

Chapter 1 - Introduction

*...and I'm almost out of limes
which last week were only 10 cents each and this week...ooh, 25 cents...
ooh they're rotten, yuk...
but...what are those...are those limes as well...lemonade...no...
well since the limes are two and a half times as much as they were last week and a bit
rotten I think I might think of lemons...
lemons...ooh quite nice...a bit sort of squashy but...\$3.90...
mmm well I think I'll get lemons this week and wait for the limes to go back to 10 cents
each...
Two lemons just to tide me over until the limes come back...*

[Shopping protocol 1995]

1.1 The problem setting

How do consumers approach choice among alternatives when each option is an imperfect substitute and the basis of pricing differs? How do they determine 'value'?

The lemon/lime example above suggests they approach the options discretely, determining the value of each according to some internal or external benchmark unique to the particular product. The comparative value is implicit, rather than explicit; no attempt is made to convert prices to a common denominator. Had the consumer done so the outcome may have been different:

- R. Just out of interest how did you work out that [the lemons] were better value for money?*
- S. I didn't... no.*
- R. Let's just weigh one.... .115 that's 100 grams.. and that's \$4.00 so..*
- S. That's 40 cents.... Of course a lemon gives you alot more juice than a lime...but a lime in my opinion is more desirable than a lemon... so.. perhaps that was.. was an unfortunate choice!*

Of course quality was an issue in this choice, so the outcome may have been the same. However, the example serves to illustrate that consumers are often satisfied with an approximate evaluation among alternatives and that price is not always attended to in a calculating manner.

It also highlights a significant difference between the fruits and vegetables category and other grocery categories. Fruits and vegetables are subject to substantial quality variation and this variation is not necessarily correlated with price. More than many food categories, fruits and vegetables invoke the senses. On entering a fruit market consumers are confronted by odours, colours, textures, and other visual stimuli, including promotion signs. The affects of these on behaviour are evident in the frequently observed handling, smelling and rummaging in which consumers engage. Craned necks and wrinkled noses are all signs of active sensory responses to this food group.

Consumers' purchase and selection of fruits and vegetables is attracting increasing attention in Australia, as indicated by the proliferation of studies over the past five years commissioned by the Horticultural Research and Development Corporation (HRDC). However prior to this, research was sparse and mainly comprised studies of aggregate product demand, which focused on the production rather than the consumer end of the marketing chain (Weissel and Whittingham 1978, Tunstall and Quilkey 1990).

Outside Australia, the principal source of published research into consumer behaviour and horticultural products are agricultural or horticultural-based institutions (see for example the ACTA Horticulturae series). The primary focus of these studies is to determine consumer perceptions of a product (for example Alavoine et al. 1990). As with the Australian-based studies, results are directed to horticultural producers to assist in product development and to identify the appropriate promotion avenues for increasing consumption of specific products. Typically, consumer perceptions are compiled from interviews or questionnaires which may, or may not, be accompanied by sensory testing to identify preferred tastes. A significant proportion of studies are conducted under experimental conditions or through telephone interviews or focus groups. In the latter the consumer is required to recall or anticipate their responses, while in experimental conditions responses are to artificially determined stimuli.

The available body of research into consumers' perceptions confirms the importance of sensory responses and quality-concerns to consumers' attitude to fruits and vegetables. Price, although important to segments of the population, has generally been found to be secondary to quality concerns (HRDC 1990, Brumfield et al. 1993, McKinnon 1994). However, the role of price in consumers' evaluations of products has not been a central

feature in these studies. Attitudes to price were opinion-based and generally elicited through discrete questions (for example, 'How much would you normally pay for this product?'). Thus, any interactions between price and other attributes were assumed or extrapolated from these, rather than investigated in their own right.

Most research into consumers' attitudes and response to price emanates from the broad field of consumer behaviour research in the marketing discipline. Here, a variety of methods are employed to investigate consumers' choice processes, their price sensitivity, and the factors which influence their behaviour. Included among the more popular are: observation and post-shopping questioning, experimental designs aimed at isolating specific influences and behaviours, behavioural modelling (which is a rapid growth area in response to the increasingly available scanner data), and opinion-based research employing tools such as conjoint analysis (for example, Elrod et al. 1992).

From this research a myriad of factors have been identified which influence consumers' choice of products, including price. Price sensitivity and response is, in turn, a function of product and consumer-related characteristics. However, the research conducted in the marketing literature has primarily focused on manufactured or processed groceries, as will become apparent in Chapter 2. Little research has investigated consumer decision making and price response where produce is fresh. The few that have incorporated fresh produce as one among a number of products, do not address the issue of purchase behaviour when products are subject to quality and price fluctuations as a consequence of supply factors (Uhl and Brown 1971, Payne and Ragsdale 1978).

In the field of agricultural economics, where fresh produce is the focus of research, attention to the influence of the quality/price interaction at the consumer level has also been absent. Research is generally conducted on aggregated time series data which are sourced through wholesale traders or through government reporting bodies, and an assumption made that these reflect the variability in, and dispersion of, prices and quality experienced by consumers at the retail level (Griffith et al. 1992, Asafu-Adjaye and Ritter 1995). Studies of cross-sectional household expenditure on food similarly rely on aggregated data, and face the additional problem of having to accommodate the price/quality differentials associated with heterogeneous commodity groups (Cox and Wohlgenant 1986, Carman and Pick 1990, Nelson 1991). Further, they also rely on

broad demographic indicators to distinguish consumer groups, and on published information to distinguish quality grades. Once again with the assumption that both are adequate reflections of the diversity in the marketplace. In the few studies conducted at the level of the individual (Wierenga 1984), perceptions of products and subjects' choice behaviour have been elicited through questioning and the issue of quality variation was largely ignored. In other instances a hedonic pricing function has been used to extrapolate demand characteristics from consumers' perceptions of quality (Jordan et al. 1990).

In summary, although the market characteristics, and demand for, fruits and vegetables has been explored in the economics field, choice at the retail level and in relation to the individual has received sparse attention. Thus, little is known of how consumers perceive and respond to the product group and its pricing characteristics and, as such, whether aggregate models of consumer demand are in reasonable accord with actual behaviour.

In the physiology and horticulture fields consumers' perceptions of fruits and vegetables have been investigated in great detail. However, price has not been a feature explored in any depth, nor have the processes of choice and their attendant influences.

Finally, although choice and price have been researched extensively in the marketing field, they have been so mainly for manufactured and processed goods. The fresh fruits and vegetables product group has characteristics distinct from manufactured and processed products, such as temporal uncertainty as to quality and price and price/quality fluctuations. The dearth of research into price and choice for products such as these means that it is difficult to determine the extent to which we can extrapolate consumer behaviour in relation to fruits and vegetables from mainstream studies.

Clearly, a comprehensive perspective of choice and the salience and role of price in relation to fruits and vegetables is, at present, unavailable. Yet, equally clear is that this product group has characteristics whose implications for consumer behaviour are largely unexplored, despite the fact that it is a major consumer product group.

The research comprising this thesis aims to develop a comprehensive representation of consumers' perceptions of, and response to, price in the choice of fruits and vegetables. Its major contribution to the literature is in its examination of the affects on consumer

perceptions and subsequent behaviour of a product group which is relatively heterogeneous and subject to quality and price variability which is distinct from the competitive forces of the market place. To the extent that these factors influence consumer behaviour the results will have implications for both marketing and economics. For example, substantial price and quality variation which is associated with factors other than competitive forces may result in different patterns of response to price changes, and differences in price sensitivity relative to products whose pricing characteristics are substantially a function of market competition. Further, heterogeneity in product attributes across fruits and vegetables, as well as in consumers' perceptions and use of the different products, may limit the extent to which behaviour observed in relation to one product, or a sub-group can be generalised to other groups.

1.2 Thesis outline

The perspective adopted to undertake the research for this thesis is that of the consumer. In other words, the research examines price as perceived not as is.

A myriad of factors influence consumers' perceptions in choice, including lifestyle, physiology, the context in which choice is made and the nature of the product itself. Although of particular interest is the affect on perceptions and choice of characteristics peculiar to fruits and vegetables, it is implausible to examine these without addressing other significant influences which derive from the character and context of the consumer him/herself. As such, the research is comprehensive in its inclusion of factors which may bear on consumers' consideration and response to price in choice. Including these factors provides a method by which the influence of product-centred characteristics may be, to some extent, isolated.

The thesis commences in Chapter 2 with a critical review of the existing literature on price and choice, taking in both economic theory and consumer behaviour research in psychology. The economic models of choice are particularly relevant to the current research because of the prominence of price. In contrast, the psychology and marketing disciplines place relatively less emphasis on price; treating it as one of many attributes which may influence choice. The majority of the chapter centres on the concept of value and how price contributes or detracts from consumers' perceptions of value. The review

enables initial identification of factors which influence choice including the context within which choice takes place.

In Chapter 3 the characteristics of the fruits and vegetables category are outlined. Various studies have been conducted into consumer consumption patterns and preferences for specific fruits and vegetables. These discuss the relevance to consumer choice of individual usage patterns and physiological factors, and explore issues such as the affect of differences in consumer profiles on their preferences for, and attitudes held to price and product attributes. The chapter also includes an examination of price variability in fruits and vegetables at the retail, as opposed to the wholesale, level.

Over Chapter 4 various propositions are developed on the idiosyncrasies of the product group and their implications for consumer sensitivity to price. Particularly emphasised are the implications of quality inconsistency and erratic price variability. Their affect on consumers' price perceptions and sensitivity are discussed in relation to several key areas including: substitution, variety-seeking, perceptions of risk, and consumers' responsiveness to price across the product group. The propositions arising from these discussions represent the central issues with respect to the role of price in consumers' choice of fruits and vegetables. They are used throughout the remaining chapters to direct, and then evaluate, the conduct of various studies.

In Chapter 5 the methods employed to investigate the propositions are discussed. To facilitate the process a tentative model of consumer choice in relation to fruits and vegetables is outlined. The model emphasises the role of price in choice and is a synthesis of the influences on purchasing behaviour outlined over earlier chapters. Particularly emphasised are the central roles of consumer characteristics, product attributes and the actual context of the purchase on consumers' choice. To investigate these influences and their interaction with one another, a research design based on three phases is proposed.

The first of these phases is essentially a preliminary to the central research aims. It focuses on consumer characteristics and is aimed at developing a set of measures to assist in capturing their influence on the purchase process. The instrument comprises six dimensions of consumer characteristics: price and budget consciousness, involvement, variety-seeking, and two measures relating to consumers' cognitive styles. A further

dimension, price-quality perceptions, is also investigated. The development of the measures and the resulting survey instrument is the subject of Chapter 6.

The second phase is reported in Chapter 7. This phase incorporates the measures developed in Phase 1 in a study of consumers' self-reported behaviour and attitudes to fruits and vegetables. The study comprises a set of post-shopping questionnaires which are administered to a sample of respondents immediately subsequent to their shopping expedition. The results of these provide an indication of consumers' perceptions of different fruits and vegetables, and their general price attentiveness.

The final phase of the research explores consumers' actual choice processes. As such it represents the phase with the greatest depth of analysis. Verbal reports are collected from consumers as they undertake their shopping task. The transcripts of these are analysed using an encoding scheme developed specifically to identify price within the choice process. The results provide rich insights into the role of price and its salience in choice of fruits and vegetables. Discussion of the protocols and examples of choice processes are presented in Chapter 8.

The results of the three phases are examined in Chapter 9 against the propositions outlined in Chapter 4, and with reference to the model of consumer choice formulated in Chapter 5. The emphasis is on the general findings of the studies and what they imply in terms of the perceptions consumers' hold of fruits and vegetables and their implication for the type of choice behaviours in which consumers engage. Also discussed in Chapter 9 are a number of issues raised in relation to the methods employed for the study. The chapter ends on a summary of the research and suggestions for future research.

Chapter 2 - Theory and evidence on the role of price in consumer choice behaviour

'The value, that is the exchange value, of one thing in terms of another at any place and time, is the amount of that second thing which can be got there and then in exchange for the first.... Thus, the price of anything will be taken as representative of its exchange value relatively to things in general, or in other words as representative of its general purchasing power'.

(Marshall 1930:66)

'I didn't look [at the price] and...you know... one little Lebanese cucumber is not going to break the bank'.

(Post purchase recall 1995)

2.1 Introduction

In Marshall's quote, price is central in purchasing behaviour. Implied is a continual awareness of, and adjustment to, price. Yet, clearly implied in the second statement is an absence of price sensitivity in some choice contexts.

The objective of this chapter is to explore the salience and role of price in choice as indicated in the literatures of economics and marketing (psychology). A particular difficulty with broaching this literature is the breadth of research which is potentially relevant to the topic. Even within disciplines researchers specialise to such an extent that the dimensions which they address are often clearly delineated. For example, in the marketing discipline price is the central feature of research addressing issues of reference price formation or price-quality issues, but it is only a peripheral element where interest centres on generic modelling of choice.

The approach adopted to examine the literature is to focus on price within the framework of various models of consumer choice as proposed in these disciplines. The emphasis throughout the chapter is on identifying patterns of association across research areas and their implications for the salience and role of price in choice. As such, the present discussion is limited to key issues in these areas, rather than dwelling on the substantial research contributions in each. Detailed discussion of issues which are particularly relevant to the current research is presented in subsequent chapters.

In Section 2.2 the models of choice proposed in marketing and psychology are contrasted with the economic models of choice. While the latter rest on a theoretical framework, the former are grounded in observation and empirical study. The depictions of consumer behaviour proposed by the different models are discussed with reference to the contexts in which they are purported to occur. A feature common to most models is an underlying notion of value. In Section 2.3 the elements which constitute value are explored. Three key concepts relating to price are evident in most perceptions of value: price as a sacrifice, as a signal for quality, and as a mechanism for evaluating the deal itself (Zeithaml 1988). These indicate the roles price can play in choice and are discussed with reference to the models of choice outlined over Section 2.2.

The three roles of price are integrated in a model of value and choice in Section 2.3.4. The model is an extension of an earlier proposal by Monroe and Krishnan (1985) and highlights the relationship between the concepts. Underpinning the model is the concept of a reference price or point against which consumers evaluate actual prices. The manner in which consumers formulate reference prices and their influence on consumers' response to price is discussed in Section 2.4.

An issue which arises from this discussion is whether the concept of a reference price is applicable to all low-cost, repetitive purchases. Further, the variety of reference prices available suggests that the type of reference price used may be context-dependent. Only cursory attention is paid to the influence of product attributes and consumer characteristics in empirical work. In price-related research studies are often confined to a narrow selection of products (generally a line of brands) which are assumed to share similar attributes. Alternatively, studies are conducted under experimental conditions to test specific hypotheses and, as such, are designed to minimise the effects of confounding factors. Despite this relative inattention to product attributes and consumer characteristics, the results of these studies implicate the importance of these factors to the salience and role of price in choice. The chapter concludes, therefore, on a review of the influence on choice of contextual factors such as these.

2.2: Models of choice and the role of price

In a highly generalised form, consumer choice can be described as a function of the preference (attitude) for an alternative combined with the expectation (anticipated

consequence) of the purchase outcome. Choice is also subject to various constraints such as availability, time and financial resources, although the last is rarely considered outside the economics discipline. What differs across models is the manner in which preferences are formed and the nature of the decision process itself. These, in turn, determine the salience of different attributes/alternatives in choice, including price.

2.2.1 The economic theory of choice

The theory of choice as proposed in economics is significant to the present research because price is pivotal to the theory. Unlike many of the models proposed in psychology and marketing, the various models developed in economics are underpinned by a single theoretical framework which defines choice behaviour for an individual consumer via a set of axioms, the price mechanism and a budget constraint. At the centre of the theory is the notion that in every exchange what is gained must be equivalent to that which is relinquished. That is, each consumer is economically rational in exchange, producing in aggregate a society in which wealth is optimally allocated across goods and services. All observed exchanges reflect the 'true' value of the goods involved as manifest in the ratio of prices and quantities.

Essential to the validity of this behaviour is that consumers: are rational and continuously strive to optimise their choices, have static preferences which are determined by introspection (transitivity and independence), and are insatiable for all products, albeit at a diminishing rate. Further, consumers are constantly subject to a budget constraint making it necessary to allocate scarce resources across their consumption (Green 1976). Given these axioms, consumers' preferences and choices can be observed (and predicted) from their pattern of purchases (Revealed Preference Theory, Samuelson 1938) or simply assumed to hold on the basis of the axioms themselves (Slutsky 1915, Hicks and Allen 1939). That is, since consumer behaviour is axiomatised, it is only necessary to prove that the axioms do, in fact, hold.

While the simple elegance of the economic theory of choice is generally acknowledged, each of its axioms has attracted wide criticism, and each has proved patently unrealistic for many consumer decisions (Schoemaker 1982, Earl 1990, Knetsch 1993). The omniscient and calculating consumer implied in the concept of rationality has long been an anachronism (Simon 1955, 1959, Georgescu-Roegen 1954, Kahneman and Tversky

1979). Simon contends that individuals satisfice rather than optimise; a model of behaviour which has received considerable empirical support (Earl 1990). Kahneman and Tversky disputed the independence axiom which is a central assumption in the most widely applied model of consumer choice under uncertainty (Subjective Expected Utility). They proved that subjects have limited capabilities in evaluating the outcomes of probabilities and exhibit systematic biases according to the framing of a problem. Lutz and Lux (1979) have criticised transitivity on the grounds that many goods have multiple characteristics and, as such, consistency of preference cannot be assumed. Robinson (1962), also in relation to transitivity, pointed to the inherent difficulty in attempting to attribute changes in consumers' purchasing behaviour to any one factor. Finally, a vast literature has developed to dispute the feasibility of the reducibility of all wants (to utility) and its attendant assumption of insatiability (Georgescu-Roegen 1968, Lutz and Lux 1979, Coursey 1985).

In answer to these criticisms, various modified and extended models have been developed. Among those widely adopted is Stigler's (1960) economic theory of information which takes into account consumers' search costs, so that consumers' lack of response to price differentials is not 'irrational' but a reflection of the cost to them of obtaining information. Another explanation for an absence of price responsiveness is the cost of stocking goods which, in turn, is partly a function of household size and compilation (Nagle 1984). In relation to the definition of 'goods' for the purposes of determining their relative utility in consumer choice, Lancaster (1971) proposed a model which characterises 'goods' as a vector of attributes, arguing that consumers hold preferences for the attributes embodied in a good rather than for the good as a whole. Finally, the criticism cast at the substitutability of *all* goods has been responded to by incorporating an assumption of 'weak separability'¹ into applied analysis (for example Deaton and Muellbauer 1980).

Despite these, and other, modifications, the central tenets of utility maximisation (or minimisation of disutility), price awareness and responsiveness, and the salience of a budget constraint continue to be crucial to models of choice in economics. Moreover, in analyses at the aggregate-level, many researchers continue to extrapolate individual

¹ Weak separability enables goods to be categorised into discrete groups. Response to changes in prices within the group is independent of the movements of prices outside the group.

behaviour to the sample in general, thus implying a uniformity of behaviour across the sample (Stoker 1993). As will become evident over the following sections, these assumptions continue to be problematic for the description, and prediction, of actual consumer behaviour.

2.2.2 Psychology-based models of choice behaviour

While economics defines the constituent elements of consumer choice behaviour and then focuses on price as an allocative mechanism, models of choice in marketing and psychology tend to treat price as only one attribute of many which may be instrumental in choice. Thus, price and the budget constraint are not central in these models. This difference in emphasis may be explained in part by the distinctly different research agenda of the two disciplines. Although there is some overlap of interests, economics is primarily concerned with efficient resource allocation from a public policy perspective, whereas the marketing discipline focuses on developing an understanding of actual consumer behaviour for the benefit of the consumer or for the advantage of specific firms or groups.

Perhaps of more relevance, though, is the tendency for researchers in consumer behaviour to draw on observation and the rich source of study into human behaviour in psychology. This has resulted in a plethora of models describing choice under differing contexts.

At one end of the spectrum are multiattribute models which describe choice as complex problem solving incorporating extensive search, evaluation and choice processes (Howard and Sheth 1969). These models tend to emphasise pre-purchase evaluation and are based on goal-directed behaviour (Gardial et al. 1994). The process is typified by a top-down sequence where consumers increasingly focus on more concrete attributes. However, the converse sequence has also been found in the context of non-comparable alternatives (Johnson 1984, 1988, 1989, Park and Smith 1989). Choice in these complex models is facilitated through the application of various decision rules or choice strategies² such as the compensatory rule or through the less demanding elimination-by-aspects or lexicographic ordering (Tversky 1972, Montgomery and Svenson 1976). In practice, subjects have also been found to employ several decision rules in sequence, generally

² See Montgomery and Svenson (1976) for succinct descriptions of the variations on decision rules.

commencing with a global elimination of alternatives (Payne 1976, Russo and Leclerc 1994).

The extent to which an attribute is salient in these models is dependent on the consumer's attitude towards the attribute and its perceived importance to the choice outcome (Fishbein and Ajzen 1975, Horsky and Sen 1982). Attitudes, in turn, are determined by consumers' beliefs and prior experience. There is also considerable evidence to indicate that the context in which choice occurs affects both the type of attributes and their importance in choice (for example, Nedungadi 1990, Holden and Lutz 1992, Gupta and Cooper 1992). The influence of context effects is the basis on which models such as variety-seeking are founded (McAlister 1982).

Common to most consumers is a proclivity for categorising attributes or products, or for simplifying the decision process by focusing on a sub-set of the available information, even where those attributes may be irrelevant to an objective evaluation of the product (Sujan 1985, Hutchinson and Alba 1991, Alba et al. 1994). Alba and Marmorstein (1987), for example, showed that subjects under time constraints generally employed a frequency heuristic to evaluate alternatives. The number of perceived positive attributes, rather than the level or quality of the attribute, were the determinants of positive attitudes towards an option. Sujan (1985) argues that consumers often employ category-based evaluations to simplify their evaluation of products (or objects in general). Categories comprise schema or prototypes with which the consumer is familiar, and which provide a pattern of expectation or reference points for evaluation. If a stimulus (product) is easily categorised, no further processing is required. If not, the consumer may resort to further attribute-based processing.

While the concentration of research into choice behaviour has been on pre-purchase evaluation (Gardial et al. 1994), there is increasing recognition that the majority of consumer purchases are reasonably mundane and, therefore, are likely to occur with little or no pre-purchase evaluation (Olshavsky and Granbois 1979). Several models have been proposed to represent choice situations where cognitive processing is apparently limited or non-existent. They variously describe choice as a continuous or affect-driven process in which product-related attitudes and beliefs may be static or primarily developed in the intervening phase between purchases. Hoyer (1984), for example, argues that choice in products which are common and repeatedly purchased is best described as continuous.

The purchase is low-cost and, therefore, of relatively low risk. Since the choice has been made repeatedly, the consumer is familiar with the context and the decision criteria. Consequently, a simple heuristic which has proved successful over previous purchases will minimise the cognitive effort required. The heuristic need not be complete. 'Rather, consumers may have only fragments or elements of heuristics in memory, which are put together during the actual choice process to "construct" a heuristic' (Bettman and Park 1980: 148). As such, an element of the heuristic may be 'buy the cheapest' or 'buy Brand A or B' (Hoyer and Brown 1990), or it might be a direction to review a certain number of variables at each purchase incident (Jacoby et al. 1978).

At an even lower level of processing, representing the other end of the spectrum, Mowen (1995) describes situations when choice is characterised by highly rehearsed activity which is almost unconscious. Horten (1984: 248) illustrates such behaviour in the common experience of having driven a familiar route without recollection of having done so. Only when an unexpected stimulus is encountered does attention become conscious. Kahneman (1973) provides similar examples and argues that due to our limited capacity to attend to all stimuli, individuals allocate their attention selectively and rely on cues to refocus where necessary. Bettman (1970) suggests that, rather than commit all information to memory, consumers may utilise external cues as a proxy for memory; for example, price or brand.

Although these models do not state *a priori* the effects on choice, they do provide some indication of the status and influence of attributes under different choice situations. For complex choices evaluation is characterised as an attribute-based process. Thus all, or a sub-set, of attributes relevant to evaluation are attended to. This is not the case where purchases represent familiar, learned behaviour. Products are perceived holistically in the sense that each alternative embodies a particular combination of attributes for which the consumer has formed a preference. A brand-based purchase represents a *mélange* of hedonic, instrumental and price preferences; which together represent value to the consumer (Zeithaml 1988). Alternatively, consumers may adopt a directing heuristic—'buy the cheapest'—which emphasises the importance of a specific attribute to choice. Although this may imply an underlying assembly of other attributes, it can equally represent a starting point from which further evaluation commences. In all these choice situations an attribute features in the decision because it is relevant or important to choice.

These key attributes, in turn, are determined by consumer profiles (low income, health consciousness, time constraints) and/or the perceived variability associated with an attribute, both temporally and contextually (Jacoby et al. 1978).

In frequently rehearsed purchase behaviour, where little conscious attention is present in choice, product alternatives or attributes may become salient in choice only when the consumer encounters an unexpected stimulus. The stimulus may be a change in an attribute, as in the case of 'sticker shock' (Winer 1986), or may be provoked by internal or other stimuli. An example of the former is the psychophysical prompts for variation in diet (McAlister 1982). External stimuli may include the lack of availability of a sought item, the introduction of a new, unusual variation on a product, or a change in product requirements as a consequence of a different usage context (Sinha 1994).

2.2.3 Evidence vs theory: the disciplinary approaches compared

The evidence on choice behaviour from marketing and economics highlights the significance of context to the salience and role of an attribute in choice. However, the two differ in their explanation on the effects of context. The economic models of choice do not concern themselves with the processes surrounding the purchase decision, and there remains an assumption that consumers optimise their purchases, within various constraints. In marketing and psychology, researchers argue that consumers rarely behave as rational optimisers; rather, they 'satisfice' (Simon 1955). This was particularly evident in the various heuristics employed in evaluating products.

The different perspectives of the two disciplines is evident in their explanations for behaviour in relation to brand loyalty and habitual purchases, both of which imply relatively low attention to attributes, including price. Each of these factors is recognised in economics. The effect of strong attribute preferences on consumer price sensitivity is represented in the concept of elasticity (Marshall 1930). Brand loyalty manifests in a relatively inelastic response to price changes although some price response is assumed still to occur. Habit formation is accommodated in the economic model by the incorporation of search costs, as outlined earlier. The assumption is that consumers impose an effort/expectancy rule in determining whether to extend their search. The higher the perceived effort relative to the anticipated benefits of the search, the less responsive will they be to price differentials and changes. While both disciplines agree on the character of

brand preferences, the implied cost-minimisation of the search model is considered too strong in the psychology and marketing disciplines (for example, Miller 1993). Further, while search costs may be valid for relatively inexpensive items the evidence of high price variation in expensive products suggests that ‘many consumers engage in considerably less price search than predicted by the economics-of-information theory’ (Grewal and Marmorstein 1994:453).

A form of behaviour which has rarely been addressed in economics is that associated with the attention-based models. Of particular interest is evidence of regions of insensitivity around a stimulus. The recognition of sensitivity thresholds has spawned a substantial literature investigating its source and effect on consumers’ price response in the marketing literature (Monroe 1973, Kalyanaram and Little 1994). Although the presence of psychic thresholds has been recognised in the economics discipline (Georgescu-Roegen 1954), and attempts have been made to incorporate it into demand analysis (Drakopoulos 1992), substantially it is ignored; the justification relying on aggregation affects (Marshall 1930). However, the assumption that thresholds (kinks) cancel out on aggregation has been contested from a number of quarters, with these commentators arguing that thresholds do, in fact, result in stepped or kinked demand curves (Drakopoulos 1992: 162). This perspective raises a question over the usefulness of price elasticities which are premised on price sensitivity and tends to support the claim in marketing and psychology that consumers are not highly responsive to, or even aware, of price movements.

In summary, the models of choice in marketing and psychology make no presumption as to the salience of price in choice. Its salience is influenced by consumer profiles, product characteristics and contextual factors. Further the occurrence of habitual purchasing or the use of simplifying heuristics suggests that, even if salient, consumers’ perception of, and response to, price is relatively coarse.

Despite these differences, a feature common to all choice models is an explicit or implicit value-expectancy component (with the possible exception of attention-based models). What is perceived to constitute value, and the implication this has for the various roles of price is the focus of Section 2.3.

2.3 'Value' and choice

In economics the 'value-expectancy' of a product is implicit in the utility function and is revealed in the ratio of prices at exchange (the marginal unit of 'utility'). In the psychology-based and marketing disciplines, value-expectancy is explicit, and generally couched in terms of attitude towards an object or the belief that an action (purchase) will produce the desired outcome (Rosenberg 1956, Fishbein and Ajzen 1975, Triandis 1982). 'Value' in the Marshallian sense is not implicated in these models since neither price nor a budget constraint is posited.

In the absence of an axiomatised definition, the concept of value is open to interpretation. Zeithaml (1988: 13) argues that value can be construed in four ways. Three implicate price; 'value is low price', 'what I get for what I give' and 'the quality I get for the price I pay', and one emphasises the particular benefits of the product which she equates with the economist's definition of value, 'value is whatever I want in a product'. Zeithaml proposes that perceived value be defined as 'the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given...[that is]... value represents the trade-off of salient give and get' (1988:14). In defining 'perceived value' in this way she juxtaposes value and choice. This definition is quite different to that posed in economic theory where value (utility) is determined independently of the 'give' component³.

The 'give' component in Zeithaml's equation may represent a monetary sacrifice, but may also be couched in terms of non-monetary sacrifice such as time or effort. However, in Zeithaml's depiction the budget constraint is not always salient in the determination of value. Value may be determined by the quantity or quality per dollar relative to other offerings, both of which represent a Lancasterian-like utility function (Lancaster 1971). Hence, the budget constraint is one factor which may influence value, and the price-quality (quantity) trade-off is another.

³ Zeithaml is a little confusing in this respect. In arguing why a consumer will choose a lower price/quality rather than a higher price/quality product, she proposes 'when $get_a - give_a > get_b - give_b$ but the shopper has a budget constraint, then $give_a > budget\ constraints > give_b$ and, hence b is chosen' (1988: 15). Given her definition of 'perceived give and get', she cannot argue that the net value of 'a' is higher than that of 'b' and at the same time that the 'give' component of 'a' is greater than 'b'. Either the budget constraint is already incorporated in 'give' in which case the net value of 'b' is higher than 'a', or the budget constraint acts separately to modify choice. From her attendant discussion it would seem that the former is her objective.

We have, then, two potential roles for price in determining value. A third role has been proposed by Thaler (1985). He argues that consumers not only assess product-based value, they are also concerned with the ‘fairness’ of the transaction relative to other transactions, either current or past. Thus, the three roles together may be considered to represent the roles price may play in choice. The nature of these roles, and their contribution to determining value are discussed over the following sections.

2.3.1 The budget constraint and price as ‘sacrifice’

That a budget constraint does operate at some level to allocate expenditure for most individuals is evident in the very few who shop for their products solely at exclusive stores. The vast majority of the population shop at middle-range or discount stores⁴. However, an unqualified assumption that everyone *is ultimately subject to a budget constraint* is of little empirical interest. What is of interest is whether the budget constraint is a useful basis for analysis of the behaviour of ‘typical’ consumers. Specifically, is it salient in choice and, if so, in what manner does it manifest itself?

In the preceding section the treatment of the budget constraint in economics and in Zeithaml’s model were seen to be quite different. Zeithaml effectively incorporates the budget constraint into an argument in the value function, while in economics the two are distinct. This practice is quite common in the marketing literature, particularly in the popular conjoint analysis (Rao and Gautschi 1982) which draws heavily on Fishbein and Ajzen’s Theory of Reasoned Action (1975). In models such as these, the various roles of price are not distinguished. Price is represented as one of a number of attributes about which a consumer holds an attitude. Thus, the probability of purchasing a particular brand of car may be considered a function of the consumer’s attitude and evaluation of the: manufacturer, power, colour, additional features, *and* price, and/or their overall evaluation of alternatives (Green 1984). The influence of any or a combination of attributes on choice is determined by the relative weight the consumer places on the desirability of the attribute, and whether an alternative is perceived to possess that attribute (Fishbein and Azjen 1975).

⁴ In 1994, approximately 70.0 per cent of grocery-related purchases were made in the major supermarket chains, including Franklins, Coles and Woolworths (Ruthven 1995).

In this process the role of price remains ambiguous. The attitude towards price may reflect consumers' financial resources, their assessment of the price vis à vis the product's attributes, or a combination of the two. Only if it is assumed that the consumers' resources are reflected in their attitude towards price can it be concluded that a budget constraint is operating and is partially represented in their evaluation.

This implicit inclusion of the budget constraint in evaluation, and its resulting ambiguity for the role of price, presents a problem to economists, since there is no way of distinguishing the 'constraint' component from the 'value' component. Economists argue that it is the opportunities available to the consumer, not preferences, which largely determine behaviour. While a consumer can formulate preferences for any good, the good may not be available in their opportunity set (Deaton and Muellbauer 1980). As such, it is crucial to delineate between budget effects and other effects on choice.

The absence of specific constraints on choice has also been criticised in the marketing literature, although these are not confined to monetary constraints (Kalman 1968, Horsky and Sen 1982, Ahtola 1984). In recognition of the presence of both internal and external constraints on individual's intentions and actions, Azjen (1985) proposed the Theory of Planned Behaviour. The model extends the earlier Theory of Reasoned Action (TORA) to incorporate perceived behavioural controls (PCB), one of which may be financial resources. As outlined earlier, TORA depicts behaviour as a function of behavioural intentions which are, in turn, a function of attitudes towards an action and the belief that the action will occur. In the extended model, PCBs are considered to modify behavioural intentions, or to act directly on behaviour itself. In application, the influence of PCBs is identified through subject questioning. For example, in determining behavioural intentions to purchase different models of Toyota sedans, subjects may be asked to indicate their agreement with a statement 'It is unlikely that I will be able to afford the Toyota Camry'.

The addition of PCBs in the evaluation of product alternatives has proved a better predictor of behavioural intentions than attitudes alone (Netemeyer et al. 1993). However, Netemeyer et al. found no direct affect of PCB on actual behaviour. Rather the constraints acted indirectly through behavioural intentions.

An interesting implication from this is that constraints delimit the set of possible alternatives. That is, those alternatives which are not feasible because of one or more

constraints are eliminated prior to evaluating the attractiveness of the remaining alternatives. In effect, the constraint defines the consideration set.

Various constraints related to time, usage context, and knowledge have been indicated as significant in determining consumers' consideration sets (Sinha 1994). Park and Smith (1989) suggest financial resources may also be instrumental in defining the consideration set when choice is between noncomparables. Piggott and Wright (1992) directly address the implications of this for the operation of budget constraints. They propose that consumers' budget constraints may manifest in the set of products which they include in their initial set, rather than on an item-by-item basis.

The role of price may be primarily to help eliminate substitutes prior to formation of the final choice set. In such circumstances substitutes are characterised as being 'within the acceptable range' of price. For example, the set of substitute meat for meals at home commonly excludes lobster....Among the final choice set, price may then not be a determinant attribute because all products exceeding acceptable price have been defined out of the set'. (1992: 239)

Thus, 'the acceptable price range' acts as a proxy budget constraint. The consumer behaves strategically to allocate their income while minimising the effort required to do so. Rather than continuously optimising their purchases they employ this satisficing heuristic.⁵

Piggott and Wright's application of 'the acceptable price range' is a neat twist of the concept as originally conceived. In its widely used form the 'acceptable range of prices' represents a threshold within which consumers perceive the value of a product to be acceptable (Monroe 1973). The range itself is defined by a vector of prices and quality over which the consumer is relatively price insensitive. Prices beyond the lower threshold are unacceptable because they imply inferior quality. Prices beyond the upper threshold represent products where the sacrifice for quality is considered unacceptable (Stoetzel 1954). It is the latter with which Piggott and Wright are concerned.

The notion that the range may operate at the product-category level to define a consideration set does not preclude further product evaluation. What it does imply is that further evaluation is based on concepts of value which are distinct from the budget constraint, such as the price-quality trade-off or transaction utility.

⁵ Personal communication, V. Wright, University of New England, December 1995.

Price response in the absence of a budget constraint is inconceivable in the economic model. It also has significant implications for empirical research. Of central importance to empirical modelling is a high correlation (or an assumption) between income and the operation of the budget constraint, since the former is the measure of the latter (together with household size and stage in the lifecycle). If income/budget constraints are not salient, there is no basis for determining consumers' purchase behaviour.

The evidence on the influence of budget/income constraints on consumers' price sensitivity are mixed, particularly in the context of relatively low cost purchases (Hoch et al. 1995). Wakefield and Inman (1993) found evidence of some association between income level and price consciousness in a study of four grocery products. However, studies specifically testing for price sensitivity indicate that an individual on a high income can be highly price conscious and the converse for a low income consumer (Krishna 1994). Lichtenstein et al. (1993) proposed that the heterogeneity in price sensitivity across consumers could be attributed to the variety of conceptual constructs that can be held in relation to price. They found some support for the existence of seven price constructs; five in a negative frame (value consciousness, price consciousness, coupon proneness, sales proneness and price mavenism); and two in a positive frame (price-quality schema and prestige sensitivity). Thus, at best, the influence of the budget constraint may be salient but confounded by other factors.

The doubt over the salience of a budget constraint in item-by-item choice seriously undermines the economic model, but does not detract from the influence of price as a perceived sacrifice in choice. In essence, the budget constraint can be viewed as an element in this broader concept of 'sacrifice'.

2.3.2 The price-quality trade-off

The potential for an association between price and quality was originally posed in the economics discipline (Veblen 1912, Scitovszky 1945, 1976). Leavitt (1954) provides a succinct outline of the implications for choice behaviour when a price-quality relationship is perceived by consumers.

'If price has only one meaning — an economic 'sacrifice' meaning — then obviously our consumer will simply choose the lower-priced brand. If price sometimes has more than an economic meaning, if it also carries with it some implications about quality or good value or social propriety, then we would

expect (1) that the consumer would feel some 'conflict' in making a choice and (2) that he would in some cases make the higher-priced choice. The pressures towards the lower price, in other words, deriving from his concern about spending his money, might be balanced, or even overbalanced, by his concern about getting good quality or the 'right' product' (Leavitt 1954: 206-207).

The notion that choice is a resolution between the conflicting representations of price underpins most research in this area (Monroe 1973, Zeithaml 1988).

In general, the economics discipline ignores the information role that price may play in choice. Since the consumer is considered to have fully informed preferences, perceived differentials in quality are revealed through the allocation of income at purchase. In the few instances in research modelling which explicitly acknowledge the signalling role of price, this element is entered as an argument in the utility function (Kalman 1968), thus maintaining the integrity of the price mechanism (for an exception see Pollack 1977).

The substantial research into the price-quality relationship is conducted in the marketing discipline, where it has direct relevance to product positioning and pricing. In a similar vein to Leavitt, price is considered to influence evaluation both in a positive manner—through quality perceptions which affect attitudes and subsequently intentions to purchase—and in a negative manner—directly on intentions to purchase (Erickson and Johansson 1985, Dodds et al. 1991).

It is important to emphasise that there are two distinct, but related, issues in the price-quality relationship. The first is consumers' use of price as an indicator of quality. The second is the price-quality trade-off, which encompasses the first as a special case but is broader in that the price-quality relationship is considered a two-way interaction (Erickson and Johansson 1985). In this instance, perceptions of differences across a range of products may rest on brand cues as opposed to price differentials, the latter being implicit in brands.

Although the use of price as a signal for quality has been supported in a number of contexts, its use seems contingent on a number of factors (Monroe 1973, Monroe and Krishnan 1985, Gerstner 1985). It appears to hold primarily where one or more of the following are present: clear price differentials (Petruşius and Monroe 1987), perceived heterogeneity across products (Monroe 1973) or a high perceived risk associated with the purchase (Peterson and Wilson 1985). However, of particular significance is the

availability of alternative cues for evaluation (Monroe 1973, Jacoby et al. 1978). Dodds et al. (1991) found that, as alternative cues such as brand or location became available, the use of the price-quality heuristic diminished.

In addition to product-related attributes, there is wide support for individual differences in price-perceived quality relationships. Some subjects appear to hold general price schematics across all products while others are aschematic or product-specific (Jacoby et al. 1978, Berkowitz and Walton 1980, Peterson and Wilson 1985, Lichtenstein and Burton 1989).

Regardless of whether price is used as a signal for quality, where a price-quality relationship is perceived there is the potential for the negative affect of price on choice to be diminished (Monroe 1973). However, the strength of this affect is the subject of conflicting evidence (see Zeithaml 1988). Monroe and Krishnan (1985) emphasise that, while a price considered to be unacceptable implies little or no perceived value in the offer, it does not necessarily follow that a perceived positive price-quality relationship will translate into perceived value or willingness to buy; a positive price-quality relationship is a necessary but not sufficient condition for intent to purchase.

This brings us back to the notion that 'value', and hence choice, is a consequence of the resolution between price-quality perceptions and the interaction between monetary and non-monetary sacrifice. To further complicate matters, there is the added influence of transaction utility.

2.3.3 Transaction utility

Thaler (1985) proposes that the purchasing experience can be divided into two distinct elements: acquisition utility and transaction utility. The first of these relates to the perceived value of the good received compared to the outlay made for it. The second is concerned solely with the 'merit' of the deal; that is, the perceived fairness of the transaction itself. If the consumer perceives the transaction to be unfair vis à vis alternative offers they will experience disutility. Since the decision to purchase is contingent on the two elements summing to a positive, the disutility of the prospective transaction may result in a failure to purchase.

Underpinning transaction utility is the existence of a reference price against which consumers judge the offer presented to them. Thaler draws on Prospect Theory

(Kahneman and Tversky 1979) to illustrate that the reference price a consumer employs will frame their perceptions of transaction utility. The framing effect is premised on perceptual biases in response to losses and gains. Individuals react more strongly to losses than to gains (Kahneman and Tversky 1979).

While the substantive theory was developed under experimental conditions using hypothetical scenarios, there is empirical support for the notion of transaction utility and the existence of asymmetric responses to price changes or differentials (Petrușius and Monroe 1987, Mayhew and Winer 1992, Putler 1992, Heath et al. 1995). For the most part, research has focused on advertising and promotion and consumers' response to reframing these (Biswas et al. 1993). However, Petrușius and Monroe provide evidence that framing effects can influence consumers' perceptions of the relative value of products within a product line. In the context of economics, Putler incorporated reference price effects into a demand equation for eggs and found some support for the existence of framing effects. Consumers were significantly more responsive to price increases than to decreases, which provides empirical support for the argument against symmetrical demand elasticities.

Although the majority of studies investigating transaction utility have supported the predominance of loss aversion in consumers' response to price changes or differentials, there is evidence that in some instances gains can loom larger than losses (Krishnamurthi et al. 1992), suggesting that greater attention to the influence of contextual effects is needed.

2.3.4 An integrated view of the roles of price in value and choice

There are, then, three potential influences on perceived value and choice which can be attributed to price: price as a sacrifice, the price-quality relationship, and transaction utility. These are depicted in Figure 2.1 which represents a further extension of the conceptualisation of perceived value originally developed by Monroe and Krishnan (1985) and elaborated by Dodds et al. (1991). In the current depiction the model is extended by the addition of transaction utility and a qualification on 'perceived financial sacrifice'. Also elaborated on is the nature of the influence linking each of the key elements in the model. In each case the direction and magnitude of the influence is depicted so, for example, the effect of 'Perceptions of Price' on 'Perceived quality' ranges from no effect

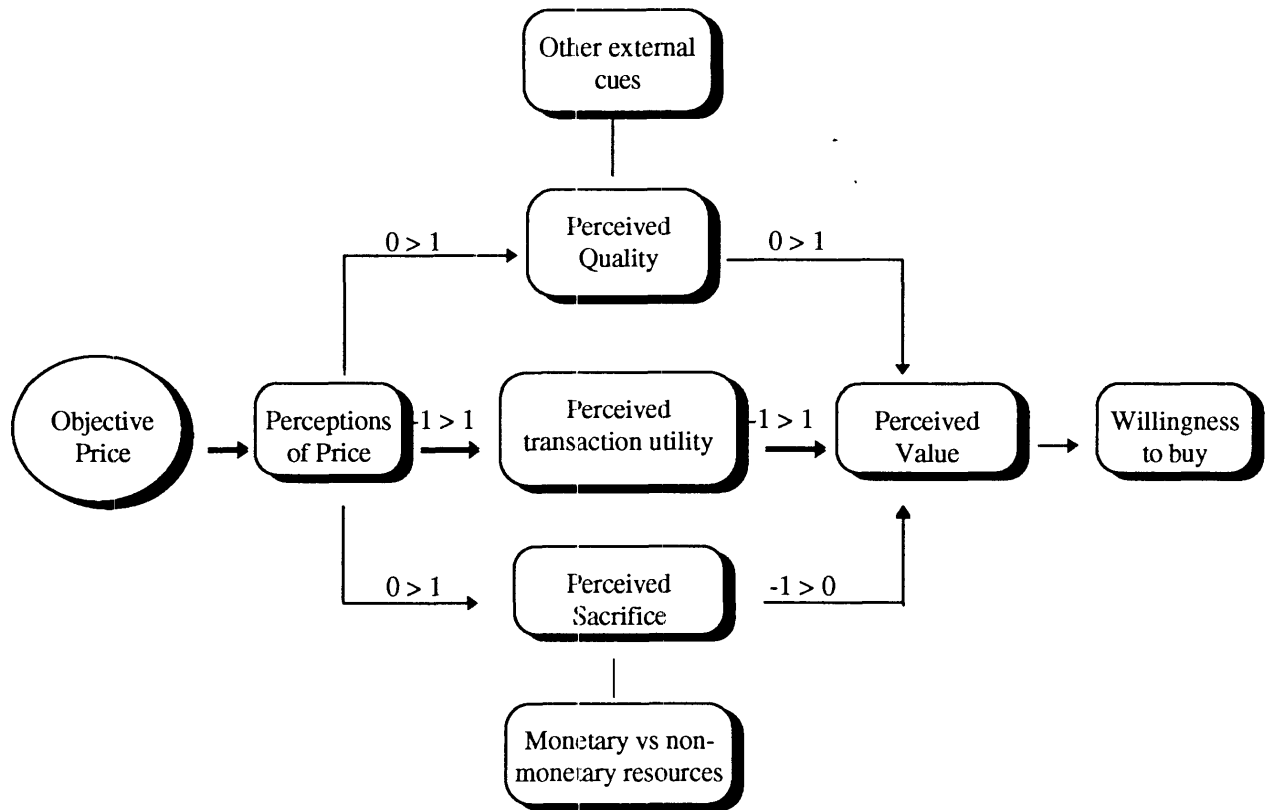


Figure 2.1: A price-based model of value and willingness to buy.

(where no price-quality relationship is perceived) to a complete association of price with quality. In the earlier models these links were depicted simply as (+) or (-).

As in the earlier conceptualisations, the actual (objective) price is a stimulus which is perceived according to consumers' subjective representations of price. The price perception differs across consumers and will be influenced by temporal and contextual experience (Dodds et al.).

Price is viewed as an indicator of both quality and sacrifice. The association with the former will depend on the presence of other available cues and on whether a price-quality relationship is perceived to exist. The price-quality relationship is also relevant to the influence of perceived quality on value. Where no quality differentials are perceived, value is determined by the remaining factors. Perceived financial sacrifice may similarly have no discernible effect on perceived value, as would be the case when a budget constraint is irrelevant (either globally or locally) and/or non-monetary costs override monetary considerations. Hence, its influence on perceived value is moderated or enhanced by consumers' monetary and nonmonetary resources, and idiosyncratic price consciousness. When it is salient its effect on perceived value is negative.

In the Monroe and Krishnan model a price-quality relationship is assumed, which inevitably results in a trade-off between monetary sacrifice and quality perceptions. In the present depiction the model encompasses situations where no perceived price-quality relationship is salient. Further, the inclusion of moderating effects on financial sacrifice creates contexts in which its influence on perceived value may also be significantly reduced. Given these modifications, a trade-off between price and quality may not occur.

The final addition to the model is that of transaction utility which can have a negative through to positive effect on perceived value. Its inclusion in the model makes provision for situations in which a product is purchased (rejected) despite unacceptable (acceptable) price or quality⁶. Transaction utility may have a negative effect on perceived value where the price is compared to alternatives available or to past experience and is found to be unfair or inequitable. Alternatively, an unacceptable financial sacrifice may be discounted because the deal is considerably better than available elsewhere. For example, a consumer may have a wish to purchase a particular CD player, yet the price of the player is considered beyond their means. However, if they encounter the player at a reduced price they may purchase the player even though the reduced price is still beyond what they consider to be affordable. The CD player is purchased because they consider the 'deal' favourably relative to their expectation of other offers.

⁶ Of course, it is possible that transaction utility will simply reinforce, or be subsumed in, a favourable overall impression of a product. Note also that Bearden et al. (1992) found a high correlation between acquisition and transaction utility which implies that a common reference price exists. As such, perceived price should not require modification.

As originally depicted, the link between 'perceived value' and 'willingness to buy' is in the trade-off between financial sacrifice and quality perceptions. The concept of 'an acceptable price range' (as defined in Section 2.3.1) is invoked (albeit implicit in the depiction of the model) to indicate that consumers are often insensitive over a range of prices. Prices outside the range indicate relatively low perceived value either because quality is unacceptable (at the lower end) or the financial sacrifice for quality is too high (at the higher end). Within the range, perceived value is at its optimum and so creates 'willingness to buy'.

The present model also has implicit 'an acceptable price range' but further allows for situations in which quality differentials are not salient. In such situations transaction utility is the primary determinant of perceived value. Objective prices below a range of price insensitivity translate into gains and an increase in perceived value. Conversely, prices above the range are viewed as losses and detract from the perceived value of the purchase.

The extension of the earlier models to include transaction utility and the possibility of no price-quality relationship helps to clarify the association between research which has focused on the price-quality relationship and that which has focused on transaction utility, which is unconcerned with product-based utilities⁷. Where quality is not an issue in choice, factors such as price variability and context will be instrumental in determining perceived value. Where quality is salient, it may act to further modify the range of acceptable prices.

Central to all three models is the initial perception of the price stimulus. A considerable body of research has developed to determine the bases for these perceptions, most of which revolve around the concept of a 'reference price' (see Monroe et al. 1991 and Biswas et al. 1993 for reviews). The formulation of reference prices, and the type of reference price evoked for evaluation, seems to provide some indication of a consumer's purchasing behaviour, where their priorities lie and the relevance of price to their choice.

⁷ The need to re-evaluate the price-perceived:quality relationship in light of the influence of perceived fairness has also been observed by Martins and Monroe (1994).

2.4: The concept of a reference price

The existence of a reference price is premised on attention to either temporal or contextual prices. Thus, its implications are limited to that segment of the population which exhibit some price sensitivity (Rajendran and Tellis 1994).

Research into reference prices is replete with definitions as to what constitutes a reference price. Emery (1962) proposed that consumers develop a 'normal' price, which may be characterised as an adaptation level, arrived at as a result of experimenting and sorting through the confusion of different prices. Della Bitta and Monroe (1974) refer to a similar concept as the 'anchor' price. Rao and Gautschi (1982) propose an 'evoked' price which is the price beyond which the consumer would start to experience some dissatisfaction. In a similar vein is the concept of a 'reservation' price, which is used in economics as the price level at which a purchase will not occur. Klein and Oglethorpe (1986) propose several reference prices which apply in different contexts and across consumers. Finally, there is Thaler's (1985) 'fair' or 'just' price which is characterised as cost plus an acceptable margin.

The confusion of definitions reflects different research agenda and contexts. However, at their centre is the proposition that consumers evaluate prices in accordance with their experience or with reference to specific stimuli. Empirical research into the formation and effects of reference prices has generally focused on low-cost grocery items. These studies have utilised scanner data or direct questioning to explore the area, although the former is increasingly dominant.

Among the scanner-based studies, the emphasis has been on investigating the relative influence of temporal and contextual prices in determining reference prices. Kalwani et al (1990) posited that consumers use past prices, contextual variables and expectations of future prices to make purchase decisions of coffee, but found the greatest influence to be past prices. Mayhew and Winer (1992) and Rajendran and Tellis (1994), also using scanner data, tested for the salience of both past and contextual elements in choice of yogurt and savoury biscuits respectively. They found that within the contextual domain the lowest price was the most salient in forming reference prices, and within the temporal domain the brand's own past prices appeared to be most important. Rajendran and Tellis also found some evidence that consumers with strong brand preference, or who were

frequent shoppers, tended to use the temporal domain, whereas those with weaker preferences, or who undertook wider sampling than average, focused on contextual elements (an unsurprising result).

An interesting aspect of both studies is the apparent underlying association with the two heuristics outlined in Section 2.2.2: 'buy brand A' and 'buy the cheapest'. Mayhew and Winer proposed that the significant effect in their study of promotions on choice was consistent with the Inman et al. (1990) contention that promotion signs may act as proxies for price. The results of a study by Urbany and Dickson (1991) also supports this view. They used direct interviews in a study of 20 grocery products and hypothesised that consumers' internal reference prices would serve as a better predictor of price expectations than market prices. As with earlier studies, consumers' recall of past prices was relatively low (Dickson and Sawyer 1990). Further, the difference in explanatory power between market prices and reference prices was minimal. Urbany and Dickson concluded that one explanation for the relative absence of salient, internal references was the presence of a price-vigilant group whose internal prices were close to market prices. Alternatively, consumers could simply be responding to promotion signals.

Attributing the results of these studies to the presence of a 'brand' or 'price' heuristic has significant implications for the interpretation of consumers' behaviour. If consumers are employing a heuristic the implication is that they are relatively insensitive to the range of prices, or options, available beyond that heuristic. If a promotion signal rather than actual price is the reference, then consumer response is not a function of the magnitude of difference between a reference price and actual price, but between the presence or absence of a signal. This raises the issue of whether reference price theory or information processing theory is the more relevant (Putler 1992).

A second, related, aspect of interest in the study by Rajendran and Tellis is the evident differences across geographical groups, and across product types. Although there were two dominant consumer profiles which might be characterised as brand and price oriented, this segmentation did not hold for all samples. In a study of price sensitivity for a range of grocery products across several demographic regions, Hoch et al. (1995), reported significant differences in price sensitivity across products and across regions (according to a subset of their demographic variables). At a narrower level Kalyanaram and Little (1994) tested for a region of price insensitivity around subjects' reference price for

sweetened and unsweetened drinks. They found that consumers who were frequent purchasers had a narrower band of sensitivity, implying greater knowledge of the distribution of options. Those who were brand loyal had a wider band. Krishnamurthi et al. (1992) also found evidence to support differences between brand-loyal consumers and others. As with the scanner studies reported earlier, their results indicated the existence of a group of particularly price sensitive consumers. There was also some evidence to suggest differences in price responsive behaviour in the two grocery products they used for their study; one of which was coffee and the other unspecified.

A frustrating element in many of these studies is the cursory treatment given to specifying the products used for analysis. Attention is generally given to the size range (which is then controlled for in analysis), whether the product falls in the durable or non-durable category, and to the frequency of promotion or use of coupons (which is prevalent in the United States). Rarely is there discussion of the consumption characteristics of the product (ie whether they are further prepared, how they are used). A reason for this inattention appears to be in the tendency to restrict analysis to a product group (or subset of products) which may be considered to represent a set of products uniform in their usage contexts. However, there is substantial evidence from other areas of research that consumers' choice behaviour is influenced by the nature of the product and its price variability characteristics (Berkowitz and Walton 1980, Biswas et al. 1993). Products differ in the extent to which consumers seek stimulation from their consumption in the form of variation (McAlister 1982 and, in the study of fruits and vegetables, Wierenga 1984, Asafu-Adjaye and Ritter 1995), of their scope of usage (Ratneshwar and Shocker 1991), and to which their attributes are transparent (Enis and Roering 1980), which may represent a risk in purchase. In relation to price itself, the magnitude of price, its variance, and the form of pricing (eg \$2.00 and \$1.95) can be significant to its relevance in choice (Gabor and Granger 1964, 1969 and Gabor 1977, Winer 1986). Gupta and Cooper (1992), for example, found consumers can become saturated with price discounting which reduces their sensitivity to this type of promotion. These and other influences, which were implied in the models of choice outlined in Section 2.2, suggest that product-related and consumer characteristics can have significant affects on consumers' purchasing behaviour and the salience of price in choice and, as such, deserve greater attention.

We have to this point completed a survey of the primary areas of research into price and choice. In the following section is presented a review of the issues which have been covered and their implications for the conduct of the present research.

2.5 Full circle: the role of price in choice

This chapter commenced with a brief review of the various models of choice behaviour that have been posed both in the economics and the marketing and psychology disciplines. Price and a budget constraint were highlighted as central elements in the models of choice developed in economics. However, the choice models of marketing and psychology suggest that price is only one element in choice and that it is not salient in all instances. This is particularly the case for relatively low-cost repeat purchases, which essentially characterises the area of interest in the current study.

A reason for the relative absence of price response in some situations was given in Section 2.3 with reference to Piggott and Wright, who propose that the budget constraint may be manifest in the consumers' consideration set, rather than in item-by-item evaluation. Their model of behaviour can be viewed as the prelude to the employment of brand-based heuristics. This is an important element since, in the absence of this context, there is no recognition that price may have been salient in the initial formulation of preferences. While this may be true of a segment of consumers it is unlikely to apply to all.

Although the budget constraint may not be active in all choice situations the evidence outlined above suggests that price is relevant to a significant segment of consumers, regardless of the level of expenditure involved. However, this sensitivity may be attributed to factors other than concerns over a budget, although this may remain salient. Two further sources of perceived value which were discussed were the price-quality relationship and transaction utility. Where there are distinct differentials in price and quality, consumers seek to identify the 'best value for money' according to their subjective perceptions of quality and price. Price also has an informational role in situations where the consumer is inexperienced or uncertain in evaluating the quality of products. The perception of value associated with transaction utility is based on the deal itself vis à vis other deals or prior experience.

Consumers' sensitivity to these elements of price is generally considered to be related to the reference price they employ in choice. The reference price acts as a benchmark against which current prices are evaluated. In Section 2.4 consumers' use of a reference price was particularly distinguished on whether an internal (temporal) or external (contextual) reference was predominant. This aspect appears to be associated with distinct types of consumers, but may also reflect characteristics of a product's pricing. A final aspect discussed was the existence of a range of insensitivity surrounding a reference price. Further, this insensitivity appears to be asymmetric, with losses looming larger than gains. However, the results of scanner data studies suggest that the primary focus of consumers' attention with respect to price are price promotions, this raises the question of whether consumers are employing directing heuristics ('buy the cheapest', 'buy the special') to purchase rather than evaluating the prices themselves, which is the implication of a reference price. If this is the case then reference prices may be less salient in repeated purchasing than posited.

There are, then, several potential sources of influence on consumers' sensitivity to price and two ways in which they may manifest in purchasing behaviour. One is consistent with persistent attention to price, although not necessarily a function of the budget constraint. The other is indirect, operating through a consumer's consideration set, or heuristic, and which may evolve over time. Together these sources of influence and their outcomes provide a basis from which to investigate the salience and role of price in the purchase of fruits and vegetables.

At the heart of all these issues is the influence of the consumer her/himself. Their idiosyncrasies, in conjunction with the attributes of a product group, will determine the salience of price and the manner in which it is employed for evaluation. Yet, highlighted earlier was that both these areas have received relatively little attention in the pricing literature. In the context of the current product group these influences are expected to be significant to purchase behaviour. This is particularly the case in relation to the character of the product group. It is to the characteristics of fruits and vegetables to which we now turn.

Chapter 3 - Food attributes and consumers' preferences for fruits and vegetables

Consumers buy fruit the first time with the eyes, then they buy them again with their mouth.

Alavoine and Crochon (1989)

3.1 Introduction

In Chapter 2 it was argued that, in order to assess the role of price in choice, and the sensitivity of consumers to price differentials and changes, it is first necessary to identify those other factors which will influence the purchase decision. Of particular importance is the need to define the context(s) within which consumers make purchases. Implicated in these are the objective of the purchase and its expected outcome(s), the level of stimulation the product invokes, and the risks associated with the purchase which, in turn, point to variability in product attributes and the ease with which attributes are assessed.

In this chapter, the factors affecting consumer perceptions of, and response to, fruits and vegetables are explored. The objective is to identify the key product attributes and consumer characteristics which can be expected to influence consumers' purchase behaviour.

Underpinning all responses to product attributes are consumer idiosyncrasies. As a food category, fruits and vegetables present the potential for strong physiological and psychological responses. Alluded to in Chapter 1 was the particular relevance of sensory characteristics to consumer preferences. In Section 3.2 is an overview of the various sensory influences on consumers' preferences, and the implications these have for consumer choice.

Consumers also vary in their household make-up, income and age group. Some are highly risk averse, preferring to remain with the 'tried-and-true', while others are more adventurous, seeking variation in their activities and consumption habits. Several studies have identified consumer segments with distinctly different attitudes and behavioural

responses in relation to food in general, and fruits and vegetables in particular. These are outlined in Section 3.2.1.

From this general overview, discussion in Section 3.3 turns to the existing evidence on the affect of product attributes on consumer preferences for fruits and vegetables. Particular attention in this discussion is given to studies of the Australian consumer. These point to concerns with quality and the importance of usage context to consumers' purchases.

The nature of price itself has implications for the degree to which it stimulates attention. High price levels may prompt concerns over the financial outlay or emphasise the value component of a purchase. Frequent price fluctuations can act as a stimulus, and perceived price-quality relationships may be used as a diagnostic tool for determining value. The influence of price on purchase of fruits and vegetables has not been widely researched. What evidence is available suggests price is not a major consideration in the purchases of most consumers. However, a feature of fruits and vegetables in Australia is substantial price variation. Consequently, price may be more relevant than indicated by these studies. In Section 3.4 the available evidence on price response in the purchase of fruits and vegetables is examined. This is followed by the results of a three month study tracking the temporal and spatial variation in prices across a selection of fruits and vegetables. Contrary to existing evidence, these results indicate price as a potentially significant attribute in consumers' purchases of fruits and vegetables.

The chapter concludes by highlighting the key features of fruits and vegetables which need to be considered when investigating the role of price in their choice.

3.2 Physiologies and associations

While all choice is subject to the influence of individual idiosyncrasies, food, as a product group which is ingested, is particularly vulnerable to these. References to colour, shape, texture, taste, and odour are frequent in consumers' description of, and stated preferences for, food products (for example, see HRDC 1990). Physiological factors drive the need for certain nutrients, and the body can develop intolerances to certain food items which may be harmful (Rozin 1976). Individuals of Asian origin, for example, generally have a low tolerance for lactose. Allergies to gluten, or to the wide variety of preservatives used

in packaged foods, severely constrain the range of products some individuals can consider.

While tolerances and aversions delimit the foods which individuals will consider for consumption, preferences are further influenced by the sensory attributes of products (McCracken 1982, Worsley 1980, Lau et al. 1984, Rappaport et al. 1993, Breckler and Fried 1993). Particularly potent are flavour and odour. Flavour is consistently identified as a significant attribute in preferences across food groups (Schutz and Whahl 1981, Tom et al. 1987, Eytan 1990). Odours can have a profound influence in guiding an individual towards objects which smell good and repelling them from those which smell bad (Breckler and Fried 1993). Schab (1990) found empirical support for the widely held view that odours can be potent cues for memory; evoking past associations. However, consumers' perceptions of both flavour and odour are often swayed, or determined, by the appearance of the product (Tom et al. 1987, Zellner et al. 1991, Brumfield and Adelaja 1993). Appearance can be necessary to determine the appropriateness of the odour, or act as a proxy for flavour where it cannot be assessed at point of purchase.

Preferences for particular food attributes are also subject to change. Initial ambivalence over a product can develop into a distinct liking. Conversely, favourable first impressions can give way to boredom or irritation (Koster 1990). Several studies investigating food preferences suggest that consumers' tolerance for monotony in foods can vary significantly for food types (Schutz and Pilgrim 1958, Siegel and Pilgrim 1958). In their study of food preferences in a monotonous diet, Schutz and Pilgrim found that breakfast cereals, and other cereal-based foods such as biscuits and bread, fared particularly well against other processed food categories. Within a product group, Koster (1990) noted acceptance for one variety of tomato was considerably higher than for another over a sustained period. It is probable, then, that some food characteristics may be more susceptible to consumer boredom or satiation than others, thus prompting a search for an alternative (even if only temporarily).

3.2.1 Consumer demographics and psychology

Reported frequently in the research into food consumption is a significant variation in the ratings of foods across demographics and according to different psychological and

physiological types (Schutz and Whahl 1981; Schutz et al. 1977; Rappaport et al. 1992, 1993).

Rappaport et al. noted women tend to prefer low-calorie, healthy items, while older persons exhibit a greater predilection for particular foods such as fish or coffee. Brumfield and Adelaja (1991) found some indication that consumers could be distinguished according to whether they emphasised appearance as opposed to flavour in their purchase of tomatoes. Kjeldal¹ has confirmed differences in consumers according to whether they focus on appearance or the utility of a product. Van Trijp and Steenkamp (1992a, 1992b) propose, and have found some support for, variations across consumers in the extent to which they seek variety.

In a study conducted in France into the fundamental motivations for the consumption of fruits and vegetables, Monnot (1990) reported four distinct consumer groups. Two of these groups (constituting 64 per cent of the sample) represented consumers who tended to hold traditional values, were conservative and concerned with security. These consumers tended to be relatively price or value conscious and generally favoured products which were well-known to them. The remaining two groups were more risk-seeking, interested in challenges and the unusual. Their purchasing behaviour reflected an emphasis on attractive products and was frequently impulsive.

In an Australian study conducted by the HRDC, consumers were segmented into five categories according to their behaviour and attitudes towards fruits and vegetables (1990: 41). The primary distinctions among groups were: their interest in innovative cooking, and preferences for meat-based meals as opposed to vegetables as the primary base. General findings for Australia indicate an increasing focus on healthy food and a clear distinction between socio-economic groups in their willingness to adopt new foods (HRDC 1990). Worsley and Crawford (1987) found professional households tended to adopt new foods more readily than other groups, as did younger rather than older (50 plus) individuals. However, the HRDC reported a significant segment of professional

¹ Personal communication, S Kjeldal, University of New England, March, 1995 (information from her ongoing doctoral work in the area).

households who were highly conservative and tended to favour meat over fruits and vegetables.

Evident, then, is that consumer-centred characteristics have a significant influence on preference and choice. Lau et al. (1984) argue that a food item acquires an individual set of labels or meanings which is developed during consideration of the item for consumption. This set of meanings reflects consumer idiosyncrasies in experience and tastes.

...It is assumed the person will rate the food first according to its specific satiation value and label it as to its association with illness, discomfort, or overall tolerance. The memory of flavor and other sensory factors will also be recalled and the degree of experience or acquaintance with the food, familiarity, mentally ascertained. In addition, belief about healthfulness and knowledge of the social factors, prestige, price, and convenience, will be considered. (1984: 406)

Accordingly, selection is partially a function of particular likes and dislikes, and of body tolerance levels and dietary considerations. Some choices are a consequence of physiological factors, and others because of psychological factors.

3.3 Preferences for product attributes in fruits and vegetables

Although consumer idiosyncrasies are fundamental in determining food preferences, foods themselves can evoke different emotional and sensory responses (Schutz 1988). This is particularly the case for fruits and vegetables as will become evident from the following discussion.

A general finding in relation to fruits and vegetables is that the two categories induce distinct attitudes in consumers (Monnot 1990, Kjeldal pers. comm.). Fruits are often associated with sensory and emotional pleasures such as 'sun', 'holidays', 'well-being'. In a study by Schultz (1988), strawberries were considered something you could eat to cheer you up (an indulgence or treat). Vegetables have less association with emotion and more with utility and health. Children frequently require significant cajoling to eat vegetables, but will readily accept fruit. The principal usages for fruits and vegetables also differ. Fruit is most often eaten as a snack, and vegetables in some form of prepared meal.

Noted in Chapter 1 was that horticultural products have only recently attracted attention in relation to consumer attitudes and perceptions. In an early study Wierenga (1980)

found that Netherlands housewives primarily distinguished vegetables on whether they were staples 'real vegetables' or accompaniments 'side dish, for modern people', or 'for festive meals'.

Van Gaazsbeek and Bouwman (1991) determined that European consumers desired firm onions with good colour, and Alavoine and Crochon (1989) noted sweetness was a major factor in favourable attitudes towards strawberries.

The most examined vegetable in relation to consumer attitudes has been the tomato². In general, flavour is the most important attribute, but texture, sweetness and appearance are also important (Eytan 1990, Brumfield and Adelaja 1991). In fact, in their United States study, Brumfield and Adelaja found that preference for flavour was significantly tempered by appearance for some consumers. When selecting tomatoes, consumers were most concerned with whether the fruit had blemishes, was firm, and had good colour (a proxy for ripeness). Although price and size were considered in purchases, they were not central to choice.

There is also some evidence of a correlation between desired attributes and a preference for a specific variety within a fruit and vegetable type (Brumfield et al. 1993). In Europe, variety has been found to be the most important determinant in choice of apples (Alavoine et al. 1990). In the United States a sample of consumers favoured a particular variety of tomato and, in some segments, were willing to pay a premium for it.

3.3.1 The Australian context

In the Australian context, the marketing of fruits and vegetables has come under increasing scrutiny. In 1990 the HRDC conducted a survey of consumer purchasing habits and attitudes towards a total of 22 fruits and 23 vegetables. Yuen et al. (1994) surveyed 900 consumers on their fruits and vegetable purchasing habits in Western Australian supermarkets. There have also been commissioned reports in relation to specific products, including potatoes (Lewis 1994), tomatoes (Queensland Fruit and Vegetable Growers 1993), strawberries (Victorian Strawberry Industry Development

² Strictly speaking tomatoes are a fruit, as are avocados. However, they are commonly perceived as vegetables (HRDC 1990) and so are treated as such in this study.

Committee 1993), apples (McKie 1993), stone fruit (Mckinnon 1994), and mushrooms (Brownlee et al. 1993).

In Table 3.1 is a summary of consumer perceptions and attitudes to selected fruits and vegetables. The summary is drawn from the results of the 1990 HRDC study, and from Lewis (1994), but reflect the general findings across the other studies outlined above (for example, Yuen et al. 1994). Both of these studies are based on consumer opinions. In the former, consumers were interviewed in their homes using prepared questionnaires. In the Lewis study, opinions were elicited through focus groups and telephone interviews. Thus, they reflect presumed behaviour rather than actual behaviour at point of purchase. It should also be noted that the HRDC study was conducted over June/July and, as such, results may be affected by the absence of certain types of seasonal fruit.

Apparent from these data is the importance of quality and the similarity of desired attributes across fruits. A further feature of both fruits and vegetables is their potential as substitutes for one another. Without exception, all fruits may be used in desserts or as a snack and, in vegetables, all those listed on the salad criterion represent possible substitutes. However, these contexts are general. To determine the factors which influence levels of substitution between varieties and/or between types of fruits and vegetables would require closer examination of usage contexts and the idiosyncrasies in consumer physiology. While an apple and an orange can both be snacks, the convenience factor for each may be different. Oranges require peeling and are often messy. Apples can be eaten with ease. If the context is 'a bite to eat while on the run' apples may be preferred. In another context 'a fruit with a child's lunch' size may be the determining factor rather than the fruit³.

Also apparent in Table 3.1, are clear differences across products in response to price increases and product acceptability (see Column 3). Consumer loyalty to the generic products apples and oranges is significantly higher than for pears, mandarines and rockmelon, suggesting that the former may be perceived as staples and the latter as options where variety in consumption is sought. The status of apples as 'staples', or 'habitual' purchases was confirmed in a later study by McKie (1993).

³ Personal communication, V Wright, 1995.

Table 3.1 Summary characteristics of selected fruits and vegetables

ITEM	MAIN USAGE	LOYALTY	DESIRED ATTRIBUTES
Apples	snack 77% dessert 44%	44% H 15% LQ 27% SF 14% NP	crunchy crisp no blemish juicy
Orange	snack 72% cakes 13% dessert 18% juice 55%*	36% H 16% LQ 27% SF 21% NP	juicy sweet no blemish thin skin
Pear	snack 74% dessert 22%	20% H 8% LQ 39% SF 33% NP	juicy sweet no blemish firm
Mandarine	snack 82%	20% H 7% LQ 37% SF 36% NP	juicy / sweet no blemish easy peeling few/no seeds
Rockmelon	dessert 52% snack 34% breakfast 26%	19% H 4% LQ 31% SF 46% NP	smell no blemish sweet and juicy
Avocado	salads 80% alone 69% dips 62%	NA	no blemish / soft low quality transparency
Potato**	baked 82% soup 47% mash 83% chips 56% salad 60%	67% Buy same 25% Buy fewer 6% Much less	no green no sprouts no blemish clean / no soil
Tomato	salad 90% meal 74% snack 51%	52% H 12% LQ 9% SF 27% NP	no blemish red colour flavour not soft

- H** willing to pay a higher price for preferred product.
LQ will seek lower-priced version of the same product if preferred unavailable or unacceptable.
SF will seek a substitute product if preferred unavailable or unacceptable.
NP will not purchase any product if preferred unavailable or unacceptable.
***** use oranges for juice at some time.
****** loyalty determined by response to a 50 % increase in price due to seasonal factors.

Source: Horticultural Research and Development Corporation 1990, Lewis 1994.

Further supporting this view are the patterns of purchase frequency listed in Table 3.2. These data are derived directly from the HRDC study and represent consumer reports of purchasing behaviour. Purchase frequency and purchase incidence is highest for apples, bananas and oranges, and they are also the least associated with seasons.

Across all fruits in Table 3.1 the tendency appears to be to opt for a substitute fruit, or no purchase, rather than to settle for a lower-priced (lower quality implied) alternative of the same product. For pears, mandarines and rockmelon this is particularly the case suggesting, once again, that consumers' purchasing behaviour differs according to whether or not the fruit is perceived as a staple.

The willingness to substitute fruits is in stark contrast to tomatoes, where only 9 per cent of respondents interviewed claimed they would seek a substitute product. Most would either pay a premium, or not buy an alternative vegetable at all. In a study specific to consumers' perceptions of tomatoes, the Queensland Fruit and Vegetables Growers (QFVG) (1993) reported consumers considered tomatoes to be unique and a staple in their diets. Their results confirmed consumers' stated willingness to pay price premiums, but this was tempered by a concomitant tendency to reduce the quantity they would normally purchase.

Potatoes are also widely perceived as staples (Lewis 1994). As with tomatoes, apples, and oranges, consumers exhibit greater willingness to pay higher prices for potatoes than for other listed fruits and vegetables, and in each case their frequency of purchase is substantially higher.

Although several further studies have investigated consumer perceptions of price, their focus has been on ascertaining the range of prices considered acceptable to respondents. Consumer loyalty in the face of price changes does not feature in their results. As with the earlier studies, these perceptions are elicited through questionnaires and interviews. McKinnon (1994) investigated perceptions of stone fruit. She reported 32 per cent of consumers purchased stone fruits on the basis of price. Also evident in her results is a price-quality perception, with less than 8 per cent considering a price less than \$1.99 per kilogram as acceptable. In relation to mushrooms, Brownlee et al. (1993) reported the average price paid was \$6.67 per kilogram. Approximately 24 per cent of respondents perceived mushrooms as expensive, but the majority, 52 per cent, thought they were

Table 3.2 Commonly Purchased Fruits and Vegetables

	% PURCHASING	% PERCEIVED SEASONAL	% FOR SPECIAL OCCASION	PURCHASE FREQUENCY
FRUITS				
Apples	94	9	6	W+ 84%
Banana	92	9	7	W 57%
Orange	87	10	6	W+ 75%
Grapes	76	56	10	W 54%
Strawberries	72	54	36	M 31% W 35%
Pear	70	28	2	W 49%
Peach	65	63	7	W 45%
Rockmelons	65	31	10	W 40%
Watermelon	61	49	6	W 40%
Mandarines	59	50	2	W 50%
Pineapple	50	19	9	M 41% W 29%
VEGETABLES				
Potato	94	3	2	W+ 71%
Carrot	92	4	2	W 66%
Tomato	91	12	4	W+ 85%
Onion	89	3	1	W 54%
Lettuce	88	13	3	W 61%
Pumpkin	82	5	2	W 52%
Cauliflower	80	24	3	W 48% F 28%
Broccoli	73	22	5	W 53%
Beans	64	15	2	W 52%
Avocado	51	46	22	M 33% W 37%
Peas	46	12	2	W 47%

W Weekly
F Fortnightly
M Monthly

Source: Horticultural Research and Development Corporation 1990.

reasonably priced. This may be due in part to the relatively small quantities purchased, 67 per cent of which were worth less than \$3.00. At a broader level, Yeun et al. (1994) found that price took on greater significance in the purchase decision for products which were perceived to be of reliable quality. Where quality was perceived as unreliable, price was less important. Overall, only 10 per cent of their respondents appeared generally concerned with price.

The only study in Australia which has specifically set out to examine the demand characteristics associated with the fruits and vegetables product group is one conducted by Asafu-Adjaye and Ritter (1995). Asafu-Adjaye and Ritter analysed the demand characteristics for fresh fruits and found two distinct groups within this sub-category. The first they characterised as necessities (apples, bananas, and oranges) since their small expenditure elasticities indicated that demand for these products was relatively unresponsive to the budget allocation for fresh fruits. The other group (containing all other fruits) was more sensitive to changes in the budget allocation and, consequently, these fruits were characterised as luxuries. Asafu-Adjaye and Ritter further found that changes in fruit prices did not have a strong effect on the quantity demanded, and concluded from this that each fruit type did not have close substitutes. Rather, the relationship among fruits was complementary; a relationship which they attributed partially to seasonal variations in supply. A shortcoming of this study was the reliance on wholesale data, and the consequent assumptions which had to be made as to its representation of the retail market. Nevertheless, it represents one of the few attempts to identify the demand and pricing characteristics of this product group.

Although attention is given to price in the preceding studies, price is generally elicited as a discrete perception. With the possible exception of the HRDC study and the study undertaken by Asafu-Adjaye and Ritter, there is little attempt to determine the interaction of price and desired quality attributes. Nor is there explicit acknowledgment of the affect of seasonal factors on price and quality. Yet, consumers' perceptions of the price they are willing to pay may well be influenced by their perception of the appropriateness of the price given the season.

3.4: Price variation in selected fruits and vegetables

Evidence presented in Chapter 2 indicates the frequency and magnitude of price variability can provoke increased consumer sensitivity to price. Casual observation in any supermarket or fruiterer in Australia will confirm high variability in prices across seasons and within weeks. On this evidence alone enhanced price sensitivity is expected, assuming a degree of price sensitivity on the part of consumers. The results of price perceptions in the previous section suggest that price sensitivity varies across products, particularly where products differ in their seasonal availability. In this section a closer examination of the price variability for a selection of fruits and vegetables is made.

Unfortunately, information on the price movements of fruits and vegetables at the retail level is virtually non-existent. The Australian Bureau of Statistics includes a sample of fruits and vegetables in its 'basket of consumer goods'. However, this information is at an aggregate level. The lack of uniformity in pricing practices, quality management, and the quality variation inherent in fruits and vegetables constrains meaningful comparison of relative price differences across items and across shops. Given the absence of published data, and these constraints, price information was collected by the author and limited to the region in which the research for this thesis was to be conducted.

Prices were collected from two supermarkets and one independent green grocer for a 12 week period from January 1 to March 24 1995. During this period many of the stone fruits and grapes come into season. This period represents the broadest range of fruits available during the year; with traditional winter vegetables such as cauliflower, broccoli and beans also consistently available. Although the ideal would be to collect price movements over a yearly period, the method of collection precluded this possibility. Overall, the season under examination was considered sufficient to gain an indication of the characteristics of pricing within the fruits and vegetables category.

The information was collected every Friday morning from all three shops. At this point in the week shops replenish their supplies of produce; accordingly produce is usually of reasonably high quality. A visual check of quality was made by the author each week. Size varied substantially for a number of items over the period, but price did not appear to be adjusted according to this criterion. The most common items varying in size were

bananas, cauliflower and lettuce. As expected, quality was generally good for all produce over the period; at least on visual criteria. Since all shops received new supplies on the survey day the quality was also quite consistent across the shops.

Twenty commonly purchased fruits and vegetables were identified (from HRDC 1990), and prices collected for all forms in which these items were presented to the consumer (ie loose, bagged, halved, and the different varieties).

In Figures 3.1 and 3.2 are illustrated the standardised variance and actual price ranges for a selection of fruits. A basis for comparison of the variance in price of different fruits is given in Figure 3.1. The coefficient of variation ($C = \sigma/\mu$) is presented as a percentage of the mean price for each fruit (see Table 3.3 for the means). Grapes and pears had the highest variance at approximately 60.0 and 70.0 percent of the mean respectively. The majority of fruits ranged between 20.0 to 40.0 per cent of the mean. The actual magnitude of the price range for each fruit is illustrated in Figure 3.2. The extreme price range for grapes reflected their seasonal availability and concomitant decrease in price over the early weeks of collection (see Figures 3.3 and 3.4). For most fruits, price varied across a two dollar range. Watermelon, when viewed in real terms, varied less than fifty cents; reflecting its low cost status.

Also apparent in Figures 3.1 and 3.2 is the significant difference between locations in the variance of items. The variance for the independent grocer was generally lower than that for the supermarkets.

Weekly price variation is illustrated in Figures 3.3 and 3.4 for Supermarket1 and the Independent. Overall, weekly variation is greater at the supermarket, price tending to be more stable for fruits at the independent. With the exception of watermelon, price frequently varies as much as one dollar per unit from one week to the next. In the early weeks, the price of grapes changed in excess of two dollars a unit over a week. Oranges, watermelon and strawberries vary little at the independent, and all fruits, at both locations, had weeks where the price was relatively stable.

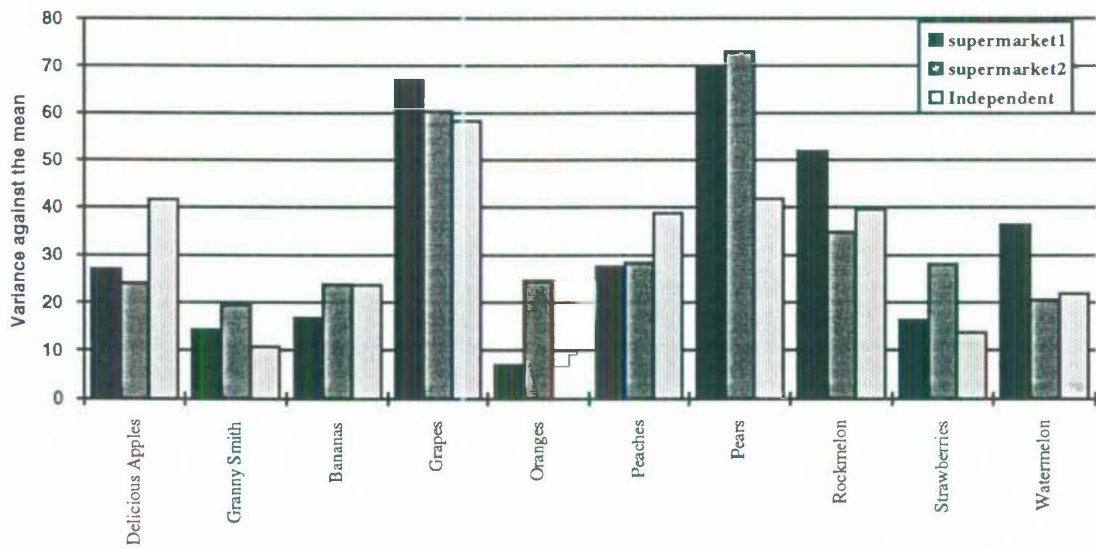


Figure 3.1 Standardised price variance for selected fruits for the period Jan to Mar 1995 (variance against the mean = $(C = \sigma/\mu) * 100$)

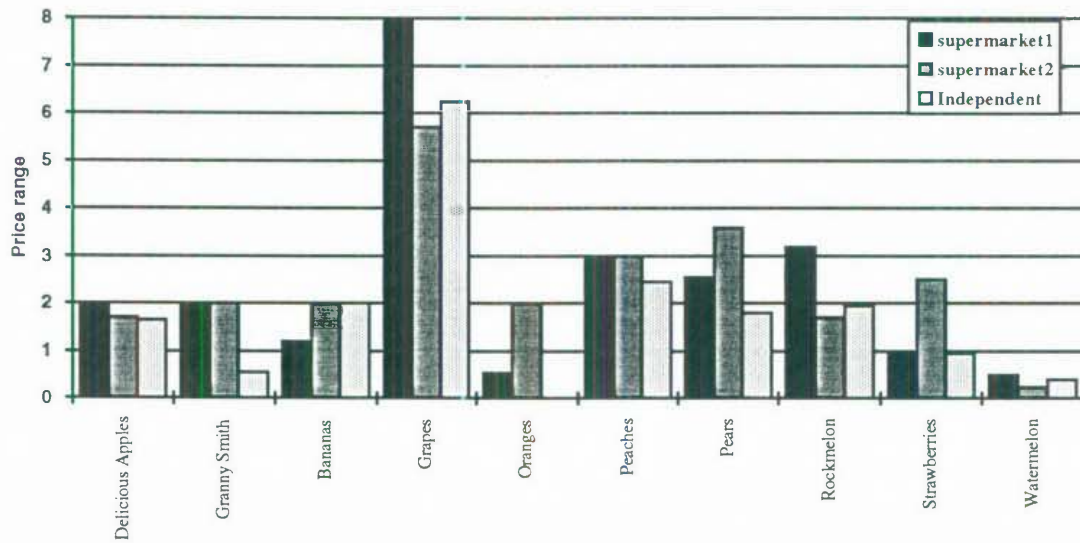


Figure 3.2 Actual price variance for selected fruits for the period Jan to Mar 1995.

Table 3.3 Mean price per kilogram (*unit) for selected fruits - Jan to Mar 1995

ITEM ¹	SUPERMARKET 1	SUPERMARKET 2	INDEPENDENT
Delicious Apples	2.49	2.34	1.80
Granny Smith	2.99	3.12	2.68
Bananas	2.55	2.63	2.35
Grapes	3.24	2.86	2.93
Oranges	2.81	2.93	2.40
Peaches	3.43	3.33	2.30
Pears	1.59	1.92	1.77
Rockmelon*	1.59	1.60	1.96
Strawberries*	2.26	2.47	2.61
Watermelon	0.40	0.42	0.55

¹ Grapes = white seedless; Oranges = Navels.

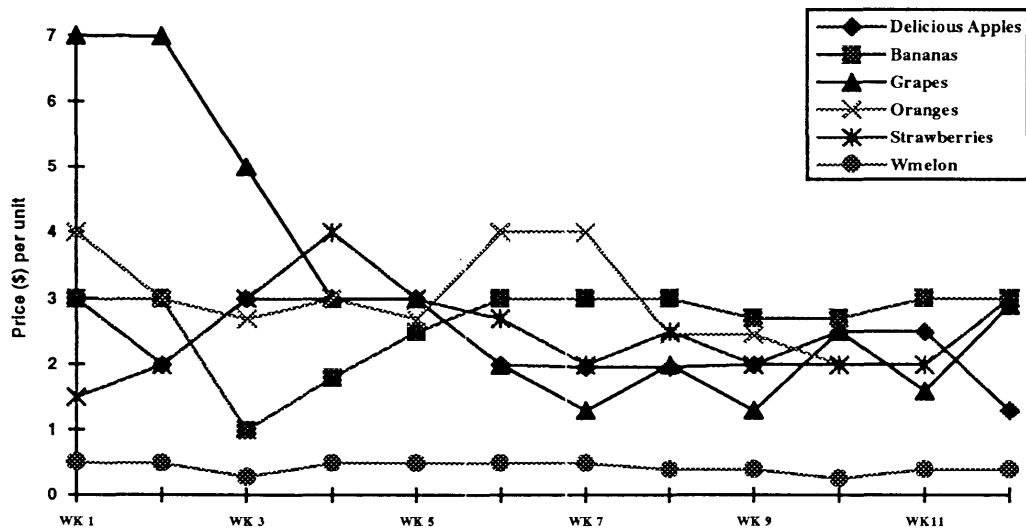


Figure 3.3⁴ Weekly price movements for selected fruits for the period Jan to Mar 1995 (Supermarket)

⁴ Prices expressed as \$ per unit (ie kilogram or each).

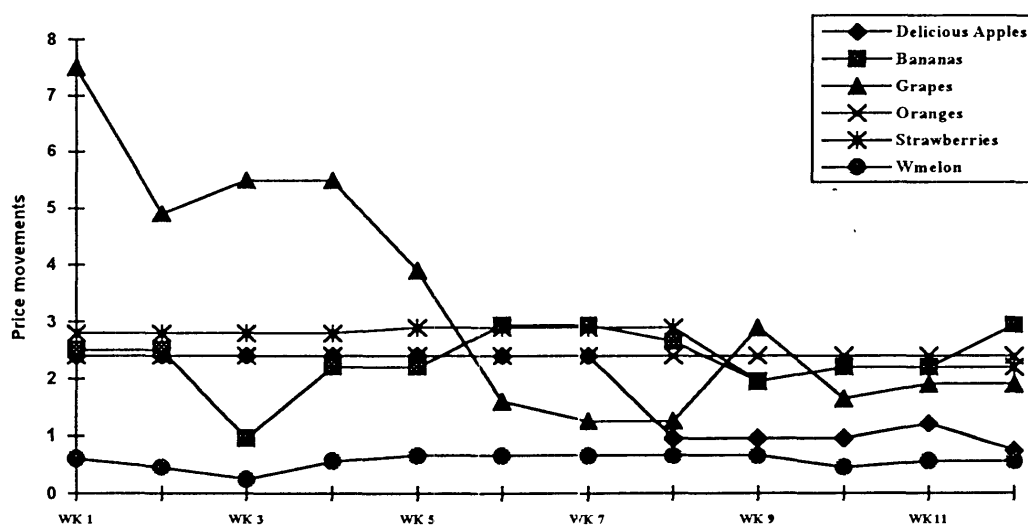


Figure 3.4: Weekly price movements for selected fruits for the period Jan to Mar 1995 (Independent).

Figures 3.5 to 3.8, and Table 3.4, provide similar information on price range and variance for selected vegetables. Most vegetables varied in price as much as thirty percent of their mean price. However, potatoes were particularly stable, as were carrots for the supermarkets. In actual magnitude, price ranges were generally lower for vegetables than for fruits, with most around the one dollar range. The items with higher price ranges were those more commonly associated with seasons; broccoli, beans, cauliflower, and tomatoes.

Weekly variation in prices for selected vegetables for Supermarket1 and the Independent are outlined in Figures 3.7 and 3.8. As with fruits, price variations at the independent were generally lower than for the supermarket. Tomatoes, cauliflower and broccoli were the most variable, changing between weeks as much as two dollars. Onions, potatoes, and carrots were relatively stable overall.

Differences between the locations represented significant potential savings for consumers willing to search for prices between the two. For example, in Week 6 carrots could be purchased at the independent for \$0.75 as opposed to \$2.00 at the supermarket (assuming comparable quality/size). Similarly, brown onions were around \$0.50 at the independent in Week 12, and a \$1.30 at the supermarket. However, in Week 2, the consumer would have benefited by shopping for onions at the supermarket rather than the independent. Greater savings were possible for seasonal items. In Week 7 cauliflowers were available at the

supermarket for \$2.00 each, as opposed to roughly \$4.00 at the independent. Opportunity for gains with fruits were less prevalent, but equally substantial in some weeks.

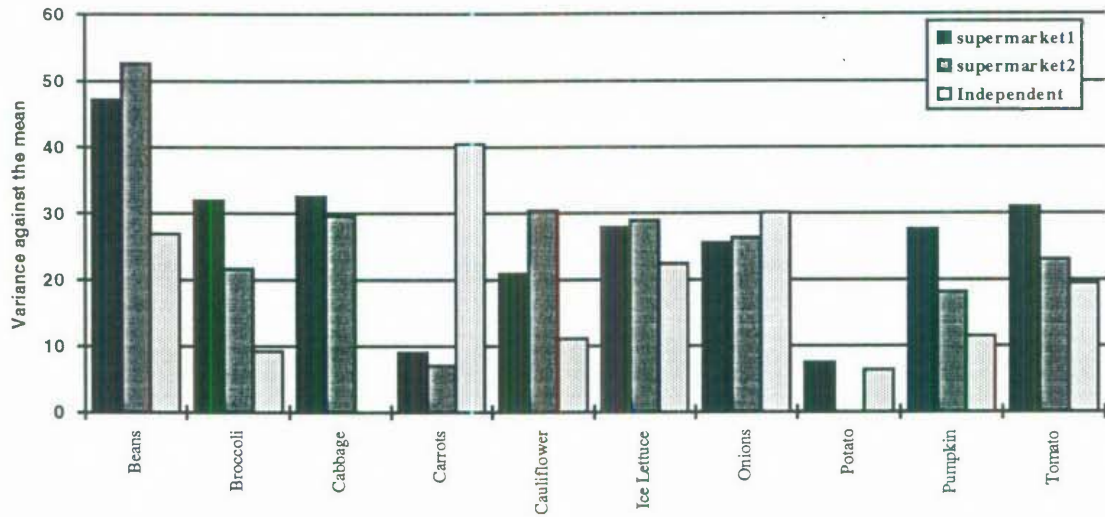


Figure 3.5 Standardised price variance for selected vegetables for the period Jan to Mar 1995

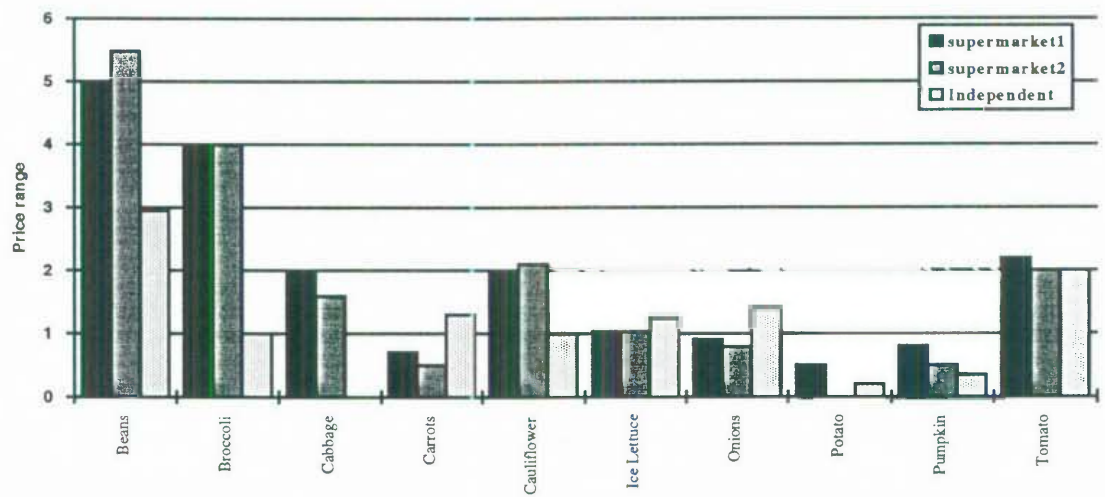


Figure 3.6 Actual price variance for selected vegetables for the period Jan to Mar 1995

Table 3.4 Mean price per kilogram (*unit) for selected Vegetables - Jan to Mar 1995

	SUPERMARKET 1	SUPERMARKET 2	INDEPENDENT
Beans	3.73	3.07	3.40
Broccoli	4.12	4.57	4.60
Cabbage*	2.22	2.49	1.90
Carrots	1.97	2.03	1.36
Cauliflower*	3.56	2.77	3.58
Ice Lettuce*	1.53	1.54	1.75
Onions	1.06	1.09	1.58
Potato	1.95	1.99	1.53
Pumpkin	1.02	1.07	1.08
Tomato	2.36	3.09	3.28

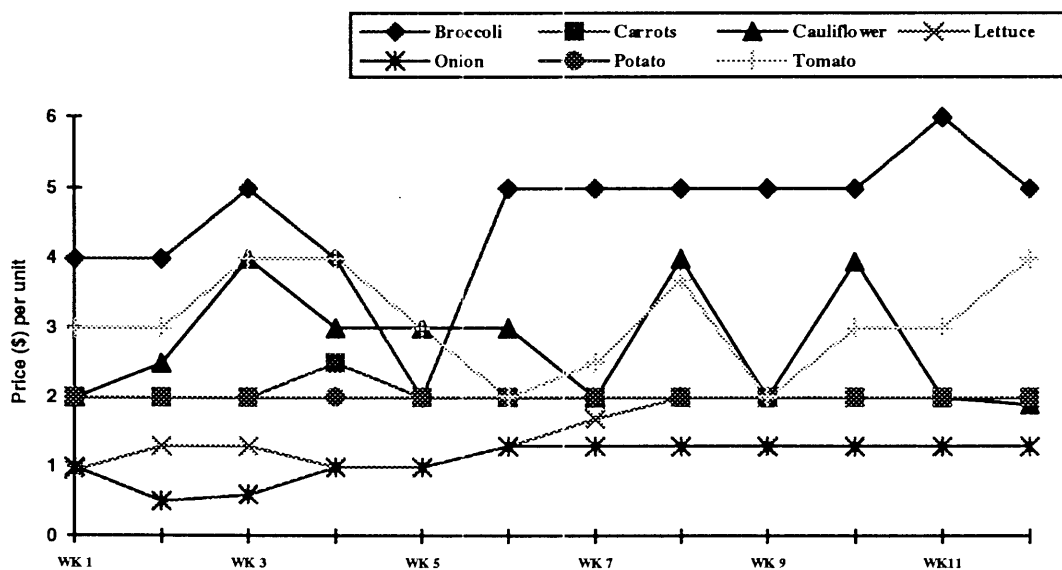


Figure 3.7 Weekly price movements for selected vegetables for the period Jan to Mar 1995 (Supermarket)

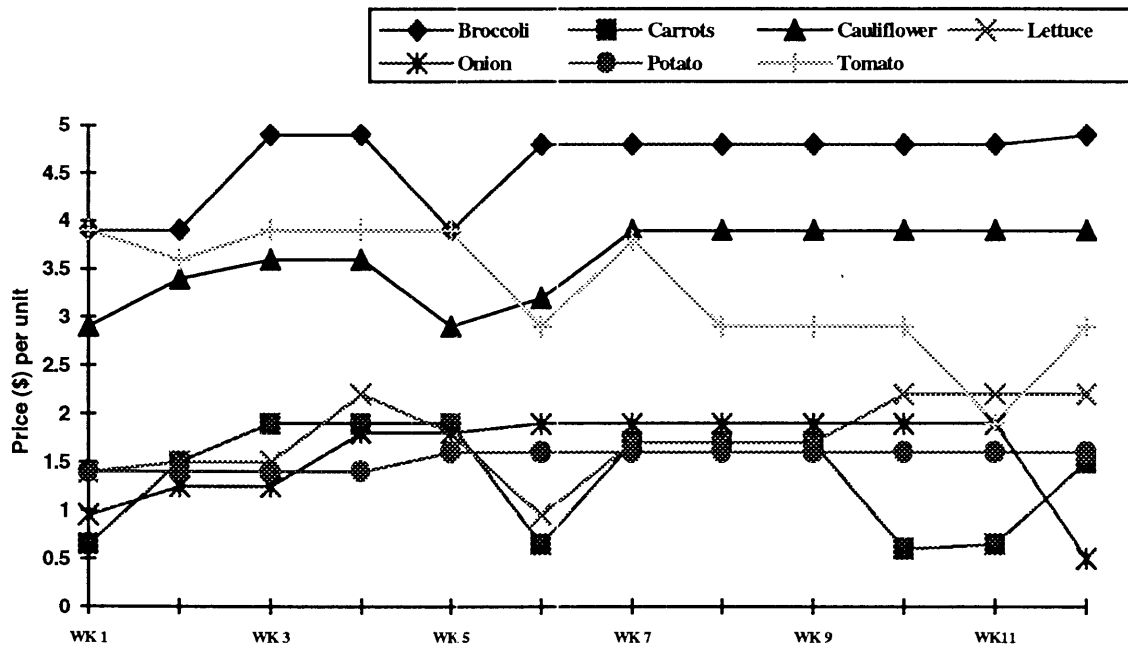


Figure 3.8 Weekly price movements for selected vegetables for the period Jan to Mar 1995 (Independent)

To place the magnitude and frequency of price movements of fruits and vegetables in context, illustrated in Figures 3.9 and 3.10 are the variation and price movements for four grocery items frequently examined in the marketing literature into pricing. For each item the price series employed represents the brand which had the *greatest* price variation. Coffee and margarine are usually characterised as high promotion products, while breakfast cereal and toothpaste are low promotion products. However, even for coffee and margarine, the magnitude and frequency of price movements were insignificant compared to that of most fruits and vegetables.

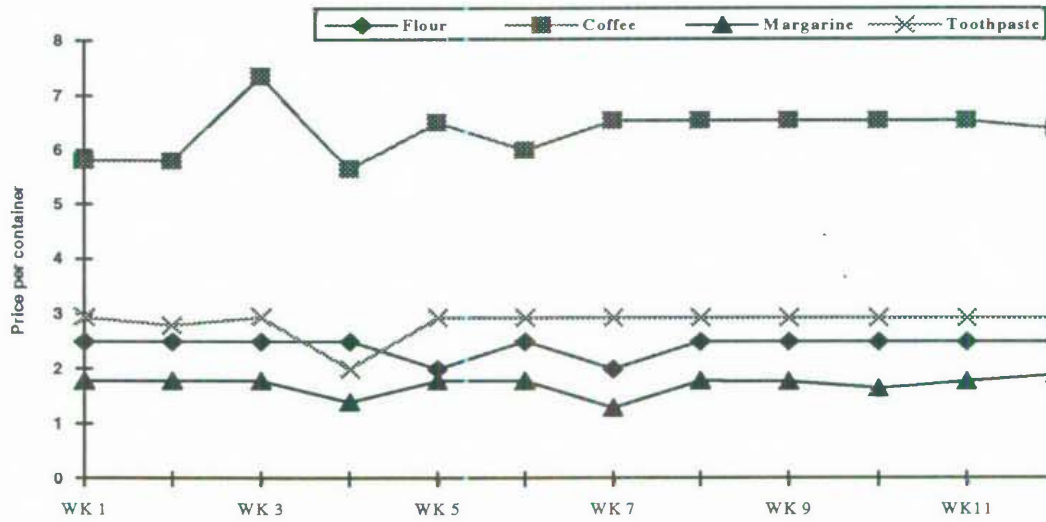


Figure 3.9 Weekly price movements for selected grocery items Jan to Mar 1995

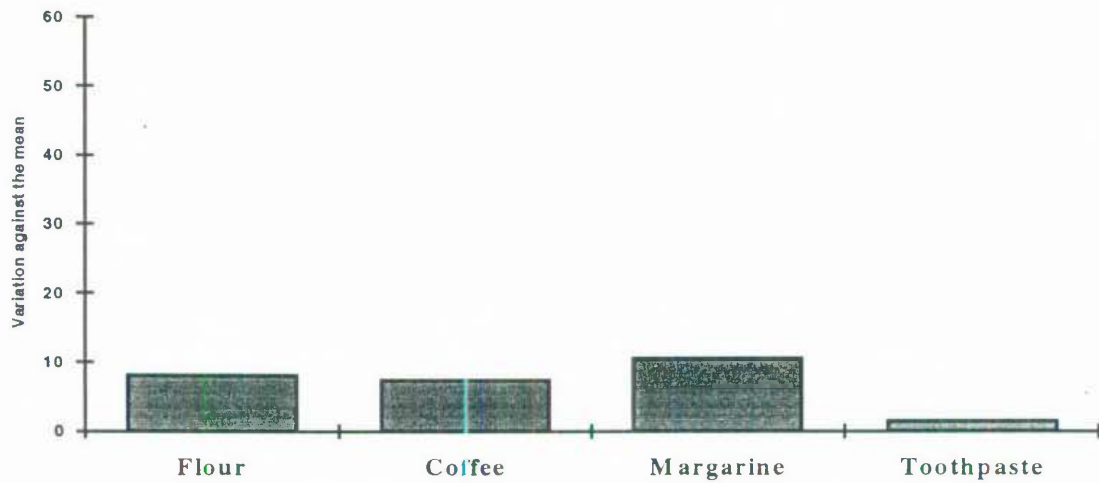


Figure 3.10 Standardised price variance for selected grocery items Jan to Mar 1995

Overall, the difference in prices between locations, and the magnitude and frequency of price movements over time, was substantial for most fruits and vegetables. As such, the category presents significant, potential savings to a consumer prepared to search and adapt their choices on a weekly basis. As an indication, a consumer purchasing one unit of each item and willing to search between Supermarket1 and the independent in Week 10, would have saved \$7.20 compared to shopping solely at the supermarket, and \$3.20 compared to shopping solely at the independent. Similarly, a consumer willing to delay

purchase of broccoli and carrots from Week 4 to Week 5 would have saved \$4.50 on the purchase. The latter scenario suggests a considerable gain by taking the risk of delaying a purchase. Of course, this also works in reverse. If the consumer had delayed from Week 5 to Week 6, the items would have cost them \$3.00 more than in Week 5.

Apart from the potential savings to consumers, the volatility of price movements in some products indicates that price is a probable purchase stimulus; particularly in relation to 'sticker shock'.

3.5 Summary of the issues

A range of factors which influence consumer decision processes in relation to fruits and vegetables has been investigated over this chapter. Together, they provide a basis for characterising the product group for the purposes of investigating consumers' choice behaviour.

The sensory attributes of foods, and the physiological/psychological response individuals have to various foods, highlights the potential complexity in consumer choice behaviour. Consumers' evoked set will be defined by those products which are acceptable according to their particular physiological/psychological predispositions (or those of their family members). However, the range of products which the consumer will entertain for purchase at any one time may simultaneously be constrained by aversions, and extended by the need for variety. The former represents a response to unpleasant sensory encounters, which may emanate from odours, appearance, or texture, while the latter represent a consequence of positive sensory encounters, but which may also reflect a persistent latent need for variety.

The potential for instability in the final consideration set is manifest in the quality variability inherent in the product group. This precludes definitive conclusions as to a product's acceptability over time. Unsatisfactory or unpleasant quality attributes at one purchase occasion cannot be generalised to future purchases. Similarly, pleasant associations with a product will not necessarily be repeated at the next purchase.

A further factor influencing the consideration set is usage context. The evidence in Section 3.3 suggests that, at a broad level, most fruits are potential substitutes for one another, as are vegetables. This being the case, relatively price conscious consumers may

employ price as the determinant attribute, assuming equal quality. However, also indicated in Section 3.3 was that consumers are apparently less sensitive to price movements in products such as apples, oranges, tomatoes and potatoes, which are commonly perceived staples. Thus, it is possible that the criteria on which consumers' base their purchases of these products differ from that of other fruits and vegetables⁵.

A final characteristic of fruits and vegetables alluded to in earlier discussion is the limitations on consumers' ability to assess the attributes of many products. Consumers are often forced to employ proxies for flavour, relying on appearance or odour. McKie (1993), for example, found colour the main criterion by which consumers assessed apples. This reliance on the sensory features of fruits and vegetables points to the constant relevance of quality in consumers' choice.

In summary, fruits and vegetables represent a high stimulus product category. Consumers may be subject to strong sensory influences, variable quality, and erratic prices. To some extent all fruits and all vegetables are potential substitutes or complements for each other. However, consumer idiosyncrasies will affect the breadth of alternatives considered for purchase. Finally, the non-transparency of desirable attributes in some products (floury apples) indicates there is potential risk in choice which may affect choice behaviour.

Central, then, to investigating consumers' choice behaviour in this product category, and the role of price in these choices, is attention to: price variability and level, quality inconsistency and attribute transparency, and a broad indicator of consumer profiles with specific attention to variety-seeking behaviour. Further, some method for categorisation needs to be devised for the purposes of identifying potential substitution effects. The distinction between staples and others is one avenue for categorisation, but there may be further elements which need to be considered as indicated in Section 3.3. The implications of type of categorisation and of the other characteristics highlighted above for choice behaviour are further explored in Chapter 4.

⁵ It should be noted this may be a culture-specific behaviour.