

# CONSUMERS' WILLINGNESS TO PAY MORE FOR ORGANIC FOOD IN CROATIA

---

Petljak, Kristina; Štulec, Ivana; Renko, Sanda

*Source / Izvornik:* **Ekonomski vjesnik : Review of Contemporary Entrepreneurship, Business, and Economic Issues, 2017, 30, 441 - 455**

**Journal article, Published version**

**Rad u časopisu, Objavljena verzija rada (izdavačev PDF)**

*Permanent link / Trajna poveznica:* <https://um.nsk.hr/um:nbn:hr:145:300643>

*Rights / Prava:* [Attribution-NonCommercial-NoDerivatives 4.0 International/Imenovanje-Nekomercijalno-Bez prerada 4.0 međunarodna](#)

*Download date / Datum preuzimanja:* **2024-12-22**



*Repository / Repozitorij:*

[EFOS REPOSITORY - Repository of the Faculty of Economics in Osijek](#)



**Kristina Petljak**  
University of Zagreb  
Faculty of Economics and Business  
Trg J. F. Kennedy 6,  
10000 Zagreb, Croatia  
kpetljak@efzg.hr  
Phone: +38512383376

**Sanda Renko**  
University of Zagreb  
Faculty of Economics and Business  
Trg J. F. Kennedy 6,  
10000 Zagreb, Croatia  
srenko@efzg.hr  
Phone: +38512383374

UDK: 658.89:631.147/(497.5)  
Preliminary communication

Received: June 5, 2017  
Accepted for publishing: October 3, 2017

This work is licensed under a  
Creative Commons Attribution-  
NonCommercial-NoDerivatives 4.0  
International License



**Ivana Štulec**  
University of Zagreb  
Faculty of Economics and Business  
Trg J. F. Kennedy 6,  
10000 Zagreb, Croatia  
istulec@efzg.hr  
Phone: +38512383376

# CONSUMERS' WILLINGNESS TO PAY MORE FOR ORGANIC FOOD IN CROATIA

## ABSTRACT

Taking into consideration growing concerns about conventional agricultural practices, food safety, human health, animal welfare and the environment, the main goal of this paper is to identify the predictors of consumers' willingness to buy organic food and to pay a premium price for it. The research was conducted on a representative sample of respondents in the Republic of Croatia, a growing organic food market, using a highly structured questionnaire. Research results indicate that respondents in Croatia perceive organic food as more expensive, healthier and tastier than conventional food; also, they believe that the origin of organic food is strictly controlled. The results of hierarchical regression analysis indicate that higher monthly household income predicts a greater willingness to pay (WTP) a higher price for organic food compared to conventional food. Also, perception of organic food as healthier and tastier than conventional food predicts a greater WTP a higher price for organic food compared to conventional products. It is expected that research results will be useful for food retailers in their market communication strategies towards further development and overall growth of the organic food market in Croatia. This research is one of its kind as it captures WTP a premium price for organic food and identifies the main factors influencing WTP a premium price for organic food on the growing Croatian market.

**Keywords:** Organic food, willingness to pay, premium price, consumer behaviour, survey research, Croatia

## 1. Introduction

There is the claim that organically grown food is healthier than conventional food (Krissoff, 1998). As the term and identification sign „Organics” for most users are associated with the issues in both social and environmental aspects (Browne et al., 2000), consumers perceive organic food to be safer than conventional food (i.e. they perceive organic

food to have less synthetic chemical contaminants) and to contain more nutrients, including vitamins and minerals, than conventionally produced food (Hoefkens et al., 2009). *Organic food is the product of a farming system which avoids the use of man-made fertilisers, pesticides; growth regulators and livestock feed additives*<sup>1</sup>. Besides human health and food safety, Makatouni (2002) and Bonti-Ankomah

and Yiridoe (2006) add product characteristics such as taste, freshness, appearance, and other sensory characteristics to influence consumer preferences towards organic produce. Growing interest for organic food emerged mainly out of health and environmental concerns (Gil et al., 2000; Tsakiridou et al., 2008; Yiridoe et al., 2005), and organic farming has become one of the fastest growing sectors in agriculture (Willer, Yousefi, 2007). However, as Roninen et al. (2006) noticed, its growth has declined since the start of the financial crisis in 2008. This may be explained by higher prices for organic food, which means they are no longer affordable to some consumers.

The main purpose of this paper is to address the question: is the perception of organic food such that it results in the willingness of consumers to pay a higher price for it.

Laroche et al. (2001) and Mohamad et al. (2014) note that an increase in consumer awareness of their health and the nutritional values of food have contributed to increased demand for functional food, organic food, green food and natural food; thus increasing consumer WTP more for organic food. This is in line with Bhavsar et al. (2016) who state that consumers are willing to pay more for food they believe will prevent them from getting sick. However, a number of works (De Pelsmacker et al., 2005; Govindasamy et al., 2006; Govindasamy, Italia, 1999; Maguire et al., 2004) point out that although consumers are concerned about their health and prefer to consume health foods and functional foods, they are willing to pay more for organic food only to a certain degree. In other words, consumers may be concerned about quality characteristics of organic food products, but the reality shows that these general concerns are often not translated into actual behaviour when it comes to spending their own money (Hughner, 2007; Padel, Foster, 2005). Krystallis and Chrysosoidis (2005) identified several direct purchase barriers towards the consumption of organic food such as relatively higher prices, lack of availability, lack of awareness of the organic concept and uncertainty over the truthfulness of organic food claims.

In order to provide theoretical insight into consumers' willingness to pay a premium price for organic food the paper begins with a literature review on the current status of knowledge about the investigated topic. The aim of the paper is to identify the predictors of consumers' buying behaviour related

to organic food. Methodology includes primary research conducted through face-to-face interviews on a sample of Croatian citizens, with the research instrument consisting of questions aimed to examine the perception of the respondents about organic food, the reasons for not buying organic food, the willingness to pay the higher prices of organic over conventional food, and the factors that influence consumers to pay higher prices of organic food over conventional food. The methodology section also includes the characteristics of respondents. Next comes the presentation of research results, which are related to respondents' familiarity with organic food, their perception of organic food in relation to conventional food, organic food purchase and predictors of organic food purchase, followed by research limitations and recommendations for future research. The paper ends with concluding remarks.

## 2. Literature review

The question of the price of organic food, that is WTP the higher price of organic food is often a topic of discussion in international scientific community (Akaichi et al., 2012; Aryal et al., 2009; Batte et al., 2007; Gil, Soler, 2006; Gil et al., 2000). Several studies evaluate consumers' willingness to pay, most often based on interviews (Wier, Calverley, 2002). Researchers often emphasize the existence of the partial information about the price of organic food (Canavari et al., 2011). Such higher prices of organic food are often stated as the greatest obstacle for further development of organic food market and are among main motives for non-purchase of organic food (Xie et al., 2015; Żakowska-Biemans, 2011; Magnusson et al., 2001; Fotopoulos, Krystallis, 2002; Chinnici et al., 2002).

The premium price consumers are ready to pay for organic food when compared to conventional food depends on many factors, primarily on market supply and market demand. In terms of balanced supply and demand of organic food, prices of organic food are on average more than 50% higher than the prices of conventional food. However, prices of organic food vary significantly with respect to the country of production of organic food, the type of organic product, as well as the length of the supply chain. According to notions from Wier and Calverley (2002), a price reduction of organic food encourages its purchase, and the authors believe that the significant fall in prices would increase the demand for organic food. So far, researchers mainly investi-

gated the willingness of consumers to pay a higher price for organic food, as well as WTP for a particular product category or a particular organic food product. This is in line with Krystallis and Chryssohoidis (2005) who conclude that the premiums that consumers are willing to pay vary regarding specific food product categories.

Overall, there have been many attempts to identify consumers' WTP for premium organic food. Bon-ti-Ankomah and Yiridoe (2006) suggest that most consumers are not willing to pay a price premium higher than 10-20%. Turco (2002) reported organic price premiums ranging from 10% to as high as 100% depending on the country. For example, price premiums in Turkey range from 43% for pickled vine leaf, to as high as 468% for mixed dried fruits (Kenanoğlu, Karahan, 2002). Fotopoulos and Krystallis (2002) identified the relevant premiums paid by consumers: +50-100% for vegetables, +30-50% for cereals, +25-50% for fruits, +25-50% for olives/olive oil and +20-60% for wine.

There is a body of research in international and domestic literature regarding consumers' WTP higher prices for food products that are considered safer, of higher quality and more environmentally friendly (Fu et al., 1999; Gil et al., 2000; Corsi, Novelli, 2003; Angulo et al., 2003; etc.). For example, Fu et al. (1999) estimated the price premium associated with organic baby food and parents' preferences regarding the reduction of their baby's exposure to health risks. Angulo et al. (2003) and Corsi and Novelli (2003) discussed the price consumers are willing to pay for organic meat and pointed out the importance of consumer confidence in and use of food labels, and the experience with the product. Aryal et al. (2009) consider awareness and knowledge about organically produced foods critical in the consumer WTP more for the product. Namely, consumers feel that the price of organic food becomes the cost of investment in "good health" (Aryal, 2008; Aryal et al., 2009; Menon, 2008; Sandalidou et al., 2002).

There is some evidence that heavy organic food consumers are on average willing to pay higher price premiums for organic food than medium and light users but the relationship is not so unambiguous and seems to be dependent on specific intrinsic product qualities (Wier et al., 2008). Regarding the socio-demographic profile of the organic food consumer, a slight difference between men and women is observed, women being those who would pay more compared to men. The age factor does not seem to play an important role either, with younger

consumers slightly more willing to buy (more expensive products) due to the greater environmental consciousness, which, however, does not translate into the demand due to the lower purchasing power of young consumers (Fotopoulos, Krystallis, 2002). Also, Ureña et al. (2008) suggest that the willingness to accept higher prices for organic food depends on the frequency of purchase and the gender of consumers. However, research results indicate that regular consumers and men would pay a higher price for organic foods but the margins are product dependent. With the respect of the county data, Dutch and German studies are the most optimistic in their evaluation of the tendency to buy at premiums over 30%. On the other hand, the Scandinavian and British studies are more pessimistic, expecting only 5-15% of all consumers to buy organic food at these premiums (Wier, Calverley, 2002).

Govindasamy and Italia (1999) constructed a profile of the households most likely to purchase organically grown produce at a premium price. They found out that smaller, higher-earning households, particularly, younger households in which women do the majority of food purchasing, are more likely to pay a premium for organic produce. Wier and Smed (2000) apply the data for actual organic food purchases. Their research results indicate that the demand for organic foods is more sensitive to price changes than the demand for conventional foods. With respect to their and previous research, it appears that lower price premiums induce a considerable proportion of consumers to buy organic products. *'In this light the development of market for organic products is extremely interesting, since a significant fall of prices would increase demand'* (Wier, Calverley, 2002: 50-51).

The reasons for the higher price of organic food over conventional food can be explained with respect to different points of view. Some experts state that organic food is not too expensive, but that conventional food is too cheap because the price of the product does not include indirect ecological, social and other costs. Furthermore, experts believe that for the reduction in price of organic food the supply chain should be better organised. The spatial distance of organic producers and the limited amount of available products cause additional costs in the supply chain, primarily the transportation costs, which significantly burden the final price of organic food.

With respect to all the above-mentioned points, it is evident that the WTP the price premium is a well-established research field. Previous empirical organic food research in Croatia mostly focused

on consumer consumption and buying behaviour (Brčić-Stipčević, Petljak, 2011; Radman, 2005), analyses of development of organic food market from organic producer perspective (Petljak, 2011; Renko, Bošnjak, 2009), analysis of organic food category availability among leading Croatian food retailers (Petljak, 2010) and analysis of distribution channels of organic food in Croatia (Petljak, 2013). Overall, domestic literature (Radman, 2005; Štefanić et al., 2001; Znaor, 1996) confirmed Croatian consumers' perception of organic food as more healthy and safe, but more expensive than conventional food. Znaor (1996) points out the general view that an ordinary citizens cannot afford the price premiums for organic food.

### 3. Research methodology

In order to investigate consumers' willingness to buy organic products and to pay the premium price for them, as part of the scientific project "Distribution Channel Modelling for Organic Food and Consumer Protection in Croatia" (2009-2011), primary research was conducted. The research was conduct-

ed through personal interviews in households using a highly structured questionnaire, with individuals in charge of food purchases in the household. Croatian organic food market is underdeveloped (Petljak, 2013), but the number of organic farms is growing rapidly as consumers are becoming more concerned about their nutrition and health, following consumer behaviour in other EU countries. According to the latest available data from the Ministry of Agriculture, there is 50 054 ha under organic production in Croatia, which represents only 4.03% of overall agriculture area.<sup>2</sup>

Primary research was conducted through face-to-face interviews in households, on a sample of Croatian citizens older than 15 years. Sources of the data for defining the framework for a sample selection were the results of the Croatian census. Respondents were selected according to a randomised proportionate stratified sampling method. The stratification was two-dimensional and was conducted according to the following stratification variables: (1) *six traditional regions defined as a set of existing counties* (Table 1) and (2) *four settlement sizes* (Table 2). Altogether, 24 stratum were created.

Table 1 Respondent representation by region

Region	number of respondents	% of respondents
Zagreb and surroundings	249	24.9
Northern Croatia	180	18.0
Slavonia	174	17.4
Lika, Kordun and Banovina	88	8.8
Istra, Primorje and Gorski Kotar	119	11.9
Dalmatia	190	19.0
<b>TOTAL</b>	<b>1 000</b>	<b>100.0</b>

Source: Authors' research

Table 2 Respondent representation by settlement size

Settlement size	number of respondents	% of respondents
up to 2,000 inhabitants	400	40.0
from 2,001 to 10,000 inhabitants	153	15.3
from 10,001 to 100,000 inhabitants	212	21.2
more than 100,001 inhabitants	235	23.5
<b>TOTAL</b>	<b>1 000</b>	<b>100.0</b>

Source: Authors' research

Professional market research agency's network of field operatives was used only for survey dissemination. Research results were analysed with methods of descriptive and inferential statistics in statistical package for social sciences (SPSS). Afterwards, regression analysis was conducted, which helped in defining predictors of consumers' WTP a higher price of organic food over conventional food in the Republic of Croatia.

### 3.1 Sample

Table 3 shows socio-demographic characteristics of the sample – gender, age, education, employment status, profession, marital status, place of residence, household status, number of household members, number of children up to 18 years old, personal monthly income of the respondent, monthly household income and source of income of respondent. 52.9% of the sample were women, which comes as no surprise, as they are still the main food purchase decision-makers in Croatian households.

**Table 3 Respondent characteristics**

	n	%
<b>Gender</b>		
male	471	47.1
female	529	52.9
<b>Age</b>		
15-17	28	2.8
18-24	136	13.6
25-34	158	15.8
35-44	178	17.8
45-54	170	17.0
55-64	135	13.5
more than 65	195	19.5
<b>Education level</b>		
no elementary school	63	6.3
elementary school	163	16.3
high school (3 years)	196	19.6
high school (4 years)	442	44.2
college or higher education	136	13.6
<b>Employment status</b>		
full-time employment	384	38.4
temporary employment	53	5.3
part-time employment	25	2.5
not registered	9	0.9
self-employment	16	1.6
<b>Occupation</b>		
senior manager	60	6.0
manager	26	2.6
officer	152	15.2
skilled worker	167	16.7
non-skilled worker	28	2.8
farmer	0	0.0
entrepreneur	35	3.5
other paid occupation	5	0.5
unemployed	93	9.3

	n	%
retired person	274	27.4
housewife	61	6.1
student	100	10.0
<b>Source of income</b>		
non-agricultural activities	907	90.7
agriculture & non-agricultural activities	83	8.3
agriculture	11	1.1
<b>Marital status</b>		
single	297	29.7
married	531	53.1
divorced/widowed	172	17.2
<b>Place of residence</b>		
house	650	65.0
flat	350	35.0
<b>Number of household members</b>		
1 member	192	19.2
2 members	278	27.8
3 members	224	22.4
4 members	195	19.5
5 members and more	111	11.1
<b>Number of children under the age of 18</b>		
children under the age of 6	127	12.7
children between 7 and 14	156	15.6
children between 15 and 18	102	10.2
no children under the age of 18	615	61.5
<b>Personal monthly income</b>		
less than 150 €	73	7.3
from 151 to 250 €	142	14.2
from 251 to 450 €	215	21.5
from 451 to 750 €	197	19.7
from 751 to 1,000 €	51	5.1
from 1,000 to 1,200 €	15	1.5
more than 1,200 €	15	1.5
no monthly personal income	173	17.3
no answer	119	11.9
<b>Monthly household income</b>		
less than 250 €	78	7.8
from 251 to 500 €	169	16.9
from 501 to 750 €	137	13.7
from 751 to 1,100 €	171	17.1
from 1,100 to 1,500 €	135	13.5
more than 1,500 €	89	8.9
no answer	221	22.1
<b>Household status</b>		
worse than average	90	9.0
below average	149	14.9

	n	%
on average	673	67.3
better than average	80	8.0
much better than average	8	0.8

Source: Authors' research

### 3.2 Research instrument

Research instrument was a highly structured questionnaire, which was designed based on the previous research already mentioned in the literature review, which offered a valuable insight for its development (Yiridoe et al., 2005; Bonti-Ankomah, Yiridoe, 2006; Gracia, de Magistris, 2007). The aims of the conducted empirical research were to examine the perception of the respondents about the organic food (measured with five-point Likert agreement scale) with the statements about the origin of the product, product labelling, taste, price, impact of organic food on health and the protection of consumer rights; examine whether respondents buy organic food, and the reasons for not buying organic food; examine the willingness of consumers to pay the higher price of organic food over conventional food and identify the factors that influence the willingness of consumers to pay the higher price of organic food over conventional food in the Republic of Croatia.

## 4. Results

### 4.1 Respondents' perceptions about organic food

Most respondents (n=766) are familiar with the definition of organic food. Respondents' perceptions of organic food were measured using the Likert scale that measures the degree of agreement with the statement, with 1 signifying 'strongly disagree' and 5 'strongly agree' with the statement. Research results of the respondents' perceptions (n=766) showed that the majority of respondents (53.2%) partially or completely agreed with the statement

that conventional food is the food without the 'organic origin' label, whereas 21.7% of respondents partially or fully disagreed with the same statement.

Most respondents (46.2%) partially or completely agreed with the statement that organic food tastes better than conventional food, while with this statement partially or completely disagreed 28.8% of respondents. The vast majority of respondents (83.1%) partially or completely agreed with the statement that organic food is more expensive than conventional food, while with this statement partially or completely disagreed only 6.7% of respondents. With the claim that organic food is healthier for them and their families than conventional food partly or fully agreed 72.1% of respondents, whereas 8.4% of respondents partially or completely disagreed with this statement. Most respondents (56.0%) partially or completely agreed with the statement that organic food with the eco-label is safer to consume than the food without it, whereas 15.3% of respondents partially or completely disagreed with this statement. Furthermore, 53.1% of the respondents partially or completely agreed with the statement that certification, implementation, monitoring and control of organic food producers protect consumer rights, whereas 15.9% of respondents partially or completely disagreed with this statement. With the claim that organic food is food of strictly controlled origin, unlike conventional food, partly or fully agreed 52.6% of respondents, while 19.1% of respondents partially or completely disagreed with that statement.

Table 4 shows descriptive indicators (mean and standard deviation) of research results for the variables related to the perception of organic food.

Table 4 Descriptive indicators of research results for the variables related to the perception of organic food

Statement	M	sd
Conventional food is the food without the 'organic origin' label.	3.44	1.145
Organic food is tastier than conventional food.	3.26	1.177
Organic food is more expensive than conventional food.	4.24	0.939
Organic food is healthier for me and my family than conventional food.	3.94	0.992



Statement	M	sd
Organic food with the eco-label is safer for consumption than the food without it.	3.58	1.027
Certification, implementation, monitoring and control of producers of organic food protects my consumer rights.	3.49	1.007
Organic food is food of strictly controlled origin, unlike conventional food.	3.47	1.030

Note: M – mean, sd – standard deviation

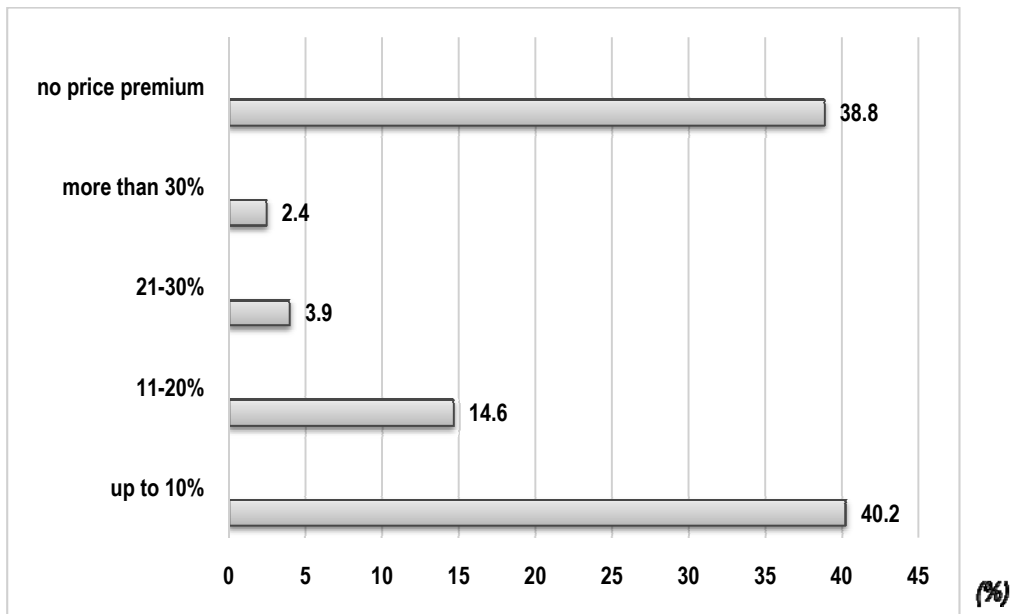
Source: Authors' research

#### 4.2 Willingness-to-pay a higher price for organic food compared to conventional food

In order to test the willingness of consumers to pay the higher price of organic food over conventional food, respondents were asked to answer how much more they are willing to pay for organic food over conventional food (similarly to Radman (2005)). Research results showed that 40.2% of respondents would be willing to pay a 10% higher price for organic food over conventional food, 14.6% of respondents would be willing to pay 11-20% higher price for organic food, 3.9% of respondents would be willing to pay 21-30% higher price for organic food and the smallest number of respondents (2.4%)

would pay more than 30% higher price for organic food in relation to conventional food. As many as 38.8% of respondents are not prepared to pay more for organic food as compared to conventional food (Figure 1). These research results are not consistent with previous research by Radman (2005) conducted in Croatia, where most of the consumers (46%) stated they were willing to pay the 11-20% premium for organic food. However, we should take into consideration that previous research was conducted only on consumers living in the city of Zagreb and due to that, the results of the present study give better representation of WTP a higher price for organic food compared to conventional food.

Figure 1 Willingness to pay an extra price for organic food



Source: Authors' research

For the analysis of the WTP, only respondents who stated they buy organic food were analysed, regardless of the frequency (regularly, often, rarely) of organic food purchase (n=420). Table 5 shows correlations between variables related to the perception of organic food and socio-demographic variables with the willingness of consumers to pay a higher price of organic food compared to conventionally food.

The willingness of consumers to pay the higher price of organic food compared to conventional food is significantly positively associated with the following socio-demographic variables: *personal monthly income* ( $r = 0.102, p < 0.05$ ), *monthly household income* ( $r = 0.151, p < 0.01$ ) and *household size* ( $r = 0.087, p < 0.01$ ). *Respondents with larger personal monthly income, higher monthly household income and a bigger number of household members are willing to pay the higher price for organic food over conventional food.*

The willingness of consumers to pay the higher price for organic food compared to conventional food is significantly positively associated with all the variables related to the perception of organic food: *organic food is the food identified by the ecological origin* ( $r = 0.135, p < 0.01$ ), *organic food is tastier than conventional food* ( $r = 0.292, p < 0.01$ ), *organic food is more expensive than conventional food* ( $r = 0.092, p < 0.05$ ), *organic food is healthier for me and my family than conventional food* ( $r = 0.368, p < 0.01$ ), *organic food with the eco-label is safer for consumption* ( $r = 0.252, p < 0.01$ ), *organic food is the food under controlled production* ( $r = 0.201, p < 0.01$ ) and *organic food is the food of strictly controlled origin* ( $r = 0.210,$

$p < 0.01$ ). *Respondents who believe that organic food is the food which can be identified by the ecological origin, more expensive than conventional food, better than conventional food, healthier than conventional food, safer for consumption than conventional food, of controlled production and of strictly controlled origin, are willing to pay the higher price for organic food compared to conventional food.*

In order to determine the factors that affect the willingness of consumers to pay the higher price for organic food over conventional food, a hierarchical regression analysis was conducted. The criterion (dependent) variable was the willingness of consumers to pay the higher price of organic food over conventional food. Hierarchical regression analysis was conducted based on the inclusion of a new single variable or set of variables in the regression equation according to a predetermined order. After each step, a new percentage of explained variance tests the unique contribution of a variable or set of variables listed in a specific step by testing the significance of changes in the percentage of explained variance criteria ( $\Delta R^2$ ). In the first step of the analysis as predictors (independent variables) were included socio-demographic variables (gender, age, education, personal monthly income, monthly household income, household size, whether there are children up to age 18 in the household), and in the second step, variables related to the perception of organic food. Results of hierarchical regression analysis for prediction of WTP higher price for organic food compared to conventional food are shown in Table 5.

**Table 5 Results of hierarchical regression analysis for prediction of WTP higher price for organic food compared to conventional food**

PREDICTORS	WTP higher price for organic food compared to conventional food				
	$\beta$	t	$\beta$	t	r
gender	0.001	0.016	-0.002	-0.045	-0.017
age	0.159	2.727**	0.107	1.970*	0.039
education	0.063	1.031	0.076	1.346	0.080
personal monthly income	-0.023	-0.308	-0.029	-0.423	0.102*
household monthly income	0.182	2.277*	0.204	2.723**	0.151**
number of household members	-0.005	-0.062	0.018	0.262	0.087*
children up to 18 years of age	0.076	1.152	0.041	0.677	0.071

PREDICTORS	WTP higher price for organic food compared to conventional food				
	$\beta$	t	$\beta$	t	r
Conventional food is the food without the ,organic origin' label.			0.077	1.606	0.135**
Organic food is tastier than conventional food.			0.168	3.111**	0.292**
Organic food is more expensive than conventional food.			0.009	0.193	0.092*
Organic food is healthier for me and my family than conventional food.			0.259	4.478**	0.368**
Organic food with the eco-label is safer for consumption than the food without it.			-0.015	-0.232	0.252**
Certification, implementation, monitoring and control of producers of organic food protects my consumer rights.			0.010	0.165	0.201**
The origin of organic food is strictly controlled, unlike the origin of conventional food.			0.043	0.730	0.210**
$\Delta R^2$	$\Delta R^2=0.025^*$		$\Delta R^2=0.144^{**}$		
Total R Total R2	R=0.453 R2=0.205**				

Legend:\*\*  $p < 0.01$ , \*  $p < 0.05$

Note: r – correlation coefficient,  $\beta$  – standardized partial regression coefficient, R – multiple correlation coefficient, R2 – coefficient of determination,  $\Delta R^2$  – change of coefficient of determination

Source: Authors' research

Socio-demographic variables and variables related to the perception of organic food can explain 20.5% of the variance of willingness of consumers to pay the higher price for organic food over conventional food ( $R^2=0.205$ ,  $p < 0.01$ ). As statistically significant predictors of consumers' WTP higher price for organic food over conventional food (final solution) among socio-demographic variables appear monthly household income ( $\beta=0.204$ ,  $p < 0.01$ ) and age ( $\beta=0.107$ ,  $p < 0.05$ ), and among the variables related to the perception of organic food significant are: healthier than conventional food ( $\beta=0.259$ ,  $p < 0.01$ ) and tastier than conventional food ( $\beta=0.168$ ,  $p < 0.01$ ). Due to the fact that variable age is not significantly correlated (Table 5) with criteria variable (paying higher prices of organic food), in regression analysis it appears as a suppressor variable (a variable that is not correlated with the criterion, but in the correlation with the predictors contributing prediction). As the results of the hierarchical regression analysis indicate, all investigated characteristics have a statistically significant contri-

bution to explaining the variance of willingness of consumers to pay higher prices of organic food over conventional food. The socio-demographic variables involved can explain 2.5% of the variance, and variables related to the perception of organic food 14.4% of the variance of willingness of consumers to pay higher prices of organic food over conventional food. Thus, *the higher monthly household income predicts a greater willingness of consumers to pay higher prices of organic food over conventional food. The perception of organic food as healthier than conventional food and tastier than conventional food predicts a greater willingness of consumers to pay the higher price of organic food over conventional food.*

## 5. Conclusion

This paper attempts to identify the willingness-to-pay premium prices for organic food and offers more insights on the factors that predict such buying behaviour on the Croatian market, where WTP has not been addressed so far in previous research.

In this sense, the paper contributes to domestic and international literature about consumer preferences and their WTP for several organic food products on the growing organic food market. The findings of the study among Croatian customers propose some suggestions that food retailers can use as references while creating their communication strategies towards further development and overall growth of the organic food market in Croatia. Firstly, the study shows that Croatian consumers are not prepared to pay substantially higher price mark-ups, which is not fully consistent with the existing studies on consumer WTP for organic food, especially for various food groups (Bonti-Ankomah, Yiridoe, 2006). Secondly, the research results imply that Croatian citizens with larger personal monthly income, higher monthly household income and a larger number of household members are willing to pay higher prices for organic food over conventional food. This is not completely in line with empirical literature on consumer surveys which reveal that consumers' socio-economic characteristics such as age, gender, level of education, income level, household size as well as the level of consumers' awareness and perceptions, product price, taste, size, freshness and cleanness tend to influence consumers' WTP for organic food products (Owusu, Anifori, 2013). Thirdly, consumers who place a higher value on organic food attributes (such as that organic food is the food which can be identified by the ecological origin, more expensive than conventional food, better than conventional food, healthier than conventional food, safer for consumption than conventional food, of controlled production and of strictly controlled origin), are willing to pay higher prices for organic food com-

pared to conventional food. Price premiums paid for the characteristics of organic foods suggest that consumers place a higher value on the attributes compared to conventionally-produced alternatives and can signal differences in food product characteristics in favour of organic food. Lastly, the results show that although consumers are concerned about their health and safety and quality characteristics of their food, there is a maximum price level they are willing to pay for organic food.

In analysing the results of this research it is important to note that it has certain limitations, such as the methods of assessing the perception of organic food as well as the assessment of the prices consumers would be willing to pay for organic food over conventional food, which are based on the subjective assessment of respondents. Comparison of results of the price premiums consumers are willing to pay with other studies carried internationally is difficult because respondents were asked to indicate a general estimate of how much they would be willing to pay for organic food over conventional food. When compared to research conducted in Croatia, in other studies respondents were asked to state their WTP higher prices for a particular product category or specific organic product. Admittedly, earlier studies have demonstrated that respondents often overestimate how much they are willing to pay for organic food, therefore, future empirical researches should examine the actual willingness of consumers to pay a higher price for a particular product category or specific organic product. The authors would also recommend conducting longitudinal research which would follow the development of organic food market in Croatia.

## REFERENCES

1. Akaichi, F., Nayga, R. M. J., Gil, J. M. (2012), "Assessing consumers' willingness to pay for different units of organic milk: evidence from multiunit auctions", *Canadian Journal of Agricultural Economics*, Vol. 60, No. 4, pp. 469-494.
2. Angulo, A. M., Gil, J. M., Tamburo, L. (2003), "Food safety and consumers' willingness to pay for labelled beef in Spain", paper presented at the 83<sup>rd</sup> EAAE Seminar, Chania, 4-6 September, available at: [www.maich/eaee.gr](http://www.maich/eaee.gr) (Accessed on: September 3, 2017)
3. Aryal, K. P. (2008), "General perceptions of producer, traders and consumers about organic products in Kathmandu valley", in Chaudhary, P., Aryal, K., Tharu, D. (Eds.), *Proceedings of International Workshop on Opportunities and Challenges of Organic Production and Marketing in South Asia*, NPG, Kathmandu, pp. 120-124.
4. Aryal, K. P., Chaudhary, P., Pandit, S., Sharma, G. (2009), "Consumers' willingness to pay for organic products: a case from Kathmandu valley", *Journal of Agriculture and Environment*, Vol. 10, pp. 15-26.
5. Batte, M., Hooker, N., Haab, T., Beaverson, J. (2007), "Putting their money where their mouths are: Consumer willingness to pay for multi-ingredient processed organic food products", *Food Policy*, Vol. 32, No. 2, pp. 145-159.
6. Bhavsar, H., Baryeh, K., Tegegne, F. (2016), "Willingness to Pay More for Organic Foods by Tennessee Consumers", Selected Paper prepared for presentation at the Southern Agricultural Economics Association's 2016 Annual Meeting, San Antonio, February, 6-9, 2016, available at: <http://ageconsearch.umn.edu/bitstream/230010/2/Tennessee%20State%20University-Bhavsar%20et%20al.pdf> (Accessed on: March 1, 2017)
7. Bonti-Ankomah S., Yiridoe, E. K. (2006), "Organic and conventional food: A literature review of the economics of consumers' perceptions and preference". Final Report. Organic Agriculture Centre of Canada. Nova Scotia Agricultural College, Truro, Nova Scotia, available at: [https://www.researchgate.net/publication/229051543\\_Organic\\_and\\_conventional\\_food\\_a\\_literature\\_review\\_of\\_the\\_economics\\_of\\_consumer\\_perceptions\\_and\\_preferences](https://www.researchgate.net/publication/229051543_Organic_and_conventional_food_a_literature_review_of_the_economics_of_consumer_perceptions_and_preferences) (Accessed on: August 30, 2017)
8. Brčić-Stipčević, V., Petljak, K. (2011), "Research on organic food purchase in Croatia", *Tržište*, Vol. 23, No. 2, pp. 190-207.
9. Browne, A. W., Phil, J. C. H., Hofny-Collins, A. H., Pasiecznik, N. M., Wallace, R. R. (2000), "Organic Production and Ethical Trade: Definition, Practice and Links", *Food Policy*, Vol. 25, No. 1, pp. 69-89.
10. Canavari, M., Centonze, R., Nigro, G. (2011), "Organic food marketing and distribution in the European Union", Working Paper No. DEIAgraWP-07-002, Department of Agricultural Economics and Engineering of the Alma Mater Studiorum-University of Bologna, July 2007, available at: <http://ageconsearch.umn.edu/bitstream/9077/1/wp70002.pdf> (Accessed on: March 1, 2017)
11. Chinnici, G., D'Amico, M., Pecorino, B. (2002), "A multivariate statistical analysis on the consumers of organic products", *British Food Journal*, Vol. 104, No. 3/4/5, pp. 187-199.
12. Corsi, A., Novelli, S. (2003), "Measuring Quantity-Constrained and Maximum Prices Consumers are Willing to Pay for Quality Improvements: the Case of Organic Beef Meat", paper presented at the 25<sup>th</sup> International Conference of Agricultural Economists, August 16-22, 2003, Durban, available at: <http://ageconsearch.umn.edu/record/25900/files/cp03co02.pdf> (Accessed on: March 1, 2017)
13. De Pelsmacker, P., Driesen, L., Rayp, G. (2005), "Do Consumers care about Ethics? Willingness to pay for Fair-Trade Coffee", *The Journal of Consumer Affairs*, Vol. 32, No. 2, pp. 363-385.
14. Fotopoulos, C., Krystallis, A. (2002), "Purchasing motives and profile of the Greek organic consumer: A countrywide survey", *British Food Journal*, Vol. 104, No. 9, pp. 730-765.
15. Fu, T. T., Liu, J. T., Hammit, J. (1999), "Consumer willingness to pay for low-pesticide fresh produce in Taiwan", *Journal of Agricultural Economics*, Vol. 50, No. 2, pp. 220-233.

16. Gil, J. M., Garcia, A., Sanchez, M. (2000), "Market segmentation and willingness to pay for organic products in Spain", *The International Food and Agribusiness Management Review*, Vol. 3, No. 2, pp. 207-226.
17. Gil, J. M., Soler, F. (2006), "Knowledge and willingness to pay for organic food in Spain: evidence from experimental auctions", *Food Economics*, Vol. 3, Nos. 3-4, pp. 109-124.
18. Govindasamy, R., DeCongelio, M., Bhuyan, S. (2006), "An Evaluation of Consumer Willingness to Pay for Organic Produce in the Northeastern U.S.", *Journal of Food Products Marketing*, Vol. 11, No. 4, pp. 3-20.
19. Govindasamy, R., Italia, J. (1999), "Predicting willingness to pay a premium for organically grown fresh produce", *Journal of Food Distribution Research*, Vol. 30, No. 2, pp. 44-53.
20. Gracia, A., de Magistris, T. (2007), "Organic food product purchase behaviour: a pilot study for urban consumers in the South of Italy", *Spanish Journal of Agricultural Research*, Vol. 5, No. 4, pp. 439-451.
21. Hoefkens, C., Verbeke, W., Aertsens, J., Mondelaers, K., Van Camp, J. (2009), "The nutritional and toxicological value of organic vegetables: Consumer perception versus scientific evidence", *British Food Journal*, Vol. 111, No. 10, pp. 1062-1077.
22. Hughner, R. S. (2007), "Who are organic food consumers? A compilation and review of why people purchase organic food", *Journal of Consumer Behaviour*, Vol. 6, No. 2-3, pp. 94-110.
23. Kenanoğlu, Z., Karahan, Ö. (2002), "Policy implementations for organic agriculture in Turkey", *British Food Journal*, Vol. 104, Nos. 3/4/5, pp. 300-318.
24. Krissoff, B. (1998), "Emergence of U.S. organic agriculture - can we compete?", *American Journal of Agricultural Economics*, Vol. 80, No. 5, pp. 1130-1133.
25. Krystallis, A., Chrysosoidis, G. (2005), "Consumers' willingness to pay for organic food. Factors that affect it and variation per organic product type", *British Food Journal*, Vol. 107, No. 5, pp. 320-343.
26. Laroche, M., Bergeron, J., Barbaro-Forleo, G. (2001), "Targeting consumers who are willing to pay more for environmentally friendly products", *Journal of Consumer Marketing*, Vol. 18, No. 6, pp. 503-520.
27. Magnusson, M. K., Arvola, A., Koivisto Hursti, U. K., Aberg, L., Sjoden, P. O. (2001), "Attitudes towards organic foods among Swedish consumers", *British Food Journal*, Vol. 103, No. 3, pp. 209-226.
28. Maguire, K. B., Owens, N., Simon, N. B. (2004), "The Price Premium for Organic Babyfood: A Hedonic Analysis", *Journal of Agricultural and Resource Economics*, Vol. 29, No. 1, pp. 132-149.
29. Makatouni, A. (2002), "What motivates consumers to buy organic food in UK? Results from a qualitative study", *British Food Journal*, Vol. 104, No. 3/4/5, pp. 345-352.
30. Menon, M. K. (2008), "Organic Agriculture and Market Potential for Organic products in India", in Chaudhary, P., Aryal, K., Tharu, D. (eds.), *Proceedings of International Workshop on Opportunities and Challenges of Organic Production and Marketing in South Asia*, NPG, Kathmandu, pp. 87-94.
31. Mohamad, S. S., Rusdi, S. D., Hashim, N. R. (2014), "Organic Food Consumption Among Urban Consumers: Preliminary Results", *Procedia - Social and Behavioral Sciences*, Vol. 130, May, pp. 509-514.
32. Owusu, V., Anifori, M. O. (2013), "Consumer Willingness to Pay a Premium for Organic Fruit and Vegetable in Ghana", *International Food and Agribusiness Management Review*, Vol. 16, No. 1, pp. 67-86.
33. Padel, S., Foster, C. (2005), "Exploring the gap between attitudes and behaviour: Understanding why consumers buy or do not buy organic products", *British Food Journal*, Vol. 107, No. 8, pp. 606-625.
34. Petljak, K. (2010), "Organic food category research among leading food retailers in Croatia", *Tržište*, Vol. 22, No. 1, pp. 93-112.
35. Petljak, K. (2011), "Review of Development and Characteristics of Organic Agriculture in Croatia", *Ekonomski vjesnik*, Vol. 24, No. 2, pp. 382-395.
36. Petljak, K. (2013), "Distribution channels of organic food in the Republic of Croatia", *Poslovna izvrsnost*, Vol. 7, No. 1, pp. 73-96.

37. Radman, M. (2005), "Consumer consumption and perception of organic products in Croatia", *British Food Journal*, Vol. 107, No. 4, pp. 263-273.
38. Renko, S., Bošnjak, K. (2009), "The actual situation and the perspectives for development of organic food market in Croatia", *Ekonomski pregled*, Vol. 60, No. 7-8, pp. 369-395.
39. Roininen, K., Arvola, A., Lahteenmaki, L. (2006), "Exploring consumers' perceptions different qualitative of local food with two techniques: Laddering and word association", *Food Quality and Preference*, Vol. 17, No. 1-2, pp. 20-30.
40. Sandalidou, E., Baourakis, G., Siskos, Y. (2002), "Customers' perspectives on the quality of organic olive oil in Greece: A satisfaction evaluation approach", *British Food Journal*, Vol. 104, Nos. 3/4/5, pp. 391-406.
41. Štefanić, I., Štefanić, E., Haas, R. (2001), "What the consumer really wants: organic food market in Croatia", *Die Bodenkultur*, Vol. 52, No. 4, pp. 323-328.
42. Tsakiridou, E., Boutsouki, C., Zotos, Y., Mattas, K. (2008), "Attitudes and Behaviour Towards Organic Products: An Exploratory Study", *International Journal of Retail & Distribution Management*, Vol. 36, No. 2, pp. 158-175.
43. Turco, G. (2002), "Organic Food-An Opportunity, at Who's Expense?", *Industry Note, Food and Agribusiness Research, Rabobank International, Sydney*, available at: [www.rabobank.com/attachments/in-043-2002](http://www.rabobank.com/attachments/in-043-2002) (Accessed on: September 3, 2017)
44. Ureña, F., Bernabéu, R., Olmeda, M. (2008), "Women, men and organic food: differences in their attitudes and willingness to pay. A Spanish case study", *International Journal of Consumer Studies*, Vol. 32, No. 1, pp. 18-26.
45. Wier, M., Calverley, C. (2002), "Market potential and organic foods in Europe", *British Food Journal*, Vol. 104, No. 1, pp. 45-62.
46. Wier, M., O'Doherty Jensen K., Mørch Andersen, L., Millock, K. (2008), "The character of demand in mature organic food markets: Great Britain and Denmark compared", *Food Policy*, Vol. 33, No. 5, pp. 406-421.
47. Wier, M., Smed, S. (2000), *Consumer Preferences for Organic Foods – The Case of consumption of dairy products in Denmark*, Mimeo.
48. Willer, H., Youssefi, M. (2007). *The world of organic agriculture - Statistics and emerging trends*. Bonn: International Federation of Organic Agriculture Movements (IFOAM) & Research Institute of Organic Agriculture (FiBL).
49. Xie, B., Wang, L., Yang, H., Wang, Y., Zhang, M. (2015), "Consumer perceptions and attitudes of organic food products in Eastern China", *British Food Journal*, Vol. 117, No. 3, pp. 1105-1121.
50. Yiridoe, E. K., Bonti-Ankomah, S., Martin, R. C. (2005), "Comparison of consumer perceptions and preference toward organic versus conventionally produced foods: A review and update of the literature", *Renewable Agriculture and Food Systems*, Vol. 20, No. 4, pp. 193-205.
51. Żakowska-Biemans, S. (2011), "Polish consumer food choices and beliefs about organic food", *British Food Journal*, Vol. 113, No. 1, pp. 122-137.
52. Znaor, D. (1996), *Ekološka poljoprivreda – poljoprivreda sutrašnjice*. Zagreb: Nakladni zavod Globus.

**(ENDNOTES)**

- 1 DEFRA (2017), "Organic – a definition", available at: <https://www.bbcgoodfood.com/howto/guide/organic> (Accessed on: September 3, 2017)
- 2 Ministry of Agriculture (2011), "Action plan of development of organic agriculture in the Republic of Croatia for the period 2011-2016", available at: [www.mps.hr/default.aspx?id=7884](http://www.mps.hr/default.aspx?id=7884) (Accessed on: March 01, 2017)

*Kristina Petljak  
Ivana Štulec  
Sanda Renko*

## **SPREMNOST POTROŠAČA NA PLAĆANJE VIŠE CIJENE ZA EKOLOŠKE PREHRAMBENE PROIZVODE U HRVATSKOJ**

### **SAŽETAK**

Uzimajući u obzir sve veću zabrinutost potrošača zbog konvencionalnih poljoprivrednih praksi, sigurnosti hrane, ljudskog zdravlja, dobrobiti životinja i okoliša, cilj je ovog rada utvrditi prediktore spremnosti plaćanja više cijene za kupovinu ekoloških prehrambenih proizvoda. Istraživanje je provedeno na reprezentativnom uzorku ispitanika u Republici Hrvatskoj, rastućem tržištu ekoloških prehrambenih proizvoda, korištenjem visoko strukturiranoga upitnika. Rezultati istraživanja ukazuju na to da ispitanici u Republici Hrvatskoj percipiraju ekološke prehrambene proizvode kao skuplje, zdravije i ukusnije od konvencionalnih proizvoda, a vjeruju da je podrijetlo ekoloških prehrambenih proizvoda strogo kontrolirano. Rezultati hijerarhijske regresijske analize pokazuju da veći mjesečni prihod kućanstva predviđa veću spremnost plaćanja više cijene za ekološke prehrambene proizvode u usporedbi s konvencionalnim proizvodima. Također, percepcija ekoloških prehrambenih proizvoda kao zdravijih i ukusnijih od konvencionalnih prehrambenih proizvoda predviđa veću spremnost plaćanja više cijene za ekološke prehrambene proizvode, u usporedbi s konvencionalnim proizvodima. Očekuje se da će rezultati istraživanja biti korisni za trgovce hranom, posebice za njihove marketinške strategije s ciljem daljnjega razvoja i rasta tržišta ekoloških prehrambenih proizvoda. Provedeno je istraživanje jedinstveno istraživanje takve vrste jer se njime istražuje spremnost plaćanja više cijene za ekološke prehrambene proizvode te se utvrđuju prediktori koji utječu na njih na rastućem hrvatskome tržištu.

**Ključne riječi:** ekološki prehrambeni proizvodi, spremnost plaćanja, premijska cijena, ponašanje potrošača, anketno ispitivanje, Republika Hrvatska