Scientific Journal Warsaw University of Life Sciences – SGGW
Problems of World Agriculture volume 24(XXXIX), number 4, 2024: 58-71
DOI: 10.22630/PRS.2024.24.4.16

Joanna Smoluk-Sikorska[1], Magdalena Śmiglak-Krajewska[2], Mariusz Malinowski,[3] Julia Wojciechowska-Solis[4]✉, Gyöngyi Györéné Kis[5], Paulína Krnáčová[6], Malgorzata Agnieszka Jarossová[7], Martina Zámková[8], Stanislav Rojík[9]

[1,2,3] Poznan University of Life Sciences, Poland
[4] University of Life Sciences in Lublin, Poland
[5] Hungarian Research Institute of Organic Agriculture, Hungary
[6,7] University of Economics in Bratislava, Slovakia
[8] College of Polytechnics Jihlava, Czechia
[9] Czech University of Life Sciences in Prague, Czechia

Barriers to the Consumption of Organic Food in Visegrad Group Countries

Abstract. The consumption of organic food fits into the sustainable development goals and constitutes a justification for the further development of organic farming. The research aimed to identify the most important limitations to the growth of organic food consumption in the Visegrad Group countries and to indicate the differences and similarities in their perception. Therefore, at the turn of 2024, a survey was conducted among consumers in each of the countries of the Visegrad Group on a population of 600 people using an identical survey questionnaire. The research shows that in all four countries, the most important barrier to the growth of organic food is its high price, which is of great importance to Slovak consumers. The low availability and narrow offer, as well as insufficient information on organic food, were also important for consumers. On average, over 80% of the surveyed consumers rate the price level of organic food as high – the highest percentage was observed in Slovakia and the lowest in Czechia. Also, approximately 80% of the surveyed can accept a price up to 20% higher than conventional food. In the opinion of the respondents, the most important factors that would increase organic food consumption include lowering its prices, increasing income, and expanding the offer and availability.

Keywords: organic food, consumption, obstacles, price, information accessibility, Visegrad Group

JEL Classification: D12, O13, Q13

Introduction

Organic production is '*an overall system of farm management and food production that combines best environmental and climate action practices, a high level of biodiversity, the preservation of natural resources and the application of high animal welfare standards and high production standards in line with the demand of a growing number of consumers for products produced using natural substances and processes. Organic production thus*

[1] PHD, e-mail: joanna.smoluk@up.poznan.pl; https://orcid.org/0000-0001-9599-0497
[2] PHD, e-mail: smiglak@up.poznan.pl; https://orcid.org/0000-0001-9984-6599
[3] PHD, e-mail: mariusz.malinowski@up.poznan.pl; https://orcid.org/0000-0002-9602-6672
[4] PHD, e-mail: julia.wojciechowska@up.lublin.pl; https://orcid.org/0000-0002-4634-0241; Corresponding author
[5] PHD, e-mail: gyongyi.kis@biokutatas.hu; https://orcid.org/0009-0005-6849-8890
[6] doc. Eng., PHD, e-mail: paulina.krnacova@euba.sk; https://orcid.org/0000-0002-5371-1661
[7] doc. Eng., PHD, e-mail: malgorzata.jarossova@euba.sk; https://orcid.org/0000-0003-2006-8339
[8] PHD, Eng., e-mail: martina.zamkova@vspj.cz; https://orcid.org/0000-0001-9713-5435
[9] PHD, Eng., e-mail: rojik@pef.czu; https://orcid.org/0000-0002-3506-8799

plays a dual societal role, where, on the one hand, it provides for a specific market responding to consumer demand for organic products and, on the other hand, it delivers publicly available goods that contribute to the protection of the environment and animal welfare, as well as to rural development'. (Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007).

The principles of the organic farming system have been established at the level of EU regulations. They specify, among other things, the methods by which an organic product can be produced, as well as how it should be marked to ensure its recognition. According to the regulations in force in the European Union, only certified products, i.e. those covered by the organic farming system, can be sold as organic (Rutkowski, 2021, p. 5).

The characteristic feature of organic agriculture is the fact that it harmoniously combines environmental goals with economic and social ones. It is commonly believed that the development of this method can contribute to solving specific problems resulting from the intensification of agriculture. It primarily promotes the economical management of resources and limits the use of inputs from outside the farm, mainly agricultural chemicals. Organic farming methods prioritise sustainable practices to promote soil health, protect water resources, and preserve wildlife habitats. Moreover, this production system is considered to increase food quality, reduce food surpluses, and redirect agriculture to places where market demand is more concentrated, thus reducing the carbon footprint associated with food transport (Lampkin, 1990). This strong focus on environmental sustainability resonates with the growing number of consumers actively seeking products that align with their sustainability and ethical consumption values. The use of conventional food is associated with an increase in the number of health risks due to the use of synthetic chemicals such as pesticides, artificial fertilisers, and antibiotics in animal and plant production.

Over the past few decades, the organic food market around the world has been developing dynamically. The increasing wealth of societies supports this trend, along with the growing awareness of consumers regarding the quality and safety of food and its impact on human health and the environment (Śmiglak-Krajewska, Wojciechowska-Solis, 2021, p. 3). In 2022, organic agriculture was practiced in 188 countries, and more than 96 million hectares of agricultural land were managed organically by at least 4.5 million farmers (Willer et al., 2024). Global organic food and drink sales reached almost 135 billion euros in 2022. Specifically, the area used for organic agricultural production in the European Union is gradually increasing. In 2022, it reached 16.87 million hectares of agricultural land, constituting 10.39% of the total agricultural area of the EU, and retail sales of organic products reached 5.1 billion euros within the European Union (in Europe, it was 53 billion euros). In 2022, Europeans spent an average of 64 euros per person on organic food, and in the EU, it was 102 euros. Among EU countries, the highest expenditure per capita was recorded in Denmark (365 euros), Austria (274 euros), Luxembourg (259 euros), Sweden (248 euros), Germany (181 euros) and France (176 euros). In addition to Western European and Scandinavian countries, where organic food sales and consumption are the highest, Central European countries are also becoming increasingly important –Czechia, Slovakia, Poland, and Hungary. According to Willer et al. (2024), Czechs spent 22 euros on organic food, Poles 8 euros, and Hungarians 3 euros. Consumers purchasing organic food, comparing it to conventional food, perceive it as healthier, containing more nutrients, and safer (Krystallis, Chryssohoidis, 2005, p. 322; Chakrabarti, 2010, pp. 902–915; Prada et al., 2017, pp. 175–186). Some studies revealed that consumers agree that organically grown food has less chemical and microbial contamination than conventionally produced foods (Larue et al., 2004, pp. 155–166; Williams, Hammitt, 2001, pp. 319–330). On the other hand, the reasons that account for a reversal towards unfavourable attitudes towards organic products are price and availability (Jensen et al., 2011, pp. 79–84), doubts about product guarantees, a lack of promotion, and misunderstandings surrounding organic production methods (Chen et al., 2022, p. 619; Bryła, 2018, pp. 115–127).

It is noteworthy that a necessary condition for the development of organic agriculture is a sufficiently high market demand for organic food, which encounters many growth obstacles. The development of the organic food market, especially its demand side, is limited by many barriers identified in numerous empirical studies, the most important of which are the high prices and poor availability of organic food (Łuczka, 2019). According to Żakowska-Biemans's (2011) research results, consumers who do not buy organic food also perceived its availability and the inability to distinguish it from other food products as the basic barriers to purchasing organic products. O'Doherty Jensen et al. (2011) also distinguish a narrow range of products among the basic constraints on demand at the household level. In turn, Aschemann-Witzel and Zielke (2014) conclude that price is the basic barrier to purchasing organic food, which, however, does not clearly determine the abstention from purchases by people with lower incomes. Other factors should also be taken into account, such as having children and the personality traits of consumers. Padel and Foster (2005) similarly emphasise that price is not the only barrier to purchase, but only one of the factors in the complex process of making purchase decisions. The consumer takes into account the price in the context of disposable income, including the value and usefulness of the product. He or she must also be convinced that this price is justified due to the product's higher quality or other benefits. Then, he or she will be willing to pay more for the organic food. On the other hand, according to Witek (2017), consumers will be willing to accept a higher price for organic food when they know the benefits associated with it. It is worth noting that regular buyers of this type of food perceive it more favourably than people who buy organic food only occasionally or do not buy it at all (Nestorowicz et al., 2016). Bryła's research (2016, 2018) also shows that the most important barrier to the consumption of organic food is the high price, followed by low consumer awareness, then the poor availability of organic food, short shelf life, poor exposure to this food in retail outlets and skepticism about the certification and labelling system. According to Nestorowicz (2018), another important barrier often declared by respondents is limited availability, which, to some extent, results from the lack of consumer knowledge, as some respondents declare that they do not know where such food can be purchased.

In Hungary, according to almost ⅔ of respondents, the main reason for refraining from buying organic food is its high price, but ¾ of respondents also indicated doubts about the authenticity and credibility of the product as important barriers to increasing demand (Szente, Torma, 2015). Consumers who have been present in the organic food market for a longer period are more willing to pay more for organic products, which is why in countries where consumers have lower incomes, high prices are a significant barrier in the purchasing decisions of potential buyers of organic food, although they do not fully determine the level of consumption. Some consumers, even those with lower incomes but higher levels of ecological awareness, may be more loyal and attached to this market (Vlahović et al., 2015). In markets where consumers have relatively higher incomes, altruistic motives, such as environmental protection, animal welfare, and/or the development of local production, are also important reasons for the increase in organic food consumption, which is why price plays a lesser role for these consumers (Nikolić, 2018).

Despite the growing interest in organic food from consumers in the Visegrad Group countries and the increasing number of enterprises operating in the sphere of production and distribution of organic food, the organic food market is still at an early stage of development. Therefore, a study covering consumer attitudes towards organic food, their purchasing behaviours as well as barriers to organic consumption growth was undertaken in the Visegrad Group (V4) countries under the project 'Consumer of Organic Food in the Visegrad Group Countries' (Grant no. 22320288) financed by the Visegrad Fund.

This paper aims to identify and compare the most important barriers to organic consumption growth in the V4 countries and to indicate the differences and similarities in their perception.

Material and methods

In order to identify the limitations to the increase in organic food consumption, a survey was performed in all V4 countries. The results were obtained using an identical questionnaire in the native languages of the Visegrad Group countries between December 2023 and February 2024. The research was performed using a CAWI (Computer Assisted Web Interview) technique, which allows an anonymous survey with more honest and specific responses to be performed, especially if it is clearly indicated that survey responses will be kept entirely confidential. The other reason was the difficulty in reaching the respondents in person and the high interview costs in four different countries. Therefore, it was decided that the survey should be carried out using computer tools.

The minimum sample size of the populations in the investigation in each country was estimated using the formula (Brzeziński, Stachowski, 1981, p. 104; Sobczyk, 2007, p. 175; Nanjundeswaraswamy, Divakar, 2021, pp. 25–30):

$$n = \frac{P(1-P)}{\frac{e^2}{Z\alpha^2} + \frac{P(1-P)}{Ni}},$$

where: n – sample size, e – allowable error, Ni – size of the population of the V4 country (i = 1,…,4), Zα – amount resulting from the adopted confidence level (for a 95 percent confidence interval, Zα is 1.96, P – structure index, demonstrating the estimated share in the population).

The minimum sample size in each Visegrad Group country was determined using the same assumptions:

- confidence interval CI = 95,
- maximum error e = 4%,
- structure index P = 50%, because for such a level, the product P(1-P) is the maximum,
- total population.

Taking into account the above-mentioned assumptions, the survey sample size in each V4 country was estimated at 600 people (only adults). The surveys show that in two countries of the V4 group – Hungary and Slovakia – more than half of the respondents buy organic food (55.5% and 53.7%, respectively) (Table 1). In Poland, only one in three people buy such food (35.3%). In the entire Visegrad Group, Poland is the only country where more men (42%) than women (less than 33%) declare that they buy organic food. In the other countries, women constituted a higher percentage in the group of buyers of this type of food (the highest percentage in Hungary – 58.8%). The research shows that in the entire V4 group, people with primary and lower secondary education most often buy organic food. However, it must be considered that the number of respondents in these groups was small (only 19 people in total). In all countries except Poland, most people with higher education declared buying organic food (from 59% in Slovakia to 66% in the Czech Republic), while this percentage was less than 42% in Poland.

Table 1. Demographic characteristics of the surveyed consumers (%)

Specification	Poland		Czechia		Slovakia		Hungary	
	I	II	I	II	I	II	I	II
Gender								
Men	41.98	58.02	35.68	64.32	45.50	54.50	48.11	51.89
Women	32.88	67.12	43.16	56.84	58.47	41.53	58.80	41.20
Total	35.33	64.67	40.33	59.67	53.67	46.33	55.50	44.50
Education level								
Primary	25.00	75.00	87.50	12.50	50.00	50.00	100.00	0.00
Junior high school	0.00	0.00	100.00	0.00	50.00	50.00	0.00	0.00
Vocational	60.00	40.00	37.50	62.50	0.00	100.00	33.33	66.67
Secondary	30.75	69.25	27.30	72.70	45.73	54.27	45.14	54.86
Higher	41.78	58.22	66.12	33.88	59.17	40.83	60.19	39.81
Place of residence								
Rural areas	36.51	63.49	24.51	75.49	52.49	47.51	57.14	42.86
Town with fewer than 20,000 inhabitants	13.16	86.84	36.03	63.97	48.33	51.67	52.17	47.83
Town with 20,000–39,999 inhabitants	21.43	78.57	35.29	64.71	54.05	45.95	46.15	53.85
City with 40,000–99,999 inhabitants	33.33	66.67	58.82	41.18	55.41	44.59	56.25	43.75
City with 100,000–199,999 inhabitants	52.17	47.83	81.25	18.75	58.33	41.67	49.06	50.94
City with over 200,000 inhabitants	44.51	55.49	50.00	50.00	55.97	44.03	62.19	37.81
Assessment of the income situation								
Very bad	0.00	100.00	33.33	66.67	60.00	40.00	66.67	33.33
Bad	33.33	66.67	29.03	70.97	58.33	41.67	43.55	56.45
Medium	38.02	61.98	38.58	61.42	51.82	48.18	53.95	46.05
Good	33.43	66.57	41.22	58.78	52.75	47.25	58.70	41.30
Very good	38.24	61.76	51.85	48.15	60.00	40.00	68.18	31.82

I – Organic food consumers; II – Consumers not purchasing organic food

Source: own survey.

The largest number of people buying organic food live in larger cities (over 40,000 inhabitants), where the percentage of such consumers exceeded 54% in each category of cities distinguished for the study. In cities with 100,000 to 199,999 inhabitants, this percentage was over 59%. The high level of buying organic food in cities can be attributed to the presence of numerous specialist shops offering such products. In turn, in rural areas, the percentage of people buying organic food is relatively low, especially in Czechia and Poland, where it is 24.5% and 36.5%, respectively. Although there are many producers of organic food in villages, which should theoretically facilitate access to these products, residents often use traditional methods of growing them for their own needs, which reduces the demand for ready-made organic products purchased in stores. The research shows that at the level of the entire V4 group, the highest percentage of people buying organic food (almost 54%) are those who assess their financial situation as very good. Of this group of respondents, only in Poland, the majority (nearly 62%) admit that they do not buy organic food, while about 38% declare that they do. For comparison, in Hungary, as many as 68% of people who consider their financial situation very good purchase organic food.

Research results

Numerous studies on the organic food market show many limitations to the growth of demand for these products (Smoluk-Sikorska et al., 2024; Hansmann et al., 2020; Tandon et al., 2021). The most important factor limiting demand is the excessively high price of organic food compared to conventional food (Chang, Zepeda, 2005; Vehapi, 2015; Bryła, 2018, pp. 115–127; Smoluk-Sikorska, 2021, pp. 74–84). Consumers are willing to accept a higher price if they are convinced that they will gain additional value from the goods purchased. The benefits offered to the consumer are able to compensate for the higher price, and the price premium should not be perceived as a barrier (Olsen et al., 2014, pp. 123–124). As L. Witek (2018, p. 408) claims, 'organic products are treated as an investment in one's own health'. Another important barrier mentioned in the literature is the still insufficient information provided to consumers about organic food and its labelling. Some consumers do not trust the various eco-labels placed on products and do not have sufficient knowledge about the system of their certification (Jasiulewicz, 2012, p. 88; Wojciechowska-Solis, Śmiglak-Krajewska, 2023). Many authors emphasise that the limited or difficult availability of organic farming products constitutes a barrier to the demand for this food (Jensen et al., 2011, pp. 79–84; Łuczka, 2016; Żakowska-Biemans, 2011, p. 217).

According to the conducted research, in all V4 countries, high prices were assessed as the foremost limitation to the growth of organic food consumption, especially in Poland and Slovakia (Fig. 1). The subsequent obstacles to organic food purchases recognised within this research did not receive identical rankings in all the analysed countries. In Poland, the short expiry date was declared highly important, while in Czechia and Hungary, there was low availability of this type of food, and in Slovakia, it was – surprisingly – the bad flavour of organic food. This study demonstrated that aspects linked to the recognisability of organic food, its credibility, and its unattractive appearance were not considered important barriers in the V4 countries that might affect the purchasing decisions towards organic food.

1 – High price, 2 – Bad flavour, 3 – Short expiry date, 4 – Narrow offer, 5 – Low availability, 6 – Little information about organic food, 7 – Low credibility, 8 – Unattractive appearance, 9 – I cannot recognise it, 10 – Poor promotion/advertising

Fig. 1. Assessment of the barriers to organic food consumption by the surveyed consumers, %

Source: own survey.

Since the price is the most important obstacle to the purchase of organic food, as indicated by the surveyed consumers, it needs further consideration. The respondents were asked to assess if organic food is expensive. As many as 84% of all organic food purchasers believed it was expensive (from almost 90% in Slovakia to 74% in Czechia) (Fig. 2).

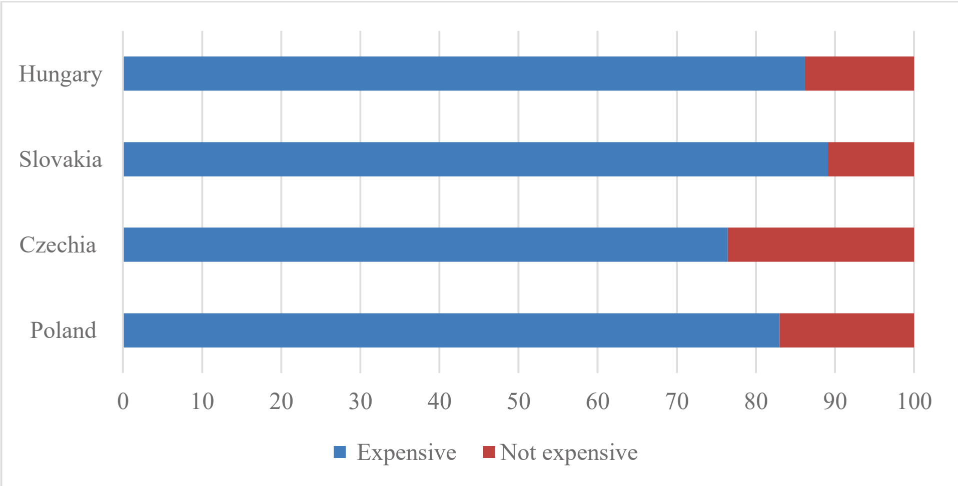
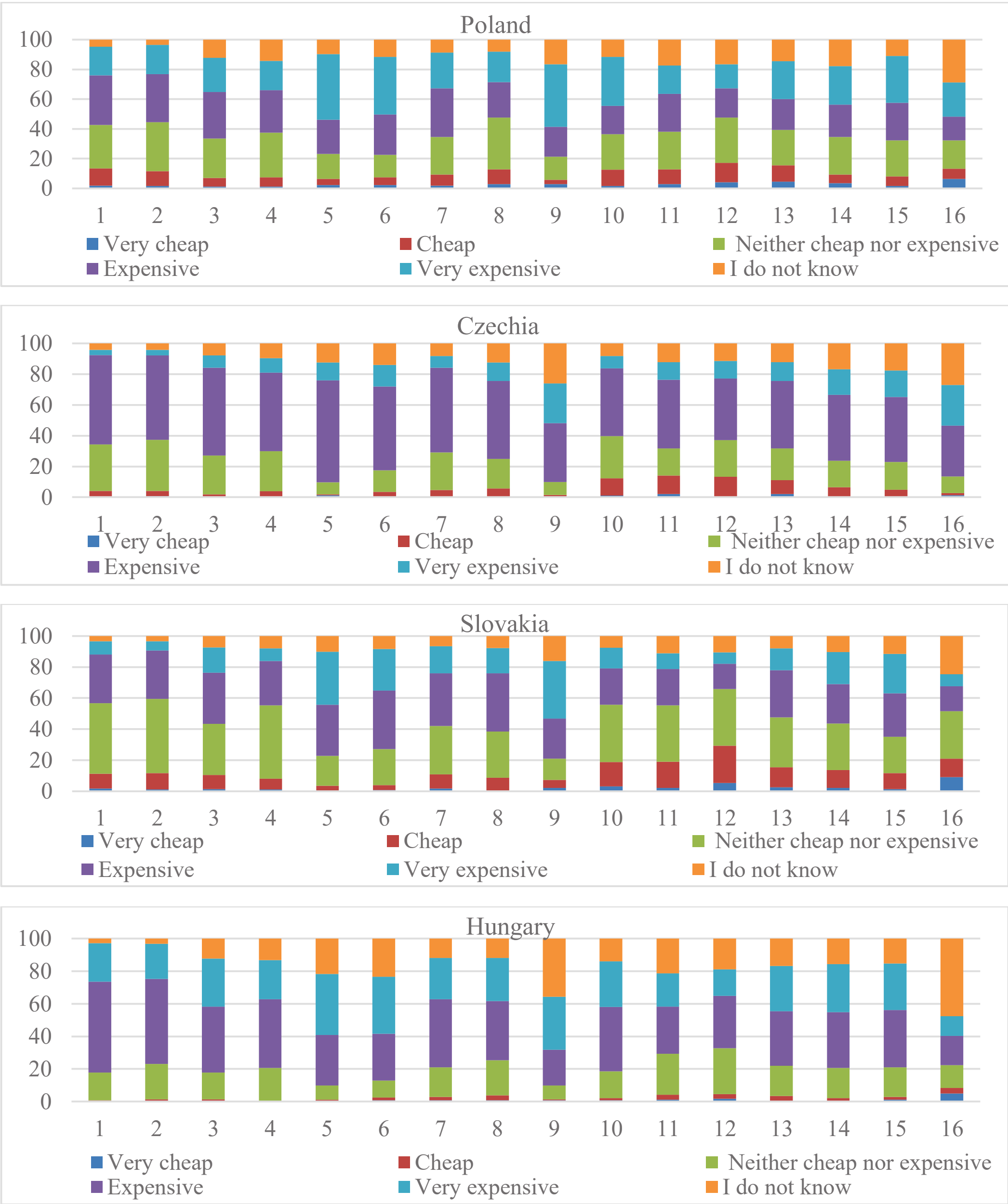


Fig. 2. Assessment of price level, %

Source: own survey.

In the next step, the respondents were asked to assess particular product groups. At least ⅖ of the total number of surveyed consumers believed all 16 selected product groups were expensive or very expensive (Fig. 3). In Czechia, this was the case for all 16 product groups, in Hungary, it was 15 (apart from baby food), while in Poland it was 14 (except for baby food, and herbs and spices), while in Slovakia it was 9 (with the lowest percentages for baby food, and herbs and spices). For the entire Visegrad Group, the following were most frequently considered expensive or very expensive: meat (on average 70%), cold cuts (mean 65.6%), and fish and seafood (approximately 61%).



1 – Fruit, 2 – Vegetables, 3 – Fruit preserves (including juices), 4 – Vegetable preserves, 5 – Meat, 6 – Cold cuts, 7 – Dairy products, 8 – Eggs, 9 – Fish and seafood, 10 – Bread, 11 – Sweets, snacks, dried fruit, 12 – Herbs and spices, 13 – Tea and coffee, 14 – Vegetable fats (oils), 15 – Honey, 16 – Baby food.

Fig. 3. Impact Assessment of price levels for specific product groups, %

Source: own survey.

The investigated consumers were also asked to specify an acceptable price premium for organic products (Table 2). Only 1.4% of organic food buyers in the V4 believed they would not be willing or able to pay more, while in Hungary, 5.4% of those surveyed would accept higher prices for organic food. Nearly 28% of organic food purchasers accept price premiums of up to 10% for organic products (the greatest number was observed in Slovakia, at 34.5% of purchasers), whereas it was almost 39% if the premium was between 11 and 20% (with the highest percentage for Czechia, at nearly 53%).

Table 2. Respondents' willingness to pay more for organic food

Specification	Poland	Czechia	Slovakia	Hungary
0–10%	27.83	20.66	34.47	26.73
11–20%	38.68	52.89	47.2	45.05
21–40%	20.28	21.49	13.35	17.42
41–60%	6.13	2.89	2.48	3.90
61–80%	3.77	0.41	0.93	0.60
81–100%	0.00	1.24	0.31	0.60
More than 100%	0.94	0.41	0.62	0.30
I am not willing to pay more for this kind of food	2.36	0.00	0.62	5.41

Source: own survey.

The respondents were also asked to identify the most important factors that would induce them to purchase organic food more frequently (Fig. 4). In this area, better availability of organic food, lower organic food prices, higher incomes, and a wider range of organic food were most frequently declared as the most important determinants.

According to other authors, organic products are excessively expensive, which negatively affects the development of organic farming (Aertsens et al., 2009, Turhan, 2019, Van Bussel, 2022; Carrión Bósquez et al., 2023; Smoluk-Sikorska et al., 2024). The results of surveys conducted by Kułyk and Michałowska indicate that the purchase of organic food is primarily decided by people with higher incomes and city dwellers (Kułyk, Michałowska, 2018). The studies by Hermaniuk (2016) and Smoluk-Sikorska (2021) show that almost 90% of consumers did not accept a price difference of more than 40% between organic and conventional food. High prices were considered the most important barrier to organic food consumption. Many authors in their studies also emphasise that the limited or difficult availability of organic products is a significant barrier to demand for this food (Ham et al., 2016; Torres-Ruiz et al., 2018; Łuczka, Kalinowski, 2020; Smoluk-Sikorska et al., 2024). Finally, buyers are also usually not satisfied with the commercial offer of shops (Bryła, 2018; Wojciechowska-Solis, Śmiglak-Krajewska, 2023), while farmers mainly offer unprocessed goods, and more consumers are looking for ready-to-eat food (Beharielal et al., 2022; Santos et al., 2023).

1 – Greater availability, 2 – Lower price, 3 – Wider offer, 4 – More accessible information about organic food, 5 – More ecological packaging, 6 – Wider range of convenience foods, 7 – Higher income, 8 – More market information regarding e.g. sales places, 9 – Wider promotion

Fig. 4. Determinants of organic food consumption increase (%)

Source: own survey.

Conclusions

The surveyed consumers indicate that the high price of organic products is the most important barrier. The majority of respondents in each country perceive the prices of this food as too high and are willing to pay no more than 40% for it.

Next, the consumers indicated the poor availability of organic products and the lack of sufficient information about organic food. According to the respondents, another significant limitation was the narrow offer of shops offering organic food. The surveyed group of respondents from Slovakia considered that the flavour of organic food is a barrier to their purchases. In Poland, the short expiration date was declared highly important, while in Czechia and Hungary, there was low availability of this type of food.

Factors that could contribute to reducing the significance of these barriers and, at the same time, cause more frequent purchases of organic products, include lower prices and higher incomes of consumers. Greater availability of organic products would also make it easier for willing consumers to purchase them.

Consumers generally express a strong potential demand for organic food. However, inadequate production volumes and a weak processing base translate into a lack of the most demanded product (e.g. meat and cold cuts), resulting in high organic food prices. Therefore, production on organic farms should be supported to a greater extent in those product groups for which there is the greatest demand.

Difficulties with the sufficient supply of particular products in the organic food market, which translates into high prices of these products, are significantly influenced by the drawbacks of individual links in the supply chain, especially the absence of structures connecting participants of the supply side of the market, such as producer groups.

Therefore, measures should be taken to organise a regional trade system for organic agricultural products, which would help manage farmers' horizontal integration. This system should also include warehousing and crediting producers. This should be accompanied by increased cooperation between organic farmers and other organic food market participants, i.e., wholesale and retail distributors and processing plants. This, in turn, may result in lower prices and better availability of organic food for consumers, in particular for those with lower incomes. However, on the demand side, it is necessary to carry out continuous social campaigns to raise consumers' environmental awareness and popularise organic food while emphasising the benefits associated with its consumption.

References

Aertsens, J., Verbeke, W., Mondelaers, K., Van Huylenbroeck, G. (2009). Personal determinants of organic food consumption: a review. *British Food Journal*, 111(10), 1140-1167.

Aschemann-Witzel, J., Zielke, S. (2014). Income and price as a barrier to organic food choice,Proceedings of the 4th ISOFAR Scientific Conference. Building Organic Bridges, Organic World Congress 2014, Istanbul.

Beharielal, T., Thamaga-Chitja, J., Schmidt, S. (2022). Socioeconomic characteristics associated with farming practices, food safety and security in the production of fresh produce—a case study including small-scale farmers in KwaZulu-Natal (South Africa). *Sustainability*, 14(17), 10590.

Bryła P. (2016), Organic food consumption in Poland: Motives and barriers, *Appetite*, 105, 737-746.

Bryła, P. (2018). Organic food online shopping in Poland. *British Food Journal*, 120(5), 1015-1027.

Brzeziński, J., Stachowski, R. (1981). Zastosowanie analizy wariancji w eksperymentalnych badaniach psychologicznych. Warszawa: Państwowe Wydawnictwo Naukowe.

Carrión Bósquez, N.G., Arias-Bolzmann, L.G., Martínez Quiroz, A.K. (2023). The influence of price and availability on university millennials' organic food product purchase intention. *British Food Journal*, 125(2), 536-550.

Chakrabarti, S. (2010). Factors influencing organic food purchase in India - expert survey insights. *British Food Journal*, 112(8), 902-915.

Chen, D., Jaenicke, E.C., Yan, J., Tian, K., Nayga, R.M. (2022). Price promotion of organic foods and consumer demand. *Renewable Agriculture and Food Systems*, 37(6), 618-623.

Ham, M., Pap, A., Bilandzic, K. (2016). Perceived barriers for buying organic food products. Economic and Social Development: Book of Proceedings, 162.

Hansmann, R., Baur, I., Binder, C.R. (2020). Increasing organic food consumption: An integrating model of drivers and barriers. *Journal of Cleaner Production*, 275, 123058.

Hermaniuk, T. (2018). Postawy i zachowania konsumentów na rynku ekologicznych produktów żywnościowych. *Handel Wewnętrzny*, 2(373), 189-199.

Jensen, K.O.D, Denver, S., Zanoli, R. (2011). Actual and potential development of consumer demand on the organic food market in Europe. *NJAS: Wageningen Journal of Life Sciences*, 58(3-4), 79-84.

Krystallis, A., Chryssohoidis, G. (2005). Consumers' willingness to pay for organic food: Factors that affect it and variation per organic product type. *British Food Journal*, 107(5), 320-343.

Kułyk, P., Michałowska, M. (2018). Zachowania konsumentów na rynku żywności ekologicznej w świetle wyników badań empirycznych w województwie lubuskim. *Handel Wewnętrzny*, 2(373), 270-282.

Lampkin, N. (1990). Organic farming. Ipswich: Farming Press.

Larue, B., West, G., Gendron, C., Lambert, R. (2004). Consumer response to functional foods produced by conventional, organic, or genetic manipulation. *Agribusiness*, 20(2), 155-166.

Łuczka, W. (2016). Zrównoważona konsumpcja i uwarunkowania jej rozwoju. *Handel Wewnętrzny*, 6(365), 136-145.

Łuczka, W. (2019). Changes in the behavior of organic food consumers. *Economics and Environment*, 3(70), 140-153.

Łuczka, W., Kalinowski, S. (2020). Barriers to the development of organic farming: A Polish case study. *Agriculture*, 10(11), 536.

Nanjundeswaraswamy, T.S., Divakar, S. (2021). Determination of Sample Size and Sampling Methods in Applied Research. Proceedings on Engineering Sciences, 3(1), 25-32.

Nestorowicz, R. (2018), Asymetria wiedzy a rozwój rynku żywności ekologicznej w Polsce. *Handel Wewnętrzny*, 5(376), 212-224.

Nestorowicz, R., Pilarczyk, B., Jerzyk, E., Disterheft, A. (2016). Raport z badań przeprowadzonych w ramach projektu „Postawy etnocentryczne konsumentów (w ujęciu lokalnym) a szanse i bariery rozwoju rynku żywności ekologicznej". Uniwersytet Ekonomiczny w Poznaniu, Poznań.

Nikolić, M. (2018). Specifics of Organic Food Markets' Demand. *Contemporary Agriculture*, 67(1), 103-109.

Olsen, M.C., Slotegraaf, R.J., Chandukala, S.R. (2014). Green Claims and Message Frames: How Green New Products Change Brand Attitude. *Journal of Marketing*, 78(5), 119-137. https://doi.org/10.1509/jm.13.0387.

Padel, S., Foster, C. (2009). Exploring the gap between attitudes and behaviour, Understanding why consumers buy or do not buy organic food. *British Food Journal*, 107(8), 606-625.

Prada, M., Garrido, M.V., Rodrigues, D. (2017). Lost in processing? Perceived healthfulness, taste and caloric content of whole and processed organic food. *Appetite*, 114, 175-186.

Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007, PE/62/2017/REV/1, OJ L 150, 14.6.2018, 1-92.

Rutkowski, L. (2021). Podstawy i wsparcie działalności ekologicznej w gospodarstwie rolnym. Warmińsko-Mazurski Ośrodek Doradztwa Rolniczego z siedzibą w Olsztynie. https://www.cdr.gov.pl/images/Radom/ROLEKO/pliki/wsparcie-tekst.pdf.

Santos, M.I., Grácio, M., Silva, M.C., Pedroso, L., Lima, A. (2023). One health perspectives on food safety in minimally processed vegetables and fruits: From farm to fork. *Microorganisms*, 11(12), 2990.

Śmiglak-Krajewska, M., Wojciechowska-Solis, J. (2021). Consumer versus organic products in the COVID-19 pandemic: Opportunities and barriers to market development. *Energies*, 14(17), 5566.

Smoluk-Sikorska, J. (2021). Szanse i ograniczenia rozwoju rynku żywności ekologicznej w Polsce. Difin.

Smoluk-Sikorska, J., Śmiglak-Krajewska, M., Rojík, S., Fulnečková, P.R. (2023). Prices of organic food—The gap between willingness to pay and price premiums in the organic food market in Poland. *Agriculture*, 14(1), 17.

Smoluk-Sikorska, J., Wojciechowska-Solis, J., Śmiglak-Krajewska, M., Malinowski, M. (2024). Rozwój rynku żywności ekologicznej a zachowania konsumentów. Warszawa: Wydawnictwo Naukowe Scholar.

Sobczyk, M. (2007). Statystyka. Warszawa: Wydawnictwo Naukowe PWN.
Tandon, A., Jabeen, F., Talwar, S., Sakashita, M., Dhir, A. (2021). Facilitators and inhibitors of organic food buying behavior. *Food Quality and Preference*, 88, 104077.
Torres-Ruiz, F.J., Vega-Zamora, M., Parras-Rosa, M. (2018). False barriers in the purchase of organic foods. The case of extra virgin olive oil in Spain. *Sustainability*, 10(2), 461.
Turhan, S. (2019). Sustainable consumption and organic farming: the case of Bursa Turkey. *Fresenius Environmental Bulletin,* 28(5), 3805-3810.
Van Bussel, L.M., Kuijsten, A., Mars, M., Van‘t Veer, P. (2022). Consumers’ perceptions on food-related sustainability: A systematic review. *Journal of Cleaner Production*, 341, 130904.
Vehapi, S. (2015). A study of the consumer motives which influence the purchase of organic food in Serbia. *Economic Themes*, 53(1), 102-118.
Vlahović, B., Puškarić, A., Šojić, S. (2015), Research into Agricultural Producers’ Motives for Engaging in Organic Production in the Republic of Serbia. *Economic Insights – Trends and Challenges*, 4(67) 31-39.
Willer, H., Trávníček, J., Schlatter, B. (Eds.) (2024). The World of Organic Agriculture. Statistics and Emerging Trends 2024. Research Institute of Organic Agriculture FiBL, Frick, and IFOAM – Organics International, Bonn.
Jasiulewicz, A. (2012). Motywy i bariery zakupu i konsumpcji żywności ekologicznej. *Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu*, 14(5), 87-90.
Williams, P.R., Hammitt, J. (2001). Perceived risks of conventional and organic produce: pesticides, pathogens, and natural toxins. *Risk Analysis*, 21(2), 319-330.
Witek, L. (2017), Barriers to Green Products Purchase – from Polish Consumer Perspective, [in:] Innovation Management, Entrepreneurship and Sustainability 2017. Proceedings of the 5th International Conference in Prague, eds. L. Dvouletý Ondrej, J. Mísař, Prague, University of Economics, p. 1119–1128.
Wojciechowska-Solis, J., Śmiglak-Krajewska, M. (2023). Being a product consumer during the COVID-19 pandemic: Profile of the Polish consumer in the organic dairy market. *British Food Journal*, 125(7), 2350-2367.
Żakowska-Biemans, S. (2011). Bariery zakupu żywności ekologicznej w kontekście rozwoju rynku żywności ekologicznej. *Journal of Research and Applications in Agricultural Engineering*, 56(4), 216-220.

For citation:

Smoluk-Sikorska J., Śmiglak-Krajewska M., Malinowski M., Wojciechowska-Solis J., Kis, G.G., Krnáčová P., Jarossová M.A., Zámková M., Rojík S. (2024). Barriers to the Consumption of Organic Food in Visegrad Group Countries. *Problems of World Agriculture*, 24(4), 58-71;
DOI: 10.22630/PRS.2024.24.4.16

This research was funded by the project “Consumer of Organic Food in the Visegrad Group Countries” (Grant no. 22320288), is co-financed by the Governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from International Visegrad Fund. The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.