THE MAIN DEMOGRAPHIC CHARACTERISTICS OF CUSTOMERS AND THE FREQUENCY OF PURCHASES ORGANIC FOOD

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ABSTRACT

The essential research goal is to determine the frequency of purchases organic food in general and the basic demographic characteristics of typical buyers of organic food. Sample consists of 571 respondents of different sex, age, and educational level, area of living, material and marital status. The research was conducted online using a Google. The SPSS program was used for data processing. The Man Witney U and the Kruskal – Wallis tests were applied in order to determine the statistical significance of the obtained differences in scores between groups of subjects. The obtained results showed that the frequency of purchasing organic food in Serbia is still low. Typical buyers of organic food are mostly women, older, have higher education and income. They usually live in urban areas, in big cities, while their marital status seems to have no influence on their decision to purchase an organic food and products.

Keywords: organic food, customers, frequency of organic food purchases, the main demographic characteristics

JEL: Q13, Q16

Introduction

The main goal of the research is to examine the basic characteristics of typical buyers of organic food in Serbia. In that sense, in addition to the general frequency of organic food purchases in Serbia, all important characteristics and differences that exist between people of different gender, age, educational level, rural or urban area, material and marital status are determined. Therefore, it is not surprising that there has been a large change in the orientation of agricultural producers in these countries and an increasing turn towards the production of organic food. As a result of that, about 33% of organic food produced comes from developing countries (Yadav, 2016).

The organic industry is one of the fastest growing sectors, and in the period from 2013
to 2015 it recorded a growth of as much as 400% (Froehlich et al., 2018). Between 2000 and 2017, a demand for organic products has been increased by 330%, while the area of organic land has also been increased by 200%, as well as the value of the organic food market in 2017 has been estimated approximately about $97 billion (Bazaluk, et al., 2020). Considering the fact that the Organic Food Market has a tendency of constant growth, in 2019 the value of this market amounted to 106 billion euros (IFOAM, 2021). In previous years organic food was present exclusively in the markets of the most developed countries, in order to gradually expand to third world countries market (Rana & Paul, 2017). In Serbia the organic food market could be described as small and very modest (März et al., 2012). This is indicated by the growth rate of the organic food market, that is only 2 to 3% per year that is very small, if we keep in mind that this market in the EU is growing by an average of 10 to 15% per year (Končar et al., 2019).

The crucial goal of this research is to determine the frequency of organic food purchases in general and the basic demographic characteristics of typical buyers of organic food. The group of authors conducted research on the socioeconomic status and characteristics of organic food buyers (Onyango et al., 2007). In 2003, the aforementioned researchers conducted 1201 randomly selected telephone interviews in the United States. The results showed that on that sample 44% of respondents are regular buyers of organic food (permanently or occasionally) while 56% of respondents rarely buy organic food. Organic buyers are more often women, younger buyers (18-32 years) and mostly have higher education and income, while religiosity, political affiliation and ethnicity do not influence the decision of purchase an organic food. Similar results were obtained in 2006 in the USA on a sample of 44,000 households, in which the correlation among certain demographic characteristics and the probability of organic food purchases was examined (Dimitri & Dettmann, 2012). The results showed that factors such as higher income and education, marriage and easier approach to increasing of the organic food as well as the probability of organic food purchase.

In one study, in two large cities in Canada as a sample it was used 324 respondents, both in person (95%) and online (5%) (Hamzaoui-Essoussi & Zahaf, 2012). The results showed that regular consumers of organic products mostly live in city centers, work as professionals and have higher education and income, while occasional buyers of organic products mostly live in the suburbs and have lower income. As far as marital status is concerned, most consumers of organic products are in marriage and have 1 child. The results of the mentioned research showed that regular customers spend at least 100 dollars a month on organic products. However, other conducted research did not show that consumers from urban areas are more frequent buyers of organic meat than residents of rural areas in the UK (McEachern & Willock, 2004).

A large number of research have shown that a majority of women have positive opinion of organic food comparing to men (Lockie et al., 2002; McEachern & McClean, 2002; O’Donovan & McCarthy, 2002; Storstad & Bjørkhaug, 2003; Diamantopoulos et al., 2003; Lea & Worsley, 2005; Đokić et al., 2014; Eisinger-Watzl et al., 2015; Vittersø & Tangeland, 2015; Petrescu et al., 2016; Kranjac et al., 2017; Azzurra et al., 2019;
Stojić & Dimitrijević, 2020). However, a study conducted in Serbia showed that men have more positive attitudes about organic food and that they buy and consume it more often than women (Perić et al., 2017). Certain authors (Marreiros et al., 2010) disagree with previous research based on their results in a study of organic food consumers in Germany and Portugal, which has shown that gender does not have much influence in the process of making decision of buying organic food.

Some authors have found a connection between years of life and increased tendencies to buy an organic food (Mintel, 2000; Durham & Andrade, 2005; Rimal et al., 2005; Geen & Firth, 2006; Roitner-Schobesberger et al., 2008; Eisinger-Watzl et al., 2015; Singh & Verma, 2017). However, a large number of authors (Fotopoulos & Krystallis, 2002; Hughner et al., 2007; Hassan et al., 2009; Torjusen et al., 2010; Aertsens et al., 2011) argue that age has no effect on consumers in a decision to buy an organic food or has a minimal influence on it purchase (Lea & Worsley, 2005).

Consumers who buy organic food generally have higher social status according to a study conducted in Germany on 500 consumers (Eisinger-Watzl et al., 2015). Also, typical buyers with high revenues are more likely to buy organic products according to research results (Singh & Verma, 2017; Rizzo et al., 2020), but others find that income is uncorrelated with the probability of purchasing an organic food (Durham, 2007).

Some other research shown a positive correlation among the educational level and decision to purchase an organic food (O’Donovan & McCarthy, 2002; Sandalidou et al., 2002; Denver et al., 2007; Yue et al., 2008; Baudry et al., 2016; Singh & Verma, 2017). In accordance with the study that is conducted in France (Kesse-Guyot et al., 2013), regular organic food buyers are more educated and more physically active than occasional organic food buyers. Unlike previous, the results of other research have shown that there is no statistically significant connection between education levels and organic food purchases (Thompson & Kidwell, 1998; Lea & Worsley, 2005; Rimal et al., 2005).

Even 71.8% of the consumers prefer to buy Serbia from the organic products over the conventional (Dašić et al., 2019). The majority of respondents state that very rarely (46%) or never (8.5%) buy organic products. Another study of socio-demographic characteristics of organic food buyers and the frequency of organic food purchases was conducted in Serbia. About 300 respondents aged 20 to 65 were interviewed in larger cities in Serbia in 2013. The results of the research showed that consumers who buy an organic product at least once a week make up 28.3%, while people who stated that rarely or never buy an organic products make up 71.7%. Organic food buyers are mostly women, married, have higher education and income, have children and live often in larger households (Đokić et al., 2014). Another study confirms that consumers of organic products are mostly of higher education, but unlike the results of previous authors, they live in smaller households – up to 4 members (Kranjac et al., 2017).

Another research was conducted in Serbia in April 2020 through an online survey on a sample of 1022 respondents (Ćirić et al., 2020). The results showed that the most common buyers of organic food are aged 25 to 39 years and that they have a higher...
level of education, that is in accordance to the study of which buyers of organic food are most often between 21 to 40 years (Kranjac et al., 2017). According to the previous research, consumers under the age of 21 the least buy an organic food, which is also confirmed by results of another research according to which more than 60% of the youngest respondents do not pay much attention to the origin of organic food (Stojić & Dimitrijević, 2020). It is interesting, even when only higher education is considered, that people with undergraduate and master studies buy organic food more often than people with a PhD. Also, consumers who have higher revenues often tend to purchase an organic products, which is in line with other research (Vehapi & Dolićanin, 2016; Končar et al., 2019).

Materials and methods

Some of the most important issues that are increasingly asked in scientific frameworks are:

1) What is the average frequency of buying organic food in general?
2) Who are the typical buyers of organic products? (their gender, education, age, area, material status)

The purpose of actual study is to give an answers to these questions in order to understand better the basic demographic characteristics of a typical organic food buyer as well as the presence of a tendency for a healthy lifestyle reflected in the purchase of organic food among people from Serbia.

The main goal and significance of this research is reflected in the determination of relevant information on the frequency of purchases and typical characteristics of organic customers. Besides the obvious theoretical significance which is reflected in a better understanding of the examined phenomena, the obtained information can also be used for practical purposes by various stakeholders. These can primarily be: traders, producers, distributors, importers, policy makers, various interest groups and others, in order to adequately and properly design strategies in accordance with the interests and perceptions of organic food buyers. Based on a better insight into who the typical buyers of organic food are and what their main preferences are, producers can organize the production of adequate products, which will meet the their expectations. Based on this information appropriate marketing strategies are available to the marketers and distributors, which can be usefull to them in order to increase the number of customers and sales value.

The basic hypotheses of current research can be defined in the following way. There are statistically significant differences in scores when it comes to the frequency of organic food purchases in general (H1), but also depending on gender (H2), education (H3), age (H4), material status (H5), rural or urban area (H6) and marital status (H7).

The sample consisted of 571 respondents, of different gender, education, age, material and marital status, as well as area. In addition to the list of basic data on the respondent, a specially designed questionnaire was used for the needs of current research, which
was conducted online via Google Forms. It consists of 20 items of five-pointe Likert scale concerning different variants related to nutrition, frequency consumer purchases, motives, barriers and habits. The reliability of this questionnaire in research on this and similar topics (Čolović and Mitić, 2021; Čolović et al, 2021) measure of internal consistency ranged from 0.71 to 0.81 of Cronbach’s alpha. In addition to descriptive statistics, the Man Witney U test was used to determine differences between two groups of subjects and the Kruskal–Wallis one-way analysis of variance test was used to examine differences in scores between larger number of groups subjects.

Results and discussion

Frequency of organic food purchases

Based on the obtained results on the frequency of purchasing organic food, it can be seen that in our culture there is still no developed awareness of the importance of a healthy nutrition and the benefits it brings. Thus, in the examined sample, only 5.4% of respondents stated that they buy organic food every day, 13.5% two to 3 times a week, while the largest part are made of those who stated that they never buy organic food, even 28.2%. There is a very high percentage of those who rarely buy organic food. Thus, 27.9% state that they buy once a month, while 25.0% do so once a week (Table 1).

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>161</td>
</tr>
<tr>
<td>Once a month</td>
<td>159</td>
</tr>
<tr>
<td>Once a week</td>
<td>143</td>
</tr>
<tr>
<td>2-3 times a week</td>
<td>77</td>
</tr>
<tr>
<td>Daily</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>571</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations

One of the possible reasons for such results may be insufficient information of consumers about the importance and significance of quality nutrition, as well as all the benefits it brings. Also, some of the potential reasons that are common in our population can be: unavailability of organic products, distrust in certification, taste, various psychological factors, etc. The biggest obstacle for consumers in buying organic food is certainly the high price, which is not surprising given the lower standard of our population compared to more developed countries (Čolovic & Mitic, 2021). The results of mentioned research are in line with the results according to which 2.3% of respondents often buy organic products, while over 50% do not buy or rarely buy organic products (Đašić et al., 2019) and research according to which as many as 71.7% of consumers rarely or never buy organic food (Đokić et al., 2014).
Demographic characteristics of organic food consumers

Current research involved 571 respondents of which 449 female and 122 male (Figure 1).

Figure 1. Gender of the respondents in the sample

![Gender of the respondents in the sample](image)

Source: Authors’ calculations

Statistically significant gender differences in scores were obtained in favor of women, who proved to be more frequent buyers of organic food (Mann-Whitney U=24861.000; p<0.05) (Table 2).

Table 2. Result of Mann-Whitney U test – statistical significance of gender differences

<table>
<thead>
<tr>
<th>FREQUENCY OF PURCHASING ORGANIC FOOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
</tr>
<tr>
<td>Sig.</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations

A possible reason for this results may be greater attention and commitment to physical appearance by women than men. Also, the reason for the obtained results may be the fact that women go shopping more often and pay more attention in planning purchases and checking the quality of food they intend to buy, in order to maintain a better self as well as the health of their families (Table 3).
Table 3. Gender differences in the purchase of organic food

<table>
<thead>
<tr>
<th>Gender of Purchasing organic food</th>
<th>N</th>
<th>MR</th>
<th>ΣR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>122</td>
<td>265.28</td>
<td>32364.00</td>
</tr>
<tr>
<td>Female</td>
<td>449</td>
<td>324.89</td>
<td>145876.00</td>
</tr>
<tr>
<td>Total</td>
<td>571</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors’ calculations

This result is consistent with research (Lockie et al., 2002; McEachern & McClean, 2002; O’Donovan & McCarthy, 2002; Storstad & Bjørkhaug, 2003; Diamantopoulos et al., 2003; Lea & Worsley, 2005; Onyango et al., 2007; Đokić et al., 2014; Eisinger-Watzl et al., 2015; Vittersø & Tangeland, 2015; Petrescu et al., 2016; Kranjac et al., 2017; Azzurra et al., 2019; Stojić & Dimitrijević, 2020), and is not in line with research according to which gender has no effect on the frequency of organic food purchases (Marreiros et al., 2010), nor research, according to which men buy more often than women organic food (Perić et al., 2017).

In the current research, there are 6 persons (1.1%) who completed only primary school, 210 (36.8%) with secondary education, 59 persons or 10.3% have completed vocational studies or higher education, while 280 persons (49%) have higher education and 16 persons have a PhD diploma, which present 2.8% of the total sample (Figure 2).

Figure 2. Education of the respondents in the sample

Source: Authors’ calculations

As far as education is concerned, the frequency of organic food purchases has shown to increase with the level of education, which can be related to the increasing awareness of the importance of a healthy nutrition and plenty advantages of organic food in relation to conventional and GMO. A higher level of education is mostly associated with higher income (which proved to be true in the current research), ie a higher possibility of buying organic food.
More precisely, people with a PhD are the most frequent buyers of organic food, while people who have only completed primary school are the least likely to buy this type of food (Table 4).

**Table 4.** Educational differences in the purchase of organic food

<table>
<thead>
<tr>
<th>FREQUENCY OF PURCHASING ORGANIC FOOD</th>
<th>EDUCATION</th>
<th>N</th>
<th>MR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary school</td>
<td>6</td>
<td>232.89</td>
</tr>
<tr>
<td></td>
<td>High school</td>
<td>210</td>
<td>260.31</td>
</tr>
<tr>
<td></td>
<td>Vocational studies</td>
<td>59</td>
<td>286.79</td>
</tr>
<tr>
<td></td>
<td>Completed graduate studies / Master’s Degree</td>
<td>280</td>
<td>301.87</td>
</tr>
<tr>
<td></td>
<td>Completed doctoral degree</td>
<td>16</td>
<td>333.34</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>571</td>
<td></td>
</tr>
</tbody>
</table>

The magnitude of the obtained differences, measured by the Kruskal-Wallis test, was at a statistically significant level ($\chi^2 = 10.32; p <0.05$).

This results are consistent with result obtained in some research (O’Donovan & McCarthy, 2002; Sandalidou et al., 2002; Denver et al., 2007; Yue et al., 2008; Kesse-Guyot al., 2013; Baudry et al. al., 2016; Singh & Verma, 2017) while are not in line with another results (Thompson & Kidwell, 1998; Lea & Worsley, 2005; Rimal et al., 2005) according to which the level of education does not affect the frequency of organic food purchases.

Most of the people in the sample live in the city, as many as 498 of them, which is 86.7%. Only 73 respondents are from rural areas, or 13.3% (Figure 4).

**Figure 3.** Area of living of the respondents in the sample

People who live in the urban areas – big cities, tend to often buy an organic food (Table 4).
### Table 4. Differences in the purchase of organic food regards to area

<table>
<thead>
<tr>
<th>AREA</th>
<th>N</th>
<th>MR</th>
<th>ΣR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural area</td>
<td>73</td>
<td>251.70</td>
<td>20564.00</td>
</tr>
<tr>
<td>Urban area</td>
<td>498</td>
<td>296.63</td>
<td>162742.00</td>
</tr>
<tr>
<td>Total</td>
<td>571</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Authors’ calculations

One of the possible reasons is the fact that people who have been living in the cities have a much more enable information and greater availability of organic food stores. The size of the received differences is at a statistically significant level (Mann-Whitney U=17863.000; p<0.05) (Table 5).

### Table 5. Result of Mann-Whitney U test – statistical significance of purchasing organic food regards to area

<table>
<thead>
<tr>
<th>FREQUENCY OF PURCHASING ORGANIC FOOD</th>
<th>Mann-Whitney U</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17863.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

**Source:** Authors’ calculations

The results of the current research are in line with research according to which customers in cities are more likely to buy organic food than customers in rural areas (McEachern & Willock, 2004) as well as with another according to which customers from the city center tend to buy an organic food more often than those who live in the suburbs (Hamzaoui-Essoussi & Zahaf, 2012).

Over 83% of respondents in our sample stated that they have an average income (477 to be precise). 49 persons rated their income as above average, which represent 8.6%, while 45 persons stated that they had income below average (7.9%) (Figure 4).

**Figure 4.** Material status (income) of the respondents in the sample

**Source:** Authors’ calculations
It has been shown that with better material status, that is with the increase of income, the frequency of buying organic food generally increases. People who reported to have an above-average income tended to buy organic food the most (Table 6).

**Table 6.** Result of Kruskal–Wallis test  
(significance of differences regards the material status – income)

<table>
<thead>
<tr>
<th>MATERIAL STATUS (INCOME)</th>
<th>N</th>
<th>MR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below average</td>
<td>45</td>
<td>270.07</td>
</tr>
<tr>
<td>Average</td>
<td>477</td>
<td>298.77</td>
</tr>
<tr>
<td>Above average</td>
<td>49</td>
<td>332.04</td>
</tr>
<tr>
<td>Total</td>
<td>571</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Authors’ calculations*

This can be related to the higher price of organic products, respectively the inability of people with lower material status to afford an organic food and products. The obtained differences in the scores of the respondents are at a statistically significant level ($\chi^2=5.311$, $p<0.05$).

The results of the current research are in line with the results of other research (Eisinger-Watzl et al., 2015; Singh & Verma, 2017; Rizzo et al., 2020).

In the current sample, the largest number of respondents is aged 25 to 39 years (48.5%). People between the ages of 40 and 65 are in second place (32%), followed by younger respondents (18.9%), while older respondents make up 0.6% of the sample (Figure 5).

**Figure 5.** Age of the respondents in the sample

*Source: Authors’ calculations*

The obtained differences in the scores of respondents of different ages are at a statistically significant level ($\chi^2=5.311$; $p<0.05$).
With age, the frequency of buying healthy food increases. Thus, the oldest respondents most often buy this type of food. The turning point in making this decision is probably related to the appearance of certain diseases and the decline of vital functions, which consequently lead to increased care for one’s own health and awareness of the importance of a healthy nutrition. Considering the majority of older respondents have a regular income, it becomes clear that this further facilitates and contributes to the purchase of organic food in this age group.

The following table shows the magnitude of the obtained differences.

<table>
<thead>
<tr>
<th>AGE</th>
<th>N</th>
<th>MR</th>
</tr>
</thead>
<tbody>
<tr>
<td>From 18 to 24 years</td>
<td>108</td>
<td>275.32</td>
</tr>
<tr>
<td>From 25 to 39 years</td>
<td>276</td>
<td>283.08</td>
</tr>
<tr>
<td>From 40 to 64 years</td>
<td>183</td>
<td>296.15</td>
</tr>
<tr>
<td>Over 65 years</td>
<td>4</td>
<td>311.88</td>
</tr>
<tr>
<td>Total</td>
<td>571</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Authors’ calculations

The obtained results are in accordance with the group of research (Mintel, 2000; Durham & Andrade, 2005; Rimal et al., 2005; Geen & Firth, 2006; Roitner-Schobesberger et al., 2008; Eisinger-Watzl et al., 2015; Singh & Verma, 2017), but are inconsistent with the results of other studies (Fotopoulos & Krystallis, 2002; Hughner et al., 2007; Hassan et al., 2009; Torjusen et al., 2010; Aertsens et al., 2011).

In a sample of 571 respondents, by far the largest number of respondents are married (44.7%). They are followed by persons without a partner (26.1%), then persons who are in a relationship (21.4%). Only 6.1% of respondents are divorced, while widows make up only 1.8% of the total number of respondents (Figure 6).

**Figure 6.** Marital status of the respondents in the sample

**Source:** Authors’ calculations
No statistically significant differences were obtained in the scores of respondents of different marital status ($\chi^2=6.01; \ p>0.05$).

This result is not in accordance with the results of previous research according to which married people are most often buyers of organic food (Hamzaoui-Essoussi & Zahaf, 2012; Dimitri & Dettmann, 2012; Kranjac et al., 2017).

| Table 8. Differences in the purchase of organic food regards to marital status |
|---------------------------------|--------|--------|
| MARITAL STATUS                  | N      | MR     |
| Single                          | 149    | 275.33 |
| In a relationship               | 122    | 303.20 |
| Married                         | 255    | 285.70 |
| Divorced                        | 35     | 252.83 |
| Widower                         | 10     | 358.90 |
| Total                           | 571    |        |

Source: Authors’ calculations

**Conclusion**

A conclusion can be drawn from all the above that the awareness of the importance and purchase of organic food in our environment is still at a very low level, due to which the frequency of purchasing this type of food is also very low.

Yet it can be concluded that the certain level of awareness the importance and significance of a healthy nutrition in order to improve and preserve the health and quality of one’s own life and life of their family members existence and it is most evident in certain groups of our respondents. So it turned out that the typical buyers of organic food are mostly female, with higher education and income, from the urban environment, and older age.

The results are not surprising if we keep in mind that females generally spend more time in shopping, and that high income make it easier to include organic food in the daily nutrition, given the fact that it is more expensive than conventional. Also, more educated customers who live in cities have more information and are better informed about the benefits of organic food, so they more often decide to buy organic food. Over the years, consumers take more and more care of their health, and therefore more often decide to buy and consume organic food in order to contribute better to their own health.

The significance of this research is reflected in providing, based on the obtained results, better insight into who are the buyers of organic food and what are their main socio-demographic characteristics. This is very important considering the fact that socio-demographic characteristics have a great influence on consumers in making a decision to purchase an organic food.

The limitation of current research represent an uneven sample, primarily by gender and area, and it would be useful to equalize the number of respondents according to the mentioned variables in future research. Also, it would be interesting to extend researches...
to other socio-demographic characteristics in order to see the influence they have on making the decision to buy an organic food, or even to conduct research in the others market in order to identify any difference in the most important socio-demographic characteristics of consumers, as well as, examine whether the frequency of purchasing an organic food is at approximate level in the other countries. Another interesting fact that would be good to investigate is the possible change that occurse in the frequency of baying an organic food after the Covid-19 Pandemic and whether has there occured a reassignment of the main demographic characteristics among buyers of organic food.

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Conflict of interests

The authors declare no conflict of interest.

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