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Consumer's Preferences for the Attributes of Sunflower Oil: An Exploratory Study with Conjoint Analysis

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Abstract
Sunflower oil is the most preferred liquid vegetable oil by consumers in Turkey. The purpose of this study is to reveal the order of important attributes, affecting sunflower oil preference, namely brand, production method, country of origin and price. Different levels were defined for the attributes such as manufacturer and cooperative levels for brand, organic and conventional levels for production method, domestic and foreign levels for country of origin and ₺21, ₺26, ₺32 levels for price attribute. The data obtained from face to face interview with 211 consumers selected through convenience sampling method were evaluated by conjoint analysis. The preference order of these four attributes and their levels are listed as follows: domestic origin, price of ₺21 for 5 litre, organic production and manufacturer brand. Although the topic is very important, sunflower oil in term of marketing concept has not been studied sufficiently. This study is expected to present a point of view to differentiate products to the players in the sector living in an intense competition.
Keywords: Sunflower Oil, Consumer Preference, Conjoint Analysis

Introduction

Food choice and consumption are complex phenomena that are influenced by various psychologically and sensory-categorical factors associated with marketing. The initial product evaluation and the satisfaction after use are the factors that consumers consider in the selection of a food product. Quality, which is considered as an important factor in this context, can be defined in many different ways. Quality can contribute to market-oriented approach in developing new products since it is a broad concept and well recognized in terms of marketing and consumer behaviour (Ophuis and Trijp, 1995). Furthermore, intrinsic cues perceived by consumers and extrinsic cues such as product information, packing/label and price play an important role in the process of product selection (Guerrero et al., 2000). The effect of consumer expectation on quality perception is based on internal and external factors (Carneiro et al., 2005).

In this study, the attribute preferences were searched for in the selection of sunflower oil by consumers. Four attributes and nine levels were defined to be examined for sunflower oil based on the researches carried out on the literature and in depth interview with the

sector experts. Attributes are brand, country of origin, production method, and price, all with nine performance levels. The use of conjoint analysis was deemed appropriate when measuring the consumer preference.

Sunflower oil, which is a basic food ingredient, is the most consumed vegetable oil in Turkey. In a sector where there is intense competition, a number of firms operate with similar characteristics and they compete mostly in the price. The most favoured reason is that when there is a rise in the prices or a decrease in the prices of substitute oils, adulteration occurs in the sector and this leads to unfair competition. Since Trakya is the region where sunflower farming is mostly done, the contribution of the product to the regional economy is high. Although sunflower oil is very important especially to the regional economies not only in Turkey but also in all over the producing countries in the world, it is mostly researched from the chemical perspective in the literature. As far as I am concerned, the product has not examined in terms of marketing and consumer perspectives. This study offers concrete contributions to the academic literature, as well as to stakeholders operating on the supply side in order to differentiate them.

Theoretical Background

The attributes of a product or service create value and motivate consumers to buy (Walters and Lancaster 1999). Attributes of a product or service can be divided into two types (Woodall, 2003). These are factors that satisfy the needs of the customers, increase the customer utility, and decrease the costs to the customers. Cost can be defined as anything the customer has to give up to get the benefits offered to him. Costs may be monetary or non-monetary. Product quality, customer service quality, quality based on experience (Ferrell et al., 1998) and brand (Best, 2002) are counted as important benefits. Sunflower oil will be examined first, i.e. the importance with the figures in the world and Turkey. Then, brand, production method, country of origin and price will be searched as product attributes under the following conceptual framework.

The Production and Consumption of Sunflower Oil

When the seed sector, which is the source of fat for human consumption, is analysed, the share of the main seeds in terms of size and percentage of total production according to the statistics of the last five years' average in the world is as follows. Soybean is ranked first (57.4%), rape seed second (13.5%), cotton seed third (8.9%), groundnut fourth (8%), sunflower seed fifth (7.9%), palm sixth (3.1%) and dried coconut seventh (1.1%). Sunflower seed has the fifth biggest share with 5 years average of 39,338 million metric tons. Table 1 depicts the world production of main seeds.

Table 1
Main oilseeds production figures (2011-2015: Million Metric Ton)

Production (Seed)	**11/12**	**12/13**	**13/14**	**14/15**	**Dec. 15/16**	**Average (5 years)**	**Share (%)**
Soybean	240,43	268,82	283,12	319,00	320,11	286,296	57,4%
Rapeseed	61,46	63,62	71,96	72,12	67,54	67,34	13,5%
Cottonseed	48,02	46,15	45,68	44,34	38,87	44,612	8,9%
Groundnut	38,46	40,45	41,12	39,41	40,79	40,046	8%
Sunflower seed	39,21	35,52	42,33	39,98	39,65	39,338	7,9%
Palm kernel	13,86	14,88	15,74	16,29	16,49	15,452	3,1%
Dried coconut	5,59	5,79	5,43	5,43	5,51	5,55	1,1%
Total	447,03	475,23	505,37	536,56	528,96	498,634	100%

Source: USDA (2016)

Sunflower oil production should be examined for its prominence while above table is giving an idea of oil seed production. Table 2 shows the statistics of sunflower oil in the world. When the production, supply and distribution of sunflower seed oil around the world are investigated, it is seen that production, imports, exports and domestic consumption have increased 86%, 315%, 320% and 184%, respectively, in the last fifteen years compared the year 2015 to 2002. Here it can be said that the demand for sunflower oil has increased significantly both in the domestic and foreign markets.

Table 2
World statistics of sunflower oil (Million Metric Ton)

Sunflower seed oil	Production	Import	Export	Domestic consumption
2002/03	8,14	1,99	2,31	7,75
2003/04	9,21	1,96	2,68	8,50
2004/05	9,16	2,17	2,58	8,53
2005/06	10,68	3,30	3,92	9,89
2006/07	10,74	3,33	4,05	10,17
2007/08	10,19	2,75	3,52	9,35
2008/09	12,00	4,08	4,54	10,81
2009/10	12,14	3,75	4,50	11,61
2010/11	12,21	3,69	4,53	11,75
2011/12	14,58	5,67	6,47	12,80
2012/13	13,08	4,96	5,56	13,01
2013/14	15,79	6,69	7,78	14,28
2014/15	15,10	5,92	7,37	14,22
2015/16	15,15	6,27	7,39	14,30

Source: USDA (2016)

Despite these increasing developments in the world, what happened in Turkey should be investigated. Table 3 shows the vegetable oil supply and demand figures of Turkey for the year of 2015. According to the total vegetable oil usage, sunflower oil is ranked first with 1418 thousand tons, which constitutes 51.2% of total oil consumption. It is also seen from the table

that 743 thousand tons (76.1%) were consumed in the domestic market, 627 thousand tons were used for export and 48 thousand tons for other industries. In other words, sunflower oil is the most preferred and almost unrivalled vegetable oil for consumers in Turkey.

According to Turkey's total sunflower oil supply in Table 3, the total oil supply is equal to 1477 thousand tons of which 675 (=492+183) thousand tons of domestic oil and 802 thousand tons of imported oil. These figures mean that 54% of total sunflower oil supply is imported oil. Turkey imports sunflower oil in mostly crude and consume and re-export as refined oil to neighbouring countries.

Table 3 also indicates that corn oil is on the second place as liquid oil after sunflower oil with 63 thousand tons (6.5%) of domestic consumption. But palm oil is also on the second place which is mostly consumed as margarine with 710 thousand tons. This means that Turkey is an important player in vegetable oil for export and import in its region.

Table 3
Vegetable oil supply and demand in Turkey (2015: Thousand Metric Ton)

Supply-Usage	Seed oil Supply			Seed oil Usage	Processed Seed	Oil Supply					Usage							
	Production of Seed	Imported Seed	Imported Flour	Full Fat, Feed, Seed	Crushing	Domestic Crude Oil	Domestic Seed	Imported Crude Oil	Imported Refined Oil	Total Oil Supply	Feed, Paint & Other Industries	Export		Domestic Consumption			Total Oil Usage	Total Oil Usage
												Liquid Oil	Margarine	Margarine	Liquid Oil	Liquid Oil		
Sunflower	*1,200*	*340*	*73*		*1,613*	*492*	*183*	*781*	*21*	*1,477*	*48*	*627*			*743*	*76.1%*	*1,418*	*51.2%*
Soybean	161	2,255		1,216	1,200	29	187			216	187	9	4	15			215	7.8%
Corn						35	36	27		98		29			63	6.5%	92	3.3%
Cotton	1,000				1,000	130				130	2	5	15	58	42	4.3%	122	4.4%
Palm								711		711	113	1	116	445	35	3.6%	710	25.6%
Canola	120	249			369	48	100	3		151	3		17	64	58	5.9%	142	5.2%
Others	70	170			240	19	53			72	5				35	3.6%	70	2.5%
Total	2,551	3,014	73	1,216	4,422	753	559	1,522	21	2,854	388	671	152	582	976	100%	2,769	100%

Source: BYSD (2016

Brand

Brand name of a product is an important criterion that helps in making purchasing decisions. Brand of a product can be an existing brand or a newly created brand and is a quality that affects the consumer's decision. Brand is something in the minds of consumers, a brand is in fact a deeply rooted perceptual entity, but the brand also reflects the perception of the consumer, and beyond that its oddities (Keller, 2013). Brand name is a non-quality benefit. When the perceived quality of two brands is the same, the price premium consumer pays for

a national brand is more than store brand (Richardson et al., 1996). Benefit here stems from positive brand image, brand associations or brand equity (Sethuraman and Cole, 1999). Branding is a way to escape from being commodity on the price and volume. Branding also helps to keep the brand surviving in an environment where there is a constant drop in prices (Dumlupınar, 2006). In today's competitive business environment, marketers have to work harder than ever to get some degree of differentiation to prevent their products from being seen as commodities (McQuiston, 2005). Montgomery and Wernerfelt (1992) argue that brand names help reduce the risk of buying. It has a direct influence on the perceived quality of the brand (Vranesevic and Stancec, 2003). In a research conducted, unbranded vegetable oils were found to have an excess microbial content, while the analysis of all branded vegetable oils showed good physical and chemical quality with minimal microbial contamination (Chabiri et al., 2009). For this reason, consumption of branded vegetable oils is preferred instead of unbranded (Kathuria and Gill, 2013). Accordingly, the brand can be considered as one of the variables that influence the purchase of sunflower oil.

Production Method

In recent years, especially in developed countries, organic agriculture has begun to come to agenda as an alternative to traditional agriculture. Organic foods obtained by organic farming are perceived as healthier, safer and more environmentally sensitive (Justin and Rana, 2012) than traditional counterpart. Organic food has more nutritional value than traditional food (Young et al. 2005). The nutritive qualities of organic food provide a competitive advantage over products produced by conventional methods (Bourn and Prescott, 2002). Health is an important motivation for consumers who buy organic food (Schifferstein and Oude Ophuis, 1998). At the same time organic food is also bought for taste (Fotopoulos and Krystallis, 2002). Retailers targeting organic consumers can easily attract consumers with health consciousness by emphasizing quality and health awareness (Paul and Rana, 2012). Organic food consumers are more sensitive to the physical risks associated with food consumption. The absence of chemical residues on it or the absence of a non-organic component means that the organic product is safe. Chemical medicines, fertilizers, artificial additives and preservatives used in the production phase in traditional agriculture form residues in the produced food (Yee et al., 2005). Most of the consumers think that these residues lead to cancer (Gold et al., 2001: 799). The rise in organic food consumption is driven by the growing environmental awareness of consumers living in the developed economies of the world (Williams and Hammit, 2001; Saba and Messina, 2003). Consumers who perceive organic food as healthier are eager to pay more than others (Andersen, 2007). However, consumers may be moved away because of the high prices, inadequate marketing and distribution activities, unsatisfactory organic product labels, and mistrust on labels (Hughner et al., 2007). Accordingly, the production method can be considered as one of the variables that affect the purchase of sunflower oil.

Country of Origin

Because of competition in global markets, many firms are trying to reduce production costs by moving their production sites to less developed countries and by improving their supply sources. Companies seeking to benefit from the incentives afforded to underdeveloped regions within a country can act in a similar manner. However, due to many crises in the sectors such as food, geographical indications can be a major factor for a firm to differentiate from its rivals in consumer purchasing decision. Academic research on the effects of country of origin in consumer evaluations and behaviours has increased steadily and it has been

increasingly used factor that adds value and differentiation strategy by an increasing number of food manufacturers (national and regional brands) and retailers (retail brands) (Aurier and Fort, 2007). Country of origin is analysed as a sign that defines the concept of product quality in the economics and marketing literature (i.e., the combination of many internal and external product attributes linked to origin) (Menapace et al., 2011). Quality differences between countries, production and processing technologies, quality control systems have led to the reference to the country of origin as a 'national brand' (Unterschultz et al., 1998; Gilmore, 2002). The country of origin in food products has a critical importance in consumer purchasing decisions (Schnettler et al., 2008). The effects of geographical origin may be competitive with price effects, brand equity and product attributes because geographical origin increases the perception of attribute, perceived quality and it is assumed that image and attitude towards the region are transferred into branded products (Han, 1989; Maheswaran, 1994; Gürhan-Canlı and Maheswaran, 2000). However, according to Han and Terpstra (1988), strong brands are less sensitive to the effects of country of origin on consumers. The raw material used in the production of olive oil plays an important role in the quality perception of the consumers. 'Cues of origin' are important in the consumer's choice of olive oil (Dekhili et al., 2011). There is a positive relationship between perceived quality and price premiums (more pay) (Netemeyer et al., 2004). The product origin has a direct impact on the willingness to pay (Stefani et al., 2006). Accordingly, the country of origin can be considered as one of the variables that influence the purchase of sunflower oil.

Price

Price is an important marketing cue in all procurement decisions (Lichtenstein et al., 1993). Price and brand name are the leading drivers in the grocery purchasing process (Hill et al., 2002). The value of the price gap is an important motivation underlying the purchase at the grocery store (Gbadamosi, 2009). Price and consumption are reciprocally dependent on each other and product price affects consumption (Iyengar et al., 2008). When it is difficult to assess a product from its intrinsic cues, consumers often rely on a number of extrinsic cues such as price (Sethuraman and Cole, 1999) and brand name (DelVecchio, 2001) to make inferences about the quality of the product. While price is the dominant factor in purchasing decisions, some consumers are concerned with quality attributes such as size, colour, cooking time, shape and taste (Geetha and Gitanjali, 2014). Accordingly, the price can be considered as one of the variables that influence the purchase of sunflower oil.

Conjoint Analysis

Conjoint analysis has been widely used to assess the consumer's preference and purchase intention of various food products (For instance Asioli et al., 2014; Geetha and Naidu, 2014; Koç et al., 2014; Ferrarezi et al., 2013; Hanis et al., 2013; Boivin et al., 2012; Mann et al., 2012; Kimura et al., 2011; Rotaris and Danielis, 2011; Ares et al., 2008; Haddad et al., 2007; Murphy et al., 2004; Næs et al., 2001; Helgesen et al., 1998; Gil and Sanchez, 1997; Manalo, 1990). For this reason, conjoint method was considered as suitable for analyzing the data of the research. IBM SPSS v.21 statistical program was used for this purpose.

Conjoint analysis is a method that investigates the main attributes of a product that researchers believe to be preferred (Hensher et al., 1999). Conjoint analysis can be used in many different applications based on consumer preference and consumer preference simulation such as developing new products and packaging, predicting market segmentation for a particular product, ingredient composition, identifying the favourite brand (Carneiro et

al., 2005). Johnson et al (1991) used conjoint analysis to divide the Australian wine market into segments. Many studies have shown that product attributes are important in consumer selection process. Brand, low prices and nutrition information were found to have a positive effect on the decision to buy soybean oil (Ares et al., 2010). The expression of fibre and antioxidants on the label of functional milk desserts is positively influential on perceived health and desire for trial (Ares et al., 2009).

In this method, it is desirable that the attributes that affect the purchasing decisions of the participants be combined and evaluated as not a single entity. Conjoint analysis uses the least squares regression approach. Here, the higher the part-worth, the greater the preference (Green et al., 2001). According to the different studies, it has been found that the level of tolerance of a participant depending on his/her motivation and the product awareness is between 12 and 30 concept cards and 6 to 8 product attributes. Two to four performance levels were used for each attribute in majority of the studies, (Oppewal and Vriens, 2000). The right choice of product attributes is the most rigorous step of conjoint analysis (Walley et al., 1999). Although a wide range of attributes may be asked knowledgeable or motivated persons, it is generally appropriate to limit the number of attributes to be less than or equal to six (Green and Srinivasan, 1990).

Conjoint analysis is a technique to understand how respondents develop preferences for any type of object (products, services, or ideas). It is based on the simple premise that consumers evaluate the value of an object (real or hypothetical) by combining the separate amounts of value provided by each attribute. According to the conjoint analysis, a product's value is the sum of the benefits derived from each attribute. Furthermore, the preference of a product and the probability of purchasing it are based on the part-worth derived from attributes. The basic model in the conjoint analysis is as follows (Hair et al., 2014).

(Total worth for product)*ij* . . . *nij* = Part worth of level *i* for factor 1
+ Part worth of level *j* for factor 2 + . . .
+ Part worth of level *n* for factor *m*

Where the product or service has *m* attributes, each having *n* levels. The product consists of level *i* of factor 2, level *j* of factor 2, and so forth, up to level *n* for factor *m.*

Method

The data of the study were collected from 211 consumers selected by using convenience sampling method with face-to-face surveys between Nov. 1-20, 2015 in Artvin province in Turkey. The questionnaire consists of three parts. In the first part, information about the questionnaire are given to the consumers, in the second part characteristics of the respondents are asked and in the third and last part, 12 different sunflower oils cards are asked to evaluate from the participants. Table 4 gives the sample characteristics.

Table 4
Sample characteristics

Demographics		**Frequency**	**%**
Sex	Female	109	51.7
	Male	102	48.3
	Total	211	100.0
Age	18-34	104	49.3
	35-44	72	34.1
	45 +	35	16.6
	Total	211	100.0
Occupation	White Collar	105	49.8
	Blue Collar	33	15.6
	Student	21	10.0
	Other	52	24.6
	Total	211	100.0
Education	Primary school	32	15.2
	High school	45	21.3
	Undergraduate	27	12.8
	Graduate	99	46.9
	Post Graduate	8	3.8
	Total	211	100.0

According to Table 4, there are 211 participants of whom 51.7% are female and 48.3% are male, 49.3% of the participants are between the ages 18-34, 34.1% between the ages 35-44, and 16.6% the ages 45 and over. 49.8% of participants are white collar, 15.6% blue collar, 10% students and 24.6% other occupations. 15.2% of the participants have degrees from primary school, 21.3% high school, 12.8% undergraduate, 46.9% graduate and 3.8% post graduate.

Literature research and in depth interview with sector experts were carried out for the first definitions of important attributes to be included in this study. Research attributes and levels were limited based on the information obtained. Four attributes and nine levels were used for various qualifications, levels and types of qualifications that would affect the purchase of sunflower oil for conjoint measurement. These attributes are determined as origin, production method, brand and price.

Domestic and foreign levels are defined for country of origin. As Turkey is an importer country in sunflower oil, the attributes are limited for these two levels. Turkey imports sunflower seeds or crude oil and supplies to the market in the form of bulk refined oil or packaged refined oil by crushing or refining with its production capacity.

Concerning the attribute of the production method, farming of sunflower seed is still carried out in a conventional way. However, since it is thought that organic agriculture can be developed in parallel with the developments in the world, two different levels are defined as organic and traditional.

Concerning the attribute of the brand, private labels besides many local and national brands are also widely available in the sunflower market. Private label product option is covered as out of scope because there are a lot of studies on store brands. Instead, since cooperative brands which have successful examples in the world are inspiring, cooperative brands are defined as the second level beside the manufacturer's brand.

The attribute of price levels in ₺ (TRY = Turkish Lira) is determined as per the researches made in the markets and the literature. 5 litre price is accepted as base price since this pack size is the bestselling type of the product. In order to find the lowest price of the 5 litre sunflower oil survey was conducted in three different markets and the price was determined ₺21 as the first level. This price level was a price that was often seen in various promotions by the national and local markets. The second level was accepted as ₺26 which was obtained from the average price of other products on the shelves. This refers to a price premium of about 24% compared to the first level price. This rate is high at first but it is a realistic price that represents the market price levels. On the other hand, according to Wier and Calverley (2002), 5-20% of consumers in Scandinavian countries and the UK and 20% of Dutch and German consumers can pay a 30% price premium (more) on organic products they will buy from supermarkets. The payment request here is influenced by the consumer's experience, awareness, perception of better quality and higher prices, and the retailer's priorities for organic olive oil distribution (Kalogeras et al., 2009). On the basis of this information, the third level was set at ₺32 with a 24% increase in price. This price can be considered reasonable when compared to high quality perceived substitution products such as olive oil. All attributes used in the survey and their levels are given in Table 5.

Table 5
Attributes and levels used in conjoint analysis

Attribute	**Level**
Brand	Manufacturer brand (Such as Yudum, Bizim, Kırlangıç, Komili) Cooperative brand (Trakya Birlik, Tariş)
Production method	Organic Traditional
Country of origin	Domestic (Turkey) Foreigner (Imported)
Price (₺) / 5 Litre	21 26 32

A full factorial design (2x2x2x3 = 24 cards) in conjoint analysis provides all the effects that can be obtained from the parameters corresponding to the main effects. However, since this information is extreme, it is not possible for the interviewee to make an appropriate assessment. Excessive information may lose interest in the participants, and the quality of the answers may be adversely affected. For this reason, researchers often use fractional factorial designs that are less than full factorial designs. The main difficulty here is how to provide quality of the data. In order to obtain valuable and reliable data, two basic principles of orthogonality and equilibrium are taken into account. In this study, the design created by SPSS 21.0 called orthogonal was used. This design assumes that all existing interactions in stimuli may be neglected, but provide an effective estimate of all significant effects (Green et al., 2001). To reduce participants' fatigue to a minimum, the card combination, twenty-four, was reduced to nine by using orthogonal design. The design was increased to twelve by adding three more combinations as "hold out" cards. This orthogonal design used by conjoint designer is an effective way to reduce the number of choices in anticipating participants' preferences (Bretton-Clark, 1990). Table 6 presents the card list obtained from the orthogonal design result.

Table 6
The cards used to evaluate sunflower oil

#	Card	Brand	Production method	Country Origin	of Price (₺)
1	1	Manufacturer brand	Traditional	Domestic	21
2	2	Manufacturer brand	Organic	Domestic	32
3	3	Manufacturer brand	Organic	Domestic	26
4	4	Cooperative brand	Organic	Domestic	26
5	5	Manufacturer brand	Organic	Foreigner	32
6	6	Manufacturer brand	Organic	Domestic	21
7	7	Cooperative brand	Organic	Foreigner	21
8	8	Manufacturer brand	Traditional	Foreigner	26
9	9	Cooperative brand	Traditional	Domestic	32
10[a]	10	Manufacturer brand	Organic	Foreigner	21
11[a]	11	Manufacturer brand	Traditional	Foreigner	21
12[a]	12	Cooperative brand	Traditional	Foreigner	21

a. Holdout

In this way, the twelve stimulus cards as shown in Figure 1 were generated and aimed to measure the likelihood of buying sunflower oil by presenting them to the participants. The task of the participant is to make an assessment on a seven point scale, where 1 is “would definitely not purchase” and 7 is “would definitely purchase”. Consumer appraisal (intention to buy) represents dependent variables, and attribute levels represent independent variables in conjoint analysis.

Figure 1. Example of #1 stimulus card

Sunflower Oil 1
Brand: Manufacturer brand (Such as Yudum, Bizim, Kırlangıç, Komili)
Production method: Traditional
Country of Origin: Domestic (Turkey)
Price: ₺ 21 / 5 Litre

Your evaluation						
Would definitely not purchase				Would definitely purchase		
1	2	3	4	5	6	7

Results

The findings of the research are as follows. Table 7 gives the results of the conjoint analysis showing consumers preferences of sunflower oil and importance of the attributes. The model’s fit of the consumer's preferences predicted by the conjoint analysis are evaluated according to Pearson's Rau, Kendall's tau and Kendall's tau coefficients for 'Holdouts'. The results of the analysis show that 0.954 Pearson's R and 0.833 Kendall's tau results are correlated between the applied model and the observed results. According to these results, the model has a good estimation power. Part-worth values in the table indicate the preference of various levels of the attributes. A high part-worth value means that the attribute is the desire or preference for that level.

Table 7
Conjoint analysis results

Attributes and levels	**Relative importance (%)**	**Part-worth value**	**Standard error**
Brand	16.95		
Manufacturer brand		0.168	0.086
Cooperative brand		-0.168	0.086
Production method	18.41		
Organic		0.364	0.086
Traditional		-0.364	0.086
Country of origin	40.55		
Domestic		0.330	0.086
Foreigner		-0.330	0.086
Price (₺) / 5 litre	24.14		
21		-0.204	0.099
26		-0.408	0.199
32		-0.612	0.299
(Constant) 4.156			0.220
Significance:		Value	p
Pearson's R		0.954	0.000
Kendall's tau		0.833	0.001
Kendall's tau (Holdout)		1.000	0.059

According to the results of the analysis, it is determined that the country of origin attribute is the most important factor determining consumer preferences. The effect of country of origin on sunflower oil on the purchasing decision is 40.55%. Price attribute is found as the second most important factor. The price factor is found to be effective in the purchase decision with the ratio of 24.14%. The third factor influencing decision making is the production method. The production method factor affects this decision with the ratio of 18.41%. Fourthly, the brand attribute affects the purchase decision with the ratio of 16.95%.

The part-worth or marginal utility of each factor states the corresponding level in consumer preferences. It is seen that domestic (Product of Turkey) origin is highest part-worth value of 0.330 under the origin attribute. According to this result, the domestic product provides the second highest benefit to consumers.

Regarding the price, which is the second most important factor affecting the purchasing decision of the consumers, ₺21 presents the highest utility with the part-worth of -0,204. ₺26 is ranked in the second place with part-worth of -0.408 and ₺32 is in third place with part-worth of -0.612. There seems to be no surprise here. The consumer tends to prefer the lowest price with high value.

Organic product in the production method, which is the third important factor affecting the purchasing decision, is preferred as the highest benefit in consumer preference with the part-worth of 0.364. On the other hand, the part-worth of the product obtained by traditional agriculture is -0.364. It means that the consumers prefer organic sunflower oil rather than traditional one.

The least important factor in the purchasing decision is the brand. Here, it is seen that the manufacturer's brand with part-worth of 0.168 was preferred rather than the cooperative brands.

The utility values of average and total benefits or combinations designed under the conjoint analysis are also shown in Table 7. The total utility value is the sum of the factor level scores. The combination of the highest total utility is defined as the product quality series that provides optimum benefit to the consumers. According to this, the most suitable sunflower oil set that provides the optimum utility to the consumers is equal to Organic Production + Domestic Origin + Manufacturer's brand + ₺21 as of Price + 4.156 as of Constant. Its total value is [0.364 + 0.330 + 0.168 + (-0.204) + 4.156 = 4.814]. It can be concluded that the consumers are willing to buy sunflower oil with manufacturer brand, organic and domestic origin of crude oil at a lower price level. Origin and price are the factors that affect consumers' decision together by 65%.

Conclusions

This study investigates the consumer preferences on sunflower oil purchasing decision. Soybean oil and canola oil are among the top ranked vegetable oil consumed in the World. But Turkish consumers mostly purchase sunflower oil and the others such as soybean oil and canola oil but these two are almost very limited market share in Turkey. Sunflower oil was selected as the research topic because of its importance. Conjoint analysis was employed to determine the attributes that consumer most prefers in purchasing decision. The attributes and levels were obtained from the past researches in the literature and in depth interviews with the sector experts. The following attributes and levels were chosen to limit and get the best results from the research. These are brand (manufacturer, cooperative), country of origin (domestic or Turkish, foreign or imported), production method (organic, traditional) and price in Turkish Lira (₺21, ₺26, ₺32).

The research reveals that the most important attribute or factor that consumer prefer is the country of origin. Consumers here indicate that they prefer domestic products or Turkish origin. Contrary to expectations, the price is considered as the second important attribute. The third factor is found as the production method. Organic sunflower oil is more preferred than the traditional one. The brand is found as the fourth important attribute. Consumers prefer the manufacturer brand more than the cooperative brand.

According to the literature, the origin has priority to the production method in vegetables Ekelund and Tjernemo (2004), apples (Wang et al., 2010) and wines (Mann et al., 2012) in consumer preference. The priority of the origin here can be due to the recognized expertise of that country on that product. In this study, the origin has also priority to the production method in purchasing decision. So, this result is in consistent with the literature.

The price was found as the second most important attribute in sunflower oil preference. Hill et al (2002) states that brand name and price are the leading drivers in the purchase of the goods. It is also confirmed that the price is one of the main factors affecting consumer choice in products such as ready-made orange juice and nectar (Ferrarezi et al., 2013), yogurt (Ares et al., 2010) and soybean oil (Carneiro et al., 2005). So, the result obtained from the research is in coherent with the literature.

Even though the organic sunflower oil is not already marketed in Turkey, the image of organic method is here also higher than the traditional one. In recent years, increasing consumer concern about health has raised the perception of organic products. Organic products are preferred more in developed countries than the others. The result could be

perceived as an expected result because consumers pay attention to other factors more than production method as a result of living standards. However, the preference of organic product against traditional ones still requires working on the subject.

Branding is very important topic in marketing literature. But it seems that the issue of the branding has a limited importance in sunflower oil purchasing decision. The preference of manufacturer brands is significant and is an expected result. But, cooperative brands are expected to find support on the consumer side from the local development perspective.

The higher price has the least priority when organic products are preferred. This may seem like a contradiction, but according to the results of research done by Ustaahmetoğlu and Toklu (2015) on organic products, the relationship was not found significant between health consciousness and purchasing intention. In other words, it is not expected that the consumers without having health consciousness would pay more for organic products. On the other hand, according to Wier and Calverley (2002), consumers are ready to pay more for organic products. For this reason, the lack of awareness about organic products should be improved through marketing communication.

Perceiving a product as a commodity by consumers can lead to pressure on prices, which is a big disadvantage for the manufacturers. Sunflower oil manufacturers have to manage with low profitability because they operate in a very competitive sector. Repositioning the product or innovation can positively contribute to the development of the industry and keep them away from commodity trap. Organic sunflower oil can be evaluated in this sense for the industry.

Domestic origin like “Product of Turkey” may be another option for product development. The product's origin whether local or imported is not printed on the labels or packages marketed to the customers in Turkey. This finding is so important that country of origin adds value. All manufacturers should be aware of the advantage of the country of origin or region of origin to differentiate their offers.

Manufacturers get their investments on their branding back with higher image compared to the cooperatives. Cooperatives should invest for brand equity because they are already local manufacturer and have strategic advantage against the imported products of the manufacturers. Cooperatives that do not use imported raw materials may use this superiority in their product presentations and marketing communications. Similarly, cooperatives promoting organic production are also expected to provide greater value to all stakeholders. In this way, cooperatives can create value by using these advantages with their existing products.

This research like any other one has also limitations. The research has a limited number of factors. A new study can be carried out with more factors and levels to be defined and a wider geography or a nationwide basis can be used for sampling.

Conjoint analysis has many potential applications for consumer goods. For instance, a further research on olive oil which is getting popular in all over the world because of the rising health consciousness can be carried out in addition to the study on olive by (Toklu and Toklu, 2015). Another topic is cheese selection of consumers. Tasting cheese in purchasing behaviour is mostly preferred by the consumers but bulk sales were prohibited on Jan.1, 2016 in Turkey. The product attributes and preferences that consumers consider in purchasing decisions can be advised to research especially after the new regulation on cheese.

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