CONSUMER WILLINGNESS-TO-PAY FOR DIFFERENT ORGANIC CERTIFICATION LOGOS IN TURKEY

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Abstract

Using data from focus group discussions with consumers and a choice experiment conducted in some of Turkey's major cities, this study investigates whether Turkish consumers prefer certain organic labelling schemes over others attempts and to elicit their willingness to pay (WTP) for different organic certification logos. Although the level of awareness regarding organic certification logos was low, consumers' perceptions of the logos were generally positive. The results of the random parameter logit models indicated a positive WTP for the presence of one of the three tested certification body logos in addition to the mandatory governmental logo. Given the low level of certification logo awareness, the conclusion is that both purchasing decisions and perceptions regarding logos were affected by subjective criteria. Both the government and certification bodies should develop measures to increase consumer awareness of their logos and form consumer perceptions and attitudes regarding the quality of the certification implied by the logo.

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Keywords: Organic certification logo; consumer preference; focus group; choice experiment; willingness to pay; random parameter logit model.

Introduction

Consumers cannot verify whether a food product is organic. In other words, being organic is a credence attribute that involves substantial uncertainty from the consumer's perspective (Darby & Karni, 1973). Third-party certification of the supply-side appears to be an instrument to overcome this information asymmetry and gain consumer trust (Roe & Sheldon, 2007), and an organic certification logo is an indicator signalling to consumers that a product is truly organically produced.

In Turkey, only those products certified according to Law on Organic Agriculture (2004) can be labelled and sold as organic food. All organic products produced and sold in Turkey must be labelled with the mandatory Turkish Republic Organic Agriculture logo. Additionally, most products carry the logo of the private certification company that conducted the inspection.

Any issues regarding the credibility of organic logos may create a problem for the sector, as being organic is not only a credence attribute but also entails a price premium (Golan et al., 2001). Several studies suggest that consumer trust in the underlying scheme is the prerequisite for third-party certification to be effective (Albersmeier et al., 2010; Jahn et al., 2005; Naspetti & Zanoli, 2005; Golan et al., 2001). Moreover, the logos having a high level of credibility would support the healthy development of the sector. However, the complexity of contemporary food markets makes it difficult to establish this credibility. Likewise, the organic consumption literature suggests that consumers did not have complete confidence in the integrity of organic products (Kriege-Steffen et al., 2010; Aertsens et al., 2009; van Amstel et al., 2008; Krystallis et al., 2008; Hughner et al., 2007; Padel & Foster, 2005; Lea & Worsley, 2005; Aarset et al., 2004). To address this critical issue, it would be helpful to further investigate whether consumers prefer products with certain organic certification logos and, if so, what the underlying reasons were.

Consumers' preferences and willingness to pay (WTP) for quality labelling in food products and their WTP for certified organic food have long been researched by economists (McCluskey & Loureiro, 2003; Drichoutis et al., 2006; Gao & Schroeder, 2009; Kiesel et al., 2011). However, few studies have been conducted on consumers' organic logo preferences. In the United States, WTP for the USDA organic logo was found to be higher than the WTP for a generic organic label (Van Loo et al., 2011). A study by co-authors of this paper found significant levels of WTP for certain organic logos among European consumers (Janssen and Hamm, 2012).

The objective of this paper was to investigate consumer preferences and WTP for different organic certification logos in Turkey. Using data from focus group studies and choice experiments, it investigated whether the organic certification logos of certain certification bodies are preferred to others. WTP levels were estimated for logos tested. Additionally, the influence of the share of organic food expenditures in consumers' total food expenditures on the WTP for various logos was analysed.

The following section provides a brief overview of the organic certification system in Turkey. Then, the methodology used during the field research and the econometric model employed to conduct the choice analysis are explained in Section 3. In Section 4, results of the model are presented and discussed. Section 5 provides conclusions.

Organic certification system in Turkey

A body certifying organic products may either have its own organic standard or conduct organic certification according to a given standard. Therefore, in organic certification, different logos represent different standards or imply that different certification bodies certify a given standard. In the Turkish domestic market, only the later is relevant. In Turkey, the certification of organic agricultural products is regulated by the Law of Organic Agriculture. The Ministry of Food, Agriculture and Livestock is the official national authority, which authorises private control and certification bodies. According to the regulation (Reg., 2005), organic products offered on the domestic market must be certified in keeping with the Law of Organic Agriculture and must carry the logo "Turkish Republic Organic Agriculture". In the newly developing domestic organic market, a local organic standard competing with the Turkish Republic Organic Agriculture standard does not exist. There is no clear demand for the standards employed by foreign organic certification institutions that are occasionally required by importing countries. Therefore, for the domestic market, the 20 organic control and certification bodies[7] currently active in Turkey (*Table 1*) only conduct control and certification procedures under the Turkish Republic's organic standard.

Initially, the organic product certification bodies active in Turkey were primarily of European origin. The number of domestic Turkish certification bodies has increased over time. The organic products controlled and certified by any of these companies carry both the mandatory "Turkish Republic Organic Agriculture" logo and the logo of the certification body. Therefore, any organic product offered in the domestic market carries two logos. The logos of organic product control and certification bodies could be considered an indicator or an assurance of the quality of the company's control and certification services.

[7] In 2010, when the research was conducted, the figure was 13.

Table 1: *Organic Agriculture Control and Certification Bodies in Turkey*

Certification Body	Location
BCS Öko-Garantie Organic Agriculture Certification Services LLC.	Izmir
BIO. INSPECTA Control and Certification LLC	Izmir
CERES Certification of Environmental Standards Gmbh Turkey Izmir Branch	Izmir
CONTROL UNION Control and Certification LLC.	Izmir
ECOCERT Control and Certification LLC	Izmir
EGETAR Control and Certification Services LLC	Izmir
ETKO Ecological Agriculture Control Organization LLC	Izmir
ICEA Instituto per la Certificazione Etica e Ambientale Turkey Izmir Branch	Izmir
IMO-Control and Certification Commercial LLC	Izmir
ANKA Global Control and Certification Inc.	Ankara
IMC LLC	Ankara
NISSERT International Certification and Inspection Services LLC	Ankara
ORSER Control and Certification LLC	Ankara
ECAS Certification and Inspection LLC	Antalya
Ismail DEMİRCAN NOPcert Certification Services for Organic Agriculture Practices Organic Inputs and Organic Products	Antalya
EKOTAR Production, Control, Certification of Ecological Agriculture Products Industry and Commercial LLC	Mersin
TÜRKGAP Control and Certification Services for Agriculture Practices Tic. LLC	Mersin
KALITEST Certification and Education Services LLC	Istanbul
ANADOLU Ecological Products Control and Certification Ltd.	Yalova
ORTAR Control and Certification Services LLC	Sivas

However, in the developing Turkish organic product market, what is the level of consumer awareness regarding organic logos? Are consumers aware that different logos exist? Do they understand the meanings of logos and the standards they represent? Do they prefer certain organic certification logos over others? Are they willing to pay more for certain logos? Which factors influence their WTP for the logos? These questions must be answered to make it possible to identify the value of service quality in organic certification. This paper investigates consumers' WTP for the most common organic logos and the factors affecting WTP.

Methods

To analyse consumer preferences regarding and WTP for different organic certification logos, *choice experiments* were conducted with consumers of organic food in Ýzmir and Ankara. To gather additional information regarding the demographic characteristics of the respondents and their organic food buying behaviours, participants in the choice experiments were also interviewed using a structured survey questionnaire. The data were analysed using random parameter logit models.

Combining qualitative and quantitative techniques has long been common in the field of social research, and this methodology is particularly common in applied fields (Bryman & Bell, 2011; Tashakkori & Teddlie, 2003). To establish a sound basis for the choice experiments, the quantitative study was preceded *by a market inventory study,* and *a qualitative study* using *focus group discussions.*

The aim of the market inventory study is to provide an overview of the variety and importance of different organic certification logos in the country. In this respect, the market shares of organic products with different organic logos were investigated. In the focus group discussions, which were conducted in Istanbul and Izmir, consumer perceptions and attitudes were explored regarding organic labelling schemes such as "How do they perceive different standards?" and "Whether and why they prefer particular standards and logos?". The results of the market inventory study were used to design the focus group discussions, and the results of the focus group discussions were employed to design the survey and specify the model considered in the present quantitative study (Janssen & Hamm, 2009a; Janssen & Hamm, 2009b).

The market inventory study was conducted *in November* 2008 in the cities of Istanbul, Ankara, Izmir, Antalya and Konya. Twenty-four sales points were included in the study, 7 of which were organic shops and 17 were supermarkets. Data were collected for ten product categories including apples, carrots, eggs, milk, natural yogurt, olive oil, potatoes, raisins, pasta and wheat. The selection of product categories was based on the market relevance (high organic market share) in the project countries and ensuring that animal and plant products and processed and unprocessed products were represented. The market inventory study determined the availability of different organic certification logos for the products most commonly found in the domestic market. The results of the inventory study were the basis for the selection of logos used in the focus group discussions and the choice experiment.

Qualitative consumer research techniques, including focus group studies, present an opportunity for an in depth investigation of complex issues such as awareness and perception. In focus group discussions, consumers explain their thoughts in their own words. Therefore, focus group discussions enable researchers to discover important factors that might not be obtained through more structured methods such as consumer surveys. Moreover, the dynamic nature of focus group discussions increases the efficiency of the method by promoting interactions among participants. (Calder, 1977; Finch & Lewis, 2003; Bryman & Bell, 2011) The *focus group discussions* were held in May 2009. Three focus group discussions were organised, two in Izmir and one in Istanbul. A total of 29 organic food consumers participated in the discussions (9 individuals in Istanbul and 9 and 11 individuals in the two sessions in Izmir). The participants were recruited at organic food sales points using a recruitment questionnaire. The participants were required to be organic food consumers and at least partly responsible for making food purchases in their households. Those living on a farm, working in the agricultural sector, in the area of food processing or in the field of market research were screened out. Focus group discussions were organised in form of semi-structured surveys and moderated by a moderator. During the discussions, the participants were asked questions relating to their attitudes to

certification logos when purchasing organic products. Various logo alternatives were shown to the participants. Among them were the "Turkish Republic Organic Agriculture" logo, the logos of the three most common certification companies found in the inventory study and an "organic apple" label (Figure 1). Each discussion took one and a half hours. All discussions were recorded for analysis.

Figure 1: *Logos used in focus group discussions*

Choice experiment survey design

Sampling

Prior research suggests that there is a substantial gap between consumers' stated and actual buying behaviours regarding organic food (Lockie et al., 2002; Padel & Foster, 2005; Niessen & Hamm, 2008; Aertsens et al., 2009; Cotte & Trudel, 2009; Zuur & Fuchs, 2010; DEFRA, 2011). Therefore, of the methodology employed is a choice experiment.

The choice experiments were conducted with consumers on a face-to-face basis in February and March 2010 in Ankara and İzmir. After a pre-test with 15 participants, a total of 400 organic food consumers participated in the choice experiments and the subsequent interviews were conducted at two types of shops/ locations: conventional supermarkets and specialised organic food shops. Choice experiments conducted in actual stores are considered advantageous due to the improved simulation of an actual purchasing situation (Breidert et al., 2006; Grunert & Wills, 2007). Because the market shares of the different types of shops in Turkey are unknown, the number of choice experiments was divided equally among the different types of shops (200 in conventional hypermarkets and 200 in specialised organic food shops). The sample size was also equally distributed between İzmir and Ankara. The participants were recruited on the spot based on quota sampling for age and gender using a structured screening questionnaire. The quotas for the two age groups ('18 to 44' and '45 to 75') reflected the shares of these groups in the total population and reflect the results of prior studies on organic food consumers. To ensure that the results are relevant for the organic market, the target group consisted of consumers who regularly purchase organic food, which is why two screening questions were employed: First, participants had to be responsible for making food purchases in their households; second, they had to purchase apples and organic food at least once a month (based on self-assessment).

Discrete choice experiments

Choice experiments are a widely employed method of gathering revealed preference data to estimate WTP. Based on the Random Utility Theory of choice behaviour proposed by Thurstone (1927) and further developed by McFadden (McFadden, 1974; McFadden, 2001) and on Consumer Theory by Lancaster (1966), discrete choice experiments have various advantages in choice modelling applications (McFadden, 1986; Louviere et al., 2010). These include the discrete choice experiment framework's greater capacity to capture human behaviour compared to more restrictive models, such as conjoint analysis, and the availability of much less restricted and broader options in estimating the choice model using the data obtained from choice experiments.

In choice experiments, respondents are asked to select among bundles of alternative products and are assumed to select the product with the set of attributes that maximises their utility. According to Random Utility Theory, researchers cannot observe the utility values of the alternatives for individual consumers, and utility consists of two components: a systematic or explainable component and a random or unexplainable component. Systematic components represent attributes explaining differences in choice alternatives and covariates explaining the diffe-rences in individuals' choices. Random components represent all unidentified factors that impact choices and can include factors reflecting variability and differences in choices associated with individuals and choice options. Therefore, the so-called latent or unobservable utility U_{in} that individual *n* associates with choice alternative *i* may be represented as follows (Louviere et al., 2010):

$$U_{in} = V_{in} + \varepsilon_{in}, \quad (1)$$

where V_{in} is the systematic or explainable component of utility that individual *n* associates with alternative *i* and ε_{in} is the random component associated with individual *n* and option *i*. Accordingly, the probability that individual *n* will select alternative *i* from a set of options can be estimated as follows:

$$P(i|Cn) = P[(Vin + ein) > Max(Vjn + ejn)], \text{ for all j options in choice set Cn.} \quad (2)$$

where Max. is the maximum operator.

The first step in choice experiments is to design the behavioural model and the experiments. In the present study, the results of the market inventory and focus group studies were considered to ensure that the design of the choice experiments is realistic. The choice experiments were conducted using organic apples because many consumers regularly buy apples, and domestically produced conventional and organic apples are available. Moreover, apples could be easily offered to consumers as non-branded products to ensure that the research would not be influenced by brand effects.

The participants were shown two sets of products, each consisting of four alternative groups of apples. To create a more realistic shopping context, real apples were used instead of product images or descriptions. Therefore, the number of choice tasks per person was limited. The greatest possible effort was made to avoid variations in the appearance of the apples. Even if there were slight variations in the appearance of the products and fewer options could be offered to consumers due to logistical complications, the more realistic experimental framework is preferable because it increases validity. Each group of apples was labelled with price tags and organic logos. The participants were asked to select a product to purchase in both choice sets. They were also free to purchase none of the alternatives. The aim of the no-buy option was to eliminate forced choice bias (Dhar & Simonson, 2003; Hensher et al., 2005). Moreover, to avoid hypothetical bias (Lusk & Schroeder, 2004; Murphy et al., 2004; Harrison, 2006), the participants were informed that they would have to pay for the products they selected.

The choice experiments were designed as labelled experiments, in which the tested organic labels were present in each choice set, while the price levels varied. An orthogonal fractional factorial design was used to determine the systematic variation in the price levels across the four labels. Using the SPSS software package, 16 different choice sets were developed. The sample was divided into eight blocks. Participants in each block were only shown two choice sets.

The organic logos used in the experiments were selected based on the assumption that different types of organic certification logos should be tested. In addition to the results of the market inventory study, the consumer perceptions revealed in focus group discussions were taken into account. As labelling with the government logo is mandatory for all organic products sold in the domestic market, this is considered the basic form of labelling. Therefore, all products in the experiment were marked with the mandatory "Turkish Republic Organic Agriculture" logo (governmental logo). Three products in each choice set also carried the logo of a certification company. To determine whether there is a preference for certain logos, as indicated in the focus group discussions, the logos of both domestic and foreign certification bodies were included in the experiment. Therefore, the logos used in the choice experiments (*Table 2*) differed slightly from those used in the focus group study (*Figure 1*).

Table 2*: Organic product labels and logos used in choice experiments*

Label 1	Label 2	Label 3	Label 4

Based on the average market price of organic apples, four different price levels were used in the experiment. The average market price was 5.29 Turkish Liras (TRY). The price levels tested in the experiments included 20% less, 20% more and 40% more than the average price and the average price itself (*Table 3*).

Table *3: Prices used in the choice experiments* [a]

Apple Prices (TRY)
4.25
5.29
6.35
7.39

[a] *1TRY= 0.479 EUR(Exchange rate by the European Central Bank,*

Quarter 1 2010). The prices refer to one kilogram of apples.

After the choice experiments, structured face-to-face interviews were conducted to collect data on: 1) the demographic characteristics of the consumers and 2) organic food purchasing behaviours, which were hypothesised to influence consumer preferences and WTP for organic certification logos. Organic food purchasing behaviours were included in the RPL model to determine whether these affected the consumers' preferences for organic logos.

Econometric models

Basic RPL model

Logit models are commonly employed to estimate WTP based on consumer preference data. Random parameter (mixed) logit (RPL) models have been demonstrated to be among the most accurate approaches developed thus far in addressing such research problems, as they overcome the various limitations of classical logit models (McFadden & Train, 2000; Hensher & Greene, 2003; Train, 2003). As it accounts for the heterogeneity in the systematic component of utility, RPL is widely employed to model choice behaviour, especially in the fields of health, food, agriculture, environment and transport (Revelt & Train, 1998; Train, 1998; Hanley et al., 1998; McFadden & Train, 2000; Louviere et al., 2000; Layton, 2000; Hensher, 2001; Personn, 2002; Hanley et al., 2002; Amador, 2005; Hanley et al., 2006; Birol et al, 2006; Colombo et al., 2008; Asrat et al., 2010; Ortega et al., 2011; Lim et al., 2012; Morkbak et al., 2012, Chang et al., 2012, etc.). The random parameter framework assumes that the functional form and assumptions regarding utility are common across individuals within the sample, but the parameters vary across individuals (Hensher & Greene, 2003). Before estimating the model, it should be determined whether each parameter is random or fixed. The

specification of the random parameters is accomplished by determining whether the model provides a significant estimate of the standard deviation. While a significant standard deviation indicates that the parameter should be considered random; an insignificant standard deviation indicates that the parameter should be considered fixed. Once the random parameters are identified, a probability distribution (normal, lognormal, etc.) should be assumed for each random parameter. Using the predetermined probability distribution functions, the model provides estimates of the means and standard deviations of the random parameters. For the fixed parameters, the standard deviation is assumed to be zero (Hensher & Greene, 2003).

In the model used in this study, the observed utility values of the alternative products were hypothesised to depend on the product attribute *PRICE* with the coefficient β_{PRICE} and an alternative specific constant (ASC_i) representing the logo coefficient as follows:

$$U_{IMO} = V_{IMO} + \varepsilon_{IMO} = ASC_{IMO} + \beta_{PRICE} PRICE + \varepsilon_{IMO}$$
$$U_{ECOCERT} = V_{ECOCERT} + \varepsilon_{ECOCERT} = ASC_{ECOCERT} + \beta_{PRICE} PRICE + \varepsilon_{ECOCERT}$$
$$U_{ORSER} = V_{ORSER} + \varepsilon_{ORSER} = ASC_{ORSER} + \beta_{PRICE} PRICE + \varepsilon_{ORSER}$$
$$U_{TR\_OrgAgr} = V_{TR\_OrgAgr} + \varepsilon_{TR\_OrgAgr} = \beta_{PRICE} PRICE + \varepsilon_{TR\_OrgAgr}$$
$$U_{no-buy} = V_{no-buy} + \varepsilon_{no-buy} = ASC_{no-buy} + \varepsilon_{no-buy}$$

To assign a random or fixed character to the parameters, each of the *ASCs were checked for* a significant standard deviation. However, the price was specified as fixed to avoid an unrealistic positive coefficient (Meijer & Rouwendal, 2006; Lim et al., 2012) and/or an overestimated WTP (Rigby et al., 2009; Layton & Brown, 2000; Revelt & Train, 1998). The random *ASCs are assumed* to be normally distributed.

The probability (*Prob*) that alternative *i* is selected from a choice set of *J* alternatives is given by:

$$\Pr ob_i = \frac{\exp V_i}{\sum_{j}^{J} \exp V_j}$$

Following Lusk and Schroeder (2004), the mean WTP was calculated by dividing the logo coefficient by the price coefficient in Model 1:

$$WTP_i = - ASC_i / \beta_{PRICE}$$

This formula provides the *additional* WTP for apples carrying a certification body's logo and the governmental logo compared to organic apples with the governmental logo alone, as we defined the *ASCs* in relation to the alternative that only carried the governmental logo.

RPL model and 'Organic budget share' (Model2)

Among the consumer characteristics tested, only the share of organic food in consumers' budgets was found to have a meaningful effect on WTP. The participants were asked to report the share of organic products in their total food expenditures (i.e., the share of organic products in total expenditures for food and beverages) using ten response categories from 0-10% to 91-100%. More frequent buyers of organic food were expected to be more familiar with organic logos. To determine whether the observed heterogeneity in preferences for certain logos was related to the share of organic food in consumers' total food consumption, the variable 'organic budget share' was included in the basic RPL models (Model 1) as a covariate, and tests were conducted to determine whether it caused systematic variation around the mean of the random *ASCs* (Hensher et al., 2005).

Description of the sample

The socio-demographic characteristics of the participants and information on their stated buying behaviour for organic food are presented in Table 5. Nearly 70% of the participants were less than 45 years old. More than half of them are females, and nearly 75% have a college or university education. Those with over 3600TRY monthly income constitute more than half of the sample. The sample has an above average level of education and income. However, this is in accordance with previous studies on consumers of organic food conducted in Turkey (Akgüngör et al., 2001; Akgüngör et al., 2007). Most of the consumers (70.8%) reported that the share of organic products in their total food and beverage expenditures was less than or equal to 40%.

Table 5: Socio-demographic characteristics of the sample

	N	Category	Frequency	%	Cumulative
Gender	400	Female	238	59.5	59.5
		Male	162	40.5	100.0
Age	400	18-44 years	276	69.0	69.0
		45-75 years	124	31.0	100.0
Household size (mean = 3.03 years)	399	1	37	9.3	9.3
		2	90	22.5	31.8
		3	141	35.3	67.1
		4	103	25.8	92.9
		5>	28	7.1	100.0
Level of education[*]	399	Primary / secondary school	17	4.3	4.3
		High school	85	21.3	25.6
		Higher education	297	74.4	100.0
Level of income	399	Less than 1200 TRY[**]	20	5.3	5.3
		1200-2399 TRY	83	20.8	26.1
		2400-3599 TRY	90	22.6	48.6
		3600-4799 TRY	69	17.3	65.9
		4800 TRY and more	136	34.1	100.0
Food budget share of organic[***]	400	% 0 - 40	283	70.8	70.8
		% 41 - 100	117	19.3	100.0

The educational levels can be interpreted as, representing approximately 5, 8 and 11 or more years of education.

** *1TRY= 0.479 EUR (Exchange rate from the European Central Bank, Quarter 1 2010).*

*** *Share of organic products in the consumers' total expenditures on food and beverages in %*

Results and discussion

The results of the preliminary market inventory study indicated that 94.9% of the organic products carried two organic certification logos. In addition to the Turkish Republic Organic Agriculture logo, the logo of one of the bodies that conducted the organic certification was included on most products. While 99.5% of the products carried the Turkish Republic Organic Agriculture logo, 97% carried a certification body's logo. Although the logos of nine different organic certification bodies were encountered on the products included in the study, only three of them were found on over 5% of the organic products.

Results of the focus group studies

Composition of the groups

Of the 29 participants in the focus group discussions, 15 were female (52%) and 22 were between 18 and 44 years old (76%). The female group was found to be younger than the male group (Table 6). Healthy nutrition, healthy nutrition of children and taste were reported as the primary reasons for buying organic products.

Table 6: Age and gender composition of focus group discussion participants (%)

N = 29	Age 18-44	Age 45-75	Total
Female	54.5	42.9	51.7
Male	45.5	57.1	48.3
Total	100.0	100.0	100.0

Views of the Participants on Organic Certification Logos

While perceptions and attitudes are known to influence the preferences of consumers, the creation of brand identity is argued to be more difficult for services due to their intangible character (Mittal, 2002). The focus group study attempted to determine whether this is achieved in the organic certification sector and, if so, how. In other words, consumer perceptions regarding the organic certification logos were investigated.

With respect to level of a*wareness,* the participants' levels of knowledge and awareness regarding the organic certification process, standards and the related logos on the organic products were found to be quite low. Few participants were highly informed on these issues. Most of the consumers stated that rather than the certification logo, they looked for the word "organic" (i.e., an "organic" tag on the product) and were generally satisfied with this. The underlying motivation for this approach was trust in the brand or the retailer. Most of the participants admitted that they had little knowledge of organic agriculture or related standards. They also mentioned that they considered the taste, smell, colour and cooking performance. Some of the participants mentioned that they perceived organic certification logos as a sort of guarantee that the product is truly organic. These participants emphasised that the "organic" tag was not sufficient for them and they sought certification logos and documents. The most well known logo to participants was the mandatory governmental logo. Most of the participants were familiar with this logo.

Regarding preferences, most of the participants mentioned that they did not have a specific logo preference. Recommendations of the vendors, the inclusion of "organic" on the package, the brand and choice of shop appeared to be more influential factors in the purchasing decision. While some participants trusted the producers and sellers and also purchased unbranded organic products in open bazaars, others mentioned that they preferred to see the certificate.

When consumers were asked to report their preferred organic certification logo, they stated that it was difficult to find the same organic product with the logos of different certification bodies and that many products were available from a single brand and were therefore only certified by a single certification body. Some participants stated that they preferred the obligatory Turkish Republic Organic Agriculture logo. However, as the use of this logo is mandatory and is present on all organic products, the governmental logo constitutes a special case and not a straightforward competitor for the logos of the private companies. An additional organic certification logo belonging to a certification company conducting the Turkish Republic Organic Agriculture certification is not found to be a criterion in consumer decision making. However, the participants were found to expect that control mechanisms and certification procedures employed by European certification companies were stricter than others. In this sense, they had greater trust in the logos of these companies. This expectation is based on the knowledge that European countries importing organic products from Turkey had high standards and strict rules for imports. Therefore, European firms are expected to apply the standards more diligently and approve higher quality products. Few participants were sceptical about the certification companies and the control procedures they employed.

The participants were also asked whether they thought that price differences existed between organic products carrying different logos. Approximately half of the participants did not expect price differences between products with different logos. However, others expected that products carrying the logos of foreign certification companies would be more expensive due to the higher costs incurred by these companies. Higher costs are attributed to the costs generated by the international transfer of experts and factors such as the frequency of field visits. Participants also expected the imported organic products to be more expensive than local ones. They also emphasised that the food processing firms were commercial entities, and their operating costs would influence prices. Some of the consumers mentioned that the price increase due to the organic certification process was significant, and therefore, they also considered buying natural looking products sold without any organic certification in open local markets for affordable prices.

Results of the choice experiment study

Using 800 choices made by 400 consumers, RPL models were estimated for organic apples. 'No-buy cases' for reasons such as look, shape, colour, size, variety or smell and questionnaires with missing observations for independent variables were excluded from the analysis. Limdep NLOGIT 4.0.1 software was used. The results of the RPL models are summarised in *Table 7*.

Table 7: *RPL models on consumer preferences for organic certification logos* [a]

	Random/Fix	Model 1	Model 2
Parameters			
Price	**Fix**	-0.209***	-0.209***
ASC IMO logo	**Random**	-0.005	-0.454
ASC ECOCERT logo	**Random**	0.448***	0.444***
ASC ORSER logo	**Random**	0.125	0.132
ASC NoBuy	**Fix**	-5.520***	-5.520***
Standard deviations of parameter distributions			
ASC IMO logo		1.118***	1.075***
ASC ECOCERT logo		0.688***	0.713***
ASC ORSER logo		0.694**	0.667**
Interaction terms			
Organic budget share x IMO		-	0.123***
Organic budget share x ECOCERT		-	0.00
Organic budget share x ORSER		-	0.00
N		784	784
Log likelihood		-1061.87	-1058.25
Chi squared /df		399.85 / 8	407.11 / 9
McFadden Pseudo R^2		0.16	0.16

[a] *2000 Halton sequences were used for the simulations.*

Statistical significance at the ***<0.01 or **<0.05 level.

– Variable not included in the model.

The chi-square statistics indicate that both of the models (the basic Model 1 and Model 2 including interaction terms for food budget share of organic products) were statistically significant. The price coefficients in the models are also statistically significant and reflect the expected negative relationship between price and purchase probability. Although the McFadden's pseudo R^2 values measuring the fit of the models are rather low (Hensher et al., 2005), most of the coefficients are highly significant with the a priori expected signs. Having a logo in addition to that of Turkish Organic Agriculture is expected to increase the probability of making a purchase. A significant positive relationship between the logo and the purchase probability is found for the ECOCERT logo. The negative signs found for the IMO logo are not statistically significant. That the standard deviations of the random parameter distributions are significant also corroborates that the model is properly specified.

Willingness-to-pay

Table 8 presents the additional WTP for products carrying the logo of an organic certification company and the Turkish Republic Organic Agriculture logo compared to similar products labelled with the Turkish Republic Organic Agriculture logo alone. The WTP figures are the mean WTP values for organic apples with each logo over the average market price for organic apples with Turkish Republic Organic Agriculture logo alone. A significant positive additional mean WTP[8] of 2.14 TRY was observed for the ECOCERT logo. As the average price was 5.29 TRY, this amounts to a price premium of approximately 40.5%. That means that consumers clearly preferred products labelled with the ECOCERT logo over organic products with the governmental logo alone. However, no significant WTP was identified for the logos of IMO and ORSER.

Table 8: *Additional WTP for organic logos* [a]

Organic logos	Mean
IMO+Turkish Republic Organic Agriculture logo	-0.02
ECOCERT+Turkish Republic Organic Agriculture logo	2.14***
ORSER+Turkish Republic Organic Agriculture logo	0.60

[a] The reference category is apples only carrying the mandatory Turkish Republic Organic Agriculture logo.

The WTP measures are based on Model 1. The additional WTP is shown in absolute Turkish Lira.

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[8] The terms 'additional WTP' and 'price premium' refer to the mean additional WTP for products with two organic certification logos (the governmental logo and a logo belonging to the certifying company) compared to similar products only carrying the mand atory Turkish Republic Organic Agriculture logo.

Accordingly, the additional WTP for apples with the ECOCERT logo and the mandatory governmental logo compared to organic apples with the governmental logo alone is 1.03 TRY over the average market price.

Statistical significance at the ***<0.01 level.

Influence of organic food buying behaviours on consumer preferences for organic logos

In the RPL model, a positive interaction term for the logo coefficients (*ASCs*) and the 'organic budget share' covariate would indicate a higher WTP among frequent buyers for certain organic food certification logos compared to less frequent buyers. In Model 2, the estimated coefficients for the interaction terms between the share of organic food in the total food budget and the logos reveal that consumers who allocate larger portions of their food budgets to organic food are more likely to make a purchase and therefore have a higher WTP for products with IMO logo compared to less frequent buyers (Table 7).

Conclusions

This paper explores Turkish consumers' WTP for different organic certification logos and the reasons why.

The level of awareness regarding the organic certification process and organic standards was found to be low. Over half of the organic consumers who participated in the focus group were unfamiliar with the mandatory governmental logo that all organic products sold in the country must carry. It is thus highly recommended that government authorities launch informational campaigns to increase consumer awareness of the logo.

The majority of participants in the focus group discussions stated that they were satisfied with the "organic" label on the product, trusted the retailer and considered the physical properties of the product. Some of the consumers reported believing that there was a difference between domestic and foreign certification bodies with respect to standards and control systems. While majority of consumers reported preferring the "Turkish Republic Organic Agriculture" logo, conversely, they reported having greater trust in foreign control and certification companies.

In the choice experiment, three organic certification company logos were examined to determine whether their inclusion on product packaging in addition to the mandatory government logo resulted in a positive WTP. A significant positive additional mean WTP was obtained for the logo of ECOCERT. Consumers clearly preferred this logo to the others. When the level of awareness regarding the logos of the certification bodies obtained in the previous focus

group study is considered, surprisingly, it appears that a certain logo was clearly preferred. Reasons for this finding were further investigated by adding variables to the basic RPL model. The results of the previous focus group study were also used for this aim.

Demographic variables were not found to have significant effects on WTP. However, organic food consumption behaviour was found to have an impact on WTP. The consumers' preference for the IMO logo was found to be positively influenced by the frequency with which they purchased organic food.

The higher WTP for the ECOCERT logo may be partially attributable to the finding from the focus group discussion that consumers reported having greater trust in the logos of foreign organic certification companies. This inference could be criticised because no significant WTP was detected for the IMO logo. This contradiction may because in the Turkish language, the IMO logo does not evoke "organic", while the ECOCERT logo does. The finding that the consumers' preference for the IMO logo increased in the frequency of organic purchases supports this argument. Their preference for the IMO logo increases as they become familiar with it.

The current study finds that, even if based on highly subjective evaluations, consumer attitudes regarding logos play a role at the time of purchase. This is why WTP differed across logos. Furthermore, the role of certification logos in purchasing decisions tends to increase in conjunction with the level of organic food consumption. Therefore, the creation of positive attitudes regarding a certification company and its logo seems to be important from a WTP perspective.

Finally, it should be noted that organic certification logos are not the only source of consumer trust in the integrity of organic products (Janssen and Hamm, 2012; Naspetti and Zanoli, 2009). Factors such as brand and trust in the farmer or the retailer also play a role. These aspects were not investigated in the choice experiments. Thus the above-mentioned conclusions regarding consumer preferences for organic certification logos are primarily valid for products such as fruit and vegetables that are not labelled with a well-known brand.

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