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## Willingness to pay for organic products on the Serbian market

### RESEARCH ARTICLE

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### Abstract

The purpose of the paper is to analyze general information on consumption and socio-demographic variables in relation to the willingness to pay (WTP) for organic products in the Republic of Serbia. The study is based on the survey responses of 398 individuals and the data obtained from the survey was analyzed using the chi-square test. The factors significantly affecting WTP premium prices for organic products include higher disposable household income, older age group, gender, urban surroundings, larger household size and higher educational level. Male and female consumers, living in towns, in a family of up to 4 persons, with higher education, and within the income range of 500-2,000 euro a month would be willing to pay a premium up to 20% once a week for organic products. This paper provides further insight into WTP for organic products among consumers from a developing country.

**Keywords:** consumption, organic products, price, socio-demographic factors, willingness to pay

**JEL code:** D12, E21, P36

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## 1. Introduction

At the end of 2014, organic agricultural land occupied 11.6 million hectares in Europe while in the European Union it constituted 10.3 million hectares. Organic agricultural land currently accounts for 2.4% of the European continent's agricultural land while in the European Union this figure rises to 5.7% (Willer and Lernoud, 2016). Producer numbers have also grown significantly, reaching almost 260,000 in the European Union and more than 330,000 producers in Europe as a whole. As organic sales in 2014 reached 23.9 billion euros in the European Union and 26.2 billion in Europe, the data has pointed out that the four biggest markets were Germany (7.9 billion euros), France (4.8 billion euros), the UK (2.3 billion euros) and Italy (2.1 billion euros) (Heinze, 2016). The countries with the highest per capita organic consumption in 2014 were Switzerland at 221 euros in 2014, followed by Luxembourg, Denmark, Sweden, Liechtenstein, Austria, and Germany (Willer and Schaack, 2015).

In contrast, the organic food market in the EU countries of Central and Eastern Europe is still developing, and organic food is produced mainly for export. The Czech and Polish markets are the fastest growing, having increased by 4 to 5 times from 2006 to 2010 (the Czech Republic, from 27 to 107 million euros, and Poland from 15 to 85 million euros) while the Bulgarian and Romanian markets for organic food are advancing more slowly, with an annual market value of 6 and 20 million euros respectively (Jansen and Schaer, 2012).

For example, for the countries that entered the European Union in 2007 – Bulgaria and Romania – the main barrier to consumption of organic food is the low purchasing power of the population and additional price difference of about 20-40% compared to conventional products, as organics still represent about 1% of total consumption of products in Romania, while the European average is 3-5% (Saracin, 2016). The number of operators in organic farming is much higher in Romania (26,000) than in Serbia (285) and the majority of the organic goods produced are intended for export in both countries (Jeločnik *et al.*, 2015).

In the Republic of Serbia organic products are still perceived as a luxury and the majority of average Serbian families with a salary of between 500-1000 euros, cannot afford to buy them every day. The market is still at a very early stage of development. The small number of organic producers is a very important issue, having in mind that the process of adding value to organic products for export is currently at a very low level receiving minimal government support, with commercial banks still offering unfavorable loan conditions.

The outline of our paper is as follows: in the next section we discuss the relevant theories on understanding the determinants of the concept of willingness to pay (WTP) for organic products. The section thereafter provides a brief overview of the research, and data analysis. Finally we discuss the detected relations between general consumption, socio-demographic characteristics and the WTP for organic products.

## 2. Literature overview

The purchase of organic food entails barriers to organic food consumption such as consumers' reluctance to pay higher costs, not only in money but from the aspect of the time and effort they must invest (Vindigni *et al.*, 2002). Organic food consumption suggests the existence of alternative lifestyles based on health, safety and quality, and consumers that prefer organic food lead a life where food plays a central role (Pellegrini and Farinello, 2009). Research on a sample of 181 regular and occasional consumers of organic food in the UK has shown that most consumers associate organic food with vegetables and fruit and a healthy diet with organic products. Fruit and vegetables are also the first and in many cases only experience of buying organic products (Padel and Foster, 2005). A study carried out in Denmark reveals convenience behaviors as characteristic of pragmatic organic consumers, which requires organic foods to be available in the local supermarket, clearly visible with an eco-label if possible, and the price differential vis-à-vis conventional products has to be minimal (Hjelmar, 2011). In a study on the consumer perception of 60 consumers on the Italian market, the conclusions suggest that although consumers perceive organic products as expensive,

lower prices and better distribution would increase demand, though at the same time the products should be tasty and easy to use (Zanoli and Naspetti, 2002).

Many studies have researched the price premium that consumers are willing to pay. The majority of researchers in the USA and EU point out that the consumers are willing to pay a premium of 10 to 40% for organic products. Yiridoe *et al.* (2005) observe that demand for organic products tends to depend more on the price differential relative to conventionally grown alternatives, than on actual price. Income elasticity of demand for organic products tends to be small in regard to the effect of price on organic product demand. The obstacles to the purchase of organic fruits and vegetables most frequently mentioned in the literature are high prices and availability linked to inconsistencies in the distribution process (Gendall and Betteridge, 1999; Gil *et al.*, 2000; Hill and Lynchehaun, 2002; Magnusson *et al.*, 2001; O'Doherty *et al.*, 2011; O'Donovan and McCarthy 2002; Padel and Midmore, 2005; Radman, 2005).

In Denmark, only 17% of the Danish consumers do not purchase any organic food products while this segment is larger in both Italy (37%) and the UK (39%). In all the observed countries half of all households spent 1-5% of their food budgets on organic products, and a relatively small minority of households spend between a quarter and a third of their food budgets on such products (O'Doherty *et al.*, 2011). In the review of research on the role of perceived price, income, price knowledge, WTP, and reactions to price changes for organic food Aschemann-Witzel and Zielke (2015) find that price is the major perceived barrier to purchase. The findings of Hughner *et al.* (2007) also confirm the fact that the strongest barriers to organic food consumption are the price premium and the lack of availability of organic products.

Aertsens *et al.* (2009) points out that, in contrast, socio-demographic variables have a limited role in predicting organic food consumption within a region. Some authors hold the view that demographic variables such as age, income and education may define organic consumers, but not very significantly, as the premium price still blocks organic food consumption (Shafie and Rennie, 2012). Although, the importance of individual factors appears to be country specific and/or time specific (Davis *et al.*, 1995) the majority of studies that analyze socio-demographic variables have reported that a higher proportion of women hold a positive attitude and purchase organic food more often than men.

Research results identify the consumer profile in Serbia as predominantly female, employed, married, and with children. These consumers value highly the importance of diet for health, a number of them have experience of illness of a person close to them, which it is believed could have been prevented by a proper healthy diet (Grubor and Djokić, 2016). In a sample survey of 300 respondents from the United Arab Emirates the authors noted that willingness of consumers to pay for organic food increases with age, because education and income increase with age, which also has a positive and significant impact (Muhammad *et al.*, 2015).

Based on the research results of the authors (Vlahović *et al.*, 2011a) only 18% of the respondents in Serbia are regular buyers of organic products as the low purchasing power of consumers and the high retail prices represent the main limiting factors on demand and consumption. There is also a problem of trust in producers, as more than a third of respondents in their study do not believe that the food is really produced organically. As per product types, consumers mainly purchase fresh organic fruits and vegetables, followed by fruit juices and cereals in specialized shops, the so-called 'health food' shops, followed by conventional retail stores (supermarkets) and green markets. Consumer awareness of organic food in Serbia is very low and the market for organic food is still not sufficiently developed. Consumers lack confidence in domestic organic products, purchasing them at markets, but half the respondents questioned were willing to pay more for organic products (Vlahović *et al.*, 2011b). In more recent research on consumer attitudes in Serbia (Vlahović and Šojić, 2016) interest in organic agricultural foodstuff products in the Republic of Serbia is increasing but the price of organic food and the respondents' level of income are still the main limiting factors affecting demand for these organic products.

Consumers from the Republic of Serbia unfortunately have low purchasing power. Research on consumption of organic food in Macedonia and Serbia (Sekovska *et al.*, 2012), has identified the average consumer of organic products in Macedonia and Serbia as a person aged from 18-50 with higher university education, exercising on a daily basis with an income at least 40% above average and usually with 3 members in their families. Serbian consumers are more familiar with the term organic than are Macedonian and consumers who are familiar with organic products are prepared to pay more for them. Still, consumers are very price sensitive and they are not prepared to pay more than 30% of the price in regard to conventional products (Vehapi and Dolićanin, 2016). Most of the consumers in Serbia (89.1%) show a WTP for organic food in comparison to the same types of conventionally produced food and the majority of consumers are willing to pay up to 20% more, followed by those with a WTP in the range of 25-50% (Vehapi, 2015).

Research from Croatia, on a sample of 179 consumers, again shows women as the main organic consumers. Taking into account price willingness and future buying intentions, more than 70% of respondents stated that they would buy more organic products if they cost less and the majority of consumers are willing to pay a premium price of 11-20% extra (Radman, 2005). A study on WTP for organic food products in Iran revealed that 95% of the respondents were willing to pay a premium for organic products, with 55% willing to pay between 5 to 24% above regular prices while 10% declared themselves willing to pay more than 35% premium price for organic foodstuffs compared to conventional ones (Haghjou *et al.*, 2013).

A positive relation between WTP and females, married consumers and families with children under 10 has also been detected. Japanese consumers concerned about freshness are willing to pay more for organic foods and preferred certified vegetables to ordinary vegetables with a price premium of 8-22% for an organic certification label (Sakagami *et al.*, 2006). Argentinean consumers affirm themselves willing to pay price premiums to acquire organic products of better quality reporting a very broad range of between about 6 to 200% more depending on the product type (Rodríguez *et al.*, 2009).

### 3. Materials and methods

The survey was conducted on the territory of Serbia in towns and villages, from March to December 2016. For the selection of a representative sample the random selection method was used. The survey was conducted through a questionnaire created in Google, and the respondents were sent a link to the anonymous electronic survey where they directly entered the answers in the questionnaire provided. The questionnaire included questions on the socio-demographic characteristics of consumers, general information on consumption and questions regarding how much more they are willing to pay for organic products, measured by means of a five-point scale anchors (nothing, up to 10, 10-20, 20-30, and more than 30%).

A questionnaire divided into three categories was specifically elaborated for this proposes:

1. General information on consumption.
2. Basic data: age, gender, level of education, number of family members, level of income per month per household, place of living.
3. WTP for organic food.

The goal of the authors was to analyze general information on consumption (intended recipient of organic food, frequency of purchase, the grade of assessment of nutritional properties, eating healthily), and socio-demographic variables (place of residence, age, gender, level of education, household size, income) in relation to the WTP. The populations selected for survey were adults 18 years of age or older all living in Serbia. The respondents took 10 minutes on average to fill in the questionnaire. Data collection was carried out from March till December 2016. The survey was sent to 500 respondents with a response rate of 80%. The answers received in full which could be elaborated totaled 398 respondents, of which 311 declared as frequent or occasional consumers of organic products and 87 respondents who do not consume organic products. The survey data obtained was analyzed using descriptive statistics and a chi-square test with the level of significance set at 0.05. The data was processed in the SPSS statistical package.



## 4. Results and discussion

Of the 398 respondents questioned we noticed that 78.1% (total number = 311) use organic products in their nutrition, which represents a significant percentage. This is almost 4 times more than those who do not consume organic food (total number = 87). In further analysis we concentrated on the sample of 311 respondents that do use organic products. This sample consisted of 170 female and 141 male consumers. The majority of these respondents had a university degree, graduate or post graduate (178 respondents). Almost 90% of the respondents lived in a four-member family (small household). The average monthly family income of the vast majority of the respondents was between 500 and 1000 euros (44.1%) followed by earnings between 200 to 500 euros (31.5%). The highest percentages of consumers are from urban areas (85%). Respondents were asked to indicate how much extra they were willing to pay for organically-grown food compared to conventional foods. Most are ready to pay 10 to 20% more than for standard food (39.5%) and a smaller percentage would be willing to pay 20 to 30% more (29.9%). These results are consistent with the results of other studies (Aryal *et al.*, 2009; Batte *et al.*, 2007; Gil *et al.*, 2000; Haghjou *et al.*, 2013; Krystallis and Chrysosoidis, 2005; Radman, 2005; Sanjuán *et al.*, 2003; Sekovska *et al.*, 2012; Vehapi, 2015; Vehapi and Dolićanin, 2016; Vlahović *et al.*, 2011b). Thereafter we proceeded to the analysis of differences between socio-demographic factors and WTP by cross-tabulations and the chi square test.

From Table 1, we see that the highest percentage of both men and women are willing to pay 10 to 20% more (36.9 and 41.8% respectively) for organic products followed by a WTP in the range of 20-30% of male and female consumers (31.2 and 28.8% respectively). The higher percentages of females shows that they are willing to pay an extra amount (Naanwaab *et al.*, 2014) and is consistent with the findings that females are more prepared to pay a higher price for organic products (Groff *et al.*, 1993; Grubor and Djokić, 2016; Hanghjou *et al.*, 2013; Magnuson *et al.*, 2001; O'Donovan and McCarthy, 2002; Radman, 2005; Verbeke

**Table 1.** Crosstabs of socio-demographic factors and willingness to pay for organic products.

		Nothing more	Up to 10%	10-20%	20-30%	More than 30%
Gender	Male	13	19	52	44	13
	Female	14	27	71	49	9
Age	Up to 20	0	1	0	0	0
	21-30	10	18	27	22	1
	31-40	6	12	54	23	10
	41-50	7	7	27	21	6
	51-60	4	5	13	16	1
	Over 60	0	3	2	11	4
Education	High school	6	12	20	14	4
	Bachelor degree	13	29	73	54	9
	Master degree	8	5	30	25	9
Household size	Small (1-4)	25	40	114	80	19
	Middle (4-6)	0	6	9	13	3
	Big (over 6)	2	0	0	0	0
Income	Up to 200 euros	2	4	4	2	1
	201-500	12	28	35	19	4
	500-1000	8	13	61	48	7
	1000-2,000	5	1	20	19	7
	More than 2,000 euros	0	0	3	5	3
Place of living	Town	21	33	112	83	16
	Village	6	13	11	10	6

*et al.*, 2013). On the basis of the Chi-square statistics for gender and WTP we can conclude that there is a statistical significance in relation to gender ( $\chi^2=401,428$ ; df 10; Asymp. Sig. (2-sided)=0.000).

Of all age groups the one least prepared to pay a higher price for organic products are consumers aged 21-30 (37%) while the majority of those aged between 31 and 40 are prepared to pay higher price (94%). The majority of the respondents in the age group 21-30 (34.6%), 31-40 (51.4%), and 41-50 (39.7%) are prepared to pay 10-20% more for the organic products. We can observe that a WTP in the range of 20-30% is present immediately after the range of 10-20% in three consumer groupings (aged 21-30, 31-40, and 41-50). The senior consumers aged 51-60 and over 60 are prepared to pay even more with their WTP in the range of 20-30%. The chi-square statistics for location of residence and WTP point to the statistical significance in relation to age ( $\chi^2=454,045$ ; with df 30 and  $P=0.000$ ) (Table 1). This finding is in line with the view of (Akgungor *et al.*, 2010; Fricke and Von Alvensleben, 1997; Millock *et al.*, 2004; Muhammad *et al.*, 2015, Sriwaranun *et al.*, 2015; Tsakiridou *et al.*, 2006) who have observed that older consumers have a higher propensity to buy organic products and are willing to pay a price premium.

Consumers of higher education levels have a WTP in the range of 10 to 20% (Table 1) which is in line with findings pointing to the positive relationship between education and purchasing of organic products (Haest, 1990; Millock *et al.*, 2004; O'Donovan and McCarthy, 2002; Roitner-Schobesberger *et al.*, 2008; Strzok and Huffman, 2015; Wier *et al.*, 2008). The chi-square test showed that there is a statistically significant difference in the level of education and WTP ( $\chi^2=411,722$ , with df=15 and  $P=0.000$ ).

We can observe that the size of household also has a direct effect on WTP as a majority of small households that have up to 4 persons, (38.3%) are willing to pay between 10-20%, while the medium household (4 to 6 persons) is willing to pay between 20-30% (42%). The differences in percentages are too big to be considered statistically insignificant, as is confirmed by the chi-square test ( $\chi^2=432,785$ , with df=15 and  $P=0.132$ ). WTP is dependent on the size of household indicating that the biggest households are not willing to pay anything more for organic products due to the already high costs of family life. The propensity to buy organic foods is positively correlated to household size (Ott, 1990; Thompson and Kidwell, 1998; Wier *et al.*, 2008).

Households with a monthly income between 200-500 euros would be willing to pay no more than 20% above the conventional food prices. They are willing to pay up to 10% and between 10-20% above the conventional food prices (on average 12.8%). The data indicates that these households consist of fewer members (or employed young adults) leading a healthy life with an interest in organic products. In this group there are families with fewer members, so the WTP is a reflection of the concern for one's own health. It means that by switching to higher income there is a potential for increasing consumption. Households with an income between 500 and 1000 euros and over 1000 euros are willing to pay between 10-20%. The households with incomes over 2,000 euros are willing to pay a premium in the range of 20-30% for organic products. The price of organic food and the respondents' level of income are still the main limiting factors affecting demand for organic products and households with higher income levels have a greater tendency to purchase organic foods. As confirmed by the chi-square test ( $\chi^2=461,881$ , with df=25 and  $P=0.000$ ) we can observe that WTP is dependent on the level of income. The findings are consistent with the study of (Millock *et al.*, 2004; Misra *et al.*, 1991; Strzok and Huffman, 2015; Vlahović and Šojić, 2016; Vlahović *et al.*, 2011b).

Of the rural respondents, 13% would definitely not pay more for organic products. The highest number of rural respondents would pay up to 10% more than for conventional food (28.3%), followed by 10 to 20% more (23.9%), 20 to 30% more (21.7%), and the smallest number more than 30% (13%). As far as the city respondents are concerned a prevailing majority of respondents are willing to pay more for organic products (78%), of which the highest number of city respondents would be willing to pay between 10 and 20% more than for conventional food (42.3%), followed by 20 to 30% more (31.3%), up to 10% (12.4%). We can conclude that buying propensity increases with the level of urbanization (Denver *et al.*, 2007; Midmore *et al.*, 2005; Wier *et al.*, 2008). The chi-square test showed that there are statistically significant differences in

the location of residence and WTP ( $\chi^2=417.28$ , with  $df=10$  and  $P=0.000$ ). Location as a socio-demographic factor significantly affects the decision to pay more for organic food.

As can be seen from Table 2, a majority of the consumers buy organic products for the whole family and this category is willing to pay 10 to 20% more than for standard food (40.0%), followed by the range of 20-30% (31.4%). A positive relation between married consumers with younger children positively influences consumers' organic food attitudes and buying behavior (Davis *et al.*, 1995; Thompson and Kidwell, 1998). The largest part of the respondents buy organic products once a week (40.5%) which is in line with the findings of Pearson *et al.* (2013) that the frequency of organic food purchases varies. They are willing to pay 10 to 20% more (44.4%), followed by the range of 20-30% (31.7%).

Although consumers have a positive attitude towards organic food, they only purchase occasionally (with only 12.8% that purchase it regularly (every day), which can be directly attributed to their low purchasing power or the belief that, in the Republic of Serbia, they do not have the high proven nutritional values they should (Vlahović *et al.*, 2011a). This is consistent with the findings of Tsakiridou *et al.* (2006) that Greek consumers are starting to become accustomed to organic products but that the issue of trust and the quality of these products is also an issue.

The majority of respondents consider organic products to have moderate nutritional properties in relation to traditional products and their WTP corresponds to the range of 10-20% (40.6%) followed by the range of 20-30% (30.8%). The majority of respondents that consider organic products to have high and extremely high nutritional properties are also prepared to pay 10 to 20% more for organic products. The majority of respondents who believe themselves to have completely or partially healthy eating habits exhibit a WTP in the range of 10-20% (32.4 and 42.5% respectively) which can be explained by concerns about leading a healthy lifestyle. Several authors have outlined that the health concern appears as the most important reason for purchasing and consuming organic food (Magnusson *et al.*, 2001; Padel and Foster, 2005). The chi-square

**Table 2.** Crosstabs of general information on consumption and willingness to pay for organic products.

		Nothing more	10-20%	20-30%	Up to 10%	More than 30%
For whom are you buying organic products?	For the whole family	21	93	73	28	17
	For me	1	2	6	2	0
	For a member of the family	2	2	4	0	2
	Somebody buys it for me	3	26	10	16	3
The frequency of purchase of organic products	Once a year	1	0	0	0	0
	Once in half of the year	0	0	1	1	0
	Once in three months	5	9	3	2	1
	Once a week	9	56	40	12	9
	Several times in a month	8	47	38	25	4
Assessment of nutritional properties	Everyday		11	11	6	8
	1		2	1	2	1
	2		5	5	3	1
	3		50	38	24	1
	4		44	35	11	6
Do you eat healthy food?	5		22	14	6	13
	Yes		31	30	11	12
	Partially		89	62	34	9
	No		3	1	1	1



test showed that there are statistically significant differences in the target consumer, the frequency of purchase, the assessment of nutritional properties and healthy diet and the WTP (crosstab for all variables  $P < 0.05$ ).

## 5. Concluding remarks

The main research question addressed in this paper seeks to analyze general information on consumption (intended recipient of organic food, frequency of purchase, the grade of assessment of nutritional properties and eating healthily) and socio-demographic variables (place of residence, age, gender, level of education, household size and income) in relation to the WTP. This study was carried out in 2016, to determine factors influencing consumers' potential WTP for organic products in Serbia using data on 398 households of which 311 are organic consumers. The results confirm the literature and show that the general consumption information and the socio-demographic variables are important factors in determining consumers' WTP for organic products. Higher disposable household income, older age group, gender type, urban surroundings, larger household and higher educational level all significantly affect the WTP for organic products in terms of paying premium prices. Male and female consumers, living in towns in Serbia in a family of up to 4 persons, more highly educated, in the income range of 500-2,000 euro would be willing to pay a premium up to 20% for organic products. The majority of the respondents with a WTP up to 20% buys organic products for the whole family once a week consider organic products to have moderate nutritional properties and follow a partially healthy diet.

Understanding the process of consumers' WTP and the significance of the influential factors that determine the consumers' decision to buy organic food can further help all shareholders to support the organic food production and raise awareness of organic product characteristics and organic food production, consumption, pricing and determination of market potential. Such efforts will also be beneficial for local organic producers in appropriately pricing and promoting their products on the market.

This study originality contributes to the WTP literature by identifying the consumers' WTP from a developing economy as well the significance of the influential factors that determine the consumers' decision to buy organic food. This study confirms the existing literature on this topic, but comes to some original conclusions based on WTP of Serbian consumers. Generalizations of the study findings may be applicable to developing economies with similar structural characteristics and WTP contingencies.

In the future, we shall continue our research on the type of organic products seen in individual household consumption, and the dependence of this on factors such as price, household income, geographic location, consumer's occupation, age, and number of children. It would be very interesting to further analyze the stated WTP with the WTP that is actually realized. Future studies shall go in the direction of understanding the WTP of different consumer segments and products. It is very probable that organic food pricing will provide fertile ground for further research as the Serbian market is slowly developing. The European integration agenda aims to achieve a higher level of awareness for health and environmental sustainability in the light of an enriched consumer policy framework. The study is acknowledged as exploratory and a useful foundation for further research that should be extended to other provinces to find broader dependences and specifics.

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