2. Characteristics, Household Production, and Choice

2.1 INTRODUCTION

One of the claims I shall be making later in this book is that revolutions in ways of thinking always represent incomplete breaks with past modes of thought. Part of the inspiration behind this contention comes from the writings of the late Arthur Koestler on the subject of creativity. Koestler (1975, p. 120) argued that: 'The creative act is not an act of creation in the sense of the Old Testament. It does not create something out of nothing; it uncovers, selects, re-shuffles, combines, synthesises already existing facts, faculties, skills'. I will be using this idea as I attempt to analyse how consumers come to change their patterns of behaviour through time; but it is an idea that is also relevant right now, in relation to my own actions as an economist trying, with revolutionary intent, to construct a fresh view of consumer behaviour.

I have warned that I am going to employ the unorthodox behavioural methodology to make headway in the area of consumer choice. However, I will begin by discussing some of the ideas from a branch of neoclassical consumer theory that deserves to be more widely known, and with whose main thrust I feel a strong accord. These ideas form the basis of what is known as 'household production theory' or the 'new' approach to consumer behaviour. As they first attracted attention around twenty years ago, the word 'new' is now something of a misnomer, but even after twenty years they still only rate at most a single chapter in most texts (for example, Chapter 10 of the state-of-the-art graduate text by Deaton and Muellbauer, 1980). Household production theory was itself an adaptation of the 'old' approach to consumer behaviour, namely Hicksian indifference analysis. What I shall be doing in this book might be seen as an attempt to take this incompletely novel research programme and purify it of the restrictive elements that remained in it from the old mode of analysis, meanwhile putting their place elements from behavioural theory.

The aim of this chapter is to introduce the main ideas of the 'new' approach to consumer behaviour and to show how they relate to other lines of research in consumer theory. Section 2.2 is concerned with the 'old' Hicksian analysis. Household production theory is outlined and reviewed critically in sections 2.3 and 2.4, respectively. Section 2.5 shows how it ties up with work on quality indices that involves using the 'hedonic technique'. The penultimate section (2.6) explores the overlap between economists' writings on the 'new' approach to consumer behaviour, and some of the theoretical and empirical work that is to be found in the marketing literature. Section 2.7 concludes the chapter by highlighting the limited extent to which this 'new' analysis has opened up economists' minds and changed their practices as researchers.

2.2 THE HICKSIAN LEGACY

After many a day of battling to open the minds of neoclassically-blinkered students and colleagues, I end up concluding that, much as I admire many of his contributions (especially those in the area of monetary theory), Nobel Laureate Sir John Hicks has much to answer for in respect of the current crisis in economics. If the Hicksian foundations of orthodox degree programmes in economics were removed, most of the conventional wisdom would come crashing down. The microeconomics of intermediate-level textbooks is very much an outgrowth of Hicks' (1937) attempt to depict what he saw as the essence of Keynes's (1936) General Theory of Employment, Interest and Money. That attempt grew into the juggernaut of IS-LM analysis. Likewise, the microeconomics introduced in intermediate-grade texts has its roots in the ordinalist analysis of consumer choice that Hicks pioneered with Sir Roy Allen and then integrated into a general equilibrium framework in his (1939) book Value and Capital. The Hicks-Allen theory of consumer choice displaced Marshall's (1920) cardinal utility theory and led consumer theorists to become fascinated with the implications of the idea that changes in
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relative prices produce both 'income effects' and 'substitution effects'. The indifference curve/budget line juggernaut thus built up momentum.

Once they are moving, especially downhill, juggernauts are notoriously hard to stop—even when the person who built the prototype cries out, belatedly, that a terrible mistake has been made and that a major safety defect exists. Hicks has twice (1976, 1980) repudiated IS-LM analysis as a vehicle for serious analysis of macroeconomic issues. But despite this, and despite the best attempts of many contributors to the *Journal of Post Keynesian Economics* to highlight the limitations of IS-LM and present an alternative view (see also the books by Davidson, 1972, Minsky, 1975, Dow and Eart, 1982, and Chick, 1983), IS-LM still dominates the teaching of macroeconomics and influences the construction of macroeconomic models. Hicks (1976, pp. 137–8) has also admitted that his approach to consumer theory, though formally more tractable than Marshall's analysis, can hardly be claimed to be a more realistic approximation to the actual processes of consumer choice (see also Lomask, 1976, pp. 22–3). Marshall depicted consumers implicitly as looking at possible choices in terms of the value for money they seemed to offer: the Marshallian consumer asked herself whether she valued marginal amounts of retained generalised purchasing power above the extra value she could obtain from buying more of the commodity upon which she was focusing on, if she was looking at an indivisible product, from buying a more expensive substitute. Such a consumer would push her shopping trolley round a modern-day supermarket and fill it as she went, in the light of sequential appraisals of what she discovered to be on offer.

Hicks, in contrast to Marshall, asked his readers to conceive of consumers as if they were comparing rival feasible sets of commodities, with no restrictions being placed on the number of mental trade-offs they might be imagined to undertake. His analysis was set in terms of an n-dimensional space and assumed continuous divisibility of goods. The Hicksian consumer would examine the relative prices of the thousands of goods on supermarkets' (note the plural!) shelves, work out the best feasible bundle, and then go fill her shopping basket. Despite the greater common-sense appeal of Marshall's idea in a world where consumers are short of time and information-handling capacities, and where the market environment is in a constant state of change, it is Hicks' theory that students are asked to master by lecturers who simultaneously preach positivism and fail to note the theory's limited empirical content.

The Hicksian analysis of consumer choice has achieved its place as one of the key building blocks of modern orthodoxy, despite the fact that it is a failure in terms of its designer's own goals. Hicks (1939, p. 5) noted that his interest in consumer theory 'began with the endeavour to supply a needed theoretical foundation for statistical demand studies' and claimed that it had 'a definite relevance to that field'. To be sure, applied economists working in this area need 'theoretical foundations' as guides to the statistical relationships they might seek to uncover, and as pointers to the kinds of situations in which the relationships they have discovered might break down. However, Hicks' indifference analysis is not much help in this respect: it yields no testable hypothesis beyond that relating to the sign of the substitution effect. This may in large part explain why orthodox empirical work on demand has generally been concerned with estimation rather than with hypothesis testing (see the remarks of Brown and Deaton, 1972, pp. 1189–2).

Perhaps the most impressive statistical demand study of the post-war period is that by Houthakker and Taylor (1970): it is noteworthy that its authors were perfectly able to get by without recourse to a foundation of indifference analysis. Houthakker and Taylor tried to predict the composition and magnitude of consumers' expenditure in the United States for over eighty commodity classes. They decided to try a very simple explanatory focus with the following intuitively plausible dimensions: (1) income changes, (2) the sizes of pre-existing inventories of durable consumer goods, and (3) the volumes of goods previously consumed in each category (which they thought might serve as a proxy for habitual attachment to each category of expenditure). Their major findings (1970, pp. 304–5) were that 'consumption in the United States is characterised more by habit formation than inventory adjustment', and that 'prices [relative to income] play a fairly modest role in explaining United States consumption'. The latter finding seems to run counter to the Hicksian idea that relative price changes should be the focus of an analysis of consumer choice, for it suggests that substitution effects are not
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strong between commodity classes. There is no point of contact between Hickstein analysis and the findings of Houthakker and Taylor on habit formation, for their conceptualisation of habits refers to time-series data, whereas Hicks' theory is ahistorical.

Hicks also needed to construct 'theoretical foundations' at the level of the consumer in order to get very far with his attempts to demonstrate that an economic system might be able to feel its way towards a sustainable position of general equilibrium. If demand curves were not downward sloping, serious questions would be raised about the stability and uniqueness of hypothetical equilibrium configurations; so he needed a theory of choice which would predict that, as the relative price of a commodity is increased, people will buy less of it. He did not put it quite as bluntly as this, but instead claimed that his primary concern was to develop 'a technique for studying the interrelations of markets' (1939, p. 20); and, in respect of his work on choice, he suggested that:

We want to deduce from [the principle of the diminishing marginal rate of substitution] laws of market conduct—that is, laws which deal with the reaction of the consumer to changes in market conditions (1939, p. 23)

and later (p. 27) that:

we seek information about the conditions governing quantities bought at given prices in order that we may use them to discover how the quantities bought will be changed when prices change.

On the principle of Occam's razor, Hicks (1939, p. 18) sought to meet this end with the minimum of axioms. But since his theory admitted the possibility of Giffen goods (1939, p. 35) he was unable ultimately to achieve a purely axiomatic choice-theoretic foundation for his later analysis. Rather, like so many theorists before and since, he had to derive the downward slope of his market demand functions 'from the theory plus intuitive notions about consumer behaviour which have not been excluded from the axiomatic base and have not been fully articulated' (Lipsy and Rosenbluth, 1971, p. 132).

It will be evident from the quotations from Hicks (1939) that his original contribution treats changes in market conditions as synonymous with changes in prices. This attitude remains in modern texts despite the fact that the competitive environment is populated by oligopolistic firms that often prefer not to use price changes as market weapons and recognise instead the importance of product changes and selling strategy (see Koutsouyianis, 1982, pp. 2-4). Hicks' theory has nothing to say on the processes whereby new products gain market shares or on some occasions fail to take off. Nor can it offer any explanation of why some goods are seen by consumers as closer mutual substitutes than others. These are practically significant holes which the 'new' theory of consumer behaviour has looked like it might be able to help to fill.

2.3 LANCASTER'S APPROACH

Hicks had constructed his theory in terms of the goods space, with a dimensional axis for each of the goods between which choices might be made. He had depicted each commodity in an holistic manner, as something from which consumers might derive satisfaction directly. However, it struck a number of economists in the post-war period (beginning with Houthakker (1952) and Gorman, in his unpublished (1956) paper) that it might be more useful to begin to theorise with the recognition that consumers often discriminate between goods on the basis of the characteristics they contain—these elements determining the 'value for money' offered by the goods under appraisal. This would imply the construction of theories in terms of the characteristics space, not the goods space. In fact, as Leasby (1978, p. 3) has pointed out, the idea that consumers are interested in the different qualities of goods as well as their prices is to be found in the work of Marshall (1920, pp. 80-91); but it has become firmly attached in most economists' minds with the accessible yet suitably rigorous work of Kelvin Lancaster (1966a, b, 1971).

Lancaster combined the characteristics idea with another theme (posited almost simultaneously by Becker (1965) and Muth (1960)): one should see households as being rather akin to firms in neoclassical production theory. Firms purchase inputs and use them to produce other goods, from whose sale it is hoped profits will be realised. The neoclassical entrepreneur has to choose between different mixes of goods that might be used as inputs to
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produce particular outputs—that is, between different production technologies—and between different combinations of output. Prospective profits are maximized when expected net revenues can be increased by changes neither of technology nor of the mix of output. Households, likewise, face production technologies that limit the outputs of characteristics they can produce using goods inputs, including the scarce time inputs of the household members. Typically, household production technologies yield joint products—that is, more than one characteristic output—to which the household members may attach a value. For example, suppose I start out with a laundry basket full of dirty clothes. I can produce the valued characteristics of cleanliness and odourlessness, and the negatively valued characteristic of temporary dampness, by putting myself, my washing machine and my washing powder to work on the contents of the basket. From this standpoint, changes in relative prices of consumer goods (for example, different brands of washing machine, or the number of leisure hours I must give up to earn enough to buy a washing machine) have implications for households rather similar to the effects that changes in relative prices of different kinds of inputs and outputs have for firms. Likewise, the introduction of new consumption commodities, differentiated by the different characteristics combinations they can be used to produce, has an obvious parallel with the introduction of new, more cost-effective techniques of production for use in firms.

With such a starting point, Lancaster is able to offer an interpretation of differences in the degrees of substitutability between goods. His analysis rests upon the idea that the overall consumption technology faced by choosers is decomposable into a number of smaller technologies wherein subsets of characteristics can be produced only by particular subsets of commodities. For example, one might expect gardening and oral hygiene technologies to exhibit minimal overlap: a spade is no use as a toothpick and no one would dream of using toothpaste as a weed-killig agent. For all practical purposes, perfect decomposability is not required, merely that, if there are some ‘universal’ characteristics, any subsets of otherwise technologically separate goods should each be able to yield only a small proportion of the total output of these characteristics (see Lancaster, 1971, pp. 132–9). Some evidence that consumers do indeed see goods as intrinsically grouped according to the characteristics with which they are associated is to be found in the work of Pickering et al. (1973) and of Doyle and Fenwick (1975) (who reworked the data employed by Pickering’s team, using multidimensional scaling rather than discriminant analysis). But it should be noted that this empirical work is not inherently antithetical to the notion that some fairly universal characteristics figure in the technology of consumption, and one can easily see, for example, that most commodities contribute in a positive or negative way to a person’s self- and social-esteem, her ability to find time for other activities, or the degree of stress and anxiety she sees in her life (see sections 3.2 and 4.4).

Ratchford (1975, p. 66) has suggested that an operational definition of the concept of an industry follows readily from the idea that goods can be sorted into categories on the basis of the characteristics they can help to produce. He argues that Lancaster’s analysis means that the economist no longer has to define products as belonging to particular industries on the basis of high versus low cross-elasticities of demand, without being able to explain why such elasticity patterns should be observed. Goods will be close substitutes to the extent that they yield the same characteristics, and complements if they need to be used together to produce a particular characteristic. Changes in the mix of goods consumed in one technology grouping will not affect the yields of characteristics associated with other technology groupings, and may therefore be considered in isolation.

In considering choices between rival brands within a particular technological subset, Lancaster focuses his attention on the output of characteristics that a person may obtain by spending a previously assigned sum of money on a single brand or on a combination of brands with differing characteristics. An example, illustrated with the aid of Figure 2.1, may help the reader to achieve the appropriate focus (see Douglas, 1983, pp. 105–21, for an excellent textbook treatment using a variety of other examples).

Consider a person who is choosing between rival brands of toothpaste, upon which she expects to spend a particular sum in order to obtain teeth that are relatively white and free of decay. Initially she can choose between two brands. If she spends all of the money on ‘Snowdent’, she can reach point $F$ on the technology ray $OF$. If she spends all of the money on ‘Toughdent’,
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she can reach the point $E$ on the technology ray $OE$. Alternatively, she can buy a combination of both brands during her planning period and attain a point somewhere along $FE$ (precisely which point depends on the combination she chooses). In fact, her preferences are such that she maximises her utility by purchasing only Toughdent, an act which enables her to reach indifference curve $I_1$. Now suppose a third brand called ‘Dekkadent’ is introduced, a brand which offers a mix of characteristics depicted by the ray $OA$. Dekkadent’s ability to pick up sales depends on three things: its technological efficiency, the subjective preferences of consumers, and its price. The more technologically efficient it is, the less of it consumers will need to buy to produce a particular output of characteristics; so, given its price, its efficiency will determine how far along $OA$ a consumer can get by spending a particular sum of money on it. If its efficiency and price were such that the consumer under consideration could only reach point $D$ if she spent all of her allocation on it, she would never buy it, even if she sought to obtain the characteristics mix implied by the ray $OD$. She would always do better by buying a mixture of Toughdent and Snowdent that offered this mix of characteristics. At such a price it would be technologically inefficient for her to purchase Dekkadent, whatever her own preferences in respect of whiteness versus decay prevention. However, if Dekkadent sold for a rather lower price, such that spending her allocation on it would take her to point $B$, then it would pick up a market share. The frontier of technologically efficient choices would become $FBBE$. Her personal preferences would cause her to choose point $C$ on this frontier, and she would thus buy a combination of Toughdent and Dekkadent. An even lower price, which would enable her to reach point $A$ if she bought only Dekkadent, would further change the frontier of cost-effective choices, to $FAAE$, and in this case she would indeed only buy Dekkadent.

Evidently, Lancaster’s analysis provides a neat way of explaining brand loyalty patterns and the tendencies of consumers often to have in their homes stocks of more than one brand of particular classes of seemingly closely substitutable products. (Many people may only use one kind of toothpaste, but they will have varieties of food, clothing, records, video tapes, and so on, that they will use on different occasions throughout the year, some of them more frequently than others.) Unlike Farley (1964), Lancaster does not need to explain brand loyalty in terms of information costs; indeed, he only needs to adduce consumer misinformation to explain why goods lying inside efficiency frontiers at market prices obtain any market shares at all. The demonstration that it will in many cases be rational for consumers to choose several brands, even if they are only slightly differentiated, also raises some interesting issues in respect of welfare arguments over economies of scale versus variety of choice: Lancaster has explored these in detail in his more recent (1975, 1979) contributions.

2.4 CRITICISMS OF LANCASTER’S APPROACH

Despite the fact that it is essentially a modification of the Hecksian goods-space approach to choice, involving ordinal
she can reach the point $E$ on the technology ray $OE$. Alternatively, she can buy a combination of both brands during her planning period and attain a point somewhere along $FF$ (precisely which point depends on the combination she chooses). In fact, her preferences are such that she maximises her utility by purchasing only Toughdant, an act which enables her to reach indifference curve $I_0$. Now suppose a third brand called 'Dekkadant' is introduced, a brand which offers the mix of characteristics depicted by the ray $OA$. Dekkadant's ability to pick up sales depends on three things: its technological efficiency, the subjective preferences of consumers, and its price. The more technologically efficient it is, the less of it consumers will need to buy to produce a particular output of characteristics; so, given its price, its efficiency will determine how far along $OA$ a consumer can get by spending a particular sum of money on it. If its efficiency and price were such that the consumer under consideration could only reach point $D$ if she spent all of her allocation on it, she would never buy it, even if she sought to obtain the characteristics mix implied by the ray $OD$. She would always do better by buying a mixture of Toughdant and Snowdent that offered this mix of characteristics. At such a price it would be technologically inefficient for her to purchase Dekkadant, whatever her own preferences in respect of whiteness versus decay prevention. However, if Dekkadant sold for a rather lower price, such that spending her allocation on it would take her to point $B$, then it would pick up a market share. The frontier of technologically efficient choices would become $FB BE$. Her personal preferences would cause her to choose point $C$ on this frontier, and she would thus buy a combination of Toughdant and Dekkadant. An even lower price, which would enable her to reach point $A$ if she bought only Dekkadant, would further change the frontier of cost-effective choices, to $FA AE$, and in this case she would indeed only buy Dekkadant.

Evidently, Lancaster's analysis provides a neat way of explaining brand loyalty patterns and the tendencies of consumers often to have in their homes stocks of more than one brand of particular classes of seemingly closely substitutable products. (Many people may only use one kind of toothpaste, but they will have various of food, clothing, records, video tapes, and so on, that they will use on different occasions through time, some of them more frequently than others.) Unlike Farley (1964), Lancaster does not need to explain brand loyalty in terms of information costs; indeed, he only needs to adduce consumer misinformation to explain why goods lying inside efficiency frontiers at market prices obtain any market shares at all. The demonstration that it will in many cases be rational for consumers to choose several brands, even if they are only slightly differentiated, also raises some interesting issues in respect of welfare arguments over economies of scale versus variety of choice: Lancaster has explored these in detail in his more recent (1975, 1979) contributions.

2.4 CRITICISMS OF LANCASTER’S APPROACH

Despite the fact that it is essentially a modification of the Hekslan goods-space approach to choice, involving ordinal
convex preferences (but over characteristics rather than goods) and constrained maximisation, and despite the new perspectives it has provided, the consumer theory associated with Lancaster's name has so far failed to replace Hicksian consumer theory at the core of mainstream economics. Rather, it has been subject to criticism on a number of counts.

As far as neoclassical economists are concerned, the most important case against the idea that they might develop their models in characteristics space is that it is not actually necessary to do this to explain differences in cross-elasticities of demand. As Hanes (1975, pp. 77-8) and Katzner (1970, p. 156) have pointed out, the 'utility tree' view of preferences as hierarchically separable in the goods space is a simple extension of the orthodox model, which also seems to provide such an explanation (see Strotz, 1957, and Green, 1976, Chapter 10). Indeed, it is interesting to note that the utility tree literature was a major inspirational force behind Muth's (1966) production-theoretic view of the consumer, and Muth actually writes, for much of his paper, as if households combine goods to produce other goods (for example, a 'meal'), not characteristics, from which they derive utility.

Casual introspection certainly serves to indicate that quite often when budgeting one does think in terms of wholes (for example, 'holidays' versus 'new furniture'), and then, 'a holiday in New Zealand' versus 'a holiday in South Australia' and not always explicitly in terms of the wants to which they minister; findings which show that the utility tree concept is not empirically unreasonable are detailed in Bettman's (1974) review of consumer information-processing techniques. However, to assume the existence of hierarchically separable preferences in the goods space is really to beg the question of why people separate out their resources in the way that they do. For example, it may indeed be the case that, once I have decided on a particular division of my resources between holidays and furniture, changes in the relative prices of different kinds of holidays will not impact upon my furniture choices. But on what basis do I decide to divide up my resources between holidays and furniture in the first place? I may have defined for myself at some point in the past the rates at which I am prepared to substitute holidays for furniture, and in this sense I may be said now to possess goods-space preferences; yet my past assessment will surely have involved characteristics-orientated thinking at some stage.

It may be helpful to argue that Lancaster's theory and the utility tree analysis are most wisely seen as complementary constructs. After all, particular characteristics only become meaningful dimensions of choice because goods offer different performances in respect of them, while goods can only be defined in terms of their likenesses and differences in respect of various characteristics (see section 4.2). Lancaster himself does seem to have in mind some multistage budgeting process, since his model presumes a particular sum of money has already been allocated for producing the technologically separate subset of characteristics under consideration. Thinking back further in the process implies a need to consider how the consumer trades different characteristics subsets against each other. There one might presume that the technology yields refer to alternative budgeting combinations that will exhaust a particular allocation from a yet-higher level of choice. For example, one might have a $2000 luxury boat with an efficient $1000/5000 holidays/furniture option represented as a ray yielding one mix of characteristics, and a rival $4000/4000 holidays/furniture option represented as another ray yielding a different mix of characteristics. But whether or not one needs to consider the underlying characteristics-orientated nature of budgeting processes in this way will depend upon the phenomena one is investigating; Lancaster's approach may have a greater 'depth' than the formal goods-space utility tree literature, but it is characteristically(!) more demanding to handle. I shall return to the question of budgeting in section 3.3.

A second kind of criticism of Lancaster's model, raised in a paper by Watts and Gaston (1982), concerns its assumption that consumption technologies are linear (so that doubling expenditure on a commodity doubles the output of each of the characteristics it produces). It is this assumption that ensures that the technology rays are straight lines and the efficiency frontier is composed of straight-line segments. Yet it is not obvious a reasonable approximation to make in all markets. For example, the ability of a particular brew of alcohol to produce intoxication may not be noticeable a linear function of the number of pints consumed, even though each pint is physically the same as before. Watts and Gaston show that if one or more goods exhibit a strictly concave
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consumption technology, it is logically possible that the consumer may find herself unable to decide upon a unique optimal bundle of commodities, even though her preferences may be convex in characteristics space.

The origin of this result may become clearer in the light of Figure 2.2. Here, goods B and C, represented respectively by the rays OB and OC, are associated with linear technologies. Good A, however, has constant returns to characteristic Y and increasing returns to characteristic X. It thus has to be represented by the curved technology ray OA. If good B were unavailable, the efficiency frontier would be the solid line AD and the broken line DC, while if good C were unavailable the efficiency frontier would be the broken line AD and the solid line DB. When all three goods are available at the prices implied by their respective rays, the efficiency frontier is actually the solid line AD–DB–BC. Evidently, the chooser’s preferences might be such that she had a convex indifference curve which was tangential with several points on the efficiency frontier, and some of these points might even carry implications of ‘Giffeness’ if relative prices were changed (see Watts and Gaston, 1982, pp. 286–7). In Figure 2.2, the curve lγ is tangential to two points on the efficiency frontier, so that the consumer would be indifferent between particular combinations of A and C (at the tangency with the solid part of AD) and of B and C.

In effect, Watts and Gaston have identified as equivalent phenomena in household production theory to the ‘badly-behaved production function problem’ in capital theory. Thus, just as the Cambridge controversies in the theory of capital (documented in Harcourt, 1972) showed that one cannot in general expect there to be a unique ranking of capital/labour combinations in respect of the profit/wage rate relationship, so the non-uniqueness of optimal quantities (‘reswitching’ of consumption bundles) and/or of optimal types of goods (‘reversal’ of consumption bundles) along the consumer’s efficiency frontier opens up the possibility of badly behaved demand functions. As Watts and Gaston (1982, p. 282) observe:

Since reversal (and reswitching) along the efficiency locus only occurs over certain sets of relative prices, the demand curve for a particular good may consist of two or more distinct and possibly overlapping segments. The existence of such demand relationships would seriously undermine the constrained maximisation equilibrium analysis of orthodox economics.

Evidently, a general equilibrium theorist can only accept Lancaster’s analysis in its original form, though even then, as Lipsey and Rosenbluth (1971) have demonstrated, it makes Giffen goods look still more plausible than does orthodox Hickish theory. However, if one is not building up an analysis around the idea of the possible existence and stability of general equilibrium configurations, then one should welcome the findings of Watts and Gaston, for they serve to alert economists to possibilities of which marketeers have long been aware. To quote from one of the pioneers of motivation research, Harry Henry (1958, p. 137):

The smooth ‘demand curves’ used to corrupt the young, by economists who have spiritually never set foot outside their universities and who
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The smooth 'demand curves' used to corrupt the young, by economists who have spiritually never set foot outside their universities and who
have no acquaintance at all with the facts of economic behaviour, just do not exist in real life. The effects of price changes on the total market may be jerky in the extreme: up to a certain point they may be negligible, and then beyond that point a very small price change may exert a very great influence on sales.

However, the work of Watts and Guston leaves unanswered the question of how consumers might break ties between optimal goods bundles, whenever they occurred.

A third line of criticism concerns the failure of Lancaster’s model to deal explicitly with problems of uncertainty that might beset consumers. Related to this issue is the question of how some characteristics might be measured. Lancaster’s (1971, pp. 114–15) view is that characteristics should be defined in terms of the objective properties of goods that consumers find relevant to choice. Different consumers, who see the world through different blinkers, will find different characteristics relevant even if they choose between identical goods (see section 4.2). Some of these consumers may be faced with uncertainty and they may rate the prospective characteristics outputs of rival brands according to brand prices (Gatchifford, 1975, p. 74). With experience, their perceptions may change. They may see new dimensions of choice and/or rate goods differently in terms of their original repertoires of dimensions. The technology of consumption may not have changed in any ‘objective’ sense, so one might, like Lancaster, argue that such changes of outlook are to be represented as changes in preferences. But as far as consumers are concerned, the rerating of goods in terms of their abilities to produce certain characteristics may be seen rather as a change in the technological constraints with which they have to deal. Considerations such as these call into question the ‘objective’ approach of Lancaster’s model and the idea that it is safe to leave it to the analyst to decide where one should draw the dividing line between preferences and constraints.

In the present work, I shall depart from Lancaster in this respect and follow Pickering (1977, p. 12) in emphasizing the ‘psychological perceptions of products’. Consumption technologies will be analysed as if it were the consumer who draws the dividing line between changes in her preferences and constraints, and who has her own, personal criteria of evaluation, which she could verbalize to a researcher. In practical applications of my analysis, this may raise problems for interpersonal comparisons, but to seek to understand how consumers themselves judge products may be a far less misleading methodology for market anticipation purposes than one which forces consumers to express their preferences against laboratory-derived evaluations of the characteristics outputs produced by rival brands. It also means that the researcher is not driven to impose further blinkers simply because, with many goods, ‘the characteristics they yield are either nebulous to begin with or else present major problems of definition and measurement’ (Taylor, 1975, p. 76). It is this inability to find published ‘objective’ measurements of many of the characteristics produced by goods (for example, what are ‘self-esteem’, ‘whiteness’ and ‘decay prevention’ and how do we quantify them?) that has driven many economists to continue to carry out applied demand work purely in the goods space.

Fourthly, there is the question raised and answered by Rosen (1974), concerning the mechanics of handling indivisibilities in the context of Lancaster’s theory. Lancaster depicts consumers as considering the output rates of various characteristics they might produce per dollar they spend on each rival brand. They mentally juggle around rival bundles containing differing quantities of various commodities until they find the one with what seems to them to be the most desirable prospective mix of characteristics. This vision has an obvious appeal with divisible goods—food, toothpaste, alcoholic beverages, and so on—that fill one’s weekly shopping basket in the supermarket, but it looks less satisfactory if we are considering infrequently purchased consumer durables, such as houses, cars, furniture and electrical appliances. Rosen’s solution to the indivisibility problem involves plotting goods as points in characteristics space, with one characteristic dimension being their price. It is not then necessary to specify characteristics per dollar technology rays. To ensure continuity on characteristics scales, one can assume, not unrealistically, that a proliferation of slightly differentiated brands is available. The consumer’s task is then twofold: first, to define, for the technological subgroup under consideration, an efficiency frontier for the combinations of characteristics that are available at each possible level of expenditure; second, to decide how much to spend—how much she can afford—within the subgroup under
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consideration. It is not rational for her to buy a more expensive brand if her marginal valuation of the extra characteristics it may yield exceeds the marginal utility she expects she will forgo by not having the money to spend on another class of commodity, which would produce a different set of desired characteristics. If one recognises, as Hicks (1976) so lucidly did, that the consumer may not usually have in mind a fully specified picture of what the forgone commodities and associated characteristics might be, it might seem appropriate to regard the consumer in neo-Marshallian terms, as if she equated the marginal utility of additional characteristics with the marginal utility of the money that would have to be spent to obtain them (but see section 10.3 for a rather different view of what consumers are doing as they decide how much they 'can afford' to spend).

For my own part, I would raise two further points about Lancaster's theory. First, the idea that one might usefully look at household behaviour in the light of literature on the theory of the firm appeals to me so much that it is disappointing to see that household production theory has hitherto only explored the analogy in terms of the neoclassical theory of the firm. As I will try to show in Chapter 3, further significant insights are to be obtained by looking at household choices from the standpoint of recent contributions to the behavioural theory of the firm. Second, it should be noted that it may be a misleading approximation to theorise as if consumers can always perform or even bother to try to perform the kinds of multidimensional trade-offs that the 'new' theory of consumer behaviour, every bit as much as the 'old' one, assumes they carry out in their minds. For example, when I purchase toothpaste, suppose I employ the following simple procedure: 'choose the cheapest brand (per ml) with fluoride, out of those that I know to have a suitably fresh taste.' This procedure leads me to purchase only one brand, but I would hardly dare to suggest my choice should be represented as a corner solution on one of Lancaster's diagrams: I display outright intolerance in respect of non-fluoride brands and would not dream of spending more to get a better taste if I expect I can meet my target by buying the cheapest brand; nor have I the time to spare to agonise over the amounts of fluoride per ml or the likely accuracy of claims made by toothpaste manufacturers about the relative abilities of their brands to produce whiteness. But, boundedly rational consumers may frequently be driven to employ choice procedures with very different implications from those that Lancaster presumes they employ, even though they are thinking in terms of product characteristics (see section 3.2 and Chapters 7, 9 and 10).

2.5 THE 'HEDONIC PRICING' LITERATURE

Household production theory, particularly Rosen's extension of it to encompass indivisible commodities, has widely been taken as having provided 'theoretical foundations' for an empirical technique pioneered by Court (1939) around the time that Hicks' *Value and Capital* appeared. This is the 'hedonic' technique, which involves the use of multiple regression methods to determine functional relationships between the market prices and the non-price characteristics of rival products. The form of the regression is shown in equation (1).

$$
P_i = a_0 + a_1 Q_{1i} + a_2 Q_{2i} + \ldots + a_k Q_{ki} + e_i \quad (1)
$$

Where:

- \( P_i \) is the price of the \( i \)th model (often stated in logarithmic terms);
- \( N \) is the number of products in the (cross-sectional) sample;
- \( a_0, a_1, a_2, \ldots, a_k \) are the regression-derived weights;
- \( Q_{1i}, Q_{2i}, \ldots, Q_{ki} \) are the levels of characteristics 1, 2, ..., \( k \) produced by the \( i \)th model, and if characteristics have a strictly dichotomous nature (for example, 'saloon' versus 'hatchback') they will be represented by dummy variables (for example, 0 if a saloon, 1 if a hatchback) in the regression;
- \( e_i \) is an error term.

Once the regression coefficients have been estimated, one can calculate an expected price for each product, given a knowledge of the particular characteristics mixes. This price is given by equation (2), in which the 'hats' over coefficients serve to denote estimated values.
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\[ P_i = a_0 + a_1Q_{1i} + a_2Q_{2i} + \ldots + a_kQ_{ki} + e_i \]  
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Once the regression coefficients have been estimated, one can calculate an expected price for each product, given a knowledge of the particular characteristics mixes. This price is given by equation (2), in which the 'hats' over coefficients serve to denote estimated values.
The hedonic technique has been applied in over fifty studies, which together encompass cars (by far the most popular), tractors, washing machines, housing, computers, pick-up trucks, refrigerators and audio cassette decks. These studies have used the technique for a variety of purposes, which do not always involve the same interpretations being imposed on the $a_i$ weightings. It is possible simply to regard these weightings as reduced-form coefficients that reflect both supply- and demand-side factors. However, one may also try to interpret them either as reflecting consumer evaluations of the relative importance of characteristics, with consumer sovereignty acting so as to force market prices to correspond to these evaluations—hence the 'foundation-providing' role for Lancaster's analysis—or as indicators of the marginal cost to the typical firm of adding a particular characteristic to its products, in situations where oligopolistic firms are pricing according to cost-plus methods.

Clearly, if it is legitimate to see the weightings from the standpoint of Lancaster's theory, as some kind of measure of the values that consumers place upon particular characteristics, then one possible use of the hedonic technique is in the construction of price and standard-of-living indices that take account of quality improvements in consumer goods. This is the application associated particularly with the work of Griliches (1961) (see also Griliches (ed.), 1971), and it usually involves combining cross-sections for several years and using year dummy variables to capture price changes net of the effects of changes in characteristics between years. However, Muellbauer (1974) has questioned the legitimacy of interpreting hedonic relationships within the household production framework, and I will now note the essence of his case.

If all households had identical indifference curves and incomes, and if markets were strongly competitive, then one might expect many different combinations of goods to evolve which would yield identical combinations of characteristics, although different varieties of goods would then only be produced as a result of 'variations between firms in the costs of producing goods with a given set of specifications' (Deaton and Muellbauer, 1980, p. 265). Everyone would face the same shadow prices for characteristics and would have the same marginal rates of substitution. However, as a result of differences in income levels and/or tastes, consumers may not in reality have identical marginal rates of substitution if they each perform attribute trade-offs and find optimal product/attribute combinations for themselves. It is interesting to note that Muellbauer at no point considers the possibility that consumers may not all weigh up the pros and cons of rival choices in the manner assumed in neoclassical household production theory.) Therefore Muellbauer (1974, p. 980) argues that a serious aggregation problem exists: strictly speaking, a hedonic analysis of changes in standards of living should look at market segments for consumers with similar marginal rates of substitution. But he then points out (p. 981) that it may not even be possible to identify marginal rates of substitution using the hedonic technique. This is because demand-side interpretations of hedonic regressions must assume indifference loci are linear (indifference curves in characteristics space would thus be downward-sloping straight lines), since the regression weights do not vary according to the relative amounts of characteristics. Such indifference loci will always involve corner solutions in Lancaster's model: there is thus no guarantee that hedonically estimated shadow prices for characteristics will reflect consumers' willingnesses to make marginal trade-offs and, even if market populations can be segmented into groups of nearly enough identical consumers, the hedonic approach fails as a means for making consumer welfare comparisons across time.

Cost-side interpretations of hedonic equations have been used in the work of Fisher et al. (1962), which attempted to assess the cost of providing the American automobile consumer with specification improvements (higher power, automatic transmission, power brakes and so on) during the 1950s. They found that the costs of model changes since 1949 were running at $5 billion a year, totalling about a quarter of the purchase price per car by the late 1950s. The possibility that consumers did not realise what these improvements were costing seems, however, to be qualified by the fact that they could have purchased in the late 1950s, at
\[ \hat{P}_i = \sum_{j=0}^{k} a_j Q_{ij} \]  

(2)

These prices may then be expressed against actual prices in ratio form; the ratios will usually differ between products.

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significantly lower prices, hedonically similar cars to those they on average purchased ten years before. All they needed to do was to buy base models that lacked the modern refinements. The enormous resource cost implied in the moves 'up market' that the affluent American consumers were making in this period must surely make one pause and think seriously about Galbraith's (1958) arguments about the balance of 'private affluence' and 'public squallor' in the United States. A Galbraithian would wish to enquire whether the up-market shifts made by consumers reflected their undistorted preferences for automotive refinement over a pleasant environment, or whether these shifts in behaviour might be better seen as acts of conspicuous consumption engendered by the marketing campaigns of car manufacturers—whose incentive to enter the market for environmental improvements instead is minimal given its different skill requirements and its scope for failure in the face of poorly defined property rights and consequent high transactions costs.

Most obviously of interest in relation to the present work (in particular, to Chapter 10) are applications of the hedonic technique to the task of explaining the determination of relative market shares of differentiated products. Where actual and hedonically estimated market prices deviate, one would expect that, other things equal, there would be some impact on market share. This is because a model with a positive residual in a regression of prices on characteristics is inefficient in the sense that, compared with an average model at the same price level, it yields a lower output of (measured) characteristics. If an 'efficient' model is able to achieve a surprisingly high market share, then one might seek to explain the observation in terms of product characteristics that have been omitted from the regression due to measurement problems. Alternatively, one could appeal to consumer misinformation, inertia, or market 'imperfections' such as advertising. The last possibility is one that has particularly attracted the attention of Professor Cowling and his colleagues. In a hedonic study of the market for tractors, Cowling and Rayner (1970) proposed a model of brand share determination which was applied by Cowling and Cubbin (1971) to data on the UK car market in the late 1950s and early 1960s. The latter study concluded (1971, p. 343) with the observation that 'The quality adjusted prices have been found to be significant deter-

minants of market share, along with advertising expenditures. This result provides further evidence in favour of the hedonic quality adjustment procedure'. With later data cross-sections, it would be natural to notice the growing market shares of imported products and hence to try to study import penetration with the aid of the hedonic technique. This is precisely what Leech and Cubbin (1978) attempted to do in respect of market shares achieved by cars sold in the UK. They tried to quantify the roles played by: value for money in terms of product specification, fuel consumption and insurance costs (both hedonically scaled against product specifications), advertising expenditures, size of dealer network, length of guarantee, delivery time, and reliability as measured by the average number of days a model spent being repaired. Amongst other things, their analysis of the data inputs for the year 1975 suggested that reliability had a significant role to play in determining the market share a model achieved, but that the number of 'extras' included in the price (an area in which domestic cars fared poorly against Japanese ones in particular) and delivery times did not.

The Leech and Cubbin paper appeared at a time when official thinking (as typified by the work of Stout (1977) at the National Economic Development Office) was calling attention to 'non-price factors' in UK trade performance, so its results may not have been lacking in significance in matters of policy formation. But the limitations of such a cross-sectional study must be care-

fully recognised if misleading inferences are not to be drawn from it. Take, for example, the finding in respect of delivery. This seems to contradict the conclusion of a survey-based study of the market in 1973-4 (CPRS, 1975, which Leech and Cubbin, 1978, p. 295, briefly mention in a footnote), that poor delivery was a very important reason for not buying British cars. However, since the hedonic study refers to a year of excess capacity, it may be unsafe to assume that the delivery coefficient would not be significant in years characterised by a consumer boom and/or major disruptions of domestic supplies due to industrial action, which resulted in a failure of UK firms to meet consumers' delivery targets. (Here, as when I remarked about my intolerant procedure for buying toothpaste, I am foreshadowing the non-compensatory decision-making procedures discussed in Chapter 7.) A coefficient may appear insignificant because rival brands in
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a sample year all meet adequacy criteria in respect of delivery times, but that is not to say it would not be significant if some of the brands were to fail to do so in the eyes of a significant number of would-be buyers in a year when conditions were different. Policies formed by UK motor manufacturers in the belief that ‘It seems that in statistical terms delivery doesn’t matter much’ could produce surprisingly bad results, whereas import control strategies that were based upon quotas might be remarkably effective if they caused waiting lists for imported cars to become unacceptably long (see sections 10.4 and 10.7).

This short review of part of a burgeoning literature is, I hope, sufficient to suggest that the hedonic technique should be used with great caution. Although it may tell us something about the impact of customer preferences in a particular year, the results one obtains may simply indicate something about the pecuniary costs of incorporating certain characteristics in a particular product. Furthermore, even if it is appropriate to see hedonic findings at least partly from a demand-side perspective, they should not be taken as validating Lancaster’s idea that consumers make up their minds by trading off anticipated characteristics against each other in compensatory manner. Hedonic regressions are concerned with what is happening at the level of the market, but markets are populated by individuals who decide what to buy according to personally evolved evaluative criteria. Aggregative results may thus be consistent not merely with firms having been constrained in their pricing policies by consumers with fairly similar values who weigh up prospective characteristic yields as in the Lancaster model; they may also be consistent with pricing reactions by firms to market pressures that actually result from a disparate mix of individual decision-making procedures, some of which involve considerable simplification, some of which do not involve attribute trade-offs, and only a few of which closely approximate to what is proposed in orthodox approaches to household production theory.

2.6 COMPENSATORY MODELS IN THE MARKETING LITERATURE

In theoretical and empirical work with multiattribute ‘conjoint’ choice models in marketing and other behavioural sciences, one can discern an obvious parallel to the line of thought embodied in the economists’ works I have so far considered. (And, as with parallel lines, these contributions tend not to overlap.) If anything, marketing scholars have been even more prolific than economists in this area: in their 1973 survey, Wilkie and Pessemier reviewed forty-two articles; many more have since been published (see Akaah and Korgaonkar, 1983, for many of these references). These papers contain many subtle variations on the same basic idea: that consumers, or decision makers more generally, can be thought of as if they compute expected values for rival schemes of action in a way which allows poor scores in some dimensions possibly to be compensated for by good scores on others. In this section I will describe in detail the most popular model, that associated with the work of Fishbein, briefly contrast it with some related models that involve different estimation techniques, and finally comment on the empirical findings that this research effort has yielded.

Fishbein’s original (1963) expectancy value model focused on the overall attitudes of a decision maker towards particular objects of choice. In its more recent and popular format (in Fishbein and Ajzen, 1975) it focuses on attitudes towards alternative activities (such as rival purchasing actions that a consumer might undertake) and takes the form of a simple linear regression equation:

\[ B = BI = \left( \sum_{i=1}^{n} b_{i} e_{i} \right) W_{1} + \left( \sum_{j=1}^{N} NB_{j} MC_{j} \right) W_{2} \]

in which:

- \( B \) = overt behaviour, which is approximately equal to \( BI \), the degree of correspondence depending on contingencies that occur between expressing intentions and taking a decision to act;
- \( BI \) = behavioural intentions, expressed as the person’s subjective percentage likelihood that she will undertake the activity;
- \( W_{1} \) and \( W_{2} \) are weights derived by the regression process;
- \( b_{i} \) = the person’s own assessment of the likelihood that performing the activity will produce consequence \( i \);
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- \(b_i\) = the person's own assessment of the likelihood that performing the activity will produce consequence \(i\);
\( e_i \) = the person's own evaluation of the goodness/badness of outcome \( i \);

\( n \) = the number of salient beliefs the person holds about performing the activity; Fishbein follows Miller's (1956) rule that people can only keep in mind \( 7 \pm 2 \) things at a time, and thus expects \( n \) usually to be only between five and nine;

\( N \) = the number of other people whose opinions matter to the decision maker in the context in question;

\( NB_j \) = the person's assessment of whether referent \( j \) thinks she should undertake the activity;

\( MC_j \) = the person's motivation to comply with the opinion of referent \( j \).

Fishbein's model essentially suggests that a decision maker's attitude towards an activity may be seen as depending upon the relative influence she assigns to her own assessment of its pros and cons, and her overall willingness to comply with the collectivity of opinions which she believes her reference group has about the desirability of her undertaking the activity. Depending upon the assessments she makes, counter-desired expectations about particular consequences may be offset by desired ones, while the imagined disapproval of some of her reference group may be offset by the imagined approval of other members of the group. It is even possible that she may choose to do something because she allows the approval accorded to the activity by her reference group to swamp her own critical assessment of its desirability. In separating out the social influences on choice, Fishbein has created a somewhat more complex model than those produced by many of his fellow theorists; often marketers' models resemble, at the level of the individual, the regression equations that economists estimate in 'hedonic' exercises at the level of the market.

The fact that the estimation of the Fishbein model involves the decision-making subject in judging attribute levels, and in revealing her own valuations of them, places it in what Akaah and Korgoankar (1983) have called the 'compositional/self-explicated' category of models. A less-complicated model which also comes into the self-explicated category is that found in Hoepfl and Huber (1970): the decision maker assesses attribute scorings and relative importance, and these measures are then combined in a weighted manner to predict her overall preference for alternative options with similar characteristics.

Rather more convenient to estimate are the class of models that make use of a 'conjoint, decompositional methodology'. This methodology is the marketing equivalent of the hedonic technique and it turns on its head the 'build-up' approach of the self-explicated models. Subjects are asked neither to assess phenomena in terms of their characteristics nor to specify what values they attach to each characteristic. Rather, they are supplied with details of the phenomena and are asked simply to rate each of them overall on a scale. The work of Huber et al. (1969) illustrates this method neatly. They gave 'objective' seven characteristic descriptions of twelve hypothetical hospital wards to senior hospital staff and asked them to give their total rating of each one on a 0-100 scale. They then tried this data in a variety of multiple regression models (linear, additive, multiplicative) without trying to find optimal regressions by dropping the less-significant variables. When they compared the regressions they had obtained using these models for each individual's data set, they formed the conclusion that although individuals had consistent ways of evaluating multiattribute phenomena that were part of their everyday experience, there was only moderate consistency among subjects in their evaluations.

One can also discern a 'hybrid' methodology in some attempts to estimate compensatory models (for example, see Green et al., 1981). Such studies attempt to improve predictions by combining self-explicated and regression-derived attribute valuations within a single equation.

The fact that there has been a proliferation both of the estimation methodologies and of the forms of models estimated should mean that the reader will not be surprised to hear that the researchers have so far failed to find a model which performs consistently well and demonstrates a clear lead in predictive ability. For example, consider the Fishbein model: Tuck (1976) is highly enthusiastic, whereas studies such as those by Ryan and Honfield (1975) and Warsaw (1980) are critical of it. The critical studies suggest that the model typically suffers from high multicollinearity between independent variables and often produces weak
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and inconsistent predictions. However, such findings have not prevented Fishbein's theory, or variations upon its basic theme, from acquiring and maintaining the dominant place amongst models of consumer product evaluation processes in leading marketing texts (see section 9.4).

Studies of compensatory models increasingly compare a variety of forms and estimation methodologies. One of the more recent ones to attempt this is by Akaah and Korgoankar (1983), and it is something of a disaster in predictive terms. It involves a study of attitudes to rival 'health maintenance organisation schemes' (a new variety of health insurance in the US, whereby no significant charges are made for outpatient visits). Akaah and Korgoankar (1983, p. 195) lament the fact that:

the percentage of correct first-choice predictions, even among the best models, is only 25 per cent compared with 16.7 per cent that would be expected from random selection. Four of the nine models performed worse than chance. The relatively low percentages probably stem from the noisy nature of the data.

Like so many researchers before, they conclude (p. 196) that there is a need for further testing, with different samples of respondents, different products and variety of data collection methods.

But when one examines the reason Akaah and Korgoankar adduce for their 'noisy data', an alternative conclusion stands out as a possibility. They point out (1983, p. 193) that their respondents were asked to evaluate the rival plans in a way that involved thirty-three complex trade-offs, and suggest that this resulted in the respondents being lax in their evaluations, owing to fatigue. Their remarks echo the comments of Green et al. (1981, p. 33) that 'the relatively large data requirements that are needed to estimate individual utilities are becoming increasingly burdensome on respondents', and of Hoofll and Huber (1976, p. 409) who note that 'an analysis of variance suggested that increasing the number of factors included in the descriptions caused the subjects to be less able to make consistent evaluations even in the small range included in the study'. The alternative conclusion to be inferred is that boundedly rational decision makers, if left to their own devices, may not in fact perform attribute trade-offs in situations where this is cognitively highly taxing. So what could be needed are not yet more attempts to estimate varieties of compensatory models, but new models that do not centre on the idea that people always average out or add together characteristic ratings for individual schemes when they are trying to reach decisions.

2.7 CONCLUSION

In his presidential paper of 1952, Houthakker argued that to build models in which consumers were thought of as having preferences for combinations of characteristics would represent 'a fundamental change in the approach to consumption theory, since attention [would be] paid to the reasons why consumers want certain goods', and it might 'prove interesting for studies of the demand for newly invented goods' (1952, p. 163). But there is a sense in which the change that has occurred—limited as it is in terms of the number of economists who have turned away from a focus on goods-space preferences—is not really all that fundamental. As Haines (1975, p. 78) has argued, and as should be evident from this chapter, empirical work has largely continued to involve estimation, rather than the testing of new hypotheses, with the results thereby obtained being judged in terms of their statistical 'fits'. Much of this empirical work is decidedly unscientific in the sense that it does not involve analysts in seeking and assessing fundamentally different ways of explaining observed phenomena; usually one finds only variants on a compensatory theme being compared statistically.

The practical results of focusing on such models to the exclusion of other possibilities may be far from trivial if the focus is heavily in need of qualification and this is not spelt out to policy makers who use academic findings as a guide to action. The welfare of consumers on the receiving end of policies formed as a result of this focus could suffer unnecessarily. Mindful of the policy significance of adherence to a possibly mistaken view of decision processes, I shall spend the rest of this work attempting to open readers' minds to the implications of taking the basic ideas that households are production systems and that choices are often seen in terms of rival bundles of characteristics and of then facing up to the problems of uncertainty, complexity and the non-
and inconsistent predictions. However, such findings have not prevented Fishbein's theory, or variations upon its basic theme, from acquiring and maintaining the dominant place amongst models of consumer product evaluation processes in leading marketing texts (see section 9.4).

Studies of compensatory models increasingly compare a variety of forms and estimation methodologies. One of the more recent ones to attempt this is by Akaah and Korgoankar (1983), and it is something of a disaster in predictive terms. It involves a study of attitudes to rival 'health maintenance organisation schemes' (a new variety of health insurance in the US, whereby no significant charges are made for outpatient visits). Akaah and Korgoankar (1983, p. 195) lament the fact that:

the percentage of correct first-choice predictions, even among the best models, is only 25 per cent compared with 16.7 per cent that would be expected from random selection. Four of the nine models performed worse than chance. The relatively low percentages probably stem from the noisy nature of the data.

Like so many researchers before, they conclude (p. 196) that there is a need for further testing, with different samples of respondents, different products and variety of data collection methods.

But when one examines the reason Akaah and Korgoankar adduce for their 'noisy data', an alternative conclusion stands out as a possibility. They point out (1983, p. 193) that their respondents were asked to evaluate the rival plans in a way that involved thirty-three complex trade-offs, and suggest that this resulted in the respondents being lax in their evaluations, owing to fatigue. Their remarks echo the comments of Green et al. (1981, p. 33) that 'the relatively large data requirements that are needed to estimate individual utilities are becoming increasingly burdensome on respondents', and of Hoopfl and Huber (1970, p. 409) who note that 'an analysis of variance suggested that increasing the number of factors included in the descriptions caused the subjects to be less able to make consistent evaluations even in the small range included in the study'. The alternative conclusion to be inferred is that boundedly rational decision makers, if left to their own devices, may not in fact perform attribute trade-offs in situations where this is cognitively highly taxing. So what could be needed are not yet more attempts to estimate varieties of compensatory models, but new models that do not centre on the idea that people always average out or add together characteristic ratings for individual schemes when they are trying to reach decisions.

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The practical results of focusing on such models to the exclusion of other possibilities may be far from trivial if the focus is heavily in need of qualification and this is not spelt out to policy makers who use academic findings as a guide to action. The welfare of consumers on the receiving end of policies formed as a result of this focus could suffer unnecessarily. Mindful of the policy significance of adherence to a possibly mistaken view of decision processes, I shall spend the rest of this work attempting to open readers' minds to the implications of taking the basic ideas that households are production systems and that choices are often seen in terms of rival bundles of characteristics and of then facing up to the problems of uncertainty, complexity and the non-
static nature of preferences in a world of change. This will
involve me in taking the analysis one layer deeper than even
Houthakker was proposing, for I will be attempting to shed new
light on the reasons why consumers want particular character-
istics in the things they choose. Marketing researchers are, of
course, used to trying to penetrate this layer of decision processes,
but they may none the less profit from my distinctive analysis.

3 The Enterprising Consumer

3.1 INTRODUCTION

If one intends to discuss the nature of consumer behaviour in terms
of analogies with the behaviour of firms, it is vital that one uses an
appropriate analysis of corporate behaviour as one's reference
point. In the previous chapter I examined previous attempts to
examine households as if they were production systems; all these
attempts sought to view consumers from the standpoint of the
neoclassical theory of the firm. The neoclassical theory is concerned
almost exclusively with optimal choices of production technology
and product mix/scale of outputs, in particular with how these
choices will change, in both the short and long run, following the
addition of 'new pages to the book of blueprints' and changes in
relative prices of inputs and/or outputs. Substitution possibilities are
at all times the centre of attention. With such a theory of the firm as
its inspiration, it is hardly surprising that the orthodox approach to
household production theory takes the form it does, focusing on
marginal changes in feasible and optimally preferred mixes of
characteristics outputs that may follow changes in the list of technol-
logical possibilities and changes in relative prices.

As a way of seeing firms—let alone consumers—in a turbulent
world, the neoclassical approach has major limitations. It does
not take much thought to realise that there is more to running a
firm than the reactive activity of making marginal substitutions
amongst factor inputs and product outputs as relative prices
change; yet this is about all that the decision maker in the
neoclassical firms seems to do. Neoclassical economists typically
do not concern themselves with problems of internal organisation
and management in firms; with methods of discovering, creating
and grasping opportunities for growth; or with managers' strategic
actions aimed at dealing with the possibility that they may be