

REGULAR ARTICLE

Organic food awareness in Turkey

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ABSTRACT

The objective of this study was to determine which variables may affect consumers' knowledge and awareness about organic foods in Turkey. The data was collected from 786 consumers who live in urban areas and it was analyzed by means of multinomial logistic regression model. The level of consumer awareness is calculated as 38%. A relationship was found between level of awareness of organic foods and consumers' education and income levels, as well as earlier experience of organic food consumption and living standards. Education and income level are the most important factors affecting organic food awareness. It is suggested that regional general evaluation should be carried out in studies on consumer behavior. Organic food producers should focus on awareness of the consumer and building marketing system from urban areas to small towns. Increasing of public support is important to defeat high price disadvantage of organic foods. It is presented that organic food consuming rate could be increased by increasing organic food awareness in the research area.

Keywords: Organic foods; Consumer awareness; Consumer preferences; Multinomial logistic regression; TR63 Region

INTRODUCTION

Farming is an indispensable part of human beings because of the obligation of feeding the world. Increasing developments in industry and technology together with using chemical fertilizers, pesticides and irrigation unconsciously and excessively for the purpose of more productivity caused some significant health and environmental problems. Negative and excessive pressure of farming on the environment and protection of natural resources especially in developed countries created public awareness. To ensure that farming is useful both economically and ecologically, sustainable farming came into prominence and organic agriculture gradually became crucial. Positive effects of organic agriculture on food safety, healthy diet, human health and environment protection increased the demand for these products both within the country and abroad (MFAL, 2013). Organic agriculture is a farming method that makes possible to do agricultural activities without using chemical inputs via using some natural inputs. The main objective of organic agriculture is to protect human and animal health without contaminating natural sources like water, air and soil. (Akgün, 2014).

In current market organic products could be listed as phytonutrients (fresh fruit and vegetables), processed organic food products (dried, frozen, canned food), organic foods of animal origin (meat and dairy products) and non-food organic products (textiles, body care products). In this study, consumption of fresh or processed phytonutrients and foods of animal origin will be discussed.

In spite of the slowing down on the global economy, international sales of organic products are increasing and organic products market is growing. Latest research finds out that international sales of organic food and drink approached 64 billion US dollars in 2012. Growth is occurring in all regions; however, demand for organic products is mainly in North America and Europe. Although organic products are now produced in the four corners of the world, demand is concentrated on these regions. In other regions, especially organic producers in Asia, Latin America and Africa have access to export markets. In some countries organic agriculture sector is almost completely concentrated on export. Organic product sales are projected to continue to rise in the coming years. The countries with the largest

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organic markets were the United States, Germany, and France. The largest single market was the United States (approximately 44 percent of the global market), followed by the European Union (approximately 41 percent) (Willer *et al.*, 2013; Willer and Lernoud, 2014).

According to data of 2013, there are 460 thousand hectares of organic land and there are more than 60 thousand producers in Turkey. When products of natural lands are added, the amount of organic agricultural production is more than 1 620 thousand. In other words it means 23% increase in the last decade (MFAL, 2014). Organic cultural production in Turkey started with the organic agricultural product demands of EU markets. It first started with dried fruits (dried grapes, dried figs, and dried apricots) and now there are more than 200 organic products. Varied organic product export created demands in the domestic market as well but it could be said that demands are still not satisfactory. Organic products are marketed particularly in the supermarkets of metropolitan city centers and organic products markets, and in some local market places.

Due to increasing interest of consumers in organic agriculture, many studies have been carried out to compare conventional and organic agriculture. Human health and food safety, environmental management, nutritive value, taste, freshness, appearance and other sensorial properties are the factors that affect consumer preferences. Additionally considering that yield in organic production is less compared to conventional production which in turn requires higher prices for organic products. The fact that customers are willing to pay more for organic products is important in terms of financial sustainability of the sector (Ankomah and Yiridoe, 2006; Shafie and Rennie, 2012). It is focused on the researches that purchase of organic foods can be seen as an action motivated by beliefs about healthiness, about animal welfare and food safety, about the environmental care, and about the way the product is produced. (Chen *et al.*, 2014; Çabuk *et al.*, 2014; Mohamad *et al.*, 2014; Manuela *et al.*, 2013; Sangkumchalian and Huang, 2012; Shafie and Rennie, 2012; Hjelmar, 2011; Maya *et al.*, 2011; Michaelidou and Hassan, 2010; Zander and Hamm, 2010; Arvola *et al.*, 2008; Gracia and Magistris, 2008; Schobesberger *et al.*, 2008; Wadolowska *et al.*, 2008). Additionally, a growing interest in organic food has prompted many studies comparing aspects of organic food because other sensory attributes such as nutritive value, taste, freshness and appearance also affect consumer preference (Probst *et al.*, 2012; Hjelmar, 2011; Michaelidou and Hassan, 2010; Alizadeh *et al.*, 2008; Wier *et al.*, 2008; Kihlberg and Risvik, 2007). Purchase decisions are also affected from external factors such as

certification, labeling, packaging and accessibility which have influence on the awareness of the consumers. (Chen *et al.*, 2014; Janssen and Hamm, 2012; Hjelmar, 2011; Jensen *et al.*, 2011; Alizadeh *et al.*, 2008; Murphy, 2008; Schobesberger *et al.*, 2008; Chang and Zepeda, 2004). Demographic and social variables (such as age, gender, education, having children, the size of where they live and some personal traits) of the customers may define organic customers both in a negative and positive way or it is observed in the research that some of the variables are non-effective (Sangkumchalian and Huang, 2012; Shafie and Rennie, 2012; Hjelmar, 2011; Briz and Ward, 2009; Chen, 2007; Schobesberger *et al.*, 2008; Wadolowska *et al.*, 2008; Onyango *et al.*, 2007; Lockie *et al.*, 2004).

In addition to other factors, high prices of organically-produced food is another factor which should be taken into consideration. Considering high prices of organic products compared to conventional products; income of the families and the people, price of the product and the price of rival company's product affect consumer demand directly. While some of the consumers state that they accept paying higher prices for organic products (because of reasons such as feelings of good conscience, health concerns, having children or babies), the limits of purchasing is ambiguous. In some cases, high prices of organic products may also become a barrier to purchasing organic food (Sangkumchalian and Huang, 2012; Probst *et al.*, 2012; Jensen *et al.*, 2011; Michaelidou and Hassan, 2010; Zander and Hamm, 2010; Wadolowska *et al.*, 2008; Kihlberg and Risvik, 2007; Chang and Zepeda, 2004; Lockie *et al.*, 2004).

In a study carried out in Turkey in first choice ranking of organic and fresh fruits and vegetables; nutritive value, containing fewer chemical residues, taste and price are the attributes that matter most (Durmaz, 2010). There are various studies carried out in Turkey in different regions and time periods about consumption of organic food and consumer preferences (Baş *et al.*, 2006; Ataseven and Güneş, 2008; Karaca, 2013; Bal Gülse, 2013; Uysal *et al.*, 2013; Kılıç *et al.*, 2014).

The main purpose of this study is to determine awareness level and knowledge level of organic food consumers and the factors which have influence on consumption of these products in Turkey (in TR63 region). Results of this study are essential to light the way for the policies intended to increase organic food consumption. Thus it will be easier to determine the measures to be taken to increase customers' demands in the domestic market of the sector. Furthermore, things to consider in the internal market will be clarified by the producers.

MATERIAL AND METHODS

Data used in the study was obtained from personal interviews of consumers where the study was carried out in 2013. Research area TR63 (Hatay, Kahramanmaraş and Osmaniye) was chosen from sub-regions of Meditterannian which is Turkish Statistical Institute region classification Level-2. The data was randomly collected from 786 consumers in a way that they would represent the target group from total city population of three cities (Table 1). This study is unique about consumer awareness of organic foods in terms of the research area it is carried out. Consumption of food changes according to consumer habits, income and educational differences and regional products. To this end, consumer tendencies and consumer awareness levels should be examined based on their regions.

The goal in the regression analysis was to create an acceptable model which describes the relationship between dependent and independent variables with the least variable and the best match possible (Gujarati, 2003). Binary logistic regression model is used to model dichotomous outcome variables; multinomial (polytomous) logistic regression is used to model nominal outcome variables with more than two possible discrete outcomes.

When logistic distribution is used, x is given and conditional average of Y is defined as $\pi(x) = P(Y | x)$. In this case in binary logistic regression when X independent variable is known, the possibility of being 1 of Y is π and the special formula is as the following: (Hosmer et al., 2013; Hair et al., 2014):

$$\pi(x) = P(Y = 1 | X = x) = \frac{e^{(\beta_0 + \beta_1 x)}}{1 + e^{(\beta_0 + \beta_1 x)}} = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x)}} \quad (1)$$

Multinomial logistic regression analysis in simple terms is obtained by extending one-variable. In multinomial logistic model, once the answer variable is described in odds ratio and natural logarithm of odds ratio is taken and thus logit conversion is found. Thus once logarithm of odds ratio is taken the model becomes linear:

Table 1: Urban population sample size, and awareness of organic foods in TR63 Region

Regions	Urban population	Sample size	(%) Rate	Percentage of organic food awareness		
				Correct aware	Incorrect aware	Not aware
Region1	1 503 066	327	41.60	36.70	22.32	40.98
Region2	605 531	295	37.53	39.66	17.97	42.37
Region3	374 867	164	20.87	39.02	17.68	43.30
Total	2 483 464	786	100.00	38.30	19.72	41.98

Source: TUIK, 2014

$$g(x) = \ln \left(\frac{\text{prob}_{\text{event}}}{1 - \text{prob}_{\text{event}}} \right) = \ln \left(\frac{\pi(x)}{1 - \pi(x)} \right) \quad (2)$$

$$= \beta_0 + \beta_1 x_1 + \dots + \beta_p x_p$$

Where β_p in model are regression coefficients, and x_p are p number independent variables. In data group, for each individual of each sample it is as the following:

Dependent variables: Level of awareness 0: correct 1: false 2:N/A;

Independent (explanatory) variables: gender, age, education, family education, income, organic product consumption, organic product price, nutritional value of food, family population, where they live and size of it. Selection model for 3-grouped awareness levels of organic products is as the following (Green, 2007):

$$\Pr(Y_i = j) = \frac{e^{\beta'_j x_i}}{\sum_{k=0}^2 e^{\beta'_k x_i}}, j = 0, 1, 2 \dots \quad (3)$$

Where β is independent variable parameter estimations x_i , i shows independent variables and each model is obtained using Newton-Raphson Maximum Likelihood principle.

For many models, coefficient estimations of the model are not directly interpreted. To do this, marginal effects need to be calculated (Baum, 2006). Marginal effect is the change of dependent variable with the effect of independent variables. Marginal effect expresses the change of ratio in regard to previous situation. More specifically it is the change in the dependent variable occurring through independent variable per unit. Logit models are related to the probability of occurrence of an event thus it is significant to be careful while interpreting slope coefficients. One of the challenges of dependent variable models is the complexity of marginal effects of explanatory factors and it results from non-linear relationship between variables. Marginal effect or partial change is about the slope change of P_j of X_k curve when all other variables are constant. The value of marginal effect depends on value of independent variables and the result of each and every coefficient. When dummy variables are set to be 0 and 1, marginal effect is calculated over their averages (Power and Xie, 1999; Gujarati, 2003; Long 1997; Green, 2007):

$$\frac{\partial P_{ij}}{\partial X_{ik}} = P_{ij} \left(\beta_{jk} - \sum_{m=1}^{J-1} P_{im} \beta_{mk} \right), j = 1, \dots, (J-1). \quad (4)$$

Natural logarithm of odds ratio in logistic regression models does not directly demonstrate the variation in the dependent variable. This value is the ratio of probability of occurrence to probability of non-occurrence. Thus in logistic regression it is rather appropriate to calculate

the marginal effects of variables taken into the model and interpret results based on it. Marginal effects and coefficient estimations are calculated using Stata 13.1 statistics program.

RESULTS AND DISCUSSION

Level of awareness and having knowledge about organic food products are relevant to various properties of the customers. Variables such as university degree, living in urban centers and older age could support the option of becoming an organic food consumer. It could be also said that the consumption of organic food products is the function of the variables such as higher income, health concerns, having babies or children, ethical concerns and easy access to organic food. In this study, which variables affect awareness at which level and which of them has an effect on organic food consumption are all examined.

Awareness levels about organic food of the consumers in the research show the distribution in Fig. 1. 58% of the consumers stated that they know organic food products and the rest of them stated that they don't know organic products. When the participants who know organic food were asked to define it, 66% of the participants gave correct answers and the rest of the participants could not make a definition. In other words, approximately 1/3 of the participants could not define it although they stated that they know what it means. When this ratio is added, the percentage of the participants who are not familiar with organic food is close to 62. Focus should be on two things here: the first one is a considerable number of consumers do not know organic products and the second one is consumers are not aware of which product is organic. Based on the data, it is concluded that there could be a significant potential in the domestic market in the wake of making customers aware. In various studies carried out in different parts of the world at different time periods about organic food awareness levels of consumers, the results changing from 32% to 90% were obtained (Probst *et al.*, 2012; Sangkumchalianga and Huang, 2012; Briz and Ward, 2009; Alizadeh *et al.*, 2008; Schobesberger *et al.*,

2008). Thus it could be said that organic food awareness of consumers in Turkey has not fully developed and consumers should be effectively informed about it.

Gender distribution of the consumers participating in the research has similar values (53% male and 47% female). It is possible to say that youth population is more in the age distribution of the consumers because the ratio of participants who are 45 or more years old are only 20%. Education levels of participants are pretty good (27% consumers with university education) which is actually high for Turkey education level average. Another reason of high ratio is also because the study is carried out in city centers. When all family members are considered, education level is frequently intermediate level (64%). Examination of participants based on the distribution of their income, low income and middle income (0-1999 TL/per month) ratio is pretty high (83%). Participants are defined as organic food consumers if they at least once consumed organic food. According to this information, it is identified that 43% of the participants consumed organic food before, however the consumption means non-permanent organic food demand. Participants are asked to compare organic food prices to conventional agriculture goods. 91% of the participants stated that organic food is more expensive. It is clear that the idea that organic food is expensive will have negative effects on the consumption. Thinking family population and families with kids and babies will have positive effect on organic food demand and consumption; variables relevant to this data are examined. Almost half of the participants stated that number of family members per family is 5-7. In other population category distribution of families, 43% percent have 1-4 family members and 9% of the families have more than 8 members. Demand of consumers may differ in terms of consumption habits based on where consumers live. Additionally, marketing background is better quality and improved in big cities which in turn provide easy access to food products and positively affect consumer preferences. As the basis for these conclusions, it is examined whether where consumers live (in big cities or small towns) has an influence on organic food awareness or not. 36% of the participants live in big cities while the rest of them live in small towns (Table 2).

Once knowledge level and awareness level of consumers about organic food products are taken into account, the level is 38% in average and 42% of the consumers do not know organic products (Table 1). It is seen that a significant number of consumers (20%) have wrong or missing knowledge about organic products. To measure the effect degree of perceived variables which are thought to be effective on consumer awareness levels of organic products; multinominal logistic regression

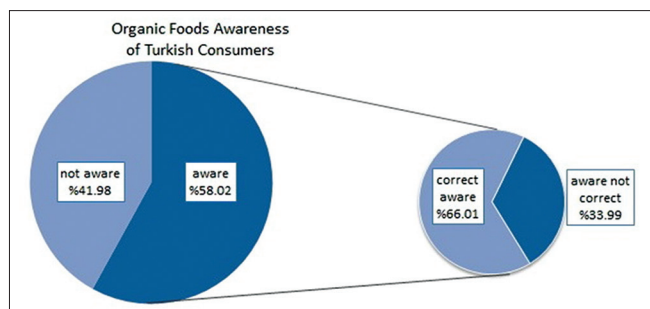


Fig 1. Knowledge and awareness level of organic food consumers

model was used to analyze it. Analysis results were shown in Table 3 demonstrating estimated coefficients, level of significance and marginal effects. In the model 3-category, it shows dependent variable about consumer's organic products evaluation vs. eleven independent variable which shows socio-economic characteristics of consumers. The groups which consist of customers who do not know organic products are included in the reference category.

In the estimations of coefficients, gender differences of consumers who have organic food awareness are not significant in comparison with the consumers of reference

category. In the same way; awareness difference is not statistically important for the variables which are age (for participants who are 45 years old and more), organic food price, nutritional value, family size and where people live. In the customers of the second group who have false awareness in regard to organic food; organic food awareness difference is found significant in comparison with reference category for age (26-44 and 45 years old), education (university graduate and high school) and income (middle level income) variables. According to estimations based on marginal effects, organic food awareness level participants who are 26-44 years old has 7.1% lower probability in comparison with reference category. Organic

Table 2: Independent variable characteristics and their distributions (n=786)

Variables	Explanation	Frequency	%	Variables	Explanation	Frequency	%
Gender	Male	419	53.3	Price	Expensive	712	90.6
	Female	367	46.7		Same or low	74	9.4
Age	18–25	332	42.3	Nutrients	More nutrient	570	72.5
	26–44	299	38.0		Same or less nutrients	216	27.5
	>45	155	19.7	Family Size	1–4	338	43.0
Education	Graduate	214	27.2		5–7	380	48.3
	High school	224	28.5		>8	68	8.7
	Primary school	348	44.3	Regions	Hatay	327	41.6
Family education	High	159	20.2		K.Maraş	295	37.5
	Middle	501	63.8		Osmaniye	164	20.9
	Low	126	16.0	Residence	City	283	36.0
Income/monthly*	High (>2000 TL)	131	16.7		Town	503	64.0
	Middle (1000–1999 TL)	373	47.4				
	Low (<999 TL)	282	35.9				
Consumption	Consumed	337	42.9				
	Not consumed	449	57.1				

*1 Turkish Lira (TL)=1.91\$ (Average exchange rate in 2013)

Table 3: Variables and parameter estimates in multinomial logistic regression model (n=786)

Variables	Correct aware vs. not aware			Marginal effects dy/dx	Aware not correct vs. not aware		
	β	SE	P value		β	SE	P value
Constant	-5.5135*	0.8169	0.000		-0.9149	0.5306	0.085
Gender-male	-0.0014	0.2528	0.996	0.0093	-0.1869	0.2143	0.383
Age-26-44	-1.1353*	0.2762	0.000	-0.0712	-0.8814**	0.2358	0.000
Age-<45	-5.5984	0.3896	0.124	-0.0016	-1.3138**	0.3195	0.000
Education- uni. graduate	4.6480*	0.3977	0.000	0.5745	1.3605**	0.3826	0.000
Education-high school	2.7135*	0.3172	0.000	0.2977	0.9442**	0.2364	0.000
F. education - good	2.4404*	0.5826	0.000	0.2673	-0.2349	0.4080	0.565
F. education - middle	1.8351*	0.5264	0.000	0.1816	0.1359	0.2718	0.617
Income-high	2.4227*	0.4106	0.000	0.2395	0.6438	0.4065	0.113
Income-middle	1.2756*	0.2888	0.000	0.1086	0.5975*	0.2232	0.007
Consumption-consumed	0.8997*	0.2626	0.001	0.0907	0.1316	0.2381	0.580
Price-expensive	-0.0564	0.4224	0.894	-0.0329	-0.0490	0.3400	0.885
Nutrients-more	0.3625	0.3135	0.248	0.0405	-0.0581	0.2404	0.809
Family size-5-7	-0.1609	0.2623	0.540	-0.0122	-0.0856	0.2228	0.701
Family size-<8	-0.8207	0.4497	0.068	-0.0596	-0.4971	0.4060	0.221
Region1 - Hatay	0.0685	0.3342	0.838	-0.0092	0.3174	0.2853	0.266
Region2- K.Maraş	-0.1126	0.3373	0.738	-0.0136	0.0433	0.2956	0.884
Residence place-City	1.0263*	0.2643	0.000	0.1024	0.1683	0.2454	0.493

-2LL Intercept-only: -826.956; -2LL Model: -524.630. χ^2 (34): 604.652 P value: 0.000. Pseudo R²: 0.366. Percentage of correctly predicted results: 70.7%.

*p<.01 indicate statistical significance levels

food awareness of university graduates and high school graduates has 57.5% and 29.8% higher probability in comparison with primary school graduates. Awareness levels of participants whose families have high or middle level education are 26.7% and 18.2% respectively higher than the participants whose families have low education level. Awareness of consumers who have high and middle income is 23.9% and 10.8% higher than participants who have middle income. Awareness level of consumers who consumed organic food before is 9% higher than the participants who did not consume organic food before. Awareness level of consumers who live in big cities is 10.2% higher than the participants who live in smaller towns (Table 3).

In logit models, different statistics are addressed in regards to model goodness of fit. These are chi-square test and Pseudo R^2 which are commonly used for -2LL difference and -2LL difference between starting model and the final model. Based on the percentage of correctly predicted results which is around 71% and Pseudo R^2 (McFadden 0.366, Cox-Snell/ML 0.537 and Cragg-Uhler/Nagelkerke 0.611 values), it could be said that model goodness of fit is good. Difference between -2LL values of starting and final models (chi-square value) is significant and this result is another sign for model goodness of fit.

At the end of general evaluation of multinomial logistic regression analysis, the primary result is there is not a significant difference among consumers' organic food awareness levels in terms of gender, age, (<45), food price tag and where people live. These first results are quite similar to Chen *et al.*'s finding (2014) about no meaningful relationship between gender-age and purchasing organic food and Briz and Ward's finding (2009) about minimal difference between geographical regions and organic food products awareness. Results also showed that there is not a meaningful difference about organic food prices between consumers who have organic food awareness and the consumers who do not have this awareness. Considering the fact that consumers have the chance of comparing product prices during purchasing only, lack of information could be discussed here. Ankomah and Yiridoe (2006) point out that knowledge and awareness of consumers about organic food does not change into direct purchasing. News and other similar events which will raise public concerns about conventionally produced goods create response behaviors concerning organic food purchasing (Hjelmar, 2011). To this end, it is important that governments take measures to ensure that consumers have access to food safety and they raise awareness.

The main factor in the development of organic production and organic food industry are in high demand in the markets. Although demographic and socio-economic

characteristics of consumers have an effect on the demands, consumer's knowledge and level of awareness are the most important factors to grow organic food markets. Besides, trust and environment-friendly production process of organic products contributes to these demands (Sangkumchalian and Huang, 2012). In estimations carried out with consumers who have high level of awareness about organic food, individual and family education level and income are outstanding variables. In other words, awareness level about organic food is at the highest level among people with university education, high level family education and high income. Additionally living in big cities and consuming organic food before increases awareness. Other factors examined in the model do not have a meaningful contribution to the awareness level or the effects are minimal. These results show similarity with other studies carried out in different parts of the world in terms of demographic and socio-economic characteristics of consumers, organic food demand and preferences (Mohamad *et al.*, 2014; Sangkumchalianga and Huang, 2012; Maya *et al.*, 2011; Briz and Ward, 2009; Gracia and Magistris, 2008; Schobesberger *et al.*, 2008; Wadolowska *et al.*, 2008). At the end of a general evaluation of the results, it could be stated that increasing organic food awareness and knowledge about organic food will increase organic food demands in Turkish society. The most effective points here are natural properties of organic food, the quality and its effects on health. When the obstacles which hinder organic food demand and consumption are considered, it is possible to say that lack of information and scarcity of organic food is more effective than expensive price.

In coefficient estimations of the participants who could correctly define organic products, average level of consciousness level about organic products was 38.3% on average. In terms of margins estimated in multinomial model, organic food awareness levels in different education levels is 69.1% for the participants who have university education and 41.3 % for the ones who have high school education which is rather above the average. In the lowest education level, awareness level is 11.6%. Consciousness level based on the incomes of consumers is 52.2%, 39.1% and 28.2% for high income, middle income and low income respectively. Organic food awareness level in age groups is not regular which means it is 41.1% for 18-25 age group and 34.0% for 26-44 age group and 41% for 45 and more. Based on these results, it could be stated that young people and older people have more awareness about organic food products. Considering that organic food consumption is directly relevant to the awareness of the consumer, the factor that organic food is consumed before will justify it. Level of awareness was 43% for participants who consumed organic food before and it was 33.8% for the ones who did not consume organic food before which is below the awareness

level average. Another variable which is thought to have an effect on organic food awareness of consumers is the size of where people live. The ratio is 44.4% for the ones who live in big cities and 34.2% for the ones who live in smaller cities. According to analysis results, increasing of education and income levels has dramatically increased organic food awareness level. In cases when these two variables are paired with, organic food awareness level of participants with university education is calculated 87%, 73.7% and 57.8% in comparison with high, middle and low income respectively. When participants with high school education are compared, ratio is 64.5%, 43.7% and 26.0% respectively and finally it is 23.3%, 10.2% and 3.9% for the lowest education level (Fig. 2).

Taking the difference of the highest and lowest values of organic food consciousness levels of each category of the variables in the estimated model, important ones and unimportant ones were demonstrated (Fig. 3). Estimated organic food awareness probability values difference is on

the horizontal axis and variables are on the vertical axis. Differences in terms of each category of the variables will show clear effect of creating awareness. It is clearly seen here that difference in education and income variables categories is higher. In terms of other variables, differences diminish between other categories and the lowest level is observed in gender and organic food price variables. In other words, the effect of these variables on creating awareness is in the minimum level. Particularly age, family population, the region and size of where participants live, gender and price have minimum effect on organic food awareness.

It is possible to say that consumers are partly aware about organic food all over the world. The awareness is particularly high in Western Europe which shows that organic markets here are better grown in comparison with other regions in the world. Organic food consumption awareness is much better in comparison with that of Western Europe (Ankomah and Yiridoe, 2006). When available potential demands in organic

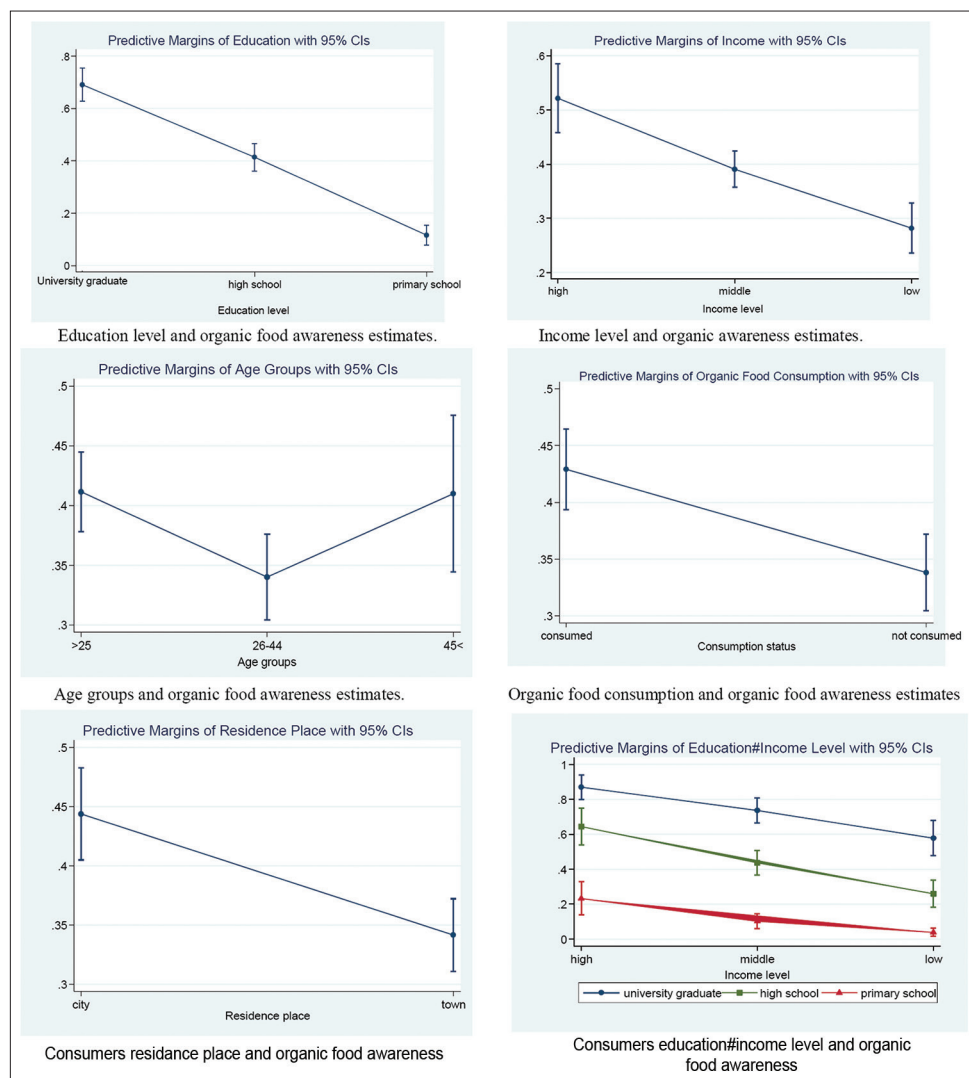


Fig 2. Organic food awareness level estimations based on various demographic and socio-economic characteristics of consumers.

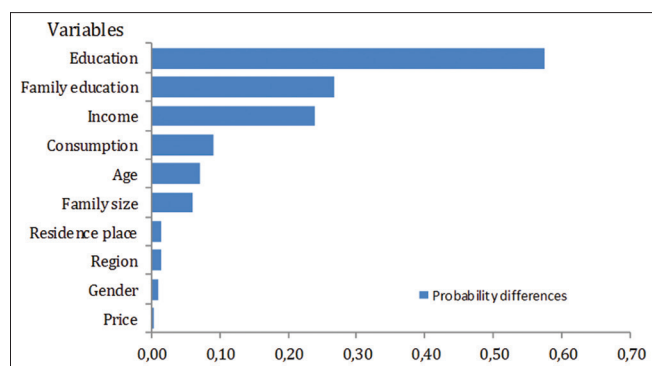


Fig 3. The highest and the lowest value differences of organic food awareness variables.

food market are taken into account, consumer awareness will maintain its importance in the following periods. For instance in a study carried out in USA, awareness was accepted to be the number one factor to influence customer's buying preferences. 59% of the customers stated that they do not have information about organic food (Demeritt, 2002). It could be also stated that if potential buyers know organic products and if they have sufficient information to distinguish them, it may increase organic food demands.

CONCLUSIONS

Organic food production and public demand for organic products have been rising in Turkey, a trend which is similar to other developing and developed countries. In light of these developments, and due to health concerns and higher incomes of consumers, consumption of organic foods is expected to increase in the foreseeable future. In the model; factors such as education level of participants and their family, monthly income, whether they consumed organic food before or not, and urbanization were found to be statistically significant. In recent years in Turkey, some problems in the production process of conventionally produced foods affects consumer's health. This information was publicised through mass media and resulted in improved social awareness. Social sensitivity also created new opportunities to producers for marketing organic food products. Support given to organic agriculture producers (such as providing input and certification expenses) will contribute to the development of the sector and may reduce price differences between organic production and conventionally produced foods. Support given to research and development should continue to improve development process of organic food products.

Author contributions

B.D.: Designed the study, did the analysis and wrote the article. O.P.: Wrote and corrected the article. N.T.: Data collecting and computerization

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