)
High Income	33.1	0.7
Middle Income	7.4	1.4
Low Income	2.5	2.3

Source: UNDP (2007).

12.3 Inequality of Household Income, Consumption and Progression

The observed inequality of income per head of population among countries is accompanied by household income inequality within countries. Although the degree of inequality varies from country to country, this is usually the situation in both higher and lower income countries (Table 8.1). As household consumption tracks income, the purchasing power of different income groups in society varies considerably (Table 8.2).

For instance, in the United States in 2007 households in the lowest income quintile accounted for about 9 percent of the country's household consumption expenditures while the highest quintile spent about 37 percent (Table 8.2).

Further, measures of commodity preferences indicate that as households income rise their preferences for food and housing tend to decline and preferences for progressive commodities such as transport (motor vehicle ownership) and recreation tend to grow (Tables 8.3 and 11.11). Thus, while the 20 percent of households with the highest income in the United States in 2007 spent 37 percent of the aggregated household consumer expenditure they spent 44 percent of the aggregated expenditure on recreation (Fig. 12.2).

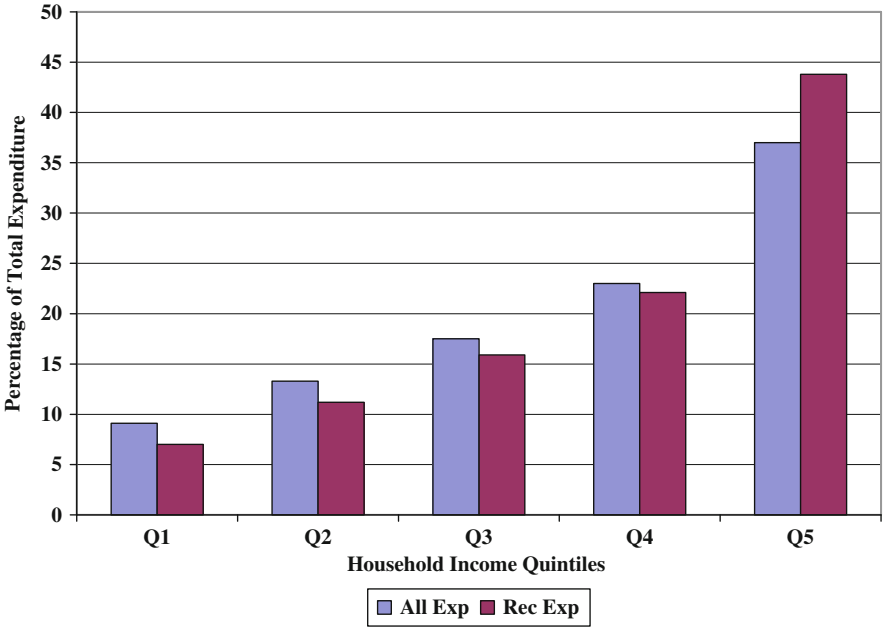

Fig. 12.2 Recreation and total consumer household expenditures by income quintile as proportion of the total expenditure for all households – United States 2007
Source: BOLS (2009).

12.4 Household Consumption and the Life Cycle

Markets for different products are also affected by consumers' behaviour during their life cycle (Table 9.9). A feature of the life cycle is change in physical (Fig. 11.2) and social functioning (Fig. 12.3), and work activity (Fig. 11.3) that impact both on income and consumer behaviour. Thus, the dissimilar age distributions in the clusters of young, adult and older countries place varying emphases on commodities demanded.

In most societies, households headed by young people are either at a stage of investing in skills for the future, or gaining work experience and possibly forming a family. People tend to be physically active. Education, family interaction, occupation and recreational activities provide venues for social contact and economic activity is a source of rising income security. Males have more social interaction among colleagues while females tend to spend more time with family after family formation. In general terms, these attributes continue through middle age with a focus on family and economic activity, and continuing physical and social functioning. In many cases, especially for males but increasingly for females as well, the workplace is a major source of social interaction and economic engagement. After middle age, as children leave home to form their own households, empty nesters' family responsibilities decline but they continue to be economically and socially engaged. The ageing process tends to reduce physical functioning and retirement often reduces social interaction, especially for males, as well as household income.

Another feature of the life cycle is the hump in participation in the labour force (Fig. 9.2). This affects not only household income (Table 6.1) but also leads to different life styles and demand for consumer goods and services. In addition, as personal consumption closely tracks income (Fig. 6.1) there is a similar hump shaped curve in

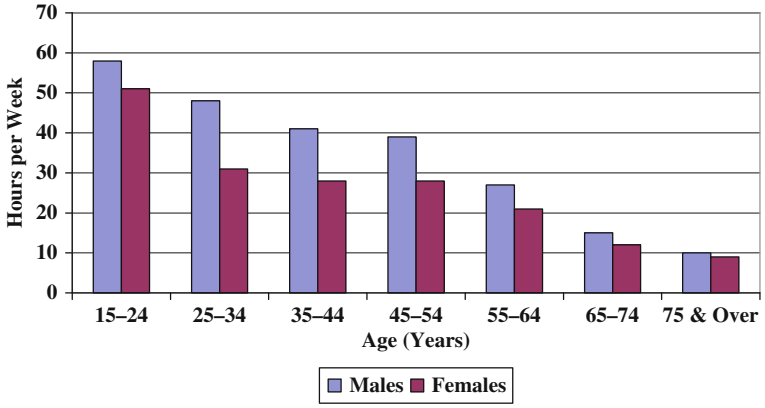

Fig. 12.3 Average hours per week spent with friends, colleagues, neighbours and acquaintances by age – Australia 2006
Source: ABS (2008).

household consumption (Fig. 9.3), even after taking into consideration the number of people in the household (Fig. 9.4).

Within this overall pattern of household expenditure, different patterns evolve for different types of commodities. Thus, households headed by young and middle aged people, often with dependent children, show a propensity to spend on education. Older people with increasing disabilities have a tendency to spend on medical and health care. Although, older people have more leisure time, they tend to spend it in on lower cost recreation, such as television watching and reading (Fig. 12.4). Young people and middle age people usually with higher incomes have a propensity to spend on recreation and culture items. The use of alcoholic beverages varies from culture to culture. However, in many countries it is associated with tobacco use and the socialisation of younger and middle aged people. Household spending on clothing and footwear can be associated with fashion or occupation. Thus, young people involved in social stylisation and middle aged people in a variety of occupations have a propensity to spend on clothing and footwear (Table 9.9), while older people place a lower preference for these items in their smaller household budgets. Older people after retirement tend to spend more time at home and have a propensity to spend on domestic fuel and power and other household operation items. Household expenditures on transport can take the form of public and private transport. The level of expenditure on public transport tends to be relatively low and is influenced by

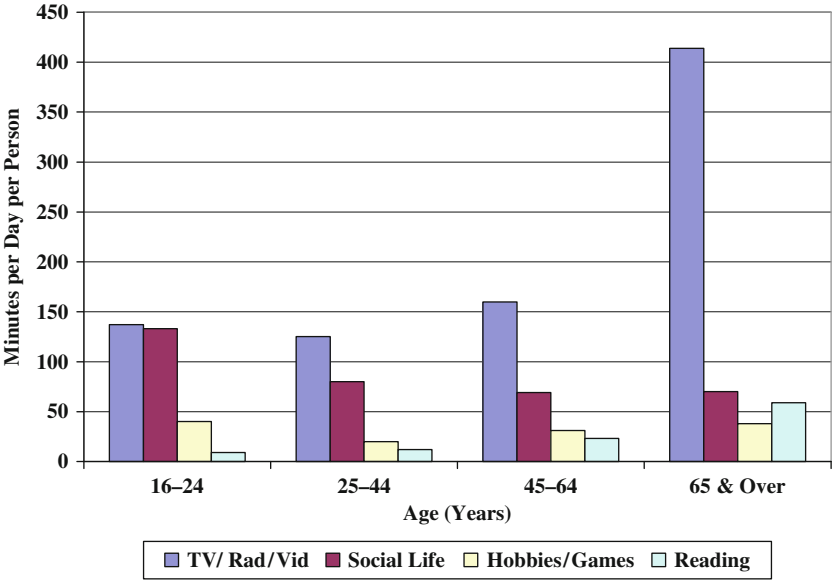

Fig. 12.4 Selected leisure activities – average minutes per day per person – United Kingdom 2005
Source: Lader, Short, and Gerhuny (2006).

the degree of government subsidies. Private transport usually in the form of motor vehicles is a typical progressive commodity and middle aged people with higher incomes show a propensity to spend on this item. Older people usually retired and with a greater home-orientation tend to have a low propensity to spend either on private or public transport. Food is a typical basic commodity. Older people have a propensity to spend on food. The greater home orientation of older people also leads to a tendency to spend relatively less on food away from home, while young and middle aged people tend to have a propensity to spend more on it (Table 10.4). Household expenditures on housing are influenced by steps in home ownership. In countries with a culture that favour home ownership, older people tend to have completed the purchasing of their home while younger and middle aged people are either renting or paying off their mortgages and spending more on housing. Although the acquisition of the more expensive and durable household furniture and appliances tends to follow purchasing cycles, young and middle aged people show a higher propensity to spend on these items than older people (Table 9.9).

12.5 Gendered Consumer Preferences

Sex is another basic demographic characteristic. Both biological and social factors have influenced the specialisation of females and males in social and economic terms. A fundamental difference is related to biological and social roles in child bearing. This has led females to be more closely linked with domestic settings to be closer to children, especially in early stages of life, while males are more involved in paid work, usually in non-domestic settings. Accordingly, males tend to spend more time in paid work while females tend to spend more time in domestic work, including child rearing (Fig. 12.5). As male and female roles as consumers tend to be embedded in their perceived social roles, caution needs to be taken in assessing male and female engendered consumer preferences. Further, females tend to earn less than males and have an associated lower purchasing power (Table 10.2).

In general terms, females have a greater home orientation in their consumer behaviour. This is expressed in their tendency to spend on food for home consumption, while males have a propensity to spend on food away from home. Females' home orientation is also reflected in their tendency to spend on household furniture and appliances and on goods and services related to household operation. Females' concerns with their own appearance and what has been considered signs of extensions of self affect their consumer behaviour and propensity to spend on clothing and footwear and personal care. Males' outward orientation has a bearing on their consumer behaviour in terms of spending on food away from home and transport in general and motor vehicles in particular. Male expression of self and stylisation could be said to influence their consumer behaviour that favour spending on tobacco and alcoholic beverages (Tables 10.2, 10.4, and 10.5). The perceived social roles of males and females may also influence male spending on food away from home, alcohol beverages and transport in their social interaction with females.

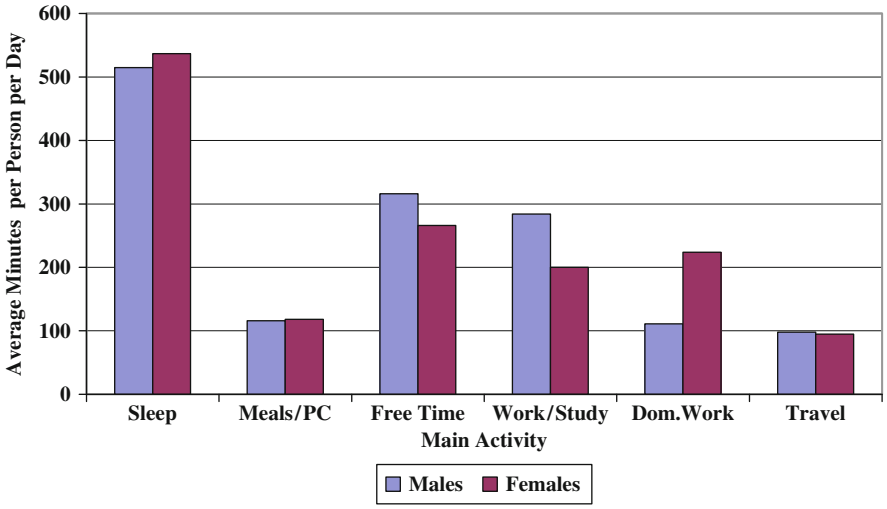

Fig. 12.5 Time spent on main activities by sex – United Kingdom 2005
Source: Lader et al. (2006).

12.6 Future Population and Markets Growth

Population momentum resulting from the age composition of the present population stock will influence future population growth and its age distribution. Any assumption regarding a continuing fall in fertility would affect the projected number of children born but will not prevent continuing large number of births from young adult populations. The large stock of middle aged people, especially in high income countries but also in some middle income countries, will ensure the growth of the number and proportion of older people, even if the expected rise in life expectancy does not take place. The United Nations projections hypothesize a continuing decline in fertility and mortality for the twenty-year period 2005–2025. This would result in a substantial decline in population growth in both more and less developed countries. It would also lead to a lower proportion of children not entirely compensated by the rise in the proportion of older people. More developed countries would be the exception. The proportion of older people would tend to outpace that of children. In general, this projection would lead to an increase in the working population in less developed countries with a lower proportion of dependents (Table 12.2).

Investments in human and other capital in that 20-year period would further improve the productivity and the capacity of households in less developed countries to spend a larger proportion of their higher income per head of population on progressive commodities. However, this shift would also require substantial investments in related infrastructure. For instance, greater car ownership would demand investment in roads and cleaner technologies to deal with motor vehicle emissions. The same applies to the greater market penetration of domestic appliances. It would

Table 12.2 World population, growth and age distribution by development stage 2005 and 2025

Countries by stage of development	Population millions	Population growth percent p.a.	Total fertility rate (children)	Life expect (years)	Age distribution (years) percent		
					0–14	15–64	65 and over
	2005						
World	*6,512.3*	*1.26*	*2.67*	*66.4*	*28.3*	*64.4*	*7.3*
Least Developed	761.8	2.36	4.78	52.8	41.2	55.6	3.2
Other Less Developed	4,533.9	1.32	2.61	66.6	29.3	64.9	5.8
More Developed	1,216.6	0.36	1.58	75.8	17.0	67.7	15.3
	2025						
World	*8,011.5*	*0.86*	*2.30*	*71.1*	*23.9*	*65.7*	*10.4*
Least Developed	1,165.5	1.91	3.48	59.7	35.4	60.5	4.1
Other Less Developed	5568.9	0.81	2.15	71.5	23.4	67.3	9.3
More Developed	1277.1	0.14	1.67	79.7	15.9	63.3	20.8

Note: Population growth, total fertility rate (children per woman) and life expectancy (at birth) are for the period 2000–05 and 2020–25.
Source: UN (2009).

require greater use of electrical power by households and the growth of energy sources with its resource use and environmental implications. Depending on cultural traits the use of alcohol and demand for recreation would also increase as household expenditure on these items is highly progressive (Table 8.3). In some markets, especially those in high income countries, ageing would affect the demand for medical services. This would also be the case for some large middle income countries that have experienced earlier declines in fertility such as China and Brazil (Table 4.6) with a larger proportion of older people. Clothing and footwear are also progressive commodities that would be affected by the large proportion of people in working age and with higher incomes. However, the bias towards older ages in high income countries would lead to a relatively lower demand for these consumer items.

12.7 Demographic Bonus and Emerging Larger Progressive Markets

In 2005, 10 high income countries with about 13 percent of the world population accounted for about 50 percent of the world's gross domestic product in purchasing power parities (WB, 2008). These countries have had relatively low fertility and

population growth, with the exception of countries such as Australia and Canada with relatively low fertility but large migrant inflows. The decline in fertility in recent decades in many less developed countries has also led to a fall in the proportion of children but without an entirely compensating rise in dependent older people. This has resulted in a *demographic bonus* in the growth of the number and proportion of the people in working age and an opportunity for substantial rises in productivity and income per head of population.

China and India are two countries of special interest because in 2005 they represented about 38 percent of the world's population (Table 4.4) but only 14 percent of the world's gross domestic product (WB, 2008). These two large and emerging markets have and could gain substantially from their *demographic bonus* of more people in working force and lower proportion of dependent people (Table 12.3). In the future, the *demographic bonus* could be felt more in India because China's decline in fertility has been greater in the past and it is projected to experience a slight decline in proportion of people 15–64 years of age from about 70 percent in 2005 to 69 percent in 2025. However, China's projected proportion of people in the labour force age in 2025 would still be slightly higher than the projected proportion of about 68 percent in India (Table 12.3) and that of more developed countries of about 63 percent (Table 12.2). Current consumer behaviour in these two countries follows Engel's Law and has shown a substantial progression towards consumer durables, transport, education and culture (Martins, Yusuf, & Brooks, 2011). Consumer behaviour away from bare essentials has been manifested by a propensity to spend on progressive commodities as household income rises, in the two countries. This trend has and could have a major impact on market penetration for progressive goods and services in the two countries, with more than a third of the world's population.

Table 12.3 China and India population, growth and age distribution 2005 and 2025

Countries	Population millions	Population growth percent p.a.	Total fertility rate (children)	Life expect. (years)	Age distribution (years) percent		
					0–14	15–64	65 and over
	2005						
World	*6,512.3*	*1.26*	*2.67*	*66.4*	*28.3*	*64.4*	*7.3*
China	1,312.3	0.70	1.77	70.5	22.0	70.4	7.6
India	1,130.6	1.62	3.11	62.0	33.1	62.3	4.6
	2025						
World	*8,011.5*	*0.86*	*2.30*	*71.1*	*23.9*	*65.7*	*10.4*
China	1,453.1	0.31	1.85	74.0	18.0	68.6	13.4
India	1,431.3	0.92	2.12	68.1	24.7	68.0	7.3

Note: Population growth, total fertility rate (children per woman) and life expectancy (at birth) are for the period 2000–05 and 2020–25.
Source: UN (2009).

12.8 Demographic Deficits and Ageing of Progressive Markets

The declining fertility in high income countries in the period 1965–2005 reduced population growth and led to an age distribution with a lower proportion of children that was not fully compensated by the rise in the proportion of people in retirement age. An outcome was an increment in the proportion of people in working age from 64 percent in 1965 to 68 percent in 2005 (UN, 2009, Tables 4.6 and 4.8), and a more productive population. This demographic change is similar to that projected for some less developed countries in the period 2005–2025. An important difference is that less developed countries constitute the largest proportion of the world population, while more developed countries make up only about one fifth (Table 12.2). Nevertheless, the projected low fertility in more developed countries for the period 2005–2025, below replacement level, would result not only in low population growth, on average, but also in a decline in the proportion of people in working age and a commensurate increase in the proportion of the dependent population, especially people in retirement age (Table 12.2). In the case of Germany and Japan, which after the United States and China account for the largest gross domestic products, in purchasing power parities, the population would decline and the population in working age would fall substantially, especially in Japan to less than 60 percent and the dependent population 65 years of age and over would grow to about 30 percent of the whole population (Table 12.4). The maintenance of the current level of household consumption in more developed countries, especially in progressive commodities, would have to rely on substantial productivity improvements through technological change and or a change in the usual age of retirement.

The lower proportion of children and the rise in retired people would have an impact on household consumer behaviour, in these countries. Accordingly,

Table 12.4 Germany and Japan population, growth and age distribution 2005 and 2025

Countries	Population millions	Population growth percent p.a.	Total fertility rate (children)	Life expect. (years)	Age distribution (years) percent		
					0–14	15–64	65 and over
	2005						
World	*6,512.3*	*1.26*	*2.67*	*66.4*	*28.3*	*64.4*	*7.3*
Germany	82.4	0.08	1.35	78.7	14.3	66.9	18.8
Japan	127.4	0.12	1.30	82.1	13.8	66.3	19.9
	2025						
World	*8,011.5*	*0.86*	*2.30*	*71.1*	*23.9*	*65.7*	*10.4*
Germany	79.3	–0.29	1.44	81.6	12.4	62.5	25.1
Japan	120.8	–0.47	1.35	84.9	11.1	59.2	29.7

Note: Population growth, total fertility rate (children per woman) and life expectancy (at birth) are for the period 2000–05 and 2020–25.
Source: UN (2009).

households would have a relatively lower demand for education services and other commodities related to young children. This could be partly offset by longer periods spent on tertiary and vocational education by young adults. The tendency for older people to spend considerably more on medical care would lead to the growth in the demand for these services. Consumer behaviour towards tobacco and alcoholic beverages is associated with age. The lower proportion of young adults with a higher social engagement and propensity to consume alcoholic beverages and tobacco use and a higher proportion of older people with a lower tendency to spend less on them would affect household expenditures on these consumer products. Households headed by young and middle aged people tend to be more socially and economically active and have a greater propensity to spend on transport, clothing and footwear. The decline of the proportion of these households would tend to diminish household propensity to spend on these items. The greater home orientation of older people would lead to an increase in the demand for domestic fuel and power and also food for home consumption. The demand for recreation that involves activity outside the home environment would be affected too. Housing for smaller families would also change.

Some high income countries such as the United States, Canada and Australia have used migration of people usually in working age that has partly compensated for their relatively lower fertility (Table 4.6). This practice could be increasingly used by other high income countries to compensate for low fertility and deficits in working ages. However, migration levels would have to rise substantially, above those projected by the United Nations, to have a significant impact on the ageing of markets in more developed countries, and change the pattern of demand for products associated with younger adults.

12.9 Demographic Dynamics and Future Market Challenges

It is apparent that population momentum in the 20-year period 2005–2025 will challenge societies concerned with the opportunities presented by demographic bonuses and with taunts arising from demographic deficits. The energy and resource use implications, arising from a lower but still substantial population growth that is projected to add 1.5 billion people to the world's population in 20-years (an increase of 23 percent), are daunting. Technological change has in the past allowed for substantial improvements in productivity and a more efficient use of resources, it will no doubt make a contribution. Greater labour mobility and possible extensions of participation in the labour force of people with longer life expectancy may also help with some of the challenges ahead. A more productive population in less developed countries may lead to larger markets for progressive commodities while more developed countries may enter into a phase of less demanding markets. Older people will tend to have lower levels of consumption than middle aged people that have dominated these markets in recent decades. Continuing advances in technology will no doubt create markets for new products and the way in which production takes

place. Demographic flows may also change. The observed fall in fertility could be affected by future social stylisation or some major event, as it happened after World War II, and lead to a return to higher levels closer to replacement level. Demographic perspectives and insights into household consumer behaviour will make a useful contribution to the exploration of pathways to meet future market challenges.

References

Australian Bureau of Statistics (ABS). (2008). *How Australians use their time, 2006. Summary of findings*. Catalogue No. 4153.0. Canberra.

Bureau of Labour Statistics (BOLS). (2009). *Consumer expenditure 2007*. Washington, DC: US Department of Labor.

Lader, D., Short, S., & Gerhuny, J. (2006). *The time use survey, 2005*. London: Office of National Statistics.

Maddison, A. (2003). *The world economy: Historical statistics*. Paris: Organisation for Economic Co-operation and Development.

Martins, J. M., Yusuf, F., & Brooks, G. (2011). *Household expenditure in China and India: Demographics and market segmentation*. Monograph.

United Nations (UN). (2001). *World population prospects – The 2000 revision highlights*. New York: Population Division.

United Nations (UN). (2005). *World population prospects – The 2004 revision – Highlights*. New York: Population Division.

United Nations (UN). (2007). *World population prospects – The 2006 revision highlights*. New York: Population Division.

United Nations (UN). (2009). *World population prospects: The 2008 revision. Population database*. New York: Population Division. http://esa.un.org/unpp/index.asp?panel=5. Retrieved 26 June 2009.

United Nations Development Programme (UNDP). (2007). *Human development report 2007/2008*. New York: Palgrave Macmillan.

US Census Bureau (USCB). (2003). *Historical estimates of world population*. www.census.gov. Retrieved 27 Aug 2009.

World Bank (WB). (2008). *Global purchasing power parities and real expenditures – 2005 International Comparison Program*. Washington, DC: World Bank.

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