

The Use of Price in the Purchase Decision

ZSÓFIA KENESEI¹

Associate Professor, Budapest University of Economic Sciences

SARAH TODD

Postgraduate Director, Department of Marketing, University of Otago

Price awareness is often measured by price knowledge. The author attempts to provide a broader view of price awareness using three distinct constructs, price knowledge, price search in the store and price search between stores, and a methodology that was developed by Dickson and Sawyer. The author studies the factors that can influence price awareness. A related issue, whether deal-prone shoppers are responding simply to promotion or the real price is investigated, as well. Across categories the results show that price awareness of Hungarian supermarket shoppers are quite high and that they are much more price aware than promotion aware. Interestingly demographic factors have no significant relationship with any price awareness construct.²

INTRODUCTION

Shoppers' price awareness has attracted the attention of various researchers over the last few decades, with price recall accuracy the most common focus. Estelami and Lehmann's (2001) meta analysis lead them to conclude that the actual research design used significantly impacted findings regarding consumers' ability to accurately recall prices. Specifically, task size, the product category, respondent demographics, and

¹ E-mail: kenesei@isc.bke.hu

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financial incentives given to the respondents for their participation were found to be influential factors. While this is interesting from a methodological perspective, there is still no clear consensus regarding what the price recall accuracy concept actually is, nor whether it is an appropriate variable on which to predict shoppers' price awareness.

While Dickson and Sawyer (1990) did investigate price recall in conjunction with price checking behaviour inside the store, others have concentrated only on price recall (Le Boutillier, Le Boutillier and Neslin, 1994). Another stream of relevant literature would appear to be that regarding price searching (e.g. Urbany et. al, 1996; Urbany et. al, 2000). However, price knowledge has not been studied in that context. To redress this situation, a focus of this research is the relationship between these two concepts, with a measurement of price search both in and between shops, as well as price knowledge.

A related issue is whether or not those who are deal-prone shoppers are responding simply to the promotion or to the price itself. That is, to what extent are they aware of the usual selling price, or are they really promotion, rather than price, aware? A further objective is to analyse which is more prevalent in an economy that has relatively high inflation (9% in the year the study was undertaken) and changes in price are frequent. American, French, and Danish data, collected with a methodology (Dickson and Sawyer, 1990) similar to that applied in this current study of Hungarian shoppers, will be examined.

CONCEPTUAL BACKGROUND

Price is only one of the several costs faced by shoppers. Other purchase related costs include the time spent shopping, displacement costs, emotional costs. However, price is the cost that shoppers can best determine, and thus plays an important role in their decision. For example, in a recent study of shoppers' selection of an outlet at which to make a purchase, price was consistently stated as a major influencing factor (GfK, Shopping Monitor 2000). Such a finding is consistent with the feelings of retailers themselves, who indicate price is an important selection criterion for shoppers (Agárdi and Bauer, 2000). Clearly, interviewing shoppers definitely brings in some subjectivism, and while it is possible that shoppers actually do feel that price is the top priority, they are not guaranteed to act accordingly in a real decision situation.

On the other hand, there have been suggestions that we overestimate shoppers' price awareness as well as the number of shoppers who actively seek price information, and respond to promotions (Urbany et al., 1996). Research conducted by

Urbany and Dickson (2000) based on a representative sample of both retailers and shoppers providing an estimate concerning price awareness and sensitivity in terms of actual level and the level assumed by managers, suggests that retailers greatly overestimated the number of shoppers who actively search for price information. The research compared shoppers' responses and managers' estimates in three areas:

- (1) The percentage of shoppers visiting more than one store - It appears that only 22% did so, and that the majority either shop in only one store (39%) or usually in one, and sometimes elsewhere (35%). While retailers gave a reasonably realistic estimate (25%) concerning multiple store shoppers, they significantly underestimated (29%) the number of one store shoppers.
- (2) Shopper activity in obtaining price information – Findings suggest that a significant number of shoppers never look for price information (36%), and that number is even higher among one store shoppers (42%). Their actual ratio is much higher than the level estimated by retailers.
- (3) Response to promotions - The results indicate that only a relatively small number of shoppers stated they are willing to go to another store solely in order to capitalise on a promotion (19%). This number is a great deal lower than the retailers' estimate (34%). However, many buy more in-store because of promotions, and stock up on price discounted products, and managers underestimated this. This outcome is consistent with other research results reporting that the willingness to switch stores motivated by promotions is significantly less than that to switch brands inside the store (Walters, 1991).

An important and complex area of research is whether sales increases resulting from promotions really originate from purchases by shoppers won over from other shops and not from extra expenditure by store loyal shoppers. Answering this question is important for retailers as a conventional focus for such campaigns has clearly been to win over shoppers, and to promote store-switching behaviour.

One related area of research has concentrated on in-store price awareness, seeking to ascertain the extent to which shoppers can recall the price of the products they purchased. Much research attention has been devoted to this question because reference price theory is based primarily on the idea that shoppers set a certain price for themselves on the basis of their shopping experience (external reference price). This price is used as a benchmark during their further shopping, and they decide on that basis whether they should buy something at a given price or not (Winer, 1986).

Summarising in-store price recall research (Dickson and Sawyer, 1990; Le Boutillier et al., 1994; Vanhuele and Dreze, 2002; Estelami and Lehmann 2001), it

appears that surprisingly few shoppers can recall the price of a product purchased. This raises some doubt regarding the foundation on which reference price theory is built, especially given retailers' efforts to discount prices (Zeithaml, 1988).

Price knowledge is not high even seconds after selecting the product, with research such as that of Dickson and Sawyer's (1985) indicating only between 54% and 60% of the shoppers look at the price tag at all. It appears that, once shoppers turn their attention to another product, they forget the price of the item just purchased. This may explain why price knowledge immediately after the selection is higher than upon asking the same question at the cash desk. Among those who, while not knowing the exact or even the approximate price, adopted a subjective reference price, a higher number of shoppers can properly recall whether the given product is more expensive, cheaper, or of equal price than the general price of the category. Price awareness has also been found to vary from one shopper group to the other. Certain demographic groups such as women, married persons, elderly people and home workers are more liable to search for, and use, price information consciously (Zeithaml, 1985).

Dickson and Sawyer (1990) noted that shoppers giving price estimates made mistakes of such magnitude that the difference compared to the actual price was greater in the majority of the cases than the price spread of products within the same category. That is, shoppers did not only demonstrate poor price recall, the price they gave was lower (or higher) than the price of any product in the category.

Even when a product was being promoted, only 50% of the shoppers remembered correctly, and could recall whether they had purchased a special priced product. This leads one to question the effectiveness of promotions. One implication is that it may be in the shared interest of both retailers and manufacturers to spend more on in-store POP materials than on the (price) promotion itself. The tendency to overestimate the reduction in price suggests that it is the special price status itself that is the attraction for shoppers. Thus there may well be a minimum rate of reduction that makes shoppers evaluate the offer as being a good bargain, i.e. a 'real' reduction. It is easily apparent that many special price tags only really offer a very small price reduction. In the course of our interviews, shoppers not infrequently reported negative feelings with regards promotions that were simply a 'bait'. Thus, while clearly exists shoppers who are 'promotion sensitive', and will buy anything that is labelled special-priced, there is another group, let us call them 'promotion sceptics' who do not look just at the special-price status but rather at the actual price (and other features) of the product when making purchase decisions.

Analysing the impact of promotions, there is relative agreement that their effectiveness is temporary, and they may work against brand (store) loyalty, and strengthen shoppers' price sensitivity. Similarly, as shoppers form a reference price for themselves and use it as a basis of later purchases, they also form a promotional reference point (Lattin and Bucklin, 1989). This means that if they buy a product frequently on promotion, they will not buy it later unless it is again on promotion. On the basis of the retailer's and the manufacturer's past price promotions, the shopper forms expectations concerning the future. This may result in the situation where shoppers, rather than responding positively to price promotions, rather fail to shop if no promotion is on.

CONCEPTUAL FRAMEWORK

Before embarking on a description of our research hypotheses, it is necessary to specify some terms used in this research. Despite the relative attention which the issues of price knowledge and price awareness have received, there does not seem to be a generally accepted definition of these terms. We have therefore generated a terminology on the basis of which a set of notions can be defined. Price recall is the most immediately measurable and the most strictly interpreted notion in this system, and refers merely to whether the shopper can recall the exact price of a product or not (right after the selection). Price awareness is a more complex concept, referring to the fact that the shopper consciously seeks price information, and memorises it with more or less accuracy. This is no longer a simple price recall, but a more complex price knowledge or even use of price information. In this sense, knowledgeable or price aware shoppers know and keep track of several products even in several shops.

A review of past literature also fails to provide one with a uniform view concerning the way in which price information is stored (Vanhuele and Dreze, 2002), while the way of recalling prices may also vary. For the purposes of this research, we have adopted the method of measuring price recall at the very moment of the selection, which requires more accurate price knowledge than price recognition, which only means recognising a price upon presentation (Monroe and Lee, 1999).

Accurate recall of price may be a matter of sheer coincidence as, upon selecting a product, one usually automatically looks at the price tag. Thus, if asked immediately after selecting the product, one might well happen to remember. As this kind of price recall does not fully reflect price awareness as we understand it, we therefore assume that in addition to proper recall of prices, a price aware shopper will also take advantage of this price information e.g. for comparing prices. In such a case, price

recall will no longer be a coincidence, and shoppers will actively use the price information in their shopping decision. We will therefore investigate price checking behaviour within and between stores, as well.

In addition to analysing literature, in an attempt to further refine our research hypotheses, we have conducted focus group interviews with housewives. The primary objective of the interviews was to test the relevance of our research proposals, and to see what shopping habits may be identified in the case of Hungarian housewives. Briefly summarising the findings from those interviews, we can state that there appear to be markedly different behavioural patterns with regard to price. In our interviews we have partly concentrated on factors influencing price awareness, and partly on responses given to price reductions.

As mentioned above, there are three ways of describing shoppers' price awareness, of which the first is the recall of the specific price. The second is the intensity of price search. We assumed a shopper searching more intensively for price information in the store to be a more price aware shopper. This applies both to the time spent at the point of selection, and to the number of products examined. The third factor is the intensity with which shoppers compare prices between outlets. There are clearly shoppers who have a routine of keeping track of prices all the time, and who are always up-to-date on what is cheaper in which store. Focus group interviews revealed that this happens most typically through regularly reading the fliers and, secondly, through visiting the individual shops. Several of the interviewees collect these fliers and compare them once a week to see what is cheaper in a given store, or which store is the cheapest altogether. There is of course the other extreme whereby some shoppers do not compare prices at all. These shoppers selected a particular store on the basis of some specific information at some stage, and do their shopping there regardless of special reductions.

We assume that the three aspects of price awareness are related. Thus our hypotheses are as follows:

- H₁: Those shoppers who do more price search inside the store can more accurately recall the price of the product selected.
- H₂: Shoppers who do more price checking inside the store also do more frequent price comparisons between stores.
- H₃: Shoppers who more frequently compare prices between stores can recall the price of the selected product more accurately.

Price promotions are a frequently used marketing tool of retailers. The result of price promotions can be multiple. That is, they can divert shoppers from being brand or shop loyal, or shoppers can stockpile, increase their consumption rate or just simply bring forward future demand (Chandon and Wansink, 2002; Keng and Ehrenberg, 1984). These actions will only happen if consumers respond to the price promotion. The frequently asked question is whether the reaction to the promotion is the response to the lower price or response only to the promotion tag (Inman, McAlister and Hoyer, 1990). This question can also be asked in the form of whether ‘price awares’ (those who know and search for price information) and ‘promotion awares’ (those who know and search for promotional information) are similar or different consumers.

We propose two hypotheses to answer this. The first is based on the assumption that special priced products are bought because of the lower price and, generally, these shoppers decide more on the basis of price. That means that shoppers buying these products should remember prices better than those who bought normal priced products. Our hypothesis is thus:

- H₄: Buyers who selected special-priced products do more intensive price search, and are better at recalling prices than those purchasing at normal prices.

On the other hand, there are group of buyers who bought special priced products and were not aware of that fact. Dickson and Sawyer (1990) found that no more people are able to recall the price status than the price itself. The question is whether promotion aware shoppers are at the same time also price aware, i.e. know better prices.

Thus, the hypothesis is:

H₅: Shoppers who are able to recall the special price status of the product give better estimates of the price.

There are of course other factors apart from specials that influence shoppers' price awareness. Other findings from the literature and shopper interviews let us assume that shoppers who purchase a product more frequently, and therefore come across price information more frequently, will remember it better. On the other hand, one may equally assume that those who buy a particular product more frequently may save more money knowing price information, if they buy the cheaper product, i.e. if they are motivated to search for price information. Thus:

H₆: Frequent buyers of the product check the prices better and provide more accurate price estimates.

This fact, however, may be influenced by brand loyalty. As those shoppers who typically buy one specific product do not decide primarily on the basis of the price, brand loyalty is probably also a parameter along which price aware and less price aware shoppers may be distinguished (Bronnenberg and Vanhonacker, 1996).

H₇: The low or high level of brand loyalty affects the price recall accuracy and the intensity of price observation.

RESEARCH DESIGN

For the methodology of our research we have followed the description given by Dickson and Sawyer (1990), thus enabling comparison with similar research projects. The methodology is thus a structured in-store interview based on the linkage of observation and interviewing. Interviews were conducted in the following way: the interviewer was stationed in the selected store at the point of purchase for particular products, and pretended to be involved in some stocking activity. Every ten minutes (s)he identified a shopper arriving in front of the shelf and apparently intending to buy from the given product category, and began observing that shopper. (S)he applied structured observation to measure the time the shopper spent selecting the product (from the minute of stepping in front of the display until taking the item off the shelf), and observed the number of products the shopper had taken in his/her hand, and approximately how many products (s)he had checked for price, and noted whether it was a special-priced or specially displayed item. As soon as the product had been

selected, and placed in the shopping basket, the interviewer approached the shopper, introduced him/herself, and asked the shopper to answer a few questions related to the product (s)he had just selected. In the event that the shopper identified for observation ended up not buying the product or was unwilling to answer the questions, the interviewer noted this fact, and proceeded to the next observation. This joint application of observation and interviewing methods enables the investigation of not only the respondents' behaviour as they self-reported it but also their actual behaviour.

The interviews were conducted in two Budapest supermarkets serving communities with different demographic profiles so that results can be generalized. This also provided us with the opportunity to see whether different demographic groups behave differently with regard to questions of price. Observations and interviews concentrated on two product categories different in purchase frequency, expense, number of SKU-s. The product categories are as follows:

- detergent (more expensive, more rarely purchased FMCG product)
- margarine (cheap, more frequently purchased product)

We interviewed 313 shoppers, 155 in one store and 158 in the other, 154 among those buying margarine, and 159 buying detergent. It became clear already during the test interviews that the composition of the shoppers was very different in the morning and in the afternoon-evening period, so we did half of the interviews after 4 o' clock, thus avoiding the overrepresentation of non-working people in the sample. Even though the selection of the sample may be regarded random, we must, prior to presenting the results point out that generalisability should be obviously limited partly on product categories, and partly on the supermarket selected.

The metric variables were analyzed by analyses of variance and the non metric categorical responses by simple cross tabulation (using chi square for testing significance).

RESULTS

Summing up the results of price recall accuracy investigations, just over one third of the respondents (37%) could accurately recall the price of the item selected immediately after purchase. One fifth (20%) missed it by no more than 5%, and just below a fifth (17%) recalled a price that was more than 5% off the real price, their error was 96 Forint on average (18%). Even if we allow errors of 5%, little more than half (56%) of the respondents could recall an approximately accurate price. Compared to other similar studies in different countries, the price awareness of Hungarian shoppers seems to be worse than those of their American counterparts, though much better than the French and worse than the Danish. The interviewing method selected for the research should provide the highest recall rates as shoppers are asked immediately after selecting the item, i.e. when they could best remember the price of the product selected. Yet 26% of the respondents did not even offer an estimate of the price of the item purchased. This means that a little more than a quarter of the shoppers had no clue how much they were going to pay at the cash desk for the products chosen.

TABLE 1: Price knowledge in different countries

Price knowledge	Exact	Wrong	No attempt
Hungary	37	37	26
United States (Dickson-Sawyer,1990)	47.1	31.8	21.1%
United States (Le Boutillier et al.,1994)	61.3	20.0	18.7
France ^a (VanHuele and Dreze,2002)	2.1	97.9	-
Denmark ^b (Jensen, 2001)	68.6	n.a.	n.a.

a Did not allow “don’t know” answer

b Data available only on the right answers

PRICE RECALL ACCURACY

We have measured the price knowledge bias: the difference between the objective price and the recalled price, and indicated the result in percentage terms. The number may be positive—if shoppers underestimated the price and it may be negative—if the price was overestimated.

We also computed the absolute difference between the objective and the recalled prices (likewise in percentages) that is price recall accuracy (PRA). This latter figure summarizes the errors, while the first number does not give any indication concerning the magnitude of the error, it only shows the directional bias. That is because this number may be zero even if price estimates were significantly off the actual price, but half of the respondents underestimated, while the other half overestimated it. Values have been computed only for cases where the respondent agreed to offer an estimate at all (231 persons, 74% of the sample).

Interestingly, recall accuracy on average was not biased in any direction, as respondents were only 50 fillers off the real price, corresponding to 0.3%. However, an investigation into the price recall accuracy measure points out that this minimum error does not originate from the fact that everyone said the actual price, but from the fact that underestimates and overestimates leveled off. PRA is 4.6% (25 Forint), i.e. this is the average number by which respondents missed the actual price upward or downward. While purchasers of margarine recalled prices somewhat better on average (4.3%), and detergent purchasers made more mistakes (4.8%), the difference is not significant. However, the difference is significant in the sense that margarine buyers gave many more perfect estimates, and many more 'no clue' answers than detergent buyers, who, in turn, gave approximately good, or not good answers (see Table 3). Table 3 suggests that the price of cheaper, more frequently purchased products is either of more interest for shoppers, in which case they will know it, or they do not care at all, in which case they will not even try to recall it. The price of a more expensive but more rarely purchased product could be more important, so they take longer selecting it, and this is clearly the reason why they come up with some kind of estimate, but they buy it rarely enough not to know the price with full accuracy. Corroborating this assumption is the result that detergent buyers spend much more time selecting the product and check the price of many more products, and report having done a thorough search.

An other explanation for the difference in recall can be the number of SKU-s in the two product category. In the detergent category we could find about double the number of SKU-s than in the margarine.

PRICE SEARCH BEHAVIOUR

We tried several ways by which to observe price checking behaviour. Firstly, the observer noted down in the course of structured observations the number of minutes that an individual shopper spent at the point of purchase, how many items s/he inspected physically, and how many prices s/he apparently checked. The latter of course may be no more than an estimate as it is quite difficult to observe when exactly shoppers are looking at the price tag and when at something else, but then we – for the sake of control – asked them to report the number of items they had checked for price. It is also obvious that standing and looking around at the point of purchase is not equivalent to searching for price information, but we are certain that, if shoppers lengthily examine the features of a product, they also consider its price during the process, and the more products they examine, the more they check for price. This assumption is corroborated by the results whereby there is a strong relationship between various search indicators.

The time spent at the point of purchase was relatively short (1.7 minutes on average), and there was a very high ratio of those (36%) who did not search at all, but picked straight away the product they needed. These values differ significantly between detergent and margarine purchasers as the former spent a much longer time searching (2.64 minutes as opposed to 0.71 minutes characterising the latter). The same is true for the products handled and inspected: those buying the detergent handle many more products than margarine buyers to see their physical features. This is consistent with the generally accepted view that shoppers spend a longer time selecting a product of a higher value. The search time is also obviously influenced by the number of SKUs within the given product category. There were about two and a half times more SKUs of detergent as there were of margarine in the supermarkets.

The shoppers considered themselves more active price checkers than indicated by the observers as the observation revealed that 50% of shoppers failed to check the price of any product at all, while 66% of the shoppers interviewed claimed to have checked the price of the item selected, and 46% said that they even checked the price of another competing product, as well. Of course one must not forget here that observation has its limits, and observers could not notice if the shopper took a cursory glance at the price tag.

RECALLING THE SPECIAL PRICE STATUS

Another important part of the research is the analysis of the impact of promotions from the point of view of how easily people can recall the special price status of products, or whether the product was being promoted. In the course of our research, the given supermarket chain centrally decided to sell two well known brands of detergent in 6 kg packs, and the best selling margarine brand in 500 gram packs at a promotional price. As the promotions were centrally implemented, both outlets had the same items on special.

Twenty-one percent of respondents purchased from either of the products on promotion. On the other hand, 20% of the respondents were able to recall properly the name of one or several products on special. However, examining whether shoppers with accurate knowledge of promotions were the same as those who actually purchased special-priced products suggests that, although there is a strong relationship, there is no complete overlap. Only 42% of those buying a special-priced product knew that they were doing so, and 15% of those not having bought the promoted brand could mention a brand on special. (We measured the knowledge of special priced products with the question of “Could you mention any special priced product?”)

TABLE 2: Recall of special price status and selection of special priced products (%)

	Selected product is...		Average
	special priced	normal priced	
Able to recall special priced product	42	15	20
Not able to recall special priced product	58	85	80

$p < 0.05$

Fifty-eight percent of those who purchased a special-priced product were not aware of the price status. This is particularly thought-provoking if one considers the qualitative results from the shoppers' interviews, in which the most categorical statements came from some shoppers claiming that they were strongly 'anti-reduction' while others have become 'reduction-resistant', i.e. they ignore the special price status of a given product, saying that 'there is something special-priced anywhere I shop'.

TESTING THE HYPOTHESIS

Our first three hypotheses refer to the relationship of the factors of price awareness. As we rightly assumed, there is a strong relationship between price search behaviour and price recall ability, i.e. nearly all indicators referring to price recall and price search show a significant relationship. Seventy-five percent of those who looked at the price tag of the product selected gave a price estimate accurate within 5%, while 68% of those who reported not even checking the price, did not attempt an estimate. Table 3 shows the relationship of some indicators of price search and price recall.

Our second and third hypotheses referred to the comparison of prices between stores, and we assumed that those regularly comparing prices between stores are more rigorous price observers even within the store, and are also better at recalling prices. These hypotheses were supported, as 61% of those reporting weekly between-store price checking also checked the prices of the selected and other competing brands, while those giving no consideration to the price level of the different stores did not check prices in the store (39%) ($p < 0.001$).

The relationship between price recall and between-store price comparison is significant as well. We can claim on the basis of Table 3 that those doing weekly comparisons gave more accurate estimates, while those who do not claim to do such checks are much worse at recalling prices even inside the store.

Summing up the results for our first three hypotheses, we can state that there is a relationship among the three parameters, and we can therefore assume that there is a single concept, namely price awareness, that we can measure with the help of these parameters. Linking up these parameters into a structural model, and the investigation of how price awareness as a latent parameter may be described with these parameters could be a pathway for future research.

TABLE 3: Significant results

Price recall accuracy	Exactly right	Wrong within 5%	Wrong more than 5%	No estimate
Whole sample	37%	20%	17%	26%
Self-reported price checking of selected item ^a				
Yes	53	23.0	17	7
No	2	13	17	68
Self-reported price checking of other brands ^a				
Yes	55	23	16	6
No	2	12	20	66
Product categories ^a				
Margarine	41	13	13	33
Detergent	33	26	21	20
Compare supermarket prices ^a				
Weekly	51	21	14	14
Monthly	20	17	34	29
Never	32	20	16	32
Actual price status ^a				
Special price	57	23	6	14
Regular price	31	18	20	29
Brand loyalty ^b				
Loyal	35.0	21.4	19.2	24.4
Switcher	48.9	10.6	6.4	34.0

^a Statistically significant at $p < 0.005$

^b Statistically significant at $p < 0.05$

PROMOTION AWARENESS AND PRICE AWARENESS

Although one is tempted to think that remembering a product's special price status is much easier than remembering how much it costs exactly, results tend to suggest that shoppers care little about the fact a product is on promotion. While 37% could say the exact purchase price, only 20% of the shoppers could mention a product on special. What is more, on the basis of our results, we can state that recalling the special price status and recalling the exact price are not related in any particular way, i.e. we are not in a position to say that whoever remembers the price better will also better keep track of promotions.

Our next hypothesis concerned the different price awareness level of shoppers buying products on promotion. Literature and group interviews suggested that those buying a special-priced product are probably more sensitive to prices, and therefore observe prices more closely, and also remember price levels better. This hypothesis seemed partly justified. While price recall accuracy actually depends on whether a shopper bought a product on special (normal-price shoppers' estimates were off by 5.6%, and special-price shoppers only by 1.5%; $F=6,61$, $p<0,05$), there was no systematic directional bias in the respondents' price estimates. That is, we cannot claim that special-price shoppers underestimated the price, and normal price shoppers overestimated it (true even for the wrong estimate respondents). We can claim that those purchasing at special-price gave more fully accurate estimates than normal-price purchasers, and fewer made mistakes in excess of 5% (Table 3).

The hypothesis concerning price search behaviour has been proved only partly as shoppers neither spent more time at the location of the selection nor did they physically inspect more products on special. On the other hand, those who bought special priced product had checked the price of the selected item more and claimed they had checked the price of several competing products. The reason behind this result may be that there were only two of such offers, and to check these was not time consuming.

It is an interesting question as to whether buying a special-priced product itself or buying a special-priced product along with the recognition of the special price status improve price estimate and price search. The fifth hypothesis, in which we assume that recalling the special price status has an effect on price awareness, refers just to this fact. This hypothesis is not supported. That is, it is not apparent that, among purchasers of special-priced products, those who recognized the special price status of the product gave better price estimates and undertook more price search. This result leads us to conclude that recognizing the special price status does not influence price recall. In other words, price awareness and promotion awareness are probably two separate concepts with different factors and motivations in the background. This is to say that "special price" tag attracts some who would otherwise not use price in their decision, but does not influence the real price sensitives. This result corresponds with the findings of Inman, McAlister and Hoyer (1990).

FREQUENCY OF PURCHASE

Our seventh hypothesis referred to the relationship between frequency of purchase and price recall.³ Results indicate that while there is little difference between the two groups in terms of price recall accuracy, the error bias greatly differs: infrequent purchasers overestimated the prices (by 4.4%), while more frequent buyers tended to underestimate them (by 1.3%). It is interesting to see that the same relationship is more significant in the case of margarine buyers, and the difference is more conspicuous between the two groups.

While one might think that more frequent buyers need undertake less 'scanning' of prices, there is no relationship whatsoever between price search behaviour and frequency of shopping. An equal ratio of frequent shoppers and rare shoppers check prices, and they spend equal lengths of time searching. The relationship is still not evident if we further refine the category of frequent shoppers deciding to examine the behaviour of really frequent shoppers (one per week in the case of margarine, and one per two weeks in the case of detergent). The results are interesting for several reasons. They do not confirm the principle whereby those who shop more frequently have a much greater economic stake in price knowledge because this information helps them select the cheaper product. Frequent shoppers cannot recall prices any more accurately, and, what is more, they somewhat underestimate their expenditures. On the other hand, we see no evidence of a relationship with price search either.

BRAND LOYALTY

Brand loyalty, in accordance with the generally accepted view, reduces price sensitivity. A question of our research is whether it also reduces price awareness. We assume a positive answer, as a brand-loyal shopper does not search or price check inside the store, and is likely to have less accurate price information than those of non-brand-loyal shoppers. A source of reducing expenses for these shoppers is checking prices between stores.

Our hypothesis concerning price search behaviour was confirmed. Both the time spent searching and the number of items inspected was less among brand-loyal shoppers than between shoppers who switch between brands. The test concerning our hypothesis for price recall proved more interesting as it suggested that brand switchers

³ Our definition for frequent purchaser in the case of margarine was one purchase per two weeks, and in the case of the detergent one per month, and those purchasing less frequently than that were categorized as rare purchasers.

either knew prices really well or not at all, on the other hand brand-loyal shoppers do have some—even if not accurate—knowledge of prices.

SUMMARY AND DISCUSSION

In this research we have tried to investigate shoppers' price awareness in two product categories that can be classed as low involvement products, so it is likely that price plays a major role in selecting the product. Price awareness has been measured by checking the ability of recalling prices immediately after selection, observation and questions concerning search of price information in the store, and habits of comparing prices between stores. These three factors show a strong relationship in the product categories investigated. This raises the issue of how the parameters measured with three different methods and at three different levels of measurement could be linked up into the latent construct of price awareness. One such possibility is the uniformisation of the different scales into statement-like Likert scales, and arranging them into a model.

The next major group of our research results comes from the investigation of factors influencing price awareness. Although economic rationale suggests that price knowledge may lead a frequent shopper to more savings than less frequent shoppers, and the former are also exposed to price information more frequently, our research fails to support the assumption that these shoppers are more price aware. Frequent shoppers do not remember prices any better, and do not check prices any more than do infrequent shoppers. Thus frequency of shopping may not be a useful basis for retailers to classify shoppers. Brand loyalty, on the other hand, more clearly distinguishes between shoppers. That is, brand-loyal shoppers less typically search for price information, and are not so good at recalling prices. It has become obvious during the research that the ability to recall prices may be affected by certain situational factors such as the shopper's time pressure, so we suggest it would be worthwhile including these also into a model.

Although some American research results (Le Boutillier et al., 1994) lead experts to encourage retailers to reduce the amount of the price reduction as purchasers of special-priced products did not recall prices any better than their fellow shoppers who buy at normal prices (and thus they are not aware of the sum of the reduction), we would not jump to similar conclusions on the basis of our Hungarian research results. Eighty percent of buyers of special-priced products were able to recall the price of the selected product within a 5% error band, while only half of normal-price shoppers could do the same. Some shoppers do keep track of prices, and do not simply respond

to the presence of a reduction sign board or label. This is also confirmed by the fact that just below 60% of buyers of special-priced products were not at all aware that they were buying a special-priced item, which clearly indicates that the selection was motivated by the price actually being lower than the competitors', rather than by the presence of the promotion. It is interesting to see how low the recall index of a price special is (only one fifth of shoppers was able to name any kind of special-priced product). There is indeed a group of shoppers that are attracted by the mere presence of the promotion, namely those who bought special-priced items, and are aware that they did so, but have not even a rough idea of the price of the product. They constitute only 1.5% in our sample though, which is not enough to justify a retailer adopting a strategy whereby they only emphasise the fact of the promotion, without giving any weight to the amount of the reduction.

It is interesting to see the 'promotion indifference' of a large number of shoppers. Not only qualitative results but also quantitative ones corroborate our suspicion that shoppers have come to respond with some apathy to price specials, and attribute little importance to them unless their attention is inevitably directed to them.

It has not been discussed so far, yet we find it important to mention that demographic parameters did not significantly influence price awareness parameters. This result contradicts the often asserted view in literature that these relationships should exist, and it would be worthwhile re-investigating their impact in future research. Likewise, only asking regular shoppers (e.g. those in charge of the household purchasing), as they do most of the shopping, and they are most likely the prime target group for retailers as they are the ones who make most of the decisions in-store, is also worthy of further consideration.

One must, of course, take into account the fact upon evaluating research results that interviews have been conducted in no more than two stores of a single supermarket chain, so the results may only be generalised for the behaviour of shoppers of this chain, and only for the two product categories investigated. The two product categories differed in terms of their average price level, frequency of purchase, and the number of items within the product category. These differences may result in the difference in shoppers' ability to recall prices. To specify the features of product categories that divide shoppers concerning their ability to recall prices, one would need to include several product categories. On the basis of such a study, it would then be possible to categorise product categories depending on shoppers' ability to better recall prices, or not. Clearly, in the case of the former, it is important to set prices to a low average level, while in the case of the latter, higher prices may be applied.

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