International Conference on Business Management and Economics 2008

Conference Proceedings

College of Business, National Taipei University (NTPU),
Taipei, R.O.C. (Taiwan)

and

Faculty of Economics and Administration Sciences, Ataturk University,
Erzurum, Turkey

January 26, 2008
Erzurum, Turkey

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Proceedings of International Conference on Business Management and Economics 2008

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Preface

The academic collaboration between Ataturk University and National Taipei University started from 2006 when Ataturk University president Yasar Sutbeyaz visited National Taipei University campus. In order to enhance the academic cooperation and increase cross-field communication among Turkish and Taiwanese researchers, the International Conference on Business Management and Economics 2008 is held in Erzurum, Turkey on January 27, 2008.

The theme of the conference was providing researchers from academic backgrounds of Turkey and Taiwan with opportunities to discuss Business Management and Economics. The conference is jointly organized by College of Business, National Taipei University and Faculty of Economics and Administration Science, Ataturk University. Therefore, this international conference is a good occasion for scholars and professionals in the fields of business management and economics to meet and exchange ideas and findings pertaining to issues relating Taiwan and Turkey societies.

There were thirty-three contributed papers were presented at this conference, nineteen of which were selected in our proceedings by referees through strict criteria, which express an overview of Taiwan's and Turkey's recent developments in Business Management and Economics. The Proceedings list the all thirty-three contributed papers presented at the conference. While these Proceedings are published by the National Taipei University, views expressed in papers should be attributed to the authors, not the National Taipei University.

Jason Tsai, Conference Coordinator
Professor, Department of Cooperative Economics, National Taipei University

Preface

It was Jason Tsai who started the collaboration between Ataturk University and National Taipei University by talking to me on 22 December 2004 as a respond to my Season Greeting e-mail. This start has lead collaboration not only with NTPU but also with NCHU resulting corresponding visits at all levels (president, dean, chair, faculty member, graduate students and undergraduate students), student exchange, collaborative research and International Conference.

International Conference on Business Management and Economics was the first mini conference resulted out of this collaboration. It was mini but meaningful conference. We had four Taiwanese Faculty Members (Jason Tsai, Tsorng-Chyi Hwang, Yi Ting Hwang and Nai-Hua Chen) and a graduate student (Hsiang Chen) as our honorable guests for the Conference. I would like to thank all of them for their afford to make this conference come true. This conference was also the first international conference of College of Economics and Administrative Sciences at Ataturk University. Therefore, they were very appreciated having this conference happened. We, the faculty members at Ataturk University would like this collaboration continue and be beneficial for both sides.

Fahri YAVUZ, Conference Coordinator

International Conference on Business Management and Economics 2008, Erzurum, Turkey

Program

Date: January 26, 2008

08:00 - 09:00 Registration
09:00 - 09:30 Welcome Speeches

Fahri Yavuz	Professor and Chairperson, Department of Agricultural Economics, Ataturk University
Chorng-Chyi Huang	Professor and Chairperson, Department of Agricultural Economics, National Chung Hsing University
Ugur Gullulu	Dean, Faculty of Economics and Administrative Sciences, Ataturk University
Jason Tsai	Dean, Office of Student Affairs, National Taipei University
Yasar Sutbeyaz	President, Ataturk University

09:30 - 10:00 Tea and Coffee Break
10:00 – 11:15 Session 1

Section 1A	Marketing	Room 1
Section 1B	Economics	Room 2

11:15 - 11:45 Tea and Coffee Break
11:45 – 13:00 Session 2

Section 2A	Marketing	Room 1
Section 2B	Organization	Room 2

13:30 – 14:30 Lunch
14:30 – 15:45 Session 3

Section 3A	Finance	Room 1
Section 3B	E-Commerce	Room 2

15:45 - 16:15 Tea and Coffee Break
16:15 – 17:15 Session 4

Section 4A	Agribusiness	Room 1
Section 4B	Economics	Room 2

17:15 – 19:00 Free Time
19:00 - Dinner

MANUFACTURER BRANDS VERSUS STORE BRANDS: A CASE OF LIQUID VEGETABLE OIL MARKET

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ABSTRACT

This study explores the factors affecting consumer choices on buying liquid vegetable oils, and finds out the consumers' profile for both manufacturer and store brand products. The main objective is to determine the outstanding and distinguished attributes of these two groups of brands. For this end, Erzurum city centre has been divided into four sub-districts, and then a survey study with 250 households has been conducted. First, factor analysis was used to determine attributes which affect the purchasing behaviours of consumers in manufacturer and store brand vegetable oil. Then, consumers were divided into four sub-clusters by using k-means cluster analysis to seek clusters of consumers on the basis of relative homogeneity of their attitudes towards vegetable oil attributes. In the final step, the profile of each cluster was defined by cross-tabulation showing distribution of the clusters deal with consumer demographic and socioeconomic attitudes.

Factor analysis generated 8 and 2 factors for manufacturer and store brands, respectively. Results show that consumers have different preferences and purchasing decisions for manufacturer and store brand liquid vegetable oils. The most important food attributes for both manufacturer and store brands are shelf life, flavor, health concern and quality. However, the variables "price, promotion, quality-price relation, brand name, retailer image and trust to retailer" are more important attributes for store brands than for manufacturer brands. Cluster profiles for these two groups of brands are also different from each other. For example, while cluster 1 was dominated by "young high-income and college educated housewives" in manufacturer brands, it was "young high-income and high school educated workers" in store brands.

Keywords: consumer attitudes, factor and cluster analyses, manufacturer and store brands, liquid vegetable oil.

INTRODUCTION

Animal fats, butter and oils extracted from plants have been used in many cultures since ancient time. By the change in technology and development in agro-industry as well as urbanization (migration from rural to urban) and socio-economic changes, people today consume more processed and ready to eat foods than homemade foods. Oil consumption is not exempt from this. Although people used to consume mostly solid oils or fats (e.g., butter, margarines), due to increasing health concerns they have switched to liquid vegetable oils. It is well known now that saturated fatty acids increase total and low-density lipoprotein cholesterol, and the risk of coronary heart disease. Therefore, it is recommended to replace saturated and trans-fatty acids in the diet by unsaturated vegetable oils (Gumuskesen, 1999; Goksu, 2007).

Liquid vegetable oil consumption has been steadily increasing in Turkey, as well. It increased from 14 kg per capita in 1998 to 17-18 kg in 2006, and it is supposed to be 23-24 kg/year per capita for a balanced diet (Kolsarici et al, 2000; Goksu, 2007). That means demand for liquid vegetable oils in Turkey is expected to go up further in coming years.

Growing demand has led to more competitive market, especially after the entrance of supermarkets with their own store brands. Now there are two big rivals: national or manufacturer brands versus store or private brands. As in many other food sectors, the market share of store brands in liquid vegetable oil sector has been persistently increasing, as well. While retailer concentration and private label share of the most developed store brand markets are 86% and 45% in Switzerland, %65 and 30% in Germany, %80 and 25% in Belgium and 89% and 17% in Denmark, respectively (ACNielsen, 2005); these ratios are 26% and 4% in 2005 in Turkey. As for liquid vegetable oil sector in Turkey, the share gain for private label is 1.4 share points. In this sector, the growth rates of the fastest growing private label brands and manufacturer brands are 12% and 4%, respectively. (Retailing Institute, 2005). These facts bring up a very legitimate question: Why people tend to buy more and more store brands products? or What salient attributes of store-brand products attract consumers to purchase them?

Increasing number of competitors in the sector resulted in more product diversity. Thus, consumers today have more choices, which make purchasing decision even more complex. Many factors influence purchasing decision of consumers. These factors can be classified under three groups as marketing-related, psychological and sensorial factors. Sensory properties of a certain product have been regarded as the main determinant of consumer selection (Guerrero et al., 2000). The effects of product attitudes on consumer behaviour have been widely studied (Murray and Delahunty, 2000; Wądołowska et al., 2002; Zenner et al., 2003; Newby et al., 2006; Haddad et al.,

2007; Topcu et al., 2007). These studies have showed that the most important factors affecting consumer decisions were price, quality, brand-name, nutritional value, taste and healthy diet.

Consumers have limited processing capacity and hence use only part of the information available when choosing a product in order to reduce the complexity of selection (Laroche et al., 2001). Brand-name can make this process less complex since consumers believe that brand, price and quality are closely correlated. Therefore, consumers attach a link between brand-names and product attributes. If it is a well-known and trusted brand-name, then, without further questioning the price and quality of the product, they can make purchasing decision. Some of the benefits of the brand in the decision making process are identification of the products' main attributes and quality image to reduce the feeling of risk. Moreover, brand-name can create prestige for consumers in their social environment, and it allows them to learn and evaluate the results of different shopping experiences.

Brand-names can also reflect the individual characteristics of consumers. Based on their brand selections, consumers can be distinguished in terms of their sensitivity and the brand loyalty. This aspect could be of great interest since it seems that brand loyalty is one of the best ways of reducing risk when buying a product (Guerrero et al., 2000). The effects of brand names and types (i.e., manufacturer or store brand) on consumer purchasing decisions have been pointed out in various studies (Chatterjee et al., 2000; Sayman et al., 2002; Erdem et al., 2004; Sayman and Raju, 2004; Pauwels and Srinivasan, 2004; Wu and Wang, 2005; Choi and Coughlan, 2006; Soberman and Parker, 2006; Topcu, 2006; Gabrielsen and Sorgard, 2007; Lamey et al., 2007).

This study explores the factors affecting consumer choices on buying liquid vegetable oils, and find out the consumers' profile for both manufacturer and store brand products. The main objective is to determine the outstanding and distinguished attributes of these two rival brands.

MATERIAL AND METHODS

Primary data of the research was obtained from a survey study conducted in the Erzurum[1] city centre, Turkey. As for determination of the sample size, in order to minimize sample bias or represent the population correctly, Erzurum city was divided into four districts. Then, based on the population and sub-districts of each districts, weighted sample size and distribution of the surveys for each district were determined proportionally (Table 1).

Table 1 about here

[1] Erzurum has the geographic coordinates of 39°45'N latitude and 41°15'E longitude**.** It is on the Silk Road, and located at the north-east region of Turkey. Erzurum is one of the biggest provinces in the region with 962,000 total and 402,000 city centre population.

To determine the sample size for each district, following formula was used (Yildiz et al., 2006): $n = \frac{Z^2 * p * (1 - p)}{c^2} = 250$

Where,

n = Sample size

Z = Z value, (used 1.96 for 95 % confidence level)

p = percentage picking a choice, (0.8 used for sample size needed)

c = confidence interval, (0.05 = ±5 used)

Simple random sampling method was used to select consumer households. Face to face survey method was used with 250 households. The survey was conducted with them either at their residence or at shopping centres.

Participants in the survey were asked to respond to each statement, indicating their level of agreement or disagreement using a Likert-format 1-5 scale (where 1 refers to the least important, and 5 refers to the most important attributes). 35 liquid vegetable oil attributes were determined, and participants were asked to rank them for both manufacturer and store brands separately. Out of these 35 attributes, 5 were related to intrinsic food attributes (flavour, nutritional value, colour and viscosity, shelf-life and food safety), 5 were related to extrinsic food attributes (packaging material, ease-of-use, physical appearance, weight and using environment-friendly material), 14 were connected to individual preferences (healthy concern, organic food, quality, consumers experiences, trust to manufacturer and retailer, price-quality relation, brand name, social statute, effects of customs and social environment, ISO registration certificate, product origin and brand loyalty), 6 were associated with the sale increasing activities (brand penetration, price, promotion, product variety, new design, advertisement) and 5 were linked to supplier attitudes (specialized a product line, brand compatibility, availability, manufacturer experiences and retailer image).

Each question was reduced to a single statement to which responses were collected using the Likert scale described above. We also gathered demographic and socioeconomic information (gender, age and occupation group, education, consumers' food and liquid vegetable oil expenditures and income levels) in the survey. The questionnaire was pre-tested, modified and refined before starting the fieldwork.

After editing and coding the data, we first analyzed them by the factor analysis to determine the main factors affecting the consumers' liquid vegetable oil preferences, and then by cluster analysis to classify the target consumer mass using their demographic and socioeconomic characteristics. SPSS statistical software was used to perform these two analyses.

These techniques has been used widely in many marketing researches including food products such as liquid vegetable oil (Deliza et al., 1999; Carneiro et al., 2005), beef (Oliver et al., 2006),

cheese (Murray and Delahunty, 2000), conventional food (Newby et al., 2006; Wadolowska et. al., 2007), orange juice (Lange et al., 1998), pasteurized milk (Hough and Sánchez, 1998), sausage (Helgesen et al., 1997), soft drink (Enneking et al., 2007), tomato (Lê and Ledauphin, 2006), yogurt (O'Connor et al., 2006; Haddad et al., 2007).

Factor analysis is a data reduction technique that reduces the number of variables used in an analysis by creating new variables (called factors) that combine redundancy in the data (SPSS 15.0, 2006).

The first step in a factor analysis is to determine the number of relevant factors. Factor analysis was employed initially to identify underlying dimensions that may explain the correlation among sets of food attributes and the associated consumption values. The affiliated purpose of factor analysis in this study was to identify from all the attributes those that accounted for a relatively large proportion of the variance of the sample. This subset could then be used for consumer segmentation. Out of 35 total variables, the analysis produced eight factors for manufacturer brands and two factors for store-brands.

The second step of the analysis involved using k-means cluster analysis to seek clusters of consumers on the basis of relative homogeneity of their attitudes towards food attributes. The pattern of consumption values associated with these attributes could be identified through examining the outcome of the segments.

The final step was to use cross-tabulation to examine the distribution of the clusters deal with three food and liquid oil expenditures and income levels, and demographic and socio-economic attitudes.

RESULTS AND DISCUSSION

Manufacturer-brand liquid vegetable oil attributes and their consumption values

Kaiser Normalization which compares partial correlation coefficients with observed ones was calculated as 0.88, which means that data sets are at the good level for factor analysis since the test score is greater than 0.50.

Table 2 about here

Principal Component Analysis, using Varimax rotation, for manufacturer brands grouped 35 variables into eight factors having Eigen-values greater than 1.0. These eight factors accounted for 61.75% of the total variance. Table 2 presents the results of principal component analysis of the first eight factors. Factor 1, which accounted for 30.10% of the total variance, was dominated by attributes that related to shelf-life, flavour, healthy concern, food safety, organic food, nutrition value, quality, consumer experiences, trust to manufacturer and colour-viscosity. Hence, Factor 1 is associated with hedonic quality values. Factor 2 accounted for 8.57% of total variance, and was

dominated by specialty on only a product line, brand compatibility, availability, social statute and ISO registration certificate. Factor 2, therefore, is more associated with manufacturer brand satisfaction values.

Table 3 about here

Factor 3 accounted for 5.48% of the total variance, and was dominated by three attributes, product variety, manufacturer experience and using environment-friendly material. Therefore, this factor is more related to environment susceptibility values. Factor 4 accounted for 4.52% of the total variance. Factor 4 was dominated by the attributes of price, promotion, quality-price relation and brand name. Factor 4, therefore, has more sensory quality consumption values. Factor 5 is related to traditionalism, effects of customs and social environment, which accounted for 6.5% of the total variance.

Factor 6, which accounted for 3.31% of the total variance, was dominated by attributes that related to food origin, new design and brand loyalty. Hence, Factor 6 is associated with individual preferences. Factor 7 is solely related to advertisement which accounted for 3.20% of the total variance. Factor 8 accounted for 3.03% of the total variance, and was dominated by two attributes, retailer image and trust to retailer. Therefore, this factor is more related to retailer royalty.

Store-brand liquid vegetable oil attributes and their consumption values

Kaiser Normalization which compares partial correlation coefficients with observed ones was calculated as 0.97, which means that data sets are at the perfect level for factor analysis since the test score is greater than 0.50.

Table 4 about here

Principal Component Analysis, using Varimax rotation, for store brands grouped 35 variables into two factors having Eigen-values greater than 1.0. These two factors accounted for 77.83% of the total variance. Table 4 presents the results of principal component analysis of the first two factors. Factor 1, which accounted for 74.59% of the total variance, was dominated by attributes that related to intrinsic food attribute and quality-prices 17 variables. Factor 1, therefore, is associated with hedonic and sensory quality: hedonic product value. Factor 2 accounted for 3.24% of total variance, and consisted of 18 variables, extrinsic food attribute, retailer character and individual preference. Factor 2, therefore, is more related to store brand satisfaction, retailer loyalty and symbolic quality values.

Table 5 about here

These factors demonstrate different consumption values in vegetable oil purchasing decision. They lead to the question as to whether distinct consumer segments could be associated with those consumption values. If so, how many consumers are in each segment and how are these segments

related to the consumption values listed above? The following section of this paper, based on the findings from the factor analysis above, addresses these questions.

K-means clustering and consumers segmentations

Clustering algorithms can be classified into two categories: hierarchical and non-hierarchical. Hierarchical clustering algorithms start with *n* clusters, equal to the number of observations, and proceed until all observations are in one cluster. In non-hierarchical clustering, the researcher specifies the number of clusters in the data set *a priori.* In this study, non-hierarchical k-means clustering was used. The k-means procedure selects "m" random points from the data set. These are used as cluster seeds and all other points are assigned to the nearest cluster seed. Successive iterations involve replacing the current cluster seed by the cluster mean, and then reassigning all points to the nearest new cluster seed. The process continues until there is no change in cluster means from the previous iteration or the difference is very small.

Manufacturer-brand liquid vegetable oils

Three clusters produced group means to which reasonable explanations could be attached. Table 3 presents the final cluster centres and the number of cases in each cluster for manufacturer-brand liquid vegetable oils. Total number of cases is 250. Cluster 1 (C1) is the largest group with 99 consumers. Consumers in this group care more about sensory quality (F4), individual preferences (F6) and advertisements (F7). Cluster 2 (C2) is the smallest group, containing 59 consumers. Hedonic quality (F1) and retailer loyalty (F8) are more dominant factors for consumers in this group. As for Cluster 3 (C3), there are 92 consumers in this group, and manufacturer brand satisfaction (F2), environment susceptibility (F3) and traditionalism (F5) are the most important factors in their purchasing decisions.

Table 6 presents a cross-tabulation between the consumers' demographic and socioeconomic characteristics and the three cluster groups. These characteristics include gender, age, education, occupation, monthly food and liquid oil expenditures and income levels.

Table 6 about here

Results show that the ratios of female consumers in C1 and C2 are clearly more than the rations of males. C2 has the highest female ratio with 64% while C3 has the highest male ratio with 51%. The distribution of consumers based on their ages indicates that 15-34 age groups and over 55 age groups have the highest and lowest portions in all clusters, respectively. While C2 and C3 have the largest ratios of 15-24 age groups with 42% and 39%, respectively, C1 has the largest ratio of 25-34 age groups with 43%.

As for education levels of consumers, the ratios of literate (i.e., those who can read and write but do not have any diploma) people are the lowest in all clusters. While high school graduates have

the highest ratios in C3, consumers with college degree dominate C1 and C2 with 43% and 46%, respectively. Occupational distribution of the respondents among the clusters is as follows: while housewives in C1, blue-collar state workers in C2 and white-collar state employees in C3 have the highest ratios, unemployed and pensioners have the lowest ratios.

The results regarding household food and liquid oil expenditures show that those whose monthly food expenditures are between €120 and €235, and liquid oil expenditures are between €15 and €30 dominates all clusters. As for income levels, the ones with the highest ratios in C1 and C2 are those with more than €735 with 50% and 61%, respectively, while it is €295- €735 income level group in C3 with 48%.

Store-brand liquid vegetable oils

Three clusters produced group means to which reasonable explanations could be attached. Table 5 presents the final cluster centres and the number of cases in each cluster for manufacturer-brand liquid vegetable oils. Total number of cases is 250. Cluster 1 (C1) is the largest group with 99 consumers. Consumers in this group care more about hedonic product value (F1): hedonic and sensory quality. Cluster 2 (C2) is the smallest group, containing 58 consumers. Hedonic product value (F1) is more dominant factors for consumers in this group. As for Cluster 3 (C3), there are 93 consumers in this group and store brand satisfaction-retailer royalty-symbolic quality (F2) is the most important factor in their purchasing decisions.

Table 7 presents a cross-tabulation between the consumers' demographic and socioeconomic characteristics and the three cluster groups. These characteristics include gender, age, education, occupation, monthly food and liquid oil expenditures and income levels.

Table 7 about here

Results show that the ratios of female consumers in each group are clearly more than the ratios of males. C2 has the highest male ratio with 69% while C3 has the highest male ratio with 48%. The distribution of consumers based on their ages indicates that 25-34 and over 55 age groups have the highest and lowest portions in all clusters, respectively.

As for education levels of consumers, the ratios of literate people are the lowest in all clusters. While consumers with college degree dominate C2 with 41% and C3 with 51%, high school graduates have the highest ratios in C1 with 44%. Occupational distribution of the respondents among the clusters is as follows: while white-collar state employees in C3, housewives in C2 and blue-collar state workers in C1 have the highest ratios; unemployed people have the lowest.

The results related to household food and liquid oil expenditures show that those whose monthly food expenditures are between €120-235 and liquid oil expenditures are between €15 and €30 dominates all clusters,. As for income levels, the ones with the highest ratios in C1 and C2 are

those with more than €735 with 55% and 50%, respectively, while it is €295-€735 735 income level group in C3 with 47%.

Characteristics of cluster groups for manufacturer-brand liquid vegetable oils

Based on the final cluster centres of the factors and demographic characteristics of the consumers in each cluster, the cluster profiles were determined. The main demographic characteristics of C1 are young people (25-34 age group) with higher income (more than €735) and education (college degree) levels. We can name this cluster as "young high-income and educated housewives". On the other hand, sensory quality, individual preferences and advertisements are the most influential factors on purchasing decisions of the respondents in C1.

Dominant demographic characteristics in C2 are younger people (15-24 age group), education (college degree), high income level (more than €735) and blue-collar state workers. C2 can be called as "young high-income and educated workers". The most important factors in C2 are product hedonic quality and retailer loyalty.

Finally, respondents in C3 are mostly younger (35-54 age group), high school educated, mid-income level (between €295 and €735) people. This group can be named as young mid-income employees. Traditionalism, environment susceptibility and manufacturer brand satisfaction are the most important factors in this cluster.

Characteristics of cluster groups for store-brand liquid vegetable oils

Based on the final cluster centres of the factors and demographic characteristics of the consumers in each cluster, the cluster profiles were determined. The main demographic characteristics of C1 are younger people (25-34 age group) with higher income (more than €735) and high school educated, blue-collar state workers. We can name this cluster as "young high-income workers". On the other hand, hedonic food value is the most influential factors on purchasing decisions of respondents in C1. This means that the highest significance is ascribed to hedonic quality with a blend of hedonic and sensory quality on their food choice and buying decisions.

Dominant demographic characteristics in C2 are younger housewives (25-34 age group), education (college degree) and high income level (more than €735). C2 can be called as "young high-income and educated housewives". The most important factors in C2 are product symbolic quality and individual preferences. These factors indicate that respondents in C2 prefer hedonic and sensory quality.

Finally, respondents in C3 are mostly young consumers (25-34 age group), education (college degree), mid-income levels (between €295 and €735) people. This group can be named as young

mid-income and high educated employees. Store brand satisfaction, retailer loyalty and symbolic quality are the most important factor in this cluster.

CONCLUSION

Factor analyses for both manufacturer and store brands generated eight and two factors, respectively, out of 35 total variables. So the combinations of variables for these two brands are quite different. This clearly shows that consumers' preferences and purchasing decisions for manufacturer brands are different from those for store brands. That leads to two separate correlation matrices for each brand.

Factor 1 (F1) in manufacturer brands which best explains the combined variance in all variables is mostly dominated by hedonic quality values such as quality, shelf-life, flavor, food safety and nutritional value. These variables are the most important attributes in buying manufacturer brand liquid vegetable oils. First factor is correlated highly with most variables; second one less so, and so on. The most important variables in F2, F3, F4, F5, F6, F7 and F8, on the other hand, are specialized on one product line, product variety, price, effects of customs, product origin, advertisement and retailer image, respectively.

As for store brands, the two factors accounted for 77.83% of the total variance. F1, the combination of 17 variables, is mainly dominated by hedonic product values and includes both intrinsic and extrinsic product attributes such as nutritional value, quality, food safety, color and viscosity, flavor, health concern and price. The most effective variables in F2, on the other hand, are brand loyalty, advertisement, trust to retailer, brand compatibility and product design.

Using cluster analysis, three clusters were produced for manufacturer and store brands. When we look at the distribution of participants in clusters, the number of cases for both manufacturer and store brands is almost identical. While it is 99 (39.6%), 59 (23.6%) and 92 (36.8%) in C1, C2 and C3 for manufacturer brands, respectively, it is 99 (39.6%), 58 (23.2%) and 93 (37.2%) for store brands. However, cluster profiles are different. People in C1, namely young high-income and educated housewives, in manufacturer brands care more about F6, F7 and F4. Respondents in C2, called young high-income and educated workers, are concerned more with F1 and F8. The consumers in C3, named young mid-income employees, however, look mainly for F2, F3 and F5.

With regard to store brands, participants in C1, namely young high-income workers, care more about F1. Respondents in C2, called young high-income and educated housewives, are concerned more with F1. The consumers in C3, named young mid-income and educated employees, however, look mainly for F2.

When we look at the overall evaluation of the results, we notice that consumer preferences differ between manufacturer and store brands. Although all the variables significant in manufacturer

brands are also significant in store brands, price, promotion, quality-price relation, brand name, retailer image and trust to retailer variables are more important attributes for store brands than for manufacturer brands.

Based on the cluster profile results, manufacturers and retailers should develop marketing strategies for target consumer segments. For example, to attract consumers in C1, manufacturers can design and position a quality product with promotion and advertisement. Retailers, on the other hand, can develop a quality and healthy product in order to target C1 and C2.

This study can have some scientific merits to both academic and food manufacturing community. It is an original work, and can be applied in other areas. In addition, marketers could improve their products and develop more effective marketing tactics and strategies based on these cluster profiles.

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Tables

Table 1. Sample size and distribution in the districts

Sub-districts	Number of households	The ratio of the number of households in districts (%)	Sample size
Palandoken	30022	37.22	93
Yakutiye	26099	32.36	81
Kazimkarabekir	17976	22.29	56
Dadaskent	6562	8.14	20
Total	**80659**	**100.00**	**250**

Source: (Anonymous, 2007).

Table 2. Factors and correlated variable loadings of liquid vegetable oils with manufacturer brands

Variables	Factors							
	F1	F2	F3	F4	F5	F6	F7	F8
Shelf-life	**0.751**	0.097	-0.008	0.024	0.073	-0.039	0.040	0.070
Flavour	**0.660**	0.187	0.015	-0.066	0.011	0.320	-0.027	-0.097
Healthy diet	**0.657**	0.179	0.321	0.056	0.011	0.023	-0.303	0.106
Food safety	**0.656**	0.063	0.093	0.264	0.146	0.145	-0.185	-0.168
Organic product	**0.655**	0.278	-0.007	-0.069	-0.027	-0.001	0.192	0.316
Nutritional value	**0.599**	0.115	0.336	0.150	0.136	0.147	-0.181	0.106
Quality	**0.596**	0.007	0.116	0.227	0.060	0.041	0.123	0.071
Consumer experience	**0.516**	0.021	0.205	0.341	0.243	-0.168	0.222	0.141
Trust to manufacturer	**0.510**	-0.039	0.433	0.108	-0.040	0.153	0.097	0.360
Colour and viscosity	**0.505**	0.119	0.415	-0.047	0.042	0.323	0.050	0.088
Brand penetration	0.472	0.420	-0.178	0.031	0.021	0.290	0.313	0.240
Packaging material	0.451	-0.007	0.398	0.169	0.311	0.072	0.065	-0.010
Ease-of-use	0.412	0.008	0.326	0.401	0.141	0.373	0.029	0.104
Specialized on one product line	0.051	**0.785**	0.018	0.063	0.202	-0.054	-0.057	0.081
Brand compatibility	0.091	**0.716**	0.250	0.030	0.132	0.130	0.163	0.172
Availability	0.204	**0.674**	0.366	0.082	0.085	0.166	0.026	0.086
Social statute	0.106	**0.551**	-0.090	0.124	0.488	0.177	-0.009	0.150
ISO registration certificate	0.110	**0.541**	0.043	0.011	0.106	0.154	0.120	0.015
Physical appearance	0.101	0.465	0.167	0.065	0.067	0.298	0.451	0.082
Weight	0.188	0.385	0.161	0.111	-0.002	0.164	0.328	0.376
Product variety	0.047	0.233	**0.678**	0.239	0.007	0.109	0.082	0.069
Manufacturer experience	0.392	0.174	**0.586**	0.010	0.011	0.003	0.304	0.086
Using environment-friendly material	0.387	0.398	**0.509**	0.096	0.219	0.099	0.332	-0.209
Price	0.034	0.125	0.061	**0.816**	-0.089	-0.065	0.131	0.089
Promotion	0.036	0.057	0.066	**0.680**	0.183	0.323	-0.046	-0.021
Quality-price relation	0.406	0.028	0.165	**0.549**	0.067	-0.086	0.128	0.036
Brand name	0.335	0.165	0.059	**0.507**	0.367	0.328	0.122	-0.157
Effects of customs	0.321	0.158	-0.079	-0.034	**0.698**	0.108	0.203	-0.042
Effects of social environments	0.022	0.282	0.215	0.144	**0.693**	-0.091	0.030	0.180
Product origin	0.163	0.215	0.155	0.072	0.019	**0.720**	0.047	0.231
New design	0.136	0.418	-0.040	0.262	-0.020	**0.546**	0.348	0.157
Brand loyalty	0.032	0.113	0.301	0.002	0.271	**0.530**	0.397	0.097
Advertisement	-0.104	0.064	0.144	0.155	0.145	0.028	**0.749**	0.130
Retailer image	0.303	0.262	0.160	0.116	0.007	0.120	0.110	**0.719**
Trust to retailer	-0.130	0.227	0.018	-0.035	0.430	0.234	0.109	**0.644**
Eigen-value	10.536	2.999	1.919	1.581	1.234	1.160	1.121	1.061
Variances	30.102	8.568	5.483	4.518	3.526	3.313	3.202	3.031
Cumulative	30.102	38.670	44.153	48.671	52.198	55.511	58.713	61.744
KMO (Kaiser-Meyer-Olkin) statistic								**0.879**

* Bold numbers indicate the largest loading for each variable.

Table 3. Final cluster centres and the number of cases in each cluster for manufacturer brands

Factor interpretation	Clusters		
	C1	C2	C3
Hedonic quality (F1)	0.219	**0.371**	-0.473
Manufacturer brand satisfaction (F2)	0.142	-0.840	**0.386**
Environmental susceptibility (F3)	0.151	-0.712	**0.295**
Sensory quality (F4)	**0.421**	0.273	-0.628
Traditionalism (F5)	-0.202	0.077	**0.168**
Individual preferences (F6)	**0.564**	-0.193	-0.484
Advertisement (F7)	**0.521**	-0.672	-0.130
Retailer loyalty (F8)	-0.160	**0.286**	-0.012
Number of cases in each cluster	99	59	92
% of total cases in each cluster	39.6	23.6	36.8

* Final cluster centre scores are very important in 0.01 significant levels according to F statistic. Bold numbers indicate the largest final cluster centre scores for each factor. The total number of cases (n): 250

Table 4. Factors and correlated variable loadings of liquid vegetable oils with store brands

Variables	Factors	
	F1	F2
Shelf-life	**0.829**	0.428
Flavour	**0.813**	0.437
Health concern	**0.849**	0.401
Food safety	**0.832**	0.358
Organic product	**0.783**	0.472
Nutritional value	**0.818**	0.485
Quality	**0.753**	0.479
Consumer experience	**0.747**	0.491
Trust to manufacturer	**0.788**	0.463
Packaging material	**0.786**	0.447
Brand penetration	**0.630**	0.629
Colour and viscosity	**0.802**	0.470
Ease-of-use	**0.743**	0.499
Price	**0.645**	0.484
Promotion	**0.716**	0.518
Quality-price relation	**0.712**	0.549
Brand name	**0.650**	0.596
Specialized on one product line	0.468	**0.676**
Brand compatibility	0.491	**0.727**
Availability	0.580	**0.644**
Social statute	0.504	**0.636**
ISO registration certificate	0.736	**0.501**
Physical appearance	0.511	**0.687**
Weight	0.572	**0.638**
Product variety	0.555	**0.640**
Retailer experience	0.550	**0.694**
Using environment-friendly material	0.534	**0.710**
Effects of customs	0.564	**0.599**
Effects of social environments	0.592	**0.603**
Product origin	0.583	**0.629**
New design	0.478	**0.702**
Brand loyalty	0.352	**0.822**

Advertisement	0.320	**0.812**
Retailer image	0.608	**0.626**
Trust to retailer	0.373	**0.795**
Eigen-value	26.106	1.135
Variance	74.587	3.242
Cumulative	74.587	77.829
KMO (Kaiser-Meyer-Olkin) statistic		**0.970**

Table 5. Final cluster centres and the number of cases in each cluster for store brands

Factor interpretations	**Clusters**		
	C1	**C2**	**C3**
Hedonic and sensory quality: hedonic product value (F1)	**1.403**	**0.931**	0.117
Store brand satisfaction, retailer loyalty and symbolic quality (F2)	-0.671	-0.656	**1.124**
Number of cases in each cluster	99	58	93
% of total cases in each cluster	39.6	23.2	37.2

* Final cluster centre scores are very important in 0.01 significant levels according to F statistic. Bold numbers indicate the largest final cluster centre scores for each factor. The total number of cases (n): 250

Table 6. Demographic characteristic and cluster ratio of cases cross-tabulation for manufacturer brands (%)

Demographical characteristics		**Cluster number of cases**		
		C1	**C2**	**C3**
Gender	Male	41	36	**51**
	Female	***59***	***64***	*49*
Age groups	15-24 age	29	**42**	**39**
	25-34 age	***43***	*27*	*21*
	35-54 age	23	27	28
	55- + age	*5*	*4*	*12*
Education	Literate	3	5	2
	First school	*20*	*17*	*25*
	High school	34	32	**39**
	College	***43***	***46***	*34*
Occupation	White-collar state employees	21	24	**25**
	Blue-collar state workers	*13*	***26***	*19*
	Businessman	6	9	3
	Small-scale retailers	*6*	*5*	*10*
	Pensioner	5	5	7
	Housewife	***31***	*17*	*21*
	Student	13	12	13
	Unemployed	*5*	*2*	*2*
Food expenditure	Less than €120*	27	36	16
	Between €120 and €235	***53***	***40***	***63***
	More than €235	20	24	21
Liquid vegetable oil expenditure	Less than €15*	31	24	34
	Between €15 and €30	***41***	***48***	***37***
	More than €30	28	28	29
Income groups	Less than €295*	15	12	8
	Between €295 and €735	*35*	*27*	***48***
	More than €735	**50**	**61**	44

* The prices of the products were converted from New Turkish Lira (NTL) to Euro (€) using the exchange rate on December 25, 2007. The conversion rate used was 1.70 €/NTL.

Table 7. Demographic characteristic and cluster ratio of cases cross-tabulation for store brands (%)

Demographical characteristics		Cluster number of cases		
		C1	**C2**	**C3**
Gender	Male	47	31	48
	Female	**53**	**69**	**52**
Age groups	15-24 age	30	31	32
	25-34 age	***37***	***36***	***36***
	35-54 age	25	29	24
	55- + age	*8*	*4*	*8*
Education	Literate	3	4	3
	First school	*23*	*19*	*20*
	High school	**44**	36	26
	College	*30*	***41***	***51***
Occupation	White-collar state employees	19	26	**22**
	Blue-collar state workers	***27***	16	20
	Businessman	5	4	8
	Small-scale retailers	*11*	*2*	*7*
	Pensioner	2	7	9
	Housewife	*13*	***35***	*18*
	Student	20	8	13
	Unemployed	*3*	*2*	*3*
Food expenditure	Less than €120*	20	31	28
	Between €120 and €235	***57***	***45***	***56***
	More than €235	23	24	16
Liquid vegetable oil expenditure	Less than €15*	***52***	24	15
	Between €15 and €30	*35*	***41***	*45*
	More than €30	13	35	40
Income groups	Less than €295*	9	12	11
	Between €295 and €735	*35*	*38*	***47***
	More than €735	**55**	**50**	42

* The prices of the products were converted from New Turkish Lira (NTL) to Euro (€) using the exchange rate on December 25, 2007. The conversion rate used was 1.70 €/NTL.