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RETAIL ATTRIBUTE SENSITIVITY AND SHOPPING PATRONAGE

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Using conjoint analysis the sensitivity for the four most important retail attributes price, quality, assortment and locational convenience for food stores is measured for a sample of 400 consumers in Tilburg, The Netherlands In a second wave the actual shopping behavior is measured using a self-administrated questionnaire The sensitivity scores are used separately and in conjunction, as sensitivity patterns, to explain patterns of shopping behavior as well as separate shopping characteristics The relationships found, suggest the usefulness of this kind of approach as it gives in-depth insight into shopping behavior and choice of grocery store

Introduction

Investigations concerning retail patronage and store choice have followed many lines. Retail shopping behavior has been predicted by means of objective variables like distance, traffic patterns, population density and store size (see Alpert 1971). Such research has relatively low predictive value in trade area situations where many alternative stores exist and where distances among stores do not vary greatly (see Stanley and Sewall 1978). A second line of research employs consumer variables to predict store patronage. Rich and Jain (1968) investigated social class and life cycle as explanatory variables for shopping behavior. Other studies have included socio-economic product risk (Prasad 1975), personality related variables (Dash et al. 1976), personnel interest

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(Bellenger et al. 1976–1977), media usage (Bearden et al. 1978) and self-ascribed occupational status (Hirschman 1980).

Although all of these variables are weakly related to shopping behavior and/or store choice, managerial implications are often unclear or difficult to implement. This consideration led us to explore personal characteristics more closely related to actual shopping and store attributes. Specifically, sensitivity for retail attributes are investigated. These express the individual cost benefit structure of shopping and are directly related to store attributes.

The choice of retail attributes

In a review of 26 empirical and theoretical papers on the importance of store attributes in retail store selection, Lindquist (1974) observed that the four marketing mix elements, price, quality, assortment and locational convenience were mentioned most frequently. Lindquist suggests that this relative frequency of mention is a "valuable indicator" of the importance of these attributes. In a review of 12 studies on the importance of retail store attributes, Arnold et al. (1978) performed a comparative analysis on attribute importance for supermarkets.

For seven studies on grocery shopping behavior the response to the question "All things considered, what is the single most relevant reason you shop at (name supermarket) for most of your food shopping?", was coded into nine categories. Five reasons, covering the four attributes: price, assortment, locational convenience and quality (general and for meat specifically) were considered by the respondents (total $n = 7.000$) as most important. For these seven studies an average of 75% of the sample considered one of these four attributes as most important. In the foregoing studies the importance of the attributes is deduced from questions about the single most important reason for retail store choice. In a study by Hansen and Deutscher (1977–1978) an importance rating on 41 attributes for retail stores by 485 subjects was assessed. In a study by James et al. (1976) a multi-attribute model was used to assess the importance of six attributes for men's clothing stores: price, assortment, personnel, atmosphere, service and quality. The importance ratings for quality, price and assortment found, were the highest. Locational convenience, however, was not included in this latter study.

In the above studies, the implicit conclusion has been that attributes which are rated as being important determine the actual retail store choice. However no attempts have been made to validate this against actual shopping behavior. Secondly no attention has been given to the influence of the interaction or combination of these attributes as reasons for choosing specific retail stores.

In this study an attempt is made to measure the sensitivity pattern of housewives on the four retail attributes (price, quality, assortment and locational convenience) considered as most important for predicting actual food shopping behavior.

Measuring retail attribute sensitivity

The trading area confronts the consumer with a wide variety of shopping alternatives with varying retail attributes. It is not likely that one alternative is clearly better than another for every retail attribute. The consumer has to trade-off between retail attributes.

By trading-off the individual tries to choose the alternative with highest utility. Utility can be defined as a function of retail attributes.

$$U_{ijk} = f(a_i, b_j, c_k)$$

In which U_{ijk} is the utility for the alternative for which i, j, k are the levels of the attributes a, b, and c. By varying retail attribute levels and holding other attributes constant the change in utility can be taken as a sensitivity indicator for that particular retail attribute. Formulating retail attribute sensitivity in this way directly links the sensitivity concept to the conjoint measurement model.

Table 1
Trade-off matrix.

Price level	Distance		
	a_1 (5 min.)	a_2 (10 min.)	a_3 (15 min.)
b_1 (Dfl 100.00)	1	2	5
b_2 (Dfl 110.00)	3	4	7
b_3 (Dfl. 120.00)	6	8	9

The trade-off process is illustrated in table 1, an example of a trade-off matrix with only two attributes distance and price at three levels: (1) is the most preferred combination, (9) is the least preferred combination. These preference rankings are the input for estimating the utilities of the attribute levels of distance (a_1, a_2, a_3) and price (b_1, b_2, b_3).

The conjoint measurement model can be specified as a linear additive as well as a linear multiplicative model or a combination of these models.

$$z_{ij} = a_i + b_j \tag{1}$$

$$z_{ij} = a_i b_j \tag{2}$$

The objective of the conjoint measurement algorithm is to estimate the parameters (utility values) a_i and b_j, in such a way as to minimize the rank difference of z_{ij} with $\hat{z}_{ij}$, which is a monotonic (order preserving) transformation of the observed ranks. The algorithm is iterative, minimizing a stress coefficient as a measure of goodness of fit. In this study Kruskal's stress coefficient S was used:

$$S = \left[\frac{\sum (z_{ij} - \hat{z}_{ij})^2}{\sum (z_{ij} - \bar{z})^2} \right]^{\frac{1}{2}} \tag{3}$$

$\bar{z}$ = mean of z_{ij}'s. The summation is over all the attribute levels.

Table 2
Distance and price utilities

Price	Distance		
	0 923 (5 min)	0 185 (10 min)	−1 108 (15 min)
1 292 (Dfl 100 00)	1 (2 215)	2 (1 477)	5 (0 184)
0 185 (Dfl 110 00)	3 (1 108)	4 (0 370)	7 (−0 923)
−1 477 (Dfl 120 00)	6 (−0 554)	8 (−1 292)	9 (−2 585)

Using an additive model to estimate the utility values of price and distance on the data from table 1 we obtain for price $b_1 = 1.292$, $b_2 = 0.185$, $b_3 = -1.477$ and for distance $a_1 = 0.923$, $a_2 = 0.185$, $a_3 = -1.108$. These utility values produce the original preference ranking (see table 2). The most preferred combination has the highest ($2.215 = 1.292 + 0.923$), the least preferred combination has the lowest utility ($-2.585 = -1.477 - 1.108$). In this example the price sensitivity for this consumer would be 2.769 ($= b_1 - b_3$), his distance sensitivity 2.031 ($= a_1 - a_3$).

Design of the study

The study was conducted in two waves with a sample of 400 housewives in Tilburg (The Netherlands). The sample was drawn randomly within district strata. In the first wave, respondents had to trade-off price, distance, assortment and quality for food shopping. These attributes were measured at three levels (see table 3).

The conjoint measurement data were collected by a pair-wise method (Johnson 1973; Jain et al. 1979) and the utilities were estimated with MONANOVA (Kruskal and Carmone 1969). In a four attribute design each attribute is evaluated three times. This yields for each respondent three scales for each attribute. The final attribute scale is the mean of

Table 3
Shop attributes

	Price	Distance	Assortment	Quality
Level 1	Weekly purchases at a price of 100 guilders	5 minutes distance	Food products	Once a week a spoiled food product
Level 2	Weekly purchases at a price of 110 guilders	15 minutes distance	Food products, household articles	Once a month a spoiled food product
Level 3	Weekly purchases at a price of 120 guilders	25 minutes distance	Food products, household articles, cosmetics, periodicals	Once half a year a spoiled food product

the three scales (Oppedijk van Veen and Beazley 1977).

The retail attribute sensitivity scores for each respondent have been calculated as the difference between the two most extreme utility values. For price, distance and quality the sensitivity has a unique interpretation, while the extremes of the utility scales were always at the extremes of the price, distance and quality scales. However, for the assortment scale some respondents had high utility for a small assortment and low utility for a wide assortment, others had opposite utility values. So a distinction was made between sensitivities for a small assortment (−signs) and sensitivities for a wide assortment (+signs). In the second wave, four months later, using a self-administrated questionnaire, store patronage and daily shopping behavior was measured for the same sample, for six food product categories (bread, vegetables, milk, meat, softdrinks and beer, and groceries). The response was 66%. The remaining sub-sample has the same sociodemographic and attribute sensitivity structure as the total sample.

Three perspectives on the retail attribute sensitivity construct

In three phases, each building upon the other, an insight into the validity of the sensitivity construct will be developed.

- In the first we follow a simple univariate approach. Retail attribute sensitivities are taken separately and related to store choice. Within the six different food product categories the predictive validity of the sensitivities are tested.
- In the next section the effect of combinations and interactions of retail attribute sensitivities is taken into account. Profiles of retail attribute sensitivity are taken and validated against store choice.
- As a sensitivity profile reflects the individual's overall shopping strategy they may not only be expressed via specific store choice but perhaps more clearly by general behavioral shopping patterns. For instance people who are both price sensitive and quality sensitive might buy their low perishable food products at a discounter and meat and vegetables at the butcher and the greengrocer. So finally patronage profiles are constructed and used as criterion for the validation of retail attribute sensitivity profiles.

Table 4
Analysis of variance: retail attribute sensitivities by store choice

Product category	Where bought	n	Price	Assortment	Quality	Distance
Bread	Supermarket	28	1.918	1.622	3.042	1.901
	Discounter	26	2.328	1.050	2.749	2.044
	Bakery	137	1.991	1.126	2.988	1.938
	Baker's van	62	2.181	1.028	2.900	1.978
	Total	253	2.064	1.152	2.947	1.954
			$F=2.38$	$F=0.92$	$F=2.29$	$F=0.32$
			$\alpha<0.10$	*n.s.*	$\alpha<0.10$	*n.s*
Vegetables	Supermarket	36	1.852	1.604	2.943	2.123
	Grocer	5	1.779	1.682	3.118	1.758
	Discounter	19	2.388	1.349	2.737	1.939
	Market	105	2.149	1.103	2.916	1.918
	Gr. grocer	71	1.985	1.009	2.999	1.943
	Gr. grocer's van	21	2.099	0.830	3.023	1.952
	Total	257	2.068	1.159	2.942	1.956
			$F=1.88$	$F=0.98$	$F=1.14$	$F=0.74$
			$\alpha<0.10$	*n.s*	*n s*	*n.s*
Milk	Supermarket	85	2.114	1.097	2.971	2.020
	Grocer	10	1.586	1.004	3.018	2 442
	Discounter	59	2.253	1.399	2.947	1.760
	Mobile-shop	22	2.045	1.052	2.872	1 773
	Milkman	79	1.947	1.027	2.962	2.010
	Total	255	2.067	1.138	2.956	1.952
			$F=2.61$	$F=0.49$	$F=0.22$	$F=4$ 14
			$\alpha<0.05$	*n.s*	*n.s*	$\alpha<0.01$
Meat	Supermarket	52	2.089	1.295	2.883	2.145
	Discounter	35	2.414	0.989	2 765	1.787
	Butcher	169	2.012	1.106	3.006	1.937
	Total	256	2.067	1.128	2.948	1.958
			$F=4.39$	$F=0.40$	$F=4.12$	$F=3.93$
			$\alpha<0.01$	*n.s*	$\alpha<0.01$	$\alpha<0.05$
Softdrinks and beer	Supermarket	100	2.051	1.135	2.944	1.983
	Grocer	12	1.687	0.597	3.057	2.188
	Discounter	105	2.187	1.307	2.947	1.828
	Mobile-shop	7	1.682	0.132	3.202	1.954
	Milkman	11	2.032	0.595	2.932	2.165
	Victualer	22	1.982	1.332	2.905	2.137
	Total	257	2.072	1.148	2 953	1.949
			$F=1.65$	$F=1.25$	$F=0$ 52	$F=2$ 02
			n.s.	*n.s.*	*n.s*	$\alpha<0$ 10
Groceries	Supermarket	117	2.037	1.191	2 948	2 067
	Grocer	15	1.650	0.499	2.973	2.119
	Discounter	124	2.163	1.226	2.940	1 839
	Total	256	2.067	1.129	2.951	1.958
			$F=2.98$	$F=3.39$	$F=0.66$	$F=3$ 36
			$\alpha<0.01$	$\alpha<0.01$	*n.s.*	$\alpha<0$ 05

The retail attribute sensitivities and store choice

By measuring the retail patronage for six food product categories – outlet most frequently shopped for each product category – we test the predictive validity of the sensitivities. In table 4 the results are shown of the analyses of variance for the four attribute sensitivity measures within each food product category. For five out of the six product categories the price sensitivity differs among the respondents doing their shopping at the different types of stores represented in the table. The differences are significant (at a 1% level) for the store choices for meat and groceries, as one would expect given that these product categories constitute the largest expenses in daily shopping.

Assortment sensitivity differs only for the stores chosen for groceries. As the range of assortment for the other product categories is not really different among the different outlets we would not expect to find differences there. The differences between stores for quality sensitivity are significant only for meat and for bread. These differences are all what we would expect. For milk, drinks and groceries, none or only small differences in quality are assumed to exist among the different types of outlets. As most supermarkets and discounters have a separate fruit and vegetables department which generally does not differ from an independent green grocer's shop, no differences were expected in this regard. For four out of six product categories significant differences, between retail outlets in distance sensitivity are found. Distance insensitive consumers shop more frequently with discounters, which corresponds with the retail structure of Tilburg: in the city of Tilburg there are only eight discounters. So the mean real distance to be covered in visiting a discounter is relatively large. Undoubtedly the retail structure of the city influences the relationship between distance sensitivity and store choice. The retail structure will be taken into account by performing an analysis by district.

Retail attribute sensitivity profiles

In this section a further exploration of retail attribute sensitivities is undertaken to examine how a combination of retail attribute sensitivities might add to our understanding of the construct- and predictive validity of the sensitivity concept. A McRae cluster analysis is performed on the retail attribute sensitivity scores (McRae 1971). Ten

Table 5
Retail attribute sensitivity clusters

Clusters	*n*	Price	Distance	Assortment	Quality
1 Very price sensitive	39	*3 153*	2 270	1 195	*2 010*
2 Service-oriented	48	2 189	1 956	*−1 567*	3 063
3 Wide assortment	36	1 599	1 671	*3 085*	2 473
4 Quality good choice	67	1 615	1 551	*2 329*	*3 268*
5 Price insensitive, Service oriented	29	*1 370*	2 261	*−2 208*	2 973
6 Nearby quality	27	1 572	*2 598*	1 416	*3 165*
7 Distance insensitive	37	2 507	*1 244*	1 956	3 142
8 Value for money	31	*2 617*	1 910	1 094	*3 207*
9 Distance sensitive	22	1 769	*2 995*	1 485	2 513
10 Average	55	2 122	2 074	1 490	3 130
Total	391	2 081	1 953	1 101	2 928

Note The significant scores for each cluster are italicized

well-interpretable clusters are obtained. The sensitivity patterns are given in table 5. All but the average cluster differ at least on one element from the overall mean sensitivity scores. Half of the clusters have a pattern which is characterized by two significant sensitivity scores. The very price sensitive cluster accepts less quality for lower prices and the price insensitive service oriented group is willing to pay more for additional service. Three other clusters have a combined sensitivity pattern: the value for money, the good choice and the nearby quality clusters. Four other clusters can be typified on one dimension.

The clusters are different in terms of socio-demographic characteristics. The price sensitive (1) and the distance sensitive (7) clusters contain lower income families. The service oriented clusters (2) and (5) contain either young or old women (sign. $\alpha < 0.01$) with a high educational level (sign. $\alpha < 0.05$). The women in the distance sensitive clusters (6) and (9) have young children (sign. $\alpha < 0.05$) while the wide assortment cluster (3) contains large families (sign. $\alpha < 0.05$) with old children (sign. $\alpha < 0.05$). Taking the rather small sizes of the clusters into account, the overall pattern of differences supports the content validity of the clusters.

To test predictive validity of the clusters, we look at the characteristics based on each food product category separately and the general characteristics based on the total of all six food product categories (see

Table 6
Shopping characteristics of the retail attribute sensitivity clusters

Cluster	n	Shopping characteristics				
		Discounts	Service-shops	Super markets	Special shops	Trips
1 Price sensitive	39	More products [b]	Less [c]		TORRO [c] EDAH	Less [a]
2 Service	48			Less [a]		
3 Assortment	36				FAMILA [b]	
4 Good choice	67					
5 Price insensitive – service	29	Less [b]	More [a]			
5 Nearby quality	27	Less [(a)d]				
7 Distance insensitive	37			Less products [b]		
8 Value for money	31		Less [c]			
9 Distance sensitive	22	Less [(a)d]	Less [b]	More [b]		Less [b] Less shops [c]
10 Average	55					

[a] $\alpha<0.10$ [b] $\alpha<0.05$ [c] $\alpha<0.01$ [d] Both distance sensitive clusters taken together
Note – sign (superscript) differences are tested by taking a cluster against the rest

table 6). Among the general characteristics, the number of products bought in three kinds of shops – discounters, supermarkets and service-shops – are given. Two other characteristics are computed over all product fields: the number of shopping trips a consumer makes during a week and being a customer at some well known large discounters. For the six product fields separately, stores are presented where one cluster buys these products more or less often than others. Again only the significant differences between clusters are reported.

People in the price sensitive cluster (1) who visit discount stores, buy significantly more products there. They visit less service shops and go more frequently to the city's discounters. They make fewer shopping trips and buy the different products more often at discounters than others. Vegetables are bought at the open air market. The difference of

Product category					
Bread	Vegetables	Meat	Milk	Drinks	Groceries
Disc [c]	Open market [a(a)]	Disc [a(b)]	Disc [(b)]		
Baker [a]				Victualer [(a)]	
	Superm [a(−a)]			Victualer [(a)]	
		Butcher [a]			
Greengrocer [(a)]	Butcher [a]	Milkman [(b)]	Milkman [b]	Grocer [c]	
				Milkman [a(b)]	
	Less superm [c]				Disc [a]
		Superm [a]			
Door [a(a)]	Superm [a]	Superm [b]			Superm [a]

this cluster with the rest of the sample even increases if only respondents are considered from those districts where a free choice between the different outlets within the own neighborhood is possible. Then the differences in traveling time for the different kinds of stores is strongly reduced. The changes in significance are indicated in table 6 by superscript a, b, or c within brackets. For example, for the total group the difference between the price sensitive cluster and the rest of the sample in buying meat at a discounter is only significant at the 10% level. Taking only the respondents into account within those districts where all three kinds of outlets are available, this difference becomes significant at the 1% level. In general, differences between clusters become more dramatic if the retail structure is taken into account.

The service sensitive cluster (2) buys less at supermarkets but not less

at discounters. This may be due to the presence of separate in-store selling points for vegetables and meat at most discounters.

For cluster 5, the service sensitiveness score is even higher than for cluster 2 and respondents from this cluster buy more often at service shops. This is significant for five of the six product fields. Again some of the differences become more dramatic by taking the retail structure into account.

A further remark on the results in table 6 is that the distance sensitive group (9) buys more in supermarkets, while the distance insensitive group (7) buys less there. This may indicate that buying at the supermarket is perceived to be an easier and quicker way to do the shopping. All the findings in table 6 lead to the conclusion that the clusters do differ in their shopping behavior in directions one would expect as based on the earlier findings. Segmentation on attribute sensitivities seems to be worthwhile. As it relates behavioral mechanisms directly with marketing instruments, it has more direct strategic implications than traditional socio-economic or psychological segmentation.

Patronage profiles

As already mentioned, people may have different shopping strategies as a result of their specific sensitivity profile. Here these shopping strategies are analyzed in relation with the sensitivity patterns.

To construct the patronage profiles a hierarchical binary cluster analysis was performed (procedure Johnson, Jaccard similarity coefficient, nearest neighbor linkage with relocation) based on a product × outlet binary string (see Clustan Manual from D. Wisehart 1978). Each respondent is characterized by a string of 72 binary attributes (6 products × 12 types of outlets). This resulted in an interpretable as well as distinct (in terms of within/between variances) five-group cluster solution. For the five clusters two indices are given. The absolute percentage gives the number of respondents within a cluster buying a specific product category at a specific type of store. Whereas this is a function of the general occurrence of this type of shopping behavior, a second index, the "ratio", is given. The ratio expresses the percentage of respondents within a cluster buying a specific product at a specific outlet divided by the overall occurrence of that type of shopping behavior. To illustrate this: buying meat at a discounter is done by 83%

Table 7
Patronage profiles

	Ratio [a]	Abs % [b]
Cluster 1: Overall discountshoppers ($N=41$)		
Meat at discounter	6.3 [c]	83
Bread at discounter	5.5	54
Vegetables at discounter	4.8	34
Milkprod. at discounter	3.9	85
Groceries at discounter	2.3	98
Drinks at discounter	2.2	88
Cluster 2: Overall supermarket shoppers ($N=53$)		
Meat at supermarket	4.9	96
Bread at supermarket	3.1	33
Vegetables at supermarket	2.9	42
Milkprod. at supermarket	2.0	65
Groceries at supermarket	1.9	94
Drinks at supermarket	1.9	71
Cluster 3: Once a week discount, rest small retailer ($N=71$)		
Groceries at discounter	2.3	97
Drinks at discounter	2.1	83
Vegetables at greengrocer	1.7	47
Meat at butcher	1.4	89
Milkprod at discounter	1.3	30
Milkprod at milkman	1.1	34
Bread at bakery	1.2	28
Bread at baker's van	1.2	61
Cluster 4: Small retailer shopper ($N=53$)		
Drinks at grocer	3.4	15
Drinks at milkvan	3.2	13
Drinks at supermarket	1.4	55
Groceries at grocer	2.7	13
Groceries at supermarket	1.6	79
Vegetables at greengrocer's van	2.6	21
Vegetables at greengrocer's shop	2.3	62
Milkprod at mobile-shop	1.6	13
Milkprod. at milkman's van	1.6	47
Meat at butcher	1.4	93
Bread at bakery	1.3	68
Cluster 5: Once a week supermarket, rest small retailers ($N=53$)		
Vegetables at open market	2.0	77
Groceries at grocer	1.9	9
Groceries at supermarket	1.7	87
Drinks at supermarket	1.8	70
Drinks at victualer	1.4	11
Milkprod. at supermarket	1.8	57
Meat at butcher	1.6	100
Bread at baker's van	1.2	28
Bread at bakery	1.1	55

[a] Ratio: the % of respondents within the cluster buying a specific product at a specific outlet divided by the % the respondents in general buying a specific product at that specific outlet

[b] Abs. %: The % of respondents within the cluster buying a specific product at a specific outlet

[c] A ratiovalue of 1.5 expresses a difference with the other clusters which is significant at a 1% level.

of the "Overall discount shoppers" (cluster 1). This percentage is 6.3 as much as for a random chosen group of housewives. So the occurrence of buying meat at a discounter and not elsewhere is 83:6.3 = 13.2%. To put it another way, the overall discount shopper, 15.4% of the sample, accounts for 97% of the times meat is bought at a discounter. In general, a ratio value of 1.5 expresses a difference with the other clusters significant at a 1% level.

Finding these distinct shopping clusters suggests that a segmentation based on shopping behavior is promising for retail marketing, more than segmentation studies based on images and attitudes already reported in the literature (Stone 1954; Enis and Paul 1970; Webster 1965; Kelley and Stephenson 1967; Stephenson 1969; Anderson 1971; Darden and Reynolds 1971; Darden and Ashton 1974; Reynolds et al. 1974; Moschis 1976; Williams et al. 1978).

The relationship between retail attribute sensitivity segmentation and patronage profile segmentation is tested to ascertain the predictive power of the combined sensitivity concept. Specific hypotheses about the correspondence between sensitivity patterns and patronage patterns are formulated. For instance the first hypothesis reflected in table 8 is whether price sensitive consumers have more often a discount shopping pattern than another shopping pattern. For these hypotheses a x^2-test with one degree of freedom is appropriate (corrected for discontinuity

Table 8
Relationship between sensitivity patterns and patronage profiles

Sensitivity pattern	H_1	Patronage profile	χ^2
Price sensitivity (1)	More	Discountshopper (1)	8 3 ($p<0$ 01)
Service oriented (2)	More	Retailshopper (4)	*n s*
Price insensitive Service oriented }(5)	More	Retailshopper (4)	3 9 ($p<0$ 05)
Wide assortment (3)	Less	Retailshopper (4)	2 1 (*n s*)
Good choice (4)	More	[Discount + retailshopper (3) Supermarket + retailshopper (5)	3 5 ($p<0$ 10)
Nearby quality (6)	Less	Discountshopper (1)	*n s*
Distance insensitive (7)	More	Discount + retailshopper (3)	3 1 ($p<0$ 10)
Value for money (8)	More	Supermarketshopper (2)	4 8 ($p<0$ 05)
Distance sensitive (9)	More	Supermarketshopper (2)	6 5 ($p<0$ 05)
Average (10)	Average	No expected differences	

and checked with an exact probability test) in which the expected correspondence of both patterns (*Ho*) is based on the marginal totals, the cluster sizes. The overall correspondence of sensitivity patterns and patronage profiles suggest the validity of the attribute sensitivity concept as well as its relevance for retail marketing.

Discussion

The relationships found between retail attribute sensitivity and shopping behavior suggests the usefulness of the sensitivity concept for retail studies. The operationalization of sensitivity by means of conjoint measurement seems promising as a data collection method. In our opinion it will, however, be an improvement for the predictive power of the sensitivity concept to conceptualize the assortment sensitivity differently than has been done in this study, that is, into a width assortment sensitivity and a depth assortment sensitivity. A larger sample will also be needed in order to take the retail structure into account. It will then be possible to do within-district analysis to increase the predictive power of the sensitivity concept and to do between district analyses in order to form a better understanding of the influence of different forms of retail structures, especially in rural districts. Extending the study to concern variables such as perceived risk and store images might also provide more detailed information on the behavioral mechanisms involved in food shopping behavior.

The distinctiveness of the food shopping patterns found, with differences in behavior significant at a 1% level, suggest the usefulness of this approach for backward segmentation. As these patterns of behavior differentiate between, for instance, overall discount loyalty and more specific forms of discount shopping as found in the "discount + retail shopping" patterns, they may prove to give more insight in store loyalty. A longitudinal approach to test the stability of these patterns seems worthwhile.

The resemblance of the conjoint measurement procedure in assessing the retail attribute sensitivities with the actual trade-offs made by consumers may prove to be a useful tool in forming insights into the motivations involved in shopping behavior. Further research into the psychological make-up of consumers with different sensitivity patterns may provide information on the behavioral mechanisms of shopping

behavior. Finally, the similarity of the retail attributes to actual retail mix elements is an advantage in using sensitivities for practical applications.

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