Anadolu Tarım Bilimleri Dergisi,
Anadolu Journal of Agricultural Sciences

e-ISSN: 1308-8769, ANAJAS February 2023, 38 (1): 33-52

Factors Affecting Consumers' Organic Agricultural Products Preferences in Turkey

Türkiye'de Tüketicilerin Organik Tarım Ürünleri Tercihini Etkileyen Faktörler

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Makale Bilgisi / Article Information

Makale Türü / Article Types: Araştırma Makalesi / Research Article
Geliş Tarihi / Received: 11 Haziran / July 2022
Kabul Tarihi / Accepted: 03 Kasım / November2022
Yıl / Year: 2023 | **Cilt – Volume:** 38 | **Sayı – Issue:** 1 |**Sayfa / Pages:** 33-52

Atıf/Cite as: Aydın, B., Doğu, M.,Kılınç, A. A., Demir, S., Tarım, B.,Aktürk, D., Pezikoğlu, F., Burucu, V., Aslan, M. "Factors Affecting Consumers' Organic Agricultural Products Preferences in Turkey" Anadolu Journal of Agricultural Sciences 38(1), February 2023: 33-52.

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https://doi.org/10.7161/omuanajas.1129502

FACTORS AFFECTING CONSUMERS' ORGANIC AGRICULTURAL PRODUCTS PREFERENCES IN TURKEY

ABSTRACT

This study was conducted with consumers consuming and not consuming organic products in six regions in Turkey classified in terms of development levels according to socio-economic development index values. The study aimed to compare the socio-economic aspects of consumers and to reveal the factors affecting the organic product purchasing behaviors of consumers. In the research, a survey was conducted with a total of 1494 consumers in 32 provinces, who consumed and did not consume organic products. Logistic regression analysis was used to analyze the factors affecting consumers' tendency to consume organic products. It was determined that consumers who consumed organic products were slightly younger than consumers who did not, and their monthly food expenditures were higher. It was determined that the education level of consumers who consumed organic products was higher. In addition, it was determined that the non-working and retired occupational groups were more dominant in the consumer group that did not consume organic products. According to the results, it was determined that the gender of the consumers, the education period, the presence of children in their households, the person doing the food shopping in the family, the monthly food expenditures, and the organic product consumption of the region they lived in affected the organic product consumption status positively.

Keywords: Organic Product, Consumption, Consumer Behavior.

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TÜRKIYE'DE TÜKETİCİLERİN ORGANİK TARİM ÜRÜNLERİ TERCİHİNİ ETKİLEYEN FAKTÖRLER

ÖZ:

Bu çalışma, Türkiye'de sosyo-ekonomik gelişmişlik endeksi değerlerine göre gelişmişlik seviyeleri bakımından sınıflandırılan altı bölgede organik ürün tüketen ve tüketmeyen tüketicilerle yürütülmüştür. Çalışmanın amaçları; tüketicilerin sosyo-ekonomik yönden karşılaştırılması ve tüketicilerin organik ürün satın alma davranışlarına etki eden faktörlerin ortaya konmasıdır. Araştırmada 32 ilde organik ürün tüketen ve tüketmeyen toplam 1494 tüketiciyle anket çalışması yapılmıştır. Tüketicilerin organik ürün tüketme eğilimlerinde etkili olan faktörlerin analizinde Lojistik regresyon analizi kullanılmıştır. Organik ürün tüketen tüketicilerin tüketmeyen tüketicilere göre az da olsa daha genç olduğu ve aylık gıda har-

camalarının daha fazla olduğu belirlenmiştir. Organik ürün tüketen tüketicilerin eğitim düzeylerinin daha yüksek olduğu belirlenmiştir. Bunun yanında organik ürün tüketmeyen tüketici grubunda çalışmayan ve emekli meslek gruplarının daha ağırlıklı olduğu tespit edilmiştir. Elde edilen sonuçlara göre, tüketicilerin cinsiyetinin, eğitim süresinin, hanelerinde çocuk olup olmama durumunun, hanelerinde gıda alışverişini yapan kişinin, aylık gıda harcamalarının ve yaşadıkları bölgenin organik ürün tüketimi durumunu pozitif yönde etkilediği belirlenmiştir.

Anahtar Kelimeler: Organik Ürün, Tüketim, Tüketici Davranışı.

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1. INTRODUCTION

Agriculture, which includes many activities such as obtaining plant and animal products by using soil and water resources, increasing productivity and quality, meets the food requirements of the world population as the sector that has been most in harmony with the environment from past to present. However, agriculture, which has been seen as an activity that protects the environment in the past, has become a sector that can have negative effects on the environment as a result of the intensive use of inputs based on increasing the yield obtained from the unit area (Hasdemir, 2016).

Today, one of the crucial issues that all countries of the world focus on is human health and the other is environmental problems. Against the increasingly negative effects of conventional agriculture and agricultural products, the transition to organic agriculture has gained great importance. Organic agriculture is an alternative farming method for environmental protection, which can prevent agricultural environmental pollution and eliminate the negative effects of chemicals on humans. In developed countries, the demand for organic products started with the requests from consumers and environmental organizations, organic agriculture was started and organic product markets increased (Sarıkaya, 2007)

The purposes of organic agriculture are to protect the environment and human health and natural resources, to ensure biological diversity, to restore the deteriorated ecological balance, to protect the environment from negative effects by preventing the use of synthetic chemical pesticides, hormones, and mineral fertilizers, to prevent the erosion of organic and green fertilization, rotation, soil, and gene resources, to use renewable energy sources and to save energy, to increase the resistance of the plant, to benefit from natural enemies in biological control, to support the economy and to increase not only the quantity increase in production but also the product quality (Altındişli and Ilter, 1999; Stolze and Lampkin, 2009).

The market for organic agricultural products is growing rapidly especially in developed countries and in Turkey. The most important factor in the growth of this market is consumer demand. The increase in the education and income levels of the individuals, the increase in the care and sensitivity about the quality of the products they consume, and accordingly, the fact that they start to consume more natural and qualified products by paying more increases the demand for organic products. Although organic production is increasing worldwide, organic products sales are concentrated in developed and industrialized countries. Naturally, in market with such a high economic value, the consumers' marketing function and tendencies are vital (Gürses, 2014).

Many studies were conducted to determine the consumers' behaviors on organic production. In the study conducted by Wier and Calverley (2002), it was determined that environmental and ethical reasons impacted consumers' purchasing organic products and consumers primarily purchased organic products for health reasons. Shepherd et al. (2005) investigated the attitudes and behaviors of consumers towards organic foods. In the study conducted by Mutlu (2007), it was aimed to compare the attitudes and behaviors of Turkish and German consumers towards organic foods. It was determined that the consumers of both countries were in the high education level and middle-income group, and it was determined that they preferred supermarkets to buy organic products. The study conducted by Sarıkaya (2007) aimed to examine consumers' attitudes towards organic products and the factors affecting their preferences. In the study conducted by Ritson and Brennan (2008), it was explained that consumer behaviors consisted of psychological, sociological and even anthropological situations of individuals, which greatly impacted organic food selection. Chen (2009) determined that health and environmental concerns were significant in organic food consumption and that there was a positive relationship between health awareness and attitude towards organic food.

The study carried out by Akın et al. (2010) determined that people's attitudes towards organic and non-organic foods were affected by their education level in Niğde province. Dağıstan et al. (2010) determined the demands and tendencies of consumers living in the central district of Hatay province for organic agricultural products. In the study conducted by Karabaş and Gürler (2012), the behaviors of consumers in Samsun city center towards organic products and the factors that affected their preference for organic products were determined. In the study conducted by Ağır et al. (2014) in Kayseri province in 2013, it was determined that as consumers' age and education level increased, they may adopt organic products early. In the study conducted by Eti (2014), it was determined that women tended to buy more organic food than men, and the 35-44 age group was the age group that tended to give the most positive response. In the study conducted by Gürses (2014) in order to determine the organic product consumption trends of consumers in Sakarya province and to examine some marketing characteristics, it was

determined that the middle-aged and above consumer group with high education and income levels consumed organic products. The study conducted by Sandallıoğlu (2014) determined that the total monthly income, education level, monthly food expenditure amount and marital status of organic product consumers in Adana province were effective on organic product consumption. In a study conducted by Özgen and Yeşiloğlu (2015) in Ankara, it was observed that the age of consumers was a factor that would make a difference in their purchasing behavior towards organic food. In the study conducted by Ustaahmetoğlu and Toklu (2015), it was found that there was a relationship between occupation and attitudes towards organic products, and between gender and intention to purchase organic products with demographic characteristics. Doğan and Gürel (2016) determined consumers' perspectives on organic products, their consumption tendencies and awareness levels in Kırşehir city center. It was determined by Varoğlu and Tarhan (2016) that the middle-aged and above consumer group with high education levels and income levels consumed organic products in Sakarya province. In the study conducted by Gülgör (2017), organic product consumption trends of consumers in Istanbul were determined. In the study carried out by İnci et al. (2017) in the city center of Diyarbakir, consumers' attitudes towards organic products and the factors that affected their preference for organic products were determined. Aydoğdu et al. (2018) determined the consumption reasons of organic product consumers living in Şanlıurfa. In the study carried out by Bahşi and Akça (2019) in Osmaniye and Şanlıurfa provinces, it was aimed to determine the perspectives of consumers towards organic products and the factors that affected their preference of organic products. Sezgin and Uzundumlu (2019) in Erzurum province concluded that the organic product consumption level of the consumers was affected by their active working status, family size, income, paying attention to a balanced and healthy diet, and being a conscious consumer.

In this study, attitudes and behaviors of consumers about purchasing organic food in Turkey were determined, and the factors affecting consumers' organic product purchasing behaviors were revealed. When the studies on the subject were examined, it was observed that the studies were generally carried out on a provincial basis. This study is a first in terms of being carried out throughout Turkey and making regional comparisons.

2. MATERIALS AND METHODS

The study was carried out in six regions in Turkey classified in terms of development levels according to socio-economic development index values, and 32 provinces were selected by taking into account the index values in 2018. The target group of the study consisted of consumers selected by sampling, and the primary data consisted of data collected from these consumers by face-to-face interview

technique. On the other hand, secondary data were obtained using the literature and statistics on the subject.

Provinces in Turkey are classified into six levels in terms of their development levels according to their socio-economic development index values. The index values of the provinces in the first level are greater than 1, the index values of the provinces in the 2nd, 3rd, 4th and 5th levels are between 1 and -1, and the index values of the provinces in the 6th level are less than -1. There are 8 provinces in the first level, 13 provinces in the second level, 12 provinces in the third level, 17 provinces in the fourth level, 16 provinces in the fifth level and 15 provinces in the sixth level. Approximately 25% of the number of provinces at each level was selected purposefully, taking into account the index values, and the population numbers of the provinces were obtained. The population of the selected provinces corresponded to 68% of the total population of Turkey (79 814 871). The total population of the İstanbul, Ankara and İzmir provinces, which were in the first level, constituted 30.53% of the total population of Turkey. Considering the total population of the provinces at each level, the number of consumers to be surveyed was determined by the proportional sampling formula given below (Newbold, 1995). The number of surveys was distributed proportionally to the provinces. Sampling was done separately for the İstanbul, Ankara and İzmir provinces. Since the characteristics of the consumers constituting the main population were not known at the beginning, p=0.5 was taken to maximize the sample size.

$$n = \frac{N.\ p(1-p)}{(N-1)\sigma^2 p + p(1-p)}$$

In the formula;

n = Sample size

N = Population size (total population size)

p = Estimation ratio (consumption rate of organic products) (based on 50% assumption)

σ^2_p = Variance of the ratio (calculated according to a certain confidence interval and margin of error)

According to 99% confidence interval and 0.10 margin of error;

$Z_{\alpha/2}\ \sigma_p = r$

$2.58\ \sigma_p = 0.10$

$\sigma_p = 0.03876.$

As a result of the sampling, the number of consumers surveyed was determined as 1494. The provinces where the survey was conducted and the number of consumers are given in Table 1.

Table 1. The provinces where the survey was conducted and the number of surveys

Region	Provinces	Number of Surveys	Region	Provinces	Number of Surveys
1	İstanbul	166	4	Kırıkkale	12
1	Ankara	166	4	Malatya	35
1	İzmir	166	4	Hatay	69
1	Kocaeli	38	4	Kastamonu	17
1	Antalya	49	4	Bartın	9
1	Bursa	61	4	Çorum	24
1	Eskişehir	18	5	Çankırı	9
2	Bolu	8	5	Erzurum	39
2	Adana	61	5	Kahramanmaraş	57
2	Kayseri	37	5	Ordu	39
2	Konya	60	5	Yozgat	22
3	Burdur	10	6	Diyarbakır	59
3	Karabük	9	6	Iğdır	7
3	Zonguldak	23	6	Batman	21
3	Gaziantep	75	6	Bingöl	10
3	Samsun	49	6	Şanlıurfa	69

In the analysis of the obtained data, some socio-economic characteristics of the consumers were determined by using descriptive statistics such as mean, percentage, and cross tables. The chi-square test in discrete data was used to determine whether there was a difference between the groups that consumed organic products and those that did not. In continuous data, first of all, the Kolmogorov-Smirnov test and the normal distribution test were applied to determine the variables with and without normal distribution. The t-test was used for the normally distributed variables, and the Mann-Whitney U test was used for the non-normally distributed variables.

Logit regression analysis was used to analyze the tendencies of the consumers to consume organic products and the factors affecting these tendencies. Logit Regression is a nonlinear regression model designed especially for a binary dependent variable. In the literature, Logit regression is also called "Logistic Regression" (Stock and Watson, 2007). If the dependent variable in the model is expressed by two

categories, the model is called a "Binary Logistic Regression Model", and if it is expressed by more than two categories, it is called a "Multiple Logistic Regression Model" (Leech et al., 2004). In the binary logistic regression model, the observed value of the dependent variable takes the value 1 if the event occurs and 0 if it does not occur to express two possible situations (Walker and Duncan, 1967).

In Logit regression analysis, G statistic with chi-square distribution is used to test the general significance of the model (Işığıçok, 2003). If the G statistic is greater than the chi-square table value in the related degree of freedom, it is decided that all the explanatory variables contained in the model are important for the dependent variable. Another test to analyze the goodness of fit provided by all variables of the model is the Hosmer and Lemeshow test statistic, which shows a chi-square distribution. If the Hosmer and Lemeshow test statistic is smaller than the chi-square table value with the related degree of freedom, it is decided that the fit of the model is good.

In the binary logistic regression model used in the study, organic product consumption (1) and non-consumption (0) were used as dependent variables. The independent variables of the model; the age of the consumer (years), education period of the consumer (years), monthly food expenditure (TL), number of family members (1: 1-2 people; 2: 3-4 people; 3: 5 people and above), gender (1: male; 2: female), marital status (1: married; 2: single), occupation (1: private sector; 2: public sector; 3: retired; 4: self-employed; 5: student; 6: not working), being a child at household (0: no; 1: yes), the person doing the food shopping in the household (1: replying to the survey; 2: other family members; 3: both). The region variable is included in the model as a dummy variable.

3. RESULTS AND DISCUSSION

3.1. Organic Product Consumption Status and Socio-Demographical Characteristics of Consumers

In this part of the research, the organic product consumption status and socio-demographic characteristics of the consumers were examined. Organic product consumption status by region is given in Table 2. It was observed that 25.60% of the consumers in the first region, 47.59% of the consumers in the second region, 31.33% of the consumers in the third region, 20.48% of the consumers in the fourth region, 27.11% of the consumers in the fifth region, 13.86% of the consumers in the sixth region stated that they consumed organic products. It was determined that the region where organic products were consumed the most was the second region.

Table 2. Consumption of Organic Products by Regions.

Organic Product Consumption	Region 1		Region 2		Region 3		Region 4		Region 5		Region 6		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	170	25.60	79	47.59	52	31.33	34	20.48	45	27.11	23	13.86	403	26.97
No	494	74.40	87	52.41	114	68.67	132	79.52	121	72.89	143	86.14	1091	73.03
Total	664	100.00	166	100.00	166	100.00	166	100.00	166	100.00	166	100.00	1494	100.00

While the average age of consumers consuming organic products was 34.67, the average age of consumers who did not consume organic products was 37.79. The monthly average food expenditure of consumers consuming organic products was determined as 1323.33 TL whereas the monthly average food expenditure of consumers who did not consume organic products was determined as 1149.87 TL. The education period of the consumers consuming and not consuming organic products was found as 12.89 and 11.60 years. As a result of the statistical analysis carried out to determine whether or not the difference in age, monthly food expenditure and education period of consumers were statistically significant between the groups, it was determined that there was a difference at 1% (p=0.000) significance level (Table 3).

Table 3. Some Socio-Cultural İndicators of Consumers

Socio-Cultural Indicators	Consuming Organic Products				Non-Consuming Organic Products				P
	Average	SD	Min	Max	Average	SD	Min	Max	
Age	34.67	11.99	17.00	90.00	37.79	14.27	18.00	77.00	0.002
Monthly Food Expenditure	1323.33	848.60	0.00	12000.00	1149.87	565.29	0.00	4000.00	0.000
Education Period	12.89	3.06	5.00	17.00	11.60	3.51	0.00	17.00	0.000

The distribution of consumers by gender is given in Table 4. Most of the consumers consuming organic products were female consumers, and most of the consumers who did not consume organic products were male consumers. This result was similar to the results of the studies conducted by İnci et al. (2017) and Aydoğdu et al. (2018). As a result of the chi-square test performed to determine whether the gender difference between the groups was statistically significant, it was determined that there was a difference at the 1% (p=0.000) significance level.

Table 4. Gender of Consumers

Gender	Consuming Organic Products		Non-Consuming Organic Products		Total	
	Number	%	Number	%	Number	%
Man	182	45.16	656	60.13	838	56.09
Woman	221	54.84	435	39.87	656	43.91
Total	403	100.00	1091	100.00	1494	100.00
Chi-Square: 26.767		p: 0.000				

The distribution of consumers according to their marital status is given in Table 5. It was found that 55.33% of consumers consuming organic products and 60.86% of consumers who did not consume organic products were married consumers. According to the chi-square test results, it was determined that the marital status of the consumers did not change according to the groups.

Table 5. Marital Status of Consumers

Marital Status	Consuming Organic Products		Non-Consuming Organic Products		Total	
	Number	%	Number	%	Number	%
Married	223	55.33	664	60.86	897	60.04
Single	170	42.18	427	39.14	597	39.96
Total	403	100.00	1091	100.00	1494	100.00
Chi-Square: 1.137		p: 0.286				

The distribution of consumers by occupational groups is given in Table 6. It was determined that 37.72% of consumers consuming organic products were private sector, 26.80% were public employees, and 34.19% of consumers who did not consume organic products were private sector and 18.61% were public employees. While 8.44% of the consumers in the organic product group were in the non-working group and 4.71% were in the retired group, these rates were higher in the group that did not consume organic products. It was determined that the rates of self-employed and student groups were quite close to each other in both groups. It was determined that the non-working and retired occupational groups were more dominant in the consumer group that did not consume organic products. In both groups, most of the consumers worked in the public and private sectors. This result was similar to the result in Aktürk (2015) literature. Chi-square test results showed that there was a difference between the groups at the level of 1% (p=0.000) significance level.

Table 6. Occupational Groups of Consumers

Job Groups	Consuming Organic Products		Non-Consuming Organic Products		Total	
	Number	%	Number	%	Number	%
Private Sector Employee	152	37.72	373	34.19	525	35.14
Public Employee	108	26.80	203	18.61	311	20.82
Self-Employed	45	11.17	129	11.82	174	11.65
Student	45	11.17	122	11.18	167	11.18
Not Working	34	8.44	139	12.74	173	11.58
Retired	19	4.71	125	11.46	144	9.64
Total	403	100.00	1091	100.00	1494	100.00
Chi-Square: 29.229	p: 0.000					

The distribution of consumers by household income is given in Table 7. While the household income of 37.22% of consumers who consumed organic products was above 5000 TL, this rate was determined as 24.20% for consumers who did not consume organic products. It was determined that the household income of 35.48% of consumers consuming organic products and 48.85% of consumers who did not consume organic products was between 3000-5000 TL. In the consumer group consuming organic products, the ratio of consumers with a household income above 5000 TL was higher. This result showed similarities with the results of Mutlu (2007), Akın et al. (2010), Dağıstan et al. (2010) and Gürses (2014) literature.

As a result of the chi-square test, which was conducted to determine whether the difference in household incomes of consumers between the groups was statistically significant, it was determined that there was a significant difference of 1% (p=0.000) significance level.

Table 7. Monthly Household İncome of Consumers

Household Income	Consuming Organic Products		Non-Consuming Organic Products		Total	
	Number	%	Number	%	Number	%
<3000	110	27.30	294	26.95	404	27.04
3000-5000	143	35.48	533	48.85	676	45.25
>5000	150	37.22	264	24.20	414	27.71
Total	403	100.00	1091	100.00	1494	100.00
Chi-Square: 29.651	p: 0.000					

The distribution of consumers by education level is given in Table 8. While 7.94% of the consumers consuming organic products were postgraduate graduates and 47.89% were university graduates, 2.29% of the consumers who did not consume organic products were postgraduate graduates and 37.40% were university graduates. The ratios of primary, secondary and high school graduates in the group consuming organic products were lower than the ratio of consumers in the non-consuming group. It was determined that the education level of consumers who consume organic products was higher. This result was similar to the results of Mutlu (2007), Akın et al. (2010), Karabaş and Gürler (2012), Gürses (2014), Sandallıoğlu (2014), Aktürk (2015) and Aydoğdu et al. (2018) literature.

As a result of the chi-square test, it was determined that there was a difference in the education level of the consumers between the groups at the 1% (p=0.000) significance level.

Table 8. Education level of consumers

Education Level	Consuming Organic Products		Non-Consuming Organic Products		Total	
	Number	%	Number	%	Number	%
Literate	0	0.00	9	0.82	9	0.60
Primary School	21	5.21	125	11.46	146	9.77
Middle School	25	6.20	93	8.52	118	7.90
High School	132	32.75	431	39.51	563	37.68
University	193	47.89	408	37.40	601	40.23
Postgraduate	32	7.94	25	2.29	57	3.82
Total	403	100.00	1091	100.00	1494	100.00
Chi-Square: 53.311	p: 0.000					

The distribution of consumers according to the number of people in their households is given in Table 9. While the number of people in the households of 20.10% of consumers consuming organic products was over 4, this ratio was determined as 22.36% in the consumer group that did not consume. In the group that did not consume organic products, the ratio of those who had 1-2 people in the family was higher than the group that consumed organic products. Chi-square test results showed that there was a difference between the groups at the 5% (p=0.014) significance level.

Table 9. Number of People in the Households of Consumers

Number Of People In The Household	Consuming Organic Products		Non-Consuming Organic Products		Total	
	Number	%	Number	%	Number	%
1-2 People	85	21.09	295	27.04	380	25.44
3-4 People	237	58.81	552	50.60	789	52.81
>4 People	81	20.10	244	22.36	325	21.75
Total	403	100.00	1091	100.00	1494	100.00
Chi-Square: 8.546	p: 0.014					

The distribution of consumers according to the status of having children in their households is given in Table 10. It was determined that 55.58% of consumers consuming organic products and 45.46% of non-consumers stated that they had children in their household. As a result of the chi-square test, it was determined that there was a difference between the groups at the 1% (p=0.001) significance level.

Table 10. Childhood in the Household

Are There Children In The Household?	Consuming Organic Products		Non-Consuming Organic Products		Total	
	Number	%	Number	%	Number	%
Yes	224	55.58	496	45.46	720	48.19
No	179	44.42	595	54.54	774	51.81
Total	403	100.00	1.091	100.00	1494	100.00
Chi-Square: 12.072	p: 0.001					

The age groups of the children in the households of the consumers are given in Table 11. It was determined that 9.18% of the consumers consuming organic products were between 0-2 years of age and 17.62% of them were between 3-5 years of age. In the consumer group who did not consume organic products, these ratios were determined as 6.23% and 12.47%, respectively. It was observed that the age groups of the children in the group consuming organic products were lower than those of the non-consuming group.

Table 11. Age Groups of Children in the Household

Age Groups	Consuming Organic Products		Non-Consuming Organic Products		Total*	
	Number	%	Number	%	Number	%
0-2	37	9.18	68	6.23	105	7.03
3-5	71	17.62	136	12.47	207	13.86
6-14	105	26.05	247	22.64	352	23.56
14-18	73	18.11	210	19.25	283	18.94

*Multiple options marked

The distribution of consumers according to people shopping for food in their households is given in Table 12. 55.33% of consumers consuming organic products and 56.46% of non-consumers stated that shopping was done with all family members in their households. Chi-square test was conducted to determine whether the difference between the people who shopped in the households of the consumers between the groups was statistically significant, and it was determined that there was a difference at 1% (p=0.005) significance level.

Table 12. Person/s doing food shopping in the household

Who Does the Food Shopping in the Household?	Consuming Organic Products		Non-Consuming Organic Products		Total	
	Number	%	Number	%	Number	%
Answering the Survey	108	26.80	218	19.98	326	21.82
Other Family Members	72	17.87	257	23.56	329	22.02
Both of Them	223	55.33	616	56.46	839	56.16
Total	403	100.00	1091	100.00	1494	100.00
Chi-square: 10.662	p: 0.005					

3.2. Factors Affecting Consumers' Organic Product Consumption Preferences

First of all, it was examined whether there was a multicollinearity problem between the independent variables and it was determined that there was no multicollinearity between the independent variables. According to the results of the logistic regression analysis, when the first classification table was examined, it was determined that the program was primarily classified in the category of not con-

suming organic products, and as such, the percentage of correct classification was 73%. The issue examined in the initial model table is whether the constant term was meaningful. Since p=0.000<0.05, it was concluded that all independent variables contributed significantly to the model and variable selection was continued. When the iteration history table was examined, the constant term value was found as -2.110 and the -2LogL statistic was found as 1585.109 at the end of the fourth iteration.

The estimation results of the logistic regression model are given in Table 13. Hosmer and Lemeshow statistics (Model Chi-Square Statistic) is used to test the logistic regression model in general. As a result of the Hosmer and Lemeshow test, the chi-square value was calculated as 11.230. It was obtained as P=0.189>0.05, showing that the model was suitable.

The chi-square value in the model established to determine the organic product consumption tendencies of consumers was determined as 156.912 and the significance level of this value was determined as 0.000. Since the significance level was P<0.05, the coefficients of the model were found to be significant. The estimated model was generally significant and it was seen that at least one of the independent variables in the model was effective on the dependent variable.

The Nagelkerke R^2 statistic was found to be 14.5%, and it showed that there was a 14.5% relationship between the dependent variable and the independent variables, and only 14.5% was explained by the independent variables in the model.

Among the variables included in the model, it was determined that the variables of consumers' age, marital status, occupation and the number of individuals in their families were statistically insignificant (p>0.10).

It can be said that the other 6 variables, which were gender, education period, having a child in the household, the person doing the family food shopping, monthly food expenditure and the region, were statistically significant and were effective in consuming organic products or not.

The equation written using the original logit coefficients is given below.

g(x) = -2,110 + 0.536 x gender(1) + 0.067 x education period + 0.338 x number of children in the household (1) + 0.399 x who does the shopping(1) – 0.177 x who does the shopping(2) + 1.009 x region(1) + 0.340 x region(2) -0.168 x region(3) + 0.090 x region(4) – 0.760 x region(5)

Table 13. Estimation Results of the Logistic Regression Model

Variables	Coefficient	Standard Error	Wald Statistics	DF	P Value	Odds Ratio
Constant	-2.110	0.459	21.170	1	0.000	0.121
Age	-0.009	0.008	1.384	1	0.239	0.991
Gender(1)	0.536	0.137	15.377	1	0.000***	1.709
Marital status(1)	0.161	0.181	0.791	1	0.374	1.174
Occupation			7.500	5	0.186	
Occupation (1)	-0.036	0.179	0.041	1	0.839	0.964
Occupation (2)	-0.148	0.352	0.177	1	0.674	0.863
Occupation (3)	0.100	0.227	0.194	1	0.659	1.105
Occupation (4)	-0.313	0.233	1.805	1	0.179	0.732
Occupation (5)	-0.534	0.236	5.102	1	0.024	0.586
Education period	0.067	0.023	8.320	1	0.004***	1.069
Family size			0.524	2	0.770	
Family size(1)	0.066	0.191	0.119	1	0.730	1.068
Family size(2)	-0.046	0.241	0.037	1	0.847	0.955
Status of having a child in the household(1)	0.338	0.168	4.068	1	0.044**	1.402
Who does the food shopping?			9.115	2	0.010***	
Who does the food shopping(1)	0.399	0.158	6.417	1	0.011	1.490
Who does the food shopping(2)	-0.177	0.184	0.925	1	0.336	0.838
Monthly food expenditure	0.000	0.000	13.441	1	0.000***	1.000
Region			47.710	5	0.000***	
Region(1)	1.009	0.198	26.037	1	0.000	2.744
Region(2)	0.340	0.201	2.861	1	0.091	1.405
Region(3)	-0.168	0.224	0.564	1	0.453	0.845
Region(4)	0.090	0.211	0.183	1	0.669	1.094
Region(5)	-0.760	0.256	8.850	1	0.003	0.468
Nagelkerke $R^2 = 0.145$						
-2 Log likelihood= 1585.109						
$X^2 = 11.230$ p= 0.189 (Hosmer Lemeshow test)						
$X^2 = 156.912$ p= 0.000 (Omnibus test)						

*: Significant at 10% significance level; **: Significant at 5% significance level; ***: Significant at 1% significance level; DF: Degree of freedom

Gender: Female consumers were 1.709 times more likely to purchase organic products than male consumers (reference group).

Education Period: One unit increase in the education period increased the probability of purchasing organic products 1.069 times, or in other words, one unit increase in the education period increased the probability of purchasing organic products (1.069-1) × 100 = 6.9%.

Status of Having Children in the Household: Consumers with children in their households were 1.402 times more likely to purchase organic products than consumers without children (reference group).

Food Shopper: Consumers who did food shopping with all family members were 0.838 times less likely to buy organic products compared to the group where the food shopper was only the consumers who answered the survey (reference group) and the group where other family members did food shopping was 1.490 times more likely to buy organic products compared to the reference group.

Monthly Food Expenditure: One unit increase in monthly food expenditure increased the probability of purchasing organic products by one times. This result indicated that the purchase of organic products increased as the monthly food expenditure increased.

Region: It was determined that the region with the highest probability of purchasing organic products was the second region. Consumers in the second region were 2.744 times more likely to purchase organic products than the consumers in the first region (reference group), consumers in the third region were 1.405 times more likely to purchase organic products compared to the reference group, and consumers in the fourth region were 0.845 times less likely to purchase organic products compared to the reference group. Consumers in the fifth region were 1.094 times more likely to purchase organic products compared to the reference group, and consumers in the sixth region were 0.468 times less likely to purchase organic products compared to the reference group (Table 13).

4. CONCLUSION

In this study, attitudes and behaviors of consumers on purchasing organic food in Turkey were determined, and the factors affecting consumers' organic product purchasing behaviors were revealed. It was determined that consumers who consumed organic products were slightly younger than consumers who did not consume, and their monthly food expenditures were higher. It was concluded that consumers consuming organic products were mostly women and the consumers who did not consume were mostly men. It was determined that the education level of consumers who consumed organic products was higher than the other group. In addition, it was determined that the non-working and retired occupational groups were more dominant in the consumer group that did not consume organic products. In both groups, most of the consumers worked in the public and private sec-

tors. In the consumer group consuming organic products, the ratio of consumers with a household income of more than 5000 TL and the rate of having children in the households of consumers consuming organic products were higher than those of non-consumers, and it can be said that these two criteria were important in terms of organic product consumption.

According to the results of the logistic regression analysis, it was determined that the gender of the consumers, the education period, the status of having a child in their household, the person doing the family food shopping, the monthly food expenditures and the region they lived in were effective on whether or not they consumed organic products. Education is one of the most effective factors in the formation of consumer attitudes and behaviors towards organic food and agricultural products in EU countries (Eryılmaz et al., 2015). Because, it has been observed that organic agriculture and food products are preferred more by people with higher education levels (Hassan et al., 2009)

In order to increase the consumption of organic products and to transfer sufficient and healthy information about the products to the consumers, it is necessary to increase advertising activities. The right price policies should be determined and government support should be given to the producers, so that the formation of prices at which organic products can be demanded by consumers in the middle-income group should be ensured. In order to increase consumer awareness of organic products, the development of organic markets will be provided by increasing consumer demand with the help of training activities on organic products.

It can be said that the increase in the number of public markets contributes to the spread of organic foods and thus to their easy availability by consumers and it is also possible to say that by making it possible for the producer to sell their goods directly to the consumer and raising the awareness of organic products, it will contribute to more reasonable prices of organic products over time.

For the development of the organic market in Turkey, the demand of a certain group for these products is not sufficient. Studies should be made to influence middle-income consumers as well. Both producers and consumers should benefit from government support, and consumers' knowledge of organic products should be increased. By planned and long-term studies, it will be possible to increase consumer demand and develop the market. Giving priority to specific stores before supermarkets during the sale of organic products in Turkey gains importance in terms of expressing the product characteristics to the consumer by making one-to-one contact between the salesperson and the consumer at the selling point.

Conflict of Interest:

The authors declare that there is no conflict of interest.

Ethics:

This study does not require ethics committee approval.

Author Contribution Rates:

Design of Study: BA (80%), MD (10%), FP (10%)

Data Acquisition: MD (25%), AAK (25%), SD (25%), BT (25%)

Data Analysis: BA (85%), MD (15%)

Writing up: BA (80%), FP (5%), DA (5%), VB (5%), MA (5%)

Submission and Revision: BA (90%), DA (10%)

Acknowledgment:

This study was carried out within the scope of the project "Determination of the Factors Affecting the Organic Farming Products of the Consumers" supported by the Ministry of Agriculture and Forestry, General Directorate of Agricultural Research and Policies.

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