

Veronika Blašková

Department of Statistics and Operation Analysis, Faculty of Business and Economics
Mendel University in Brno, Brno, Czech Republic
E-mail: veronika.blaskova@mendelu.cz.

Hana Stojanová

Department of Management, Faculty of Business and Economics
Mendel University in Brno, Brno, Czech Republic
E-mail: hana.stojanova@mendelu.cz

MIXED RESEARCH METHOD OF ORGANIC FOOD PREFERENCES AMONG GENERATION Y CONSUMERS

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Abstract

The article analyses by mixed research methods the attitude regarding the purchase of bio and organic food for the population of the Generation Y in Czech and Slovak Republic. The collection of primary data was obtained in the form of a questionnaire survey carried out in the year 2014 and then repeatedly in the year 2019. Both phases of questionnaires were distributed electronically among respondents, university students, ranged from 16 to 35 years in Czech and Slovak Republic. The research questions related to the reasons why respondents purchase or do not purchase organic food and what criteria are motivational for choosing organic food products. In data processing was used statistical software Statistics. Methods applied to the data were statistical hypothesis testing and regression modelling. The key factors have been identified with the software influenced the respondent's decision to buy bio-and organics products in 2019. The research findings prove that visual appearance and brand doesn't play the decision key role for generation Y customers, as they put the main emphasis on the quality and availability of the bio-product.

Keywords: organics food, logit model

1. INTRODUCTION

The demand of organic products and foods has escalated during the last years, mainly in North America and Europe, where generates 90% of sale. It has been shown that generation Y has a unique and different approach to the purchase organic food compared to previous generations. Generation Y customers look for the quality while trying to avoid risk of purchase decision, in the market where so called quality labels expanded, supported by local farm markets, manufacturers and regional as well as national authorities (Willer, Lernoud, 2018).

2. LITERATURE REVIEW

It seems that the demand for bio, organic, sustainable quality food has been noticeably rising over the previous few years. Apparently this aspect led to increase of organic farms and organic food producers (Silva et al., 2017) The newest Eurobarometer survey presents survey results declared that more than 90% of EU citizens find quality and price an important factor when purchasing food, and more important than origin (71%) and brand (47%), moreover the 24% of those asked already recognise the EU organic logo (European Commission, 2013).

Despite the generally perceived meaning, that products labelled by quality marks are generally accepted to be of higher quality, the findings of disorientation among all the labels and distrust of brands has been recognised among generation Y customers. Together with massive brands expansion comes also the ignorance of labels (Heerwagen, et al. 2015, Altintzoglou, Heide, 2016, Priilaid, Hall, 2016, Grunert, Aachmann, 2016, Velčovská, Hadro, 2018). The data of organic food consumption conducted on previous different generations might not be generalized also to generation Y due to their unique consumption behavior and preferences (Khan, Mohsin, 2017, Macready, et al. 2020, Blagoev, Shustova, Mischenko, 2021).

The aim of the research has been to investigate the Generation Y consumption behaviour regarding their purchase preferences of organic food in Czech and Slovak Republic.

3. MATERIALS AND METHODS OF DATA PROCESSING

The collection of primary data was carried out in the form of a questionnaire survey carried out in the year 2014 and then again in the year 2019. Both questionnaires were distributed electronically and shared a significant number of questions. These research questions related to the reasons why respondents purchase, or do not purchase the organic food and what criteria are motivating them to prefer these products. Assumed that healthy lifestyles are mainly driven by young generation, the questionnaire was distributed among this target group in Czech and Slovak Republic.

The questionnaire survey 2014 was carried on 1 122 respondents, when the adjustments to incompleteness has been provided, the participation has decreased to the 1108 responses. The questionnaire was distributed through ReLu¹ and was filled by respondents in electronic form. The respondents can be divided by gender categories to the 71.21% of women and 28.79% of men. The second phase of questionnaire survey was published in 2019, anticipating similar motives for purchasing organic food, and set the assumption that a healthy lifestyle is closer to the generation Y than to the older generations cohorts. The second phase of questionnaire survey, were carried on 600 respondents, represented by 78.4% women and 21.6% men. Both phases respondents ranged from 16 to 35 years, the social category, predominantly the university students.

The relative frequency is being used when processing data from the questionnaire. Based on these characteristics, the statistical hypothesis has been used. The combinatorial assortment has been carried out and independence for different question combinations has been tested except for the basic classification according to one symbol. Independence in the chart is being studied

$$\text{with } \chi^2 \text{ test. } \chi^2 = \sum_{j=1}^s \sum_{i=1}^r \frac{(n_{ij} - n'_{ij})^2}{n'_{ij}} \quad (1)$$

The degree of freedom is calculated by $(r-1)(c-1)$. If the value of criteria is greater than the critical quantil, the hypothesis of independence is being rejected and therefore the correlation is

¹ ReLa – Research Laboratory; Virtual Laboratory for the collection and evaluation of primary data query report is an environment for supporting the creation and communication of scientific researchers in the field of e-research.

expected. Apart from the χ^2 test in the article, there is also one nominal variable and more nominal variables used in relative frequency testing.

$$U = \frac{p - c}{\sqrt{\frac{c(1-c)}{n}}} \quad (2)$$

$$U = \frac{p_1 - p_2}{\sqrt{\frac{(n_1 \cdot p_1 + n_2 \cdot p_2) \cdot (n - n_1 \cdot p_1 - n_2 \cdot p_2)}{n \cdot n_1 \cdot n_2}}} \quad (3)$$

In both cases the tested criterion has a normal standardized distribution. By testing one-selection ordinal variable we study null hypothesis of the relative frequency unity with the assumption, by testing two variables we study a correlation between more relative frequencies. While processing the questionnaire, the econometric model has been constructed. For the purpose of its formation, the nonlinear model (more precisely the logit model) has been used, based on modelling of the alternative data, reached the value of only 0-1. Logit models are a widely used tool in various fields; see Staňková and Hampel (2018) or Bohušová et al. (2013). Fundamentals of this logit model, is the expansion of the modified exponential model by the inflection point. Estimated model is shaped as

$$Y_i = \frac{e^{Z_i}}{e^{Z_i} + 1} = \frac{1}{1 + e^{-Z_i}}, \text{ where } i = 1, \dots, n \quad (4)$$

where

$$Z_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki} + \varepsilon_i. \quad (5)$$

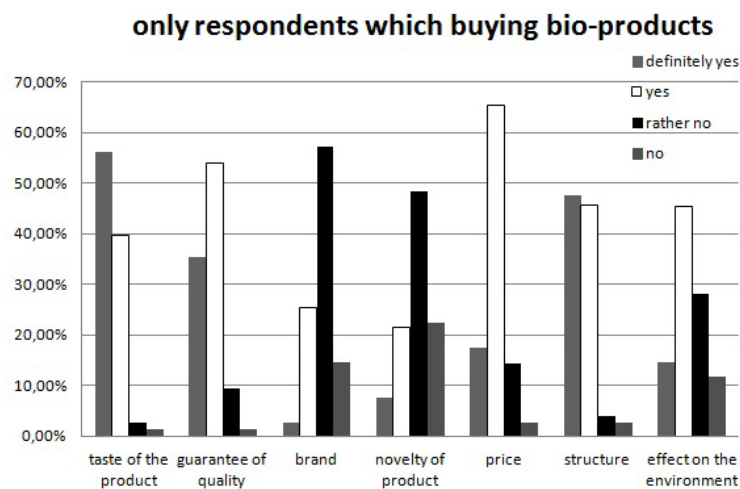
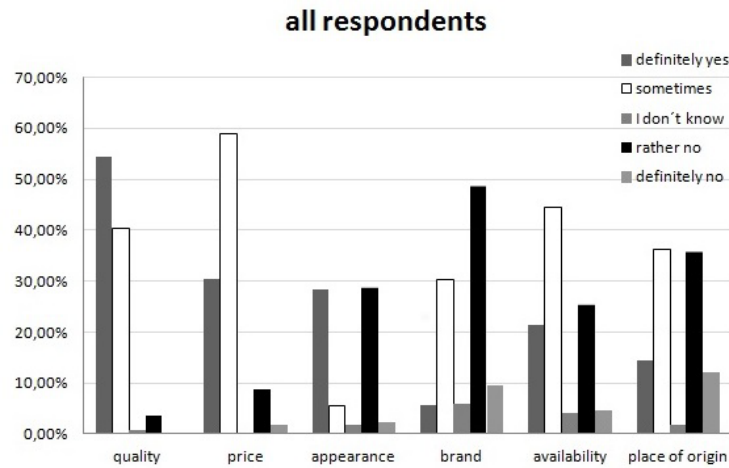
The interpretation of parameters is a chance, relating between probabilities of one variable to another.

4. RESULTS

The research finding has served to identify the factors affecting the decision of purchase a conventional product or a bio product. The results of the 2014 survey show that respondents prefer predominantly two factors when thinking about organic product purchase, the quality and the price. The appearance of food has been marked as a very important factor. Respondents are less likely to address availability, place of origin, and at least the brand of the product. Approximately 70% of the respondents purchase organic food frequently or occasionally. The remaining 30% of respondents, do not purchase organic food at all, or just do not recognised whether the purchased product is organic food. The reason of omitting the organic food purchase can be noticed higher price, and absence of trust that traders offer real organic products.

Those respondents, who purchase the organic food, do it mostly because of persuasion that the organic food is healthier and tastier than the extensive conventional agriculture food. Most of their organic food purchases have been made in hypermarkets and supermarkets, and they are also frequently visiting specialized stores.

There has been found also a relatively large group of respondents who grow their own food. The respondents believe that organic food is healthier and tastier, but a relatively large part of them do not feel that organic food is more appealing. The 27% of the respondents only are convinced that the quality of organic products is significantly higher than the quality of the conventional food.



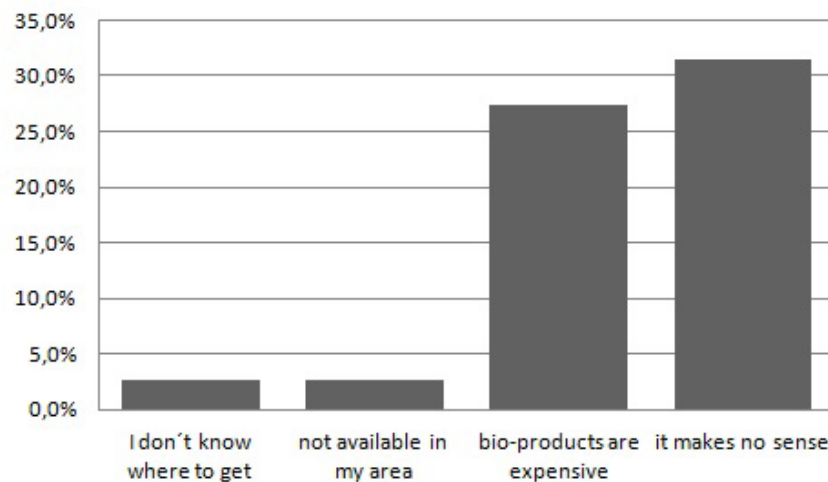
Source: authors research

Figure 1 Relative frequencies for the question: What is decisive for you when buying organic product

The majority of respondents are willing to accept higher price of organic food. The acceptable amount for them is about 10% higher than traditional food product price. In the popular shops of respondents, organic food is predominantly part of the assortment. However, if favourite shops do not offer organic products in the moment, respondents would welcome them in the future. The respondents who assume that organic foods can be more sufficiently promoted, represent a significant group. In other dependencies authors tried to find out whether respondents prefer to purchase organic food in the hypermarkets and supermarkets. Research shows that out of a total of 489 respondents who purchase organic food regularly or occasionally, the 339 of them probably purchase organic products in hypermarkets and supermarkets. There are only 232 respondents who shop for organic food in the specialized stores

The evaluation of how each of factors are important for the respondents can be seen at Figure 1. The question of what is decisive for respondents when buying an organic food was answered only by those 60.8% respondents who are buying organic food. The biggest difference is evident in the price indicator, where 89.5% of all respondents said that this factor is important for them. If we focus only on consumers of organic food, this percentage is 83%. Only 17.5% of respondents expressed absolutely fundamental importance. It can therefore be assumed that this factor is important when deciding whether to purchase organic food or conventional food. For the

convinced supporters of organic food, such a strong opinion on the price has been no longer observed. The main argumentation why respondents do not purchase organic products can be seen in Figure 2.



Source: authors research

Figure 2 Answers to the question why respondents are not buying organic food

It can be seen that still a large percentage of people do not trust organic food and do not believe they are healthier than conventional foods. This percentage reach 31.5% of those respondents who do not purchase organic food. If we applied this value to all the respondents, it would reach 19.1%. In the questionnaire carried out a similar research (with 1122 respondents) in 2014 within the same age group, where 50% of respondents answered, they do not purchase bio-products at all. Only the small percentage of this group mentioned the factor of high price. The almost 90% was sceptical towards the bio-products and said they do not trust that organic product can be healthier for them than the conventional food.

This result supports perception, the long term popularity and credibility of bio-products is increasing. It is also caused by the increase of the healthy life style propagation in the last five years where the necessity of the organic-products consumption together with an effort for the increase of the inspection has been emphasized.

The hypotheses defined for the research have been verified by statistical testing.

H1: The situation is improving and the bio-products popularity with young people is distinctly higher in 2019 than it was in 2014. We verified this hypothesis by testing.

$$U = \frac{0.608 - 0.445}{\sqrt{\frac{(365 + 499) \cdot (1722 - 365 - 499)}{1722 \cdot 600 \cdot 1122}}} = 6.4458$$

The null hypothesis states the popularity is the same, alternative, and it is also higher with young people in 2019. P-value was smaller than 0,001 in this test therefore we reject this thesis. Based on the test we can say the popularity has increased.

H2: There can be seen a statistically significant lower percentage of the people who do not believe that bio-production has a meaning and benefit to an individual's health in 2019. Amount of respondents keeping this statement has decreased. People who did not trust the organic farming were 241 out of 1122 in 4, and only 115 in 2019. We will get the value $U = 1.1373$ (with p-value 0.1277). Based on the test, this assumption has not been confirmed and there cannot be claimed that confidence in organic food has improved.

H3: There was find no difference in the gender perspective, that organic food is healthier, better and tastier in 2019. This information has been tested using the Independence Test. In the table below can be seen the test criteria and the p-value.

Table 1 Testing of the Independence of opinion on organic food and gender of respondent

	Deviance ratio	p-value
Healthier	0.21726	0.89706
Superior	18.9816	0.00007
More tempting	6.36401	0.04150
Tastier	7.87613	0.04864

Source: author's calculations

The table presents that men and women do not differ in statement whether organic food is healthier. For the other indicators, the difference was found at 5% significance level. Men view seems to be more pessimistic regarding quality, more frequently compared to women they do not believe in better quality of organic food. In terms of appetite and delight, women show extreme opinions. I.e. The larger percentage of them answer yes and definitely not. Men have tended to be more likely to answer the variants, maybe and I do not know.

H4: The percentage of respondents who are willing to accept price higher for 10% than for conventional food growths in 2019 compare to 2014. The 10% higher price was accepted by 47.28% of respondents in 2014, moreover 5.34% of respondents would accepted price higher for 50%. In contrary, On contrary, similar acceptance was expressed by only 38.16% of respondents in 2019, but 50% price increase was accepted even by 8.5% of respondents. The tests showed that the null hypothesis of conformity reject (p-value 0.0001) and thus can be stated that in 2019 was significantly lower percentage of people who are willing to accept the higher price of organic food. However, when examining the extreme supporter of organic produce who are willing to accept higher prices for organic food creed, for this group, the situation reversed in 2019.

H5: To determine the factors that can be important for generation Y customers by test the compliance test using relative frequencies. Test the null hypothesis shows that the percentage of people who prefer the property is the same as the percentage of the property that is not important. For this test, has been received responses just from those respondents who were purchase organic food.

Table 2 The test results of compliance relative frequencies

attribute	Deviance ratio	p-value
brand	-3.4903	<0.001
price	10.6550	<0.001
origin	0.4263	0.335
quality	13.0757	<0.001
availability	3.5941	<0.001
appearance	3.6388	<0.001

Source: author's calculations

The hypothesis of consistency with the place of origin cannot be rejected, so it can be argued that the respondents for whom the organic product's essential place of origin is the same as the percentage of those for whom the place of origin is not.

Based on testing our hypotheses, it has been demonstrated that the popularity of organic food has increased in recent years and that respondents consider organic food to be beneficial. For a better interpretation, a model was established to find out the common influence of several factors on the idea of purchasing organic food.

The model has been constructed in Gretl software where the dependent variable was whether organic products are in demand or not and the independent variables were individual factors judged by respondents. As a reference value, all the factors out of scale, value of 1 has been chosen. The importance of the factors can be apparent from the following Table 3.

Table 3 Accumulated analysis of deviance

	Deviance ratio	p-value
price	2.98	0.030
availability	4.94	<0.001
quality	4.64	<0.001
origin	2.70	0.029
brand	2.73	0.027

Source: author's calculations

These predictions are estimated represent proportions, formed on the scale of the response variable, corresponding to one binomial trial, adjusted with respect to some factors as specified below. The link of only one factor has been examined, the others have been stated as constant.

Table 4 The results from logit model

	brand	quality	availability	price	origin
1-definitely yes	0.5414	0.7158	0.7549	0.4998	0.5453
2-rather yes	0.4483	0.4882	0.4100	0.5942	0.7498
3-I don't know	0.4705	0.0137	0.1412		0.0098
4- rather no	0.6912	0.3078	0.8076	0.9006	0.4879
5-definitely no	0.7025	0.0721	0.9292	0.9195	0.6121

Source: author's calculations

When analysing data as shown in the table above, the respondents who don't find the brand important, are more likely to buy the product (about 70%). Those who seeks for a specific brand, have a smaller chance in buying the product, because they prefer the brand to the fact it is a bio certified product. On the contrary, the quality factor is important for 71.6% of respondents and therefore they would buy the product. Availability factor has two groups of respondents. The first group do not rely on availability and purchase any organic product (almost 90%). The other group extremely follows up the availability (scale value 1), they care about the brand and 75.49 % purchase the product. If the respondents find the price unimportant, there is a 90% of chance that they purchase the organic product. Based on the origin, the respondents have been categorised into two groups of those who do not deal with the origin (61.21% of these buy the product) and

those who follow up the origin (value scale 2). Based on testing (for the level of importance 5%) have been identified statistically the important differences in prediction. The difference in pair of 2-5 and 2-4 has been proved by the brand factor, then in quality factor it is a pair 1-2 and 1-4, in availability factor, there was no difference in any pair, in price was 1-4 and 2-4 and in origin factor there was 1-2 and 2-4.

It can be stated, based on modelling, that the appearance and brand factors of the bio-products do not influence the decision of the generation Y about purchase bio food. The availability and quality factors influence the decision the most.

5. DISCUSSION

The research shows that the visual, appearance factor of the organic product has a limited influence in the decision to buy the organic product. This finding corresponds with the Resnick and Alberts results about the promotion "blindness" of generation Y (Resnick and Albert, 2014). Similarly, the Rani's study further showed that the selective distortion described above has the greatest benefit to large companies and the perception of brands of their products (Rani 2014).

The research finding shows, that those respondents, who look closer for a specific brand, have a smaller chance in buying the product, because they prefer the brand to the fact it is a bio certified product. Identically, the study of the authors Oliveira-Castro, Cavalcanti and Foxall (2016) confirms the relationship between wealth and brand benefits. As can be seen in paper research results, the respondents who don't find the brand important, are more likely to buy the product (about 70%). Rana and Paul (2017) have declared that among main factors impacting demand for organic products into developed countries are ethical commitments, quality, safety, knowledge, and health. Gilovich (2015) discusses social status while providing distribution of consumption into two categories, the experimental, including holiday or diner in restaurants and the material, such as food, clothing, or a car. The author introduces idea that consumers are more likely to benefit from the experimental than the material consumption, where, with higher social status, can be monitored greater benefits than with middle-class status. These findings apparently correspond to the price of the organic food follows the perception of social status. Authors Lee and Hwang (2016) have indicated that while the high price of organic food could reduce the perceived value, the focus on expectation of achieving the quality of such food, could encourage consumers to increase their purchases. Not only the price of organic food, as proclamation of buyer social status, can be recognised as an important factor, but also positioning of product cannot be omitted. Zhang and Seo (2015) conclude that the key role in consumer decision-making about food purchases plays the neighbourhood of the product and not just the product itself. In connection with this conclusion, providers of organic products should focus their attention on the overall sales process. Additionally, Oliveira et al. (2016) confirm that consumers are most interested in information on the packaging, but also recommend regulating the amount of this information, stated that if the consumer follows several areas of interest, his or her attention is divided into more incentives. Modelling, by using the logit model was used, in the work of Nadri et al. (2021), identically Schulze, Spiller and Risius (2021) were using the logit model to analyse the results obtained for cattle breeding in the regions of northern Europe. The research of Regassa, Abate, and Kubik, (2020) focus on incentivizing and retaining public servants in remote areas also used the logit model for elaboration of equivalent kind of data.

6. CONCLUSIONS

The Generation Y is closely aligned with the "food movement" and its specific attribute such as organics, natural, ethnic, fresh and specialty foods, organic farms, small batch jams and artisanal cheese. These preferences, could change the shopping behaviour forever, shifted the purchase

power from large mass market companies and brands to "the little shops" selling online or at the local corner store. Based on the research can be found that promoting only certain brands seems to be a disadvantage, as generation Y customers put the main emphasis on the quality and availability of the bio-product. The Generation Y buyers have much less brand loyalty and are more willing to engage in different distribution models to find food.

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