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Comparison between the United States and Poland of consumers' perceptions of organic products

The paper aims at exploring further the potential of organic agriculture by increasing the knowledge about consumers' perceptions of organic products. The United States (Florida) and Poland are interesting examples in which the level of organic market development varies and this allows us to test whether consumer perceptions of organic food products vary with market development. A survey was conducted amongst students at the University of Florida (United States) and at the Warsaw University of Life Sciences-SGGW (Poland). The results obtained from an online survey were analysed through econometric modelling. The model used for this study was the ordered probability model, which was used to compare the frequency of organic consumption between the United States and Polish students. The findings indicate that students from the two countries have different perceptions of organic products. The less the market is developed (such as in Poland), the more important is basic knowledge about the products. With a higher level of market development (for example in the United States), consumers already have this basic knowledge about the products, such as origin or organic label, and are more focused on their qualities, such as taste or variety. These differences should be taken into account by states when developing policies on organic agriculture and healthy eating generally, and during the formulation of marketing strategies by companies interested in the growth of the organic market.

Keywords: consumer perception, organic farming, organic market

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Introduction

This paper focuses on the differences in consumers' perceptions of organic products between Poland and the United States in relation to the level of organic market development in terms of sales and availability of organic products. Balogh (2007) highlighted the differences between the United States and Europe in terms of consumer habits and wider food supply trends. He presents data that show that the proportion of overweight and obese consumers is much higher in the former than in the latter, but that the proportion is increasing more rapidly in Europe. Four possible solutions are suggested to obesity as an endemic social disease. One of these is to purchase organic products instead of buying food products processed from traditionally produced agricultural raw material.

There are many differences in terms of the level of development of organic markets between the United States and Poland. Differences in growth are evidenced by the monetary value of both markets. In 2009, the value of the organic market in the United States was expected to reach USD 23 billion (EUR 16.1 billion) (USDA, 2011). This accounts for approximately 2.5 per cent of total food sales in the United States. In the European Union (EU) sales of organic products were approximately EUR 19.6 billion in 2010. At the same time the largest market for organic products was Germany with a turnover of EUR 6 billion, followed by France (EUR 3.4 billion) and the UK (EUR 2 billion) (Willer and Kilcher, 2012). The value of the Polish organic market reached USD 143.1 million (EUR 100 million) in 2009 (PMR, 2010) suggesting that the level of development is still low. The organic market constitutes only about 0.2 per cent of the total food market. It results in low availability and variety of organic products. Organics in Poland can be also characterised by high prices. In terms of the per capita consumption of organic food, in 2010 it reached EUR 65.0 in the United States, which was almost twice as much as the EU average

(EUR 33.7), while in Poland it was less than EUR 1.0. The highest per capita consumptions of organic food in 2010 were observed in Switzerland (EUR 153.0) and in Denmark (EUR 142.0) (Willer and Kilcher, 2012).

Previous studies show that the perception of organics varies among consumers. Most studies on consumer attitudes state that organic products are considered as safer, healthier and more environmentally friendly. Consumers' perceptions of organic food and quality of organic products are positive – they have good feelings about organic products (Magnusson *et al.*, 2001; Conner, 2004; Monaco *et al.*, 2007; Zhao, 2007; Kihlberg and Risvik, 2007; Pellegrini and Farinello, 2009). They often perceive organics as having better taste, freshness, appearance and colour (Hoefkens *et al.*, 2009). However in the literature there is an ongoing debate concerning healthiness and safety of organic food (Żakowska-Biemans, 2011). Some researchers conclude that organic foods are healthier while others find that this is not the case (Grankvist and Biel, 2001; Williams, 2002; Naspetti and Zanoli, 2006; Monaco *et al.*, 2007; Azurra and Paola, 2009). There are no clear data which can show higher content of nutrients in organic or conventional products (Williams, 2002; Magkos *et al.*, 2003). There are also no clear differences in sensory characteristics between conventionally and organically grown organic products. Many studies state that the nutrient content and sensory characteristics depends mostly on the region, soil type, crop variety, climate, or post-harvest practices, and not on whether or not chemicals are used in production (Bonti-Ankomah and Yiridoe, 2006; Żakowska-Biemans, 2011).

It was reported that consumers have different willingness to pay (WTP) for organic products. The WTP of those who join the consumer market of ecological goods is basically determined by the solvency (income) of consumers (Takács and Takács-György, 2012). In general, WTP decreases with increase of premium price. But at the same time prices for organic products can increase with preferred specific attrib-

utes, e.g. freshness. Further, it is difficult to determine which products that have higher price premiums attract consumers more (Bonti-Ankomah and Yiridoe, 2006). However the most significant barriers to purchasing organic products were the price premiums and the lack of availability of organic products (O'Donovan and McCarthy, 2002; Hill and Lynchehaum, 2002; Hughner *et al.*, 2007; Aertsens *et al.*, 2009; Żakowska-Biemans, 2011). Studies also reported that women are more willing to buy organic food products. This is understandable because women are more often responsible for purchasing food for the household and know more about nutrition and food safety (O'Donovan and McCarthy, 2002; Pellegrini and Farinello, 2009; Aertsens *et al.* 2009). Studies show also a correlation between level of income and willingness to buy organic products (Aertsens *et al.*, 2009).

Balogh (2007) noted that in the United States a third generation of convenience products has already appeared with the dual aim of delivering convenience and health. Although in Europe consumption 'philosophy' accepts the importance of convenience, greater emphasis is placed on natural origin, freshness and traditional recipes. This illustrates the importance of consumer perception on food market development and it might be assumed that these perceptions are the most acute amongst the most highly educated groups in society. Thus our research on the consumer perception of organic products was carried out among one such group, namely university students.

Methodology

The demand for organic food was analysed by asking respondents about the frequency of consumption of organic products. Data were collected using an online survey instrument (online questionnaire) among students at the University of Florida (UF) in Gainesville, United States and at Warsaw University of Life Sciences – SGGW (WULS), Poland. The survey was administered in both countries during April and May 2011.

At UF, the questionnaire was sent to three groups using a convenience sampling method. The majority of students (81 per cent) were from the College of Agricultural and Life Sciences. Other colleges included Liberal Arts and Sciences (11 per cent), Business Administration, Engineering, Health and Human Performance, Law, Medicine, Pharmacy and Public Health and Health Professions. Most of the respondents (97 per cent) were pursuing their Bachelor's degree.

At WULS, the questionnaire was sent to students also using a convenience sampling method. The majority of students (95 per cent) were from the Faculty of Economic Sciences. Other faculties included Faculty of Veterinary Medicine, Faculty of Wood Technology, Interfaculty Studies of Regional Planning, Interfaculty Studies of Commodity Science and Faculty of Applied Informatics and Mathematics. Most of the students were pursuing their Master's degree (55 per cent). However 45 per cent of respondents were pursuing their Bachelor's degree.

These data were then used to conduct an ordered probit model to determine the independent variables which influence a respondent's frequency of consumption of organic

products (the dependent variable). In this paper the approach used to estimate models with a dependent variable which is ordinal but not continuous is the ordered response model. The ordered probit model (ordered probability model) is used to determine the independent variables which influence a respondent's frequency of consumption of organic products. The ordered probit model relies on the idea of a continuous metric which underlies the ordinal responses observed in the analysis (Equation 1).

$$Y^* = X'\beta + \varepsilon \quad (1)$$

Y^* is a continuous variable which is a linear combination of a set of predictors, X . Additionally ε represents a disturbance term that has a normal distribution. β represents the vector of regression coefficients which we want to estimate.

In the model used to analyse consumption of organic food by students, there are unknown threshold parameters Y^* ($i = 0, 1, 2$), with y values specified as:

$$\begin{aligned} Y &= 0 \text{ if consumers do not consume organic food products} \\ Y &= 1 \text{ if consumers consume organic products monthly} \\ Y &= 2 \text{ if consumers consume organic products weekly} \\ Y &= 3 \text{ if consumers consume organic products daily} \end{aligned}$$

Y^* will be estimated with other parameters. In the situation where there is an intercept coefficient in the model, parameter $Y0^*$ is normalised to a value 0 and $k-1$ additional parameters will be estimated with X s.

The probabilities of observing Y , given X are written as (Equation 2):

$$Prob(Y = n) = \Phi(\mu_n - \beta X') - \Phi(\mu_{n-1} - \beta X'), n = 0, 1, 2, \quad (2)$$

where Φ is the normal density function.

The marginal effects of the independent variables on the probabilities are also observed. They vary from the values of the coefficients estimates. The marginal effects are related to the values of all independent variables (Equation 3).

$$\frac{\partial Prob(Y = n)}{\partial X} = [\Phi(\mu_{n-1} - \beta X') - \Phi(\mu_n - \beta X')] \times \beta \quad (3)$$

The ordered probability model is used to compare the frequency of organic consumption between American and Polish students. The dependent variable for the ordered probability model is the frequency of consumption of organic food products. The model uses several socioeconomic, demographic and habit independent variables (Table 1). SPSS and LIMDEP were used to compute the model.

The model contains variable *country*, which describes the effect of the respondent's country on the frequency of consumption of organic products. Variables with the 'I' symbol represent the interactions related to specific variables between countries. In other words, it means that there are possible differences or similarities in case of specific variables between countries which can be significant to the consumption frequency of organic products.

Results

The ordered probability model was used to investigate the consumption of organic food products. Frequency of consumption was calculated on the basis of a question that asked the respondents how often they eat organic food products. The assumption is made that consumption of organic foods less than once per month is equivalent to not consuming organic food at all. Observations with missing information were deleted leaving 349 usable observations. The results of the ordered probit analysis were explanatory, with the model making correct predictions 68.5 per cent of the time compared to the naïve prediction of 60.2 per cent. The results of the ordered probability analysis revealed interesting information (Tables 2 and 3). Variables are reported as statistically significant at a confidence level of 90 per cent or greater. Statistical results are divided into four parts: (a) personal characteristics and lifestyle; (b) purchase frequency habits of organic food products; (c) knowledge and beliefs about organic farming; and (d) attitudes towards purchase and consumption of organic food products.

Personal characteristics and lifestyle

Demographics and other variables related to the person's lifestyle were included in the model. The students were asked several questions related to the opinion about their eating behaviour. Students in both countries said they will eat organic food less frequently if they said that the food they eat can influence their health. However, American students, who indicated they do not want to give up foods they like to eat, even if they are not healthy foods, were 11.9 per cent more likely to consume organic food more frequently. First may mean that they appreciate, for example, the taste of organics so they include these foods in their diet. For Polish students this variable was not statistically significant which may mean that reasons other than taste influence their consumption of organics.

Respondents were also asked about their diet on the day before taking the survey. Students reported which of different types of foods they ate in the previous day. Those who ate less healthy foods the previous day eat organics less frequently. However, those who did eat healthy foods the previous day were more likely to consume organic foods more frequently. This held true for respondents in both countries. Polish respondents who ate more healthy foods on the day before are 7.7 per cent (1.0 per cent in case of U.S. students) more likely to consume organics more frequently.

Purchase frequency habits of organic food products

To consume, organic products have to be purchased. Students indicated several places where they buy organics. The places like *supermarket*, *organic food stores*, *direct sales on the farm* and *farmers' market* were statistically related in the decision to consume organic products in both countries. In the United States, the retail market consists mainly of large supermarket chains. In Poland, a large proportion of respondents indicated they do their primary shopping in

small grocery stores or at farmers' markets, which are very common. With the further development of organic markets in Poland a higher significance of supermarkets as the source of organic products is expected. The possibility to find organics in supermarkets may grow the consumption of organics due to an increase in their availability, popularity, assortment and possible lower price for consumers.

Knowledge and beliefs about organic farming

Some differences related to the beliefs and knowledge about organic farming and organic food products between the American and Polish students were observed. Students were asked how much they think they know about organic farming. A positive relationship between this opinion and the frequency of consumption of organic food was found only for American students. This indicates that students in the United States who believe they know more about organic production are 14.9 per cent more likely than an average person to consume organic food more frequently.

Polish and American students were also evaluated on how much they actually know about organic farming in general. This variable was statistically related to the consumption frequency of organic products. Students in Poland are 8.8 per cent more likely to consume organics more frequently if they have better knowledge about organic farming. This relationship shows that in Poland, where the level of organic market development is still very low (compared to the United States), there is still great potential for organic production. More knowledge may also translate into higher consumption of organic foods and further development of the organics market in Poland. The relationship had been expected to be similar as well for the American students, but in the United States, the relationship is weak and opposite. It may mean that knowledge of organics can be not pro-organic for the American students so it may create a negative image of organic farming.

Attitudes towards purchase and consumption of organic food products

Among the reasons for consumption, there were different relationships to the frequency of consumption of organic food for students from the two countries. Polish students were 14.1 per cent more likely to eat organic food if they stated they consume these products because they are something new. Students from the United States presented an opposite attitude. This can be explained by the fact that organic food is still not common in Poland. In the case of United States, organic foods exist in almost all supermarkets and do not catch people's attention as something 'new'.

Another factor which influenced the decision to buy organic food was significant only for American students. Students from the United States said that they buy organic because they want to support organic farmers. Respondents in the United States may support organic farmers because they assume they are small, local farmers and the support goes directly to them, which may often not be true. Polish consumers, knowing that organic farmers in Poland receive financial subsidies, may pay less attention to the income of

organic farmers while purchasing organic food.

The purchasing factor *synthetic pesticides are not allowed in production* did not behave in the manner expected. The literature suggests that organic foods being produced without synthetic pesticides are one of the drivers for buying organic products (Hoefkens *et al.*, 2009). This analysis suggests that in both the United States and Poland other factors have more of an impact on the frequency of consumption of organic products. The purchasing factor *organic farming is environmentally friendly* had a significant impact on the frequency of consumption of Polish and American students, but in opposite ways. The fact that organic farming may positively affect the environment was a convincing reason for Polish students to consume organics more frequently. In this case they are 25.1 per cent more likely to consume organics more frequently. American students who said organic farming was environmentally friendly were not motivated enough to purchase organic products for that reason. At the same time purchasing factors such as *organic food has better quality* and *organic products are healthier* did not influence statistically the frequency of consumption of organic food.

Some differences between American and Polish students were found in the case of barriers for purchasing organics. The higher cost of organic products had an impact on the decision to buy organics less frequently, but only for Polish students. Polish students were 14.5 per cent more likely to consume organics less frequently if they say that *cost* is the barrier for purchasing organic products. This may be explained by the lower income of Polish students in comparison to students in the United States. It is interesting that American students are even more likely to buy organic if they are aware of the higher costs for organics. This situation may be explained by better financial situation of American students. At the same time they may find a higher price for organic as paying for some additional value or attributes of organic food in which they believe in. They may also be more aware about these attributes than students in Poland. It is also worth mentioning that the low level of development of the organic market in Poland may create much higher prices of organic products than in the United States. In general, as a result of the increase in supply, a decrease in price takes place (Takács *et al.*, 2003). So with further development of the organic market, prices for organic products in Poland should be more stable and their variety may increase.

Students in both countries would buy organics more frequently if the variety was bigger. This problem is especially important in Poland where the market is still not developed. Also interesting is the fact that the availability of organic products as the barrier did not influence the consumption frequency of organics. It was expected that students, especially in Poland, would react to the lack of availability of organic products by indicating that they purchase less frequently. One of the explanations may be that variable for *variety* is substituting for the variable *availability*, so the lack of availability is seen more as a lack of variety. This may mean that students from both countries would consume organics more frequently if a greater variety of organics is easy available for purchasers.

However, students in the United States and Poland did present different attitudes in terms of the relationship between

frequency of consuming organics and ease of finding organic products in their area. This variable did not behave in the manner expected in case of Polish respondents. They consume organics less frequently if they say that it is easy to find these products in their area. It may be that people who consume organics less frequently do not have an idea about lack of availability of organic products. In other words, only the people who are interested in consumption of organics know how difficult is to find these products in Poland. In the survey only 30 per cent of Polish students admitted that it is easy for them to find organic products in their area. At the same time students in the United States are 8.9 per cent more likely to consume organics more frequently if they say they do not have problems finding organic products in their area. This is what was generally expected. In the questionnaire more than 70 per cent of the American students said it is easy to find organics in their area.

In the survey respondents were also asked at what price difference (WTP) they would select organic food products in comparison to conventional products. In general, students in both countries would pay around 10 per cent more for organic products. The model also investigated the relationship between the country of the respondents and the consumption frequency of organics. Based only on the country variable there are not any significant differences between the United States and Poland in terms of the frequency of consumption of organics.

Discussion

This paper focuses on the differences in consumers' perceptions of organic products between Poland and the United States in relation to the level of organic market development in terms of sales and availability of organic products. Students from the United States and Poland have different perceptions about organic products. Some of these differences may be explained by the different level of development of the organic market in the two countries.

The organic market in the United States can be characterised by a higher level of development than in Poland. Organic products are common and available in most of the supermarkets. American students did not find the price for organics as a barrier to purchase. They may consider the higher price for organics as paying for some additional attributes of organics in which they believe in. These attributes and qualities may be considered as one of the main reasons for purchasing organics in the United States. This corresponds with previous research which has found that quality characteristics (especially taste) are the main drivers of demand for organics in the United States (Caswell, 2001).

The lack of development of organic market in Poland was observed as respondents rated the availability of organic products as low. Potential consumers of these products have to face higher prices of organics, probably resulting in the lower popularity of these products. However, general knowledge about organic food was high and was similar to the knowledge of American students. In addition to consuming organics more frequently because they see them as new, innovative products, Polish students also increased their con-

sumption if they felt organic production was good for the environment. It does appear there is potential for consumer demand as the students were excited about the new products and new production method as a potential alternative to conventional agriculture. They may consider themselves as potential buyers of organics. As knowledge had a significant and positive impact on consumption of organic foods, it seems that education and increases in awareness would help further development of organic market in Poland.

The importance of education suggests that the results of our study on students may not necessarily be applicable to the wider population. Probit models are often used for examinations related to consumer perception, also in case of organic products. Dettmann and Dimitri (2007) for example sought to find out which demographic factors influence the purchase of organic vegetables. In this case the probit model was a part of the Heckman model and it examined the household's choice to buy organic vegetables as a function of different demographic factors. They found that race, educational level and household income consistently influenced the odds of purchasing organic vegetables. Briza and Wardb (2009) focused on the responses of Spanish consumers regarding their state of knowledge about organic foods products. They showed that awareness and consumption of organic products is influenced by consumer demographic characteristics, knowledge of enriched foods and price perceptions. Factors impacting on both awareness and consumption were explored using simulation methods and the coefficients from the logit and probit models.

Our findings generally support the results obtained by other authors with regard to both American (Dahm *et al.*, 2009; Ming, 2009) and Polish students (Kowalczyk-Vasilev *et al.*, 2011). They show that, in general, more knowledge can be translated into higher consumption of organic foods and further development of the organics market. Our research, by contrast, found that for the American students more knowledge of organics can be translated into not pro-organic. These results might suggest a loss of confidence in organic foods in well developed markets.

In the context of the different stages of development of the organic market in Poland and the United States, the paper has provided evidence about different attributes that can play an important role in consumers' perception of organic food in these markets. The less the market is developed (such as in Poland), the more important is basic knowledge about the products such as origin or organic label. With a higher level of market development (for example in the United States), consumers already have this basic knowledge about the products and are more focused on their qualities such as taste or variety. These differences should be taken into account by states when developing policies on organic agriculture and healthy eating generally, and during the formulation of marketing strategies by companies interested in the growth of the organic market.

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Table 1: Variables used in the ordered probit model.

Variable	Definition of variable	Coding
Freqcons	Frequency of consumption of organic food	= 0 if consumers do not consume organic food products = 1 if consumers consume organic products monthly = 2 if consumers consume organic products weekly = 3 if consumers consume organic products daily
Gender	Gender	Female = 1, Male = 0
GenderI	Interaction of gender and country	= 0 if Country = PL = Gender if Country = US
Eatbehav1	Eating behaviour - My food choices affect my health	Ranges from 1 to 5
Eatbehav1I	Interaction of "Eating behaviour - My food choices affect my health" and country	= 0 if Country = PL = Eatbehav1 if Country = US
Eatbehav2	Eating behaviour - I always choose the healthiest option, even if it is more expensive	Ranges from 1 to 5
Eatbehav2I	Interaction of "Eating behaviour - I always choose the healthiest option, even if it is more expensive" and country	= 0 if Country = PL = Eatbehav2 if Country = US
Eatbehav3	Eating behaviour - I have control of my health no matter what I eat	Ranges from 1 to 5
Eatbehav3I	Interaction of "Eating behaviour - I have control of my health no matter what I eat" and country	= 0 if Country = PL = Eatbehav3 if Country = US
Eatbehav4	Eating behaviour - I don't want to give up the foods that I like	Ranges from 1 to 5
Eatbehav4I	Interaction of "Eating behaviour - I don't want to give up the foods that I like" and country	= 0 if Country = PL = Eatbehav4 if Country = US
Yestgood	Good diet on the day before the survey	Ranges from 0 to 5
YestgoodI	Interaction of "good diet on the day before the survey" and country	= 0 if Country = PL = Yestgood if Country = US
Yestbad	Bad diet on the day before the survey	Ranges from 0 to 5
YestbadI	Interaction of "bad diet on the day before the survey" and country	= 0 if Country = PL = Yestbad if Country = US
Country	Country – Poland or the United States (FL)	Poland (PL) = 0, United States (US) = 1
Superm	Place where individual purchase organic food- supermarket	Ranges from 1 to 5
SupermI	Interaction of "supermarket" and country	= 0 if Country = PL = Superm if Country = US
Orgstore	Place where individual purchase organic food - organic food store	Ranges from 1 to 5
OrgstoreI	Interaction of "organic food store" and country	= 0 if Country = PL = Orgstore if Country = US
Directorg	Place where individual purchase organic food - direct sales from a farm	Ranges from 1 to 5
DirectorgI	Interaction of "direct sales from a farm" and country	= 0 if Country = PL = Directorg if Country = US
Farmarkt	Place where individual purchase organic food - farmers markets	Ranges from 1 to 5
FarmarktI	Interaction of "farmers markets" and country	= 0 if Country = PL = Farmarkt if Country = US
Subjknow	Subjective knowledge (opinion) of individual about organic farming and organic products	Ranges from 1 to 5
SubjknowI	Interaction of "subjective knowledge" and country	= 0 if Country = PL = Subjknow if Country = US
Objknow	Objective knowledge of individual about organic farming and organic products	Ranges from 1 to 8
ObjknowI	Interaction of "objective knowledge" and country	= 0 if Country = PL = Objknow if Country = US
Factdifferent	Factor for purchasing organic products - It's something different	Ranges from 1 to 5
FactdifferentI	Interaction of factor "It's something different" and country	= 0 if Country = PL = Factdifferent if Country = US
Factsupport	Factor for purchasing organic products - I am supporting organic farmers	Ranges from 1 to 5
FactsupportI	Interaction of factor "I am supporting organic farmers" and country	= 0 if Country = PL = Factsupport if Country = US
Factqualit	Factor for purchasing organic products - Organic food has better quality	Ranges from 1 to 5

Variable	Definition of variable	Coding
FactqualitI	Interaction of factor “Organic food has better quality” and country	= 0 if Country = PL = Factqualit if Country = US
Factpest	Factor for purchasing organic products - Synthetic pesticides are not allowed in production	Ranges from 1 to 5
FactpestI	Interaction of factor “Synthetic pesticides are not allowed in production” and country	= 0 if Country = PL = Factpest if Country = US
Facthealth	Factor for purchasing organic products - Organic products are healthier	Ranges from 1 to 5
FacthealthI	Interaction of factor “Organic products are healthier” and country	= 0 if Country = PL = Facthealth if Country = US
Factenvir	Factor for purchasing organic products - Organic farming is environmentally friendly	Ranges from 1 to 5
FactenvirI	Interaction of factor “Organic farming is environmentally friendly” and country	= 0 if Country = PL = Factenvir if Country = US
Barravail	Barrier for purchasing organic products - Availability	Ranges from 1 to 5
BarravailI	Interaction of barrier “Availability” and country	= 0 if Country = PL = Barravail if Country = US
Barrcost	Barrier for purchasing organic products - Cost	Ranges from 1 to 5
BarrcostI	Interaction of barrier “Cost” and country	= 0 if Country = PL = Barrcost if Country = US
Barrvariet	Barrier for purchasing organic products - Insufficient variety	Ranges from 1 to 5
BarrvarietI	Interaction of barrier “Insufficient variety” and country	= 0 if Country = PL = Barrvariet if Country = US
Barrinfo	Barrier for purchasing organic products - Too little information	Ranges from 1 to 5
BarrinfoI	Interaction of barrier “Too little information” and country	= 0 if Country = PL = Barrinfo if Country = US
Easyfind	Level of difficulty to find organic products	Easy = 1 Difficult = 0
EasyfindI	Interaction of “level of difficulty to find organic products” and country	= 0 if Country = PL = Easyfind if Country = US
Primary	Variable which states if individual is the primary shopper in the household or not	Primary shopper = 1 Not primary shopper = 0
PrimaryI	Interaction of “Primary” and country	= 0 if Country = PL = Primary if Country = US
WTP	Willingness to pay of the individual for organic products	Ranges from 0 to 3
WTPI	Interaction of “willingness to pay” and country	= 0 if Country = PL = WTP if Country = US

Table 2: Ordered probability model results.

Variable	Coefficient	Standard Error	b/St.Er.	P Z >z	Mean of X
Freqcons	-4.651	2.109	-2.205	0.027	
Gender	0.154	0.421	0.367	0.713	0.593
GenderI	-0.242	0.456	-0.532	0.594	0.404
Eatbehav1	-0.669	0.189	-3.539	0.000	4.323
Eatbehav1I	0.574	0.221	2.597	0.009	3.255
Eatbehav2	0.281	0.201	1.399	0.161	2.842
Eatbehav2I	-0.239	0.218	-1.095	0.273	2.071
Eatbehav3	-0.178	0.161	-1.105	0.269	2.891
Eatbehav3I	0.140	0.178	0.787	0.431	2.171
Eatbehav4	-0.235	0.164	-1.429	0.153	3.613
Eatbehav4I	0.315	0.189	1.664	0.096	2.730
Yestgood	0.202	0.062	3.232	0.001	9.409
YestgoodI	-0.176	0.070	-2.521	0.011	6.839
Yestbad	-0.052	0.091	-0.570	0.568	7.292
YestbadI	0.026	0.100	0.259	0.795	5.438
Country	2.154	2.315	0.930	0.352	0.733
Superm	0.348	0.125	2.780	0.005	2.908
SupermI	0.241	0.141	1.708	0.087	2.174
Orgstore	-0.361	0.174	-2.076	0.037	1.664
OrgstoreI	0.544	0.194	2.802	0.005	1.237
Directorg	0.387	0.117	3.292	0.001	1.398
DirectorgI	-0.332	0.163	-2.034	0.041	0.916
Farmarkt	0.269	0.136	1.978	0.048	2.057
FarmarktI	-0.365	0.167	-2.183	0.029	1.237
Subjknow	-0.074	0.185	-0.401	0.688	2.762
SubjknowI	0.393	0.203	1.929	0.053	1.985
Objknow	0.232	0.125	1.846	0.064	5.805
ObjknowI	-0.304	0.135	-2.257	0.024	4.186
Factdifferent	0.372	0.181	2.048	0.040	2.753
FactdifferentI	-0.453	0.197	-2.298	0.021	2.020
Factsupport	-0.209	0.193	-1.084	0.278	3.240
FactsupportI	0.437	0.216	2.026	0.042	2.438
Factqualit	0.140	0.286	0.489	0.624	3.810
FactqualitI	-0.108	0.312	-0.346	0.729	2.744
Factpest	-0.498	0.316	-1.574	0.115	3.742
FactpestI	0.496	0.333	1.492	0.135	2.681
Facthealth	0.450	0.330	1.364	0.172	3.885
FacthealthI	-0.225	0.352	-0.638	0.523	2.793
Factenvir	0.665	0.260	2.553	0.010	3.810
FactenvirI	-0.860	0.282	-3.043	0.002	2.776
Barravail	-0.057	0.215	-0.268	0.788	3.498
BarravailI	0.049	0.232	0.213	0.831	2.527
Barrcost	-0.383	0.207	-1.844	0.065	4.226
BarrcostI	0.402	0.232	1.728	0.084	3.088
Barrvariet	-0.332	0.201	-1.655	0.098	3.111
BarrvarietI	0.210	0.224	0.935	0.349	2.249
Barrinfo	0.116	0.209	0.556	0.578	3.303
BarrinfoI	-0.083	0.228	-0.366	0.714	2.375
Easyfind	-0.837	0.415	-2.017	0.043	0.601
EasyfindI	1.063	0.455	2.337	0.019	0.521
Primary	1.232	0.718	1.716	0.086	0.914
PrimaryI	-1.183	0.774	-1.528	0.126	0.676
WTP	0.282	0.210	1.342	0.179	3.785
WTPI	-0.293	0.221	-1.323	0.186	2.773

Table 3: Summary of marginal effects for ordered probability model.

Variable	Y=00	Y=01	Y=02	Y=03
Freqcons	.0000	.0000	.0000	.0000
Gender	-.0585	.0264	.0305	.0016
GenderI	.0921	-.0422	-.0475	-.0024
Eatbehav1	.2527	-.1114	-.1344	-.0070
Eatbehav1I	-.2171	.0957	.1154	.0060
Eatbehav2	-.1062	.0468	.0565	.0029
Eatbehav2I	.0903	-.0398	-.0480	-.0025
Eatbehav3	.0676	-.0298	-.0359	-.0019
Eatbehav3I	-.0531	.0234	.0282	.0015
Eatbehav4	.0890	-.0392	-.0473	-.0024
Eatbehav4I	-.1192	.0525	.0634	.0033
Yestgood	-.0765	.0337	.0407	.0021
YestgoodI	.0667	-.0294	-.0354	-.0018
Yestbad	.0197	-.0087	-.0105	-.0005
YestbadI	-.0098	.0043	.0052	.0003
Country	-.7114	.4250	.2698	.0167
Superm	-.1315	.0579	.0699	.0036
SupermI	.1365	-.0602	-.0726	-.0038
Orgstore	-.1462	.0644	.0777	.0040
OrgstoreI	-.1018	.0449	.0541	.0028
Directorg	-.0912	.0402	.0485	.0025
DirectorgI	-.2057	.0907	.1094	.0057
Farmarkt	.1258	-.0554	-.0669	-.0035
FarmarktI	.1380	-.0608	-.0734	-.0038
Subjknow	.0281	-.0124	-.0149	-.0008
SubjknowI	-.1485	.0655	.0789	.0041
Objknow	-.0878	.0387	.0467	.0024
ObjknowI	.1152	-.0508	-.0612	-.0032
Factdifferent	-.1405	.0619	.0747	.0039
FactdifferentI	.1714	-.0755	-.0911	-.0047
Factsupport	.0792	-.0349	-.0421	-.0022
FactsupportI	-.1654	.0729	.0879	.0046
Factqualit	-.0530	.0234	.0282	.0015
FactqualitI	.0408	-.0180	-.0217	-.0011
Factpest	.1883	-.0830	-.1001	-.0052
FactpestI	-.1877	.0827	.0998	.0052
Facthealth	-.1703	.0751	.0905	.0047
FacthealthI	.0851	-.0375	-.0452	-.0023
Factenvir	-.2513	.1108	.1336	.0069
FactenvirI	.3251	-.1433	-.1728	-.0089
Barravail	.0218	-.0096	-.0116	-.0006
BarravailI	-.0187	.0082	.0099	.0005
Barrcost	.1447	-.0638	-.0769	-.0040
BarrcostI	-.1519	.0670	.0808	.0042
Barrvariet	.1256	-.0554	-.0668	-.0035
BarrvarietI	-.0793	.0350	.0422	.0022
Barrinfo	-.0440	.0194	.0234	.0012
BarrinfoI	.0316	-.0139	-.0168	-.0009
Easyfind	.2993	-.1048	-.1817	-.0128
EasyfindI	-.3880	.1663	.2081	.0136
Primary	-.4557	.3144	.1367	.0047
PrimaryI	.3919	-.0856	-.2786	-.0277
WTP	-.1067	.0470	.0567	.0029
WTPI	.1108	-.0488	-.0589	-.0030