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Consumer Preferences and Willingness to Pay for Country of Origin Labeled Product in Istanbul

Aslı Zulug[a], Bülent Miran[b] & Efthimia Tsakiridou[c]

a Yeditepe University, Faculty of Fine Arts, Department of Gastronomy and Culinary Arts, P.O. Box 34755 – İstanbul,+905336559103, aslizulug@gmail.com

b Ege University, Faculty of Agriculture, Department of Agricultural Economics, P.O. Box 35100- Izmir, bulent.miran@ege.edu.tr

c Aristotle University of Thessaloniki, Dept. of Agricultural Economics, P.O. Box 225, 54124, Thessaloniki

Abstract

Consumers' interest in locally produced foods is growing over the last years. Thus, studying consumers' preferences for local foods and understanding the underlying causes of this demand increase and willingness to buy local food products could be conducive to further development of local food markets. Country-of-origin labeling (COOL) is being implemented in different forms and degrees in Turkey and other countries across the world. In this study we focused on two different COOL food products from Turkey, namely Ayvalik olive oil and Ezine cheese. A survey was undertaken in the area of Istanbul aimed at studying consumer preferences for those products compared to their conventional counterparts. The willingness to pay equation has been specified as a two-step decision process, taking into account the results obtained from the two consecutive questions, willingness to pay a premium and how much consumers are willing to pay. If the decision will be consuming COOL product, different demand models (Heckmann models) were estimated. For these products, for that purpose, different price sets were defined to the consumers to evaluate how much they will pay extra. In conclusion we found out that, consumers are aware of those products and willing to pay a price premium. For Ayvalık Olive oil they are willing to pay 82 percentages more than conventional alternatives. For Ezine Cheese they are willing to pay a premium almost 4 times up to conventional cheese products.

Keywords: *Consumer Preferences, COOL, willingness to pay, Food Labeling, Local Food, Turkey*

1. Introduction

Consumers are increasingly showing interest in foods that are locally produced (Carpio and Isengildina-Massa, 2009) and marketed as “locally grown” (Darby et al., 2008). To assess consumers’ perceptions and willingness to purchase COOL products, two different origin local products were used; Ezine Cheese, and Ayvalik Olive Oil. These two products were selected as Turkish consumers use them almost everyday in Turkish cuisine. The study took place in the urban area of Istanbul, a huge growing market for labeled food products and representative for other Turkish urban markets as

well.

Several studies have been implemented on COOL food products focusing either on safety issues, or on locally grown product preservation programs. Studies examining consumer perceptions of COOL show that there are considerable differences in consumer attitudes and willingness to purchase COOL products. For instance, the studies by Haucap et al. (1997), Hoffmann (2000), Umberger et al. (2003), Loureiro and Umberger (2003, 2005), Sterns et al. (2004) and Bernués et al. (2003) find that consumers have a strong preference for COOL and use it as an indicator of product quality and food safety. Dickinson and Bailey (2002) and Hobbs (2003) find that preference for COOL is low if not combined with other desirable safety attributes. Consumer preference for domestic products is an important criterion to analyze benefits of mandatory COOL implementation. A number of studies have illustrated that U.S. consumers are willing to pay a premium for U.S.-origin labeled beef and pork products over products from other countries (e.g., Umberger et al., 2003; Ward et al., 2005; Miranda and Kónya, 2006; Loureiro and Umberger, 2007; Mennecke et al., 2007; Gao and Schroeder, 2009; Link, 2009).

Over the last five years there are no known studies based on country of origin food products in Turkey based on consumer behaviors and willingness to buy COOL products. Turkey is still in the process of the definition of those kinds of products and labeling of them to secure products and producer in the market. This study aims at determining consumers' behavior and willingness to pay for various Country-of-Origin labeled food products in comparison to the conventional - no labels – products in the urban market of Istanbul. To assess consumer preferences regarding COOL food products, Heckman Demand Models were employed.

2. Methodology

The research questionnaire addressed to randomly selected consumers in Istanbul. Based on Turkish Statistical Institute census of population data, from 12 million consumers, we assume that every 4 of them represent a household and based on house consumption with 90 percentages confidence interval and with 7.5 percentages margin errors 121 household defined for consumers. Based on the intensity of the areas in Istanbul, we choose the consumers randomly from shopping centers, mass transportation areas, etc. Data were collected through a questionnaire and face to face interviews.

The willingness to pay equation has been specified as a two-step decision process, taking into account the results obtained from the two consecutive questions. First, consumers decide if they are willing to pay a premium for certified country of origin food product over the price they are actually paying. Second, if they are willing to pay, they decide how much more can pay. Premiums are expressed as a percentage price increase over the prices they normally pay. Two models were estimated, one for each of the two studied products.

If the decision is to consume COOL product, different demand models were estimated. For these products, different price sets were defined to the consumers to evaluate how much extra the consumers pay. Thus, shifts in demand will be calculated from conventional products to COOL products. For different shifts in demand, for the ones who choose conventional products, offer lower price COOL products, for the ones who

choose COOL products, offer lower price conventional products. (Heckman, 1979).

Willingness to pay is modeled using a sample selection model (Heckman, 1979). The first participation component, whether a consumer is willing to pay or not, is modeled as a probit based on the binary outcome $P_i \Xi \{0,1\}$.

Probit model that used for the demand of COOL products, dependent variable is a dummy variable, which takes the value 1 if the consumer is willing to pay a price premuim and the value 0 otherwise. For the independent variable, socio-economic variables were used and are defined as shown in Table1.

Table 1: *Variable description of consumer demand model*

Dependent Variables	Variables Definitions
COOL product Consumer Preference	1 = COOL food products consumer, 0 = otherwise
Independent	Variables Definitions
Gender	Gender, Female=0, Male=1
Employment	Employment (Employee=1, non-employee=0)
Household size	Household size (number of people at home)
Presence kids at home (below age 18)	Presence=1 None: 0
Presence patient at home (chronic illness)	Presence=1 None: 0
percentage food expenditure in whole budged	percentage of food expenditure in whole budged
Age	Age
Marital Status	Marital Status, (Married=1, Single=0)
Read Label	Food Labels reader (reader=1, no-reader=0)
Education	Education Level
#of person who has salary at home	#of person who has salary at home
Ln(Cheese Price)	logarithmic Price of Cheese
Ln(Olive Oil Price)	logarithmic Price of Olive Oil
Income	Monthly Salary of the household
Ln (Income)	logarithmic Income
Olive Oil <u>or</u> Cheese consumption dummy variable	(Consume=1, Do not Consume=0)
dummy variable for COOL food product demand	(Consume=1,Do not Consume=0)

There are two models for two products. Just dummy variables are different for different models. Cheese consumption dummy variable for Cheese demand model, Olive oil consumption dummy variable for olive oil demand model were used. Prices of the products that used in the model were taken based on average prices in the markets. Edu-

cational level was examined based on 6 different alternatives from 1 for those who have

Table 2: *Socio-Demographic Variables for Participants*

	Intervals & Definitions		
		Frequency	Percentage (%)
Characteristics of experiment participants	20-29	39	32.2
	30-39	50	41.3
	40-49	15	12.4
	50-59	14	11.6
	60+	3	2.5
Age (summary)	N=121 Min. =22 Max.=61 Average=35.90 Std. Dev. =9.69		
Gender	Male	54	44.6
	Female	67	55.4
Marital Status	Married	78	64.5
	Single	43	35.5
Household size	1	10	8.3
	2	34	28.1
	3	37	30.6
	4	27	22.3
	5	9	7.4
	6	4	3.3
Education	No school diploma but reader	1	0.8
	Elementary school diploma	4	3.3
	Secondary school diploma	12	9.9
	High school diploma or equivalent	28	23.1
	Bachelor's degree	57	47.1
	Graduate or professional degree	19	15.7
Number of person who has salary at home	0	1	0.8
	1	35	28.9
	2	68	56.2
	3	15	12.4
	4	2	1.7
Employment	employed	101	83.5
	Unemployed	20	16.5
Income	500-1000 TL/month	2	1.7
	1000-2000 TL/ month	18	14.9
	2000-3000 TL/ month	34	28.1
	3000-5000 TL/ month	41	33.9
	More than 5000 TL/ month	26	21.5

not attended any school but know reading and writing, primary school for 2, elementary school for 3 and high school for 4, university for 5 and post-graduate studies for 6.

In the survey there were four sections. In the first section, general approach of food consumption and paying behavior of Turkish consumer were examined. In the second section, food safety and labeling perceptions of Turkish consumers were analyzed. In the thirds section, awareness of COOL products, demand and willingness to pay function were questioned .in the last section demographic variables of consumers were analyzed. Besides yes/ no questions, there were some open ended questions in the survey for the perception of the COOL food products. In this study we will focus on the data obtained from the third section.

3. Results

3.1 Sampling characteristics

Of the 121 participants involved in the research, 45% is men, 55% women; the majority (47%) is university graduates and 23% is high school graduates. 41% of the participants aged between 30-39 years old and 32 percent aged between 20-29 years old. 64% were married. 84 percent of participants are employed. 33 percentages of the participants have the total household salary 3000-5000TL and less than 2% have 500-1000TL income. 24% of the household income is spent to food and in the second line there is rent / mortgage payment with 21%. Table 2 presents the results for socio-demographic variables for participants.

3.2 Consumer Behavior Regarding Food Consumption

To evaluate specific labels such as COOL on the product, perception of labeling and the percentage of reading attitude of labels are important. In our study, 88 percent of the participants stated they read food labels.

66 percent of the consumers surveyed stated that labels affect their purchasing decisions.

In the second stage of the question, food labels perception points of the participants have been evaluated in seven different criteria's (Fig. 1). Five-level Likert scale, was used to evaluate the answers. Seven different criteria's based on consumer food consumption behavior have been evaluated by questionnaire. Answers were given from 1 to 5 from Likert scale. Best before date is the most important information on the label

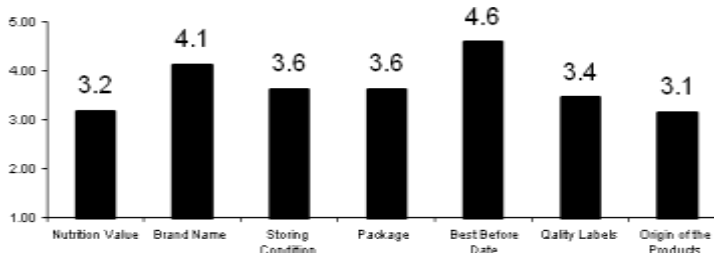

Fig. 1 *Most important criteria's on the food label (1-5 Likert Scale)*

according to our consumer perspective. Beside food safety concerns, consumers also interested with the brand, storing conditions and the package as well. When compare with other quality attributes, origin of the product is the last properties in the list. The reason of this could be the application of country of origin labeling is pretty new in Turkey. And the labels and logos are not well known yet.

3.3 Consumers' WTP and Preferences for COOL Products

The first-stage probit regression analysis evaluates the effects of consumer characteristics on the consumption decision of COOL products. (i.e., age, gender, marital status, education, budget of food etc.). Table 3 presents the results of this first-stage probit regression estimation for COOL Ayvalık Olive Oil and COOL Ezine Cheese. Dependent variable of these models is consumer's willingness to pay a premium for COOL products. (Pay premium: 1, not Pay: 0)

Table 3: *Probit regression estimation for COOL Ayvalık Olive Oil and COOL Ezine Cheese*

	Model 1 (Ayvalık Olive Oil)	Model 2 (Ezine Cheese)
Variable	Coefficient	Coefficient
Constant	2.8861*** (0.5529)	1.5085*** (0.4052)
Gender	0.0403 (0.1318)	0.133 (0.0934)
Age	-0.0231*** (0.008)	0.0011 (0.0049)
Marital Status	-0.2068 (0.1432)	-0.0171 (0.1042)
Education	-0.4098*** (0.0868)	-0.1825*** (0.0639)
Employment	0.1877 (0.2077)	-0.1753 (0.1567)
Presence kids at home (below age 18)	0.1291 (0.0979)	-0.0087 (0.07)
Presence patient at home (chronic illness)	0.4743*** (0.1722)	0.2630*** (0.1155)
#of person who has salary at home	0.141 (0.0959)	0.0068 (0.0677)
percentage food expenditure in whole budged	-0.0058 (0.0087)	-0.0104* (0.0059)
Log Likelihood	-691.797	-678.843

* It denotes statistical significance at least at a = 0.1.

** It denotes statistical significance at least at a = 0.05.

*** It denotes statistical significance at least at a = 0.01.

(Values in the parenthesis are standard deviations)

Regarding the socio-demographic characteristics of consumer, age, education, percentage of food expenditure in total budget and presence of a patient at home significantly influence consumers WTP for COOL Ayvalık Olive Oil.

According the probit model for Ayvalık olive oil, with the increase of age, willingness to pay for these products is decreasing.

Other statistical significance variable is patient at home in Ayvalık Olive Oil consumption Probit Model. It is possible that consumers who have a family member with chronicle illness are more concerned about health and thus are willing to pay more for COOL food. However, there is a negative relationship between percentage of food expenditure in total budget and WTP.

Education was significant but negative variable in the WTP equation of COOL Olive Oil. Educated customers are less willing to pay when compared to less educated customers

Regarding the socio-demographic characteristics of, education and presence a patient at home and percentage of food expenditure in total budged are significantly influence consumers WTP for COOL Ezine Cheese. Education and percentage of food expenditure in total budged were negatively affected WTP for COOL Ezine cheese. The presence of a patient at home positively affects the consumers preferences during food expenditure and d increase the possibility to buy COOL food products.

In the second stage, if customers are willing to pay, they decide how much more. Premiums are expressed as a percentage price increase over the prices they are normally paying. Two models were estimated, one for each of the two products, shown in table 4.

Table 4: *Heckman Demand Models of COO labeled products*

Models	Ayvalık Olive Oil	Ezine Cheese
Variables	Coefficient	Coefficient
Constant	10.1902*** (0.8207)	9.7734*** (0.4297)
Ln(Olive Oil Price) or Ln(Cheese Price)	-0.9787*** (0.3332)	-0.3429*** (0.1683)
Ln(Income)	-0.0057 (0.0494)	-0.0216 (0.0481)
dummy variable for COOL food product demand	0.5873*** (0.1253)	0.4347*** (0.1043)
Household size	-0.0137 (0.0472)	-0.3008*** (0.0412)
Lambda	0.5980*** (0.2641)	-1.1301*** (0.0672)
Sigma	0.941384	1.171363
Log likelihood	-691.797	-678.843
Rho	0.635263	-0.96479

* It denotes statistical significance at least at a = 0.1.
** It denotes statistical significance at least at a = 0.05.
*** It denotes statistical significance at least at a = 0.01.

(Values in the parenthesis are standard deviations)

Elasticity of Demand of COOL Ayvalık Olive Oil is -0.97, for COOL Ezine Cheese is -0.34. For both model elasticity coefficient is statistical significance at least at a = 0.01.

While analyzing the Heckman Models;

- Both models are statistical significant.
- Lambda coefficients for both models were statistically significant meaning that for both Heckman model, Hackman correction is needed. Choosing Heckman's procedure can explicitly resolve the potential sample selection bias inherent in dividend data.

The censoring problem arises because while some consumers pay premium and other consumers do not. In this case, the dependent variable is continuous only to the right of zero. That is, it can take only non-negative values, with a considerable fraction of the observations piled-up (i.e., censored) at exactly zero.

Dummy variables for consumption of products in both models were statistically significant. This shows us, there is a shift in demand for those products from conventional products to COOL products. Consumers are 58 percentages more willing to pay COOL products for Ayvalık Olive Oil. For Ezine cheese, consumers are 43 percentages more willing to buy compared to conventional counterparts.

From Heckman Demand Model, we could also calculate the premium amount for those products.

For Ayvalık Olive Oil; $P_{\text{for COOL}}/P_{\text{For Conventional}}$ =exp.((-0.5873/-0.9787))=1.82 which means that consumers are willing to pay extra for COOL Ayvalık Olive Oil 82 percent more than conventional product price.

For Ezine Cheese, $P_{\text{for COOL}}/P_{\text{For Conventional}}$ =exp. ((-0.4347/-0.3429))=3.55 which means that consumers are willing to pay extra for COOL Ayvalık Olive Oil 3.55 times conventional product price.

4. Conclusions and recommendations

Due to consumers' increasing interest in local foods, certain foods are nowadays increasingly marketed as "locally grown". The question is how much consumers really seek local foods and why they prefer these products and are willing to pay extra for these products. Our study shows that consumers are willing to pay 82 percent more than conventional ones when the product is Ayvalık Olive oil. In Ezine cheese, consumers are willing to pay 355% (3,55 times) of conventional ones. Market analysis for these two products show that, COOL Ezine Cheese price is almost 4 times higher than conventional white cheese and for Ayvalık Olive Oil the price is 1.5 times higher compared to conventional olive oil. This result indicates that the extra price consumers are ready to pay is relevant with the market price for these two products. Labeling is important not only in the local but also in the international arena to protect these products. Besides protection of the product itself, producers of these products should also be supported and protected via the price premiums.

Even though food labels reading habit is high for this study (almost 88 percent), at

the time for decision, the local emphasis on the label do not create significant effect on purchasing decision. So policy makers should work on it and increase the awareness of the product and its label.

Both product demand models show that consumers who are more concerned about health of the household members are willing to pay more for COOL food. They match up the concept of COOL food products with healthy products. Besides this perception, they believe that the COOL products are produced with original recipes and their healthy ingredients will be beneficial for their health and also they are tasty.

Price of those products is still a concern for the consumer. Food Expenditure's share in the budget has a negative impact in the demand model, which means it is not very easy to replace conventional food with this expensive COOL food in the shopping list of consumers. Moreover, even though food labels reading habit is high for this study, at the moment of consumers' decision making, the local emphasis do not create significant effect on purchasing.

To prevent the negative image led by higher price and increase the demand performance of those products, marketing professionals should focus on the healthly impact of those products and underline the differences based on safety and healthy attributes of those COOL food products.

Creating a correct image, keeping the high standards by proper labeling and monitoring, increasing the awareness of this image, and and finally reflecting all positive results to the producers will complete the healthy cycle of the consumer preferences and product realizations for COOL.

References

Carpio, C.E., Isengildina-Massa, O., 2009. Consumer willingness to pay for locally grown products: the case of South Carolina. Agribusiness 25 3, 412–426.

Consumer Reports, 2007. http://greenerchoices.org/pdf/Food%20Labeling%20Pollfinal_rev.pdf.

Darby, K., Batte, M.T., Ernst, S., Roe, B., 2008. Decomposing local: a conjoint analysis of locally produced foods. American Journal of Agricultural Economics 90 2, 476–486.

Dickinson, D.L., Bailey, D., 2002. Meat traceability: are US consumers willing to pay for it? Journal of Agricultural and Resource Economics 27, 348–364.

Gao, Z., Schroeder, T.C., 2009. Effects of label information on consumer willingnessto pay for food attributes. American Journal of Agricultural Economics 91 3, 795–809.

Heckman, J. J. 1979. Sample selection bias as a specification error. Econometrica, 47, 153–161.

Haucap, J., Wey, C., Barmbold, J.F., 1997. Location choice as a signal for product quality: the economics of made in Germany. Journal of Institutional and Theoretical Economics 153, 510–531.

Hobbs, J.E., 2003. Traceability and Country of Origin Labeling. Farm Policy Developments and Policy Tensions Under NAFTA, Policy Disputes Information Consortium, Montreal, Quebec, April 23–26.

Hoffmann, R., 2000. Country of origin –a consumer perception perspective of fresh meat. British Food Journal 102, 211–229.

Link, J.E., (2009). Mandatory country of origin labeling of beef, pork, lamb, chicken, goat meat, wild and farm-raised fish and shellfish, perishable agricultural commodities, peanuts, pecans,

ginseng, and macadamia nuts. The Federal Register/FIND 74 (010), 2658.

Loureiro, M.L., Umberger, W.J., 2003. Estimating consumer willingness to pay for country-of-origin labeling. Journal of Agricultural and Resource Economics 28, 287–301.

Loureiro, M.L., Umberger, W.J., 2005. Assessing consumer preferences for countryof- origin labeling. Journal of Agricultural and Applied Economics 37, 49–63.

Loureiro, M.L., Umberger, W.J., 2007. A choice experiment model for beef: what US consumer responses tell us about relative preferences for food safety, countryof- origin labeling and traceability. Food Policy 32 4, 496–514.

Mennecke, B.E., Lonergan, S.M., Hayes, D.J., Townsend, A.M., 2007. A study of the factors that influence consumer attitudes toward beef products using the conjoint market analysis tool. Journal of Animal Science 85 10, 2639–2659.

Miranda, M.J., Kónya, L., 2006. Is mandatory country-of-origin labelling a retrograde step in the long run? International Review of Retail, Distribution & Consumer Research 16 5, 579–590.

Sterns, J., House, L., VanSickle, J., Wysocki, A., 2004. COOL and Consumers' Willingness to Pay in the Fresh Produce Industry-Some Initial Impressions from the Field. Selected Paper Prepared for Presentation at the Southern Agricultural Economics Association Annual Meeting, Tulsa, Oklahoma.

Umberger, W., Feuz, D., Calkins, C., Sitz, B., 2003. Country-of-origin labeling of beef products: US consumers' perceptions. Journal of Food Distribution Research 34 03.

Ward, R., Von Bailey, D., Jensen, R., 2005. An American BSE crisis: has it affected the value of traceability and country-of-origin certifications for US and Canadian beef? International Food & Agribusiness Management Review 8 2, 92–114.