

For Which Food Category is Albanian Consumer Organic-Sensitive

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Abstract— The main objective of this paper is to analyse consumer preferences regarding organic-attribute sensitiveness in food products. Five-ordered Likert scale is used to assess the importance given to organic attribute to different food categories of daily consumer basket. The aim of this study is also to understand the correlation of socio-demographic characteristics of consumers and importance given to organic feature to each of food product category. This study will give feedback to policy makers and researchers in future Willingness to Pay (WTP) studies.

Keywords-Albania, Likert scale, Organic Production, Preferences, Pre-Diagnostic

I. INTRODUCTION

Albania is a typical agricultural country. More than 50% of the labor force is involved in agriculture. About 18% of GDP is obtained by agriculture. Albanian agriculture is dominated by the conventional agriculture system (50%) and Low External Input Agriculture (LEIA 40%). (MARDWA¹, 2014). Organic agriculture with integrated agriculture systems occupies respectively 1% and 9 % (INSTAT², MARDWA,2014),.

Limited access to agricultural inputs in Albania implies a low input agriculture (Bernet & Kazazi, 2011) this offers the possibility to have low presence of pesticides and other chemicals in the final agricultural products and provides new possibilities to differentiate the agriculture products with quality schemes such as Organic Agriculture. The identification, promotion and certification of these products are very important steps in order to ensure rural and local development in less favored areas. Compared to other quality differentiation strategies such as Protected Geographical indication (PGI) or Protected Denomination of Origin (PDO) organic production quality scheme is more developed. Several Albanian agricultural products are exported in EU member states (e.g. Extra Virgin Olive Oil, medicinal plants etc). However compared to its potentials this sector remains in its initial stage of development. Organic Production in Albania is supported by public policies through direct support schemes. Several initiatives have taken place in the last decade by several NGO-s and research- actions projects (BioDevBalkan, 2011) in order to support research of specific product value chains, the infrastructure development around the product and its marketing. Furthermore a better understanding of consumer behaviour is crucial for better designing market strategies and decisions. Several researches have been undertaken regarding origin attribute in consumer preferences in Albania using Contingent Valuation Kokthi, Gonzàles Limon, & Vázquez Bermudez, 2014;taste experiment; (Kokthi, Hodaj, & Topulli, 2014) and conjoint analyses (Imami et al., 2014; Imami, Chan-Halbrendt, Zhang, & Zhllima, 2011). Limited research is made on organic attribute in consumer food preferences in Albania (Shkreli et al., 2014) .The objective of this paper is to undertake a pre-diagnostic regarding the products that Albanian consumer is more sensitive to organic practices. The results of this study will be useful in two directions: orienting future WTP studies and directing policy support to those products that seems more bio-sensitive by the consumer.

II. METHODOLOGY

Data survey and method

The data analysed below are provided by a survey conducted on June-July 2013. The survey population was Tirana phone book. A sample of 325 households was randomly selected and was interviewed using telephone survey method. The respondent was the person responsible for the actual purchase of foodstuff. Daily consumer basket (fruits, vegetables, meat, dairy, cereals and drinks) are considered in order to identify for which food category Albanian consumers are more bio-sensitive. Questions regarding product importance were based on 5-point Likert scale. The dependent variable was presented in the following way for all the products included in this research:

Not important 1 2 3 4 5 very important

The question directed to the consumer for each product category considered was: From 1 to 5 how much important is organic attribute in the product that you consume?

Scale 1 indicates that organic attribute is not at all important for the considered product, scale 2 not important, 3 not decided whether it is important or not(neither), 4 important and 5 very important. Table 1 presents the socio-economic characteristic of the interviewed sample.

Table 1: Socio-Economic variables of the sample

Variables	Levels	%	Level description	Mean	Std
Gender	Women	73.8	1	1.26	0.44
	Men	26.2	2		
Age	18-24	10.2	1	3.06	1.28
	25-34	27.4	2		
	35-44	26.5	3		
	45-54	22.1	4		
	55-64	10.1	5		
	65+	3.7	6		
Education	Low (1-8 years)	7.7	1	2.52	0.64
	Medium (8-12 years)	32.9	2		
	High (more than 12 years)	59.4	3		
Marital status	Bachelor	19.7	1	1.89	0.52
	Married	71.7	2		
	Other	8.6	3		
Incomes (in ALL)	<10,000	0.6	1	3.8	1.23
	10,000-30,000	14.2	2		
	30,000-60,000	32.6	3		
	60,000-90,000	24.3	4		
	90,000-120,000	16.9	5		
	>120,000	11.4	6		

Source: Authors' elaboration from survey results

In order to detect the high scored organic sensitive-food category products a non parametric test namely Wilcoxon signed rank test is performed. Kruskal Wallis one way Anova test is carried out to analyze the effect of socio demographic variables in consumer attitudes. In addition ordered logistic approach is used to capture the role of consumer characteristics in all the product categories included in this research.

Model specification: The ordinal regression method is used to model the relationship between response variables and a set of explanatory variables. Our dependent variable is an ordinal outcome with five levels (1, 2, 3, 4, 5) five logits will be modelled one for each the cut points. Let $f_i(x_i) \dots f_k(x_k)$ denote the response probabilities at values for a set of explanatory variables. Cumulative probabilities are formed as it follows:

$$F_k = P(Y < k/x_i) = f_i(x_i) + \dots + f_k(x_i), \quad k=1, 2, \dots, K-1$$

Cumulative logits are then formed as it follows:

$L_k = \text{Logit}(F_k(x_i)) = \log(F_k(x_i))$, $k=1, 2, \dots, K-1$ Letting $L_k(x_i) = \text{logit}(F_k(x_i))$, where $F_k(x_i)$ is the cumulative probability up to, and including category k , the proportional Odds model (McCullag, 1980) can be expressed as it follows

$$L_k(x_i) = \alpha_k + \beta_k(x_i), \quad k=1, 2, \dots, K-1$$

The α_k parameters are the intercepts of cut-points. The parameter vector β_k express the regression coefficients for the covariate vector x_i . Inherent in this model is the proportional odd assumption, which states that the cumulative odd ratio for any two values of the covariate is constant across response categories. The interpretation of the estimates is as follows: for $\beta_k > 0$ the odd ratio $e^{\beta_k} < 1$ meaning that higher cumulative scores are more likely than lower cumulative scores, for $\beta_k = 0$ the odd ratio $e^{\beta_k} = 1$ means that high cumulative scores are equally likely to low cumulative scores and finally for $\beta_k < 0$ the odd ratio $e^{\beta_k} > 1$ lower cumulative scores are more likely than higher cumulative scores.

The model that we will test is as it follows:

$$P = \alpha_0 + \alpha_1 \text{Female} + \alpha_2 \text{Age2} + \alpha_3 \text{Age3} + \alpha_4 \text{Age4} + \alpha_5 \text{Age5} + \alpha_6 \text{Education1} + \alpha_7 \text{Education2} + \alpha_8 \text{Status2} + \alpha_9 \text{Stastus3} + \alpha_{10} \text{Income1} + \alpha_{11} \text{Income2} + \alpha_{12} \text{Income4} + \alpha_{13} \text{Income 5} + \alpha_{14} \text{Hh1} + \alpha_{15} \text{Hh3}$$

Where:

Consumer characteristics	Feature value=1	Feature value=0
gender	female	Otherwise
Age 2	25-34	Otherwise
Age 3	35-44	Otherwise
Age 4	45-54	Otherwise
Age 5	55-64	Otherwise
Age 6	More than 65	Otherwise
Education 1	Low educated	Otherwise
Education 3	Highly educated	Otherwise
Income 1	10,000-30,000 ALL	Othwise
Income 3	60,000-90,000 ALL	Otherwise
Income 4	90,000-120,000 ALL	Otherwise
Income 5	More than 120, 000 ALL	Otherwise
MStatus 2	Married	Otherwise
MStatus 3	Widow or divorced	Otherwise

Source: Authors' elaboration from survey results

III. EXPERIMENTAL RESULTS

Table 2 reports the central tendency of responses concerning the importance scores given to organic attribute to each of the product category included in this research.

Table 2 : Descriptive statistics of the consumer attitudes

Variables	Mean	Median	Stdev	Skewness
Fruits	4.52	5	1.0	-2.4
Vegetables	4.54	5	1.0	-2.5

Meat	4.35	5	1.2	-1.8
Dairy	4.47	5	1.1	-2.3
Cereals	0.0	0	0	0
Drinks	3.6	5	1.7	-0.8

Source: Authors' elaboration from survey results

The organic attribute is very important for fruits and vegetables on the other hand the organic attribute for the cereals is not at all important. Organic meat and dairy are as well highly appreciated by the consumers. Wilcoxon signed rank test $p(0, 05)$ between product categories will give us more information regarding the statistically significant changes among the most (organic- preferred) product category. Fruits and vegetables are almost equally scored regarding the importance of the organic attribute. Statistically significant differences $p(0, 05)$ is observed between fruits and vegetables compared to meat products. See table 3. No significant differences are verified between importance given to dairy organic and fruit and vegetable organic. This is an important finding showing that for dairy product in Albania is not only origin an important attribute as other scholars conclude (Imami et al., 2014, 2011; Kokthi, Gonzàles Limon, et al., 2014; Kokthi, Hodaj, et al., 2014) but also the organic attribute. No statistically difference is observed while comparing meat and dairy product category. Concerning drinks consumer seem not to be interested in organic attribute. Following this analysis the ranking of the most organic sensitive product is 1) Fruit and vegetables 2) dairy products and 3) meat.

Table 3 : Wilcoxon signed rank test $p(0, 05)$ between attributes

Pairs	Mean(paired T- test)	Pairs	Mean(paired T- test)
Vegetables-Fruits	ns	Meat-Vegetables	-3.45*
Meat-Fruits	-2.94**	Dairy-Vegetables	ns
Dairy-Fruits	ns	Drinks-Vegetables	-8.92*
Drink-Fruits	-8.82*	Dairy-Meat	ns
Drink-Meat	-8.14*	Drink-Dairy	-8.47*

Source: Authors' elaboration from survey results

$P < 0.10$ * significant at $p < 0.05$; ** significant at $p < 0.01$; ***

The effect of socio-demographics on attribute preferences one way-Anova

Kruskall-Wallis one way ANOVA (0,05) test is carried out to analyse the effect of socio demographic variables in consumer sensitiveness to organic attribute of the product categories . Gender, age, marital status, education and household incomes are the factors considered in this paper. Regarding to gender factor women vs. men show statistically significant difference **only in fruits product category**, woman are more organic-sensitive than man. Age factor represent statistically significant effects in fruits, vegetables, meat and dairy products. The younger consumers show more preferences regarding organic attribute than older people do. Group age 18-44 years old show more sensitiveness to fruits and meat, 25-54 are more sensitive to organic vegetables. Consumers corresponding to age 25-34 years old are more sensitive to organic dairy than the other age categories. Group age 25-44 year old is more sensitive to organic drinks. Young people seems to more affected by organic attribute than older people this finding is in line with other finding that show's that younger people have more difficulties in assessing other food qualities and they focus more on credence attributes such as

organic or origin (Buzby, Fox, Ready, & Crutchfield, 1998; Govindasamy, Italia, & Adelaja, 2001; Loureiro & Umberger, 2004). Bachelors show more bio-sensitiveness in all food categories but differences statistically significant are observed only in fruits and vegetables. High educated people represent more bio-sensitive consumer within all the food categories included in the analyses. Medium and high income consumer show statistically significant high scores compared to low income consumers. These results indicate what other scholars (Bech, Grunert, Bredahl, Juhl, & Poulsen, 2001; Govindasamy et al., 2001; Ubilava, Foster, Lusk, & Nilsson, 2010) have found in WTP studies, that high income people are more aware about health issues than low income people. It is generally accepted that a larger proportion of incomes is needed to purchase safe and high quality products (Loureiro & Hine, 2002; Loureiro & Umberger, 2004).

Proportional odds model results

The test of parallel lines is designed to make a judgement concerning the adequacy of the model. The null hypothesis is that the corresponding regression coefficient is equal across all the levels of the response variable. The alternative hypothesis states that the corresponding regression coefficients are different across all the levels of the response variables. According to the test of parallel lines results there were significant only for fruits and dairy products.

Table 4: Results of Proportional Odds Model results

Variables	Fruits			Diary products	
	Estimate()	Wald	Sig.	Estimate()	Wald
Females	,499	2,297	,130	,354	1,353
Age 1	-,039	,002	,962	,737	,890
Age 2	,924	1,746	,186	1,503	5,264
Age3	1,241	3,052	,081	1,364	4,384
Age 4	,736	1,224	,269	1,441	5,185
Age 5	1,194	2,592	,107	1,137	2,808
Education 1	-1,687	11,459	,001	-1,603	11,398
Education 2	-,601	2,729	,099	-,623	3,698
Income 1	-3,683	6,675	,010	-2,555	3,477
Income2	-1,695	7,097	,008	-,516	,863
Income 3	-,947	2,724	,099	-,419	,775
Income 4	,461	,450	,502	,384	,507
Income 5	,385	,279	,598	,015	,001
MStatus 1	1,219	4,590	,032	,892	2,802
MStatus 2	,621	1,822	,177	,452	1,026
Test of paralelel lines		P<0,01		P<0,01	
Pseudo R² Nagelkerke		0,30		0,17	

Source: Authors' elaboration from survey results

In table 4 are reported the estimation results of the ordered logit model for the products where the null hypothesis of the test of the parallel lines is rejected. The estimated parameters for fruits category show that low educated people are less likely to give high importance to organic feature of the product, probably low educated people are not able to process that information (regarding organic agriculture practices) and therefore will be less concerned. Income effect is also significant, low income people, are more likely to give low cumulative scores to organic feature. Finally bachelor people are more likely to give high scores to organic for the considered product category. Regarding dairy products young people are more likely to give high cumulative scores to organic this is consistent with other findings (Buzby et al., 1995; Govindasamy et al., 2001) older respondents are less aware of food safety risk because this is not affecting their life expectancy. Low educated people are more likely to rank higher organic feature for dairy products than high educated people. This is

explained by Buzby, et al, (1995) that probably consumers with higher level of education are more able to process that information and therefore will be less concerned.

IV. CONCLUSION AND DISCUSSION

This paper provides a pre diagnostic related to the organic sensitiveness of Albanian consumer related to food products. To the best authors knowledge this is the first time that this type of study is undertaken in Albania. The results will help researchers in WTP estimations for specific products in food categories such as fruit-vegetables and dairy. These products show high organic sensitiveness compared to the other food products included in the analysis. Moreover dairy product represent an interesting topic of future research because till now researchers (Imami et al., 2014) (Kokthi et al 2014) have focused only on attributes such as origin, the results show that WTP studies may focus also in organic attribute related to dairy products. From marketing view point is important to stress that producer can align origin with organic in product differentiation strategies. In this framework it will be interesting in future researches to analyze both origin and organic attributes effects in consumer preferences and WTP in dairy products and fruit and vegetables. One of the limitations of this study is related to the method used. A choice experiment would have forced a trade-off between products; however the Likert scale questions used and show discrimination between the responses. As it is stated before this study represents a pre diagnostic and the availability of this information would provide further insight for studying consumer's decision-making processes and further the development of a better model for predicting their choice behavior.

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