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INTERNET USERS' PURCHASING DECISIONS REGARDING ORGANIC PRODUCTS DURING THE COVID19 PANDEMIC

Abstract

Objectives: Every organization operating in the 20s of the 21st century struggles with operating in a turbulent environment. The effects of the Covid-19 pandemic, which are still being felt today, cause some changes in customer behavior. This article focuses on the study of this phenomenon in relation to the risk perceived by customers in making online purchases. The article's purpose is to identify the broad management implications of online shopping risk perceptions among consumers during the Covid-19 pandemic.

Material and methods: The research conducted concerns customers' purchasing risk perceptions. An analysis is made of the countermeasures respondents use to minimize purchasing risks. The research used a diagnostic survey on a sample of 1,000 consumers.

Results: The results of the conducted surveys indicate that consumers in general are aware of the risks associated with purchasing various goods via the Internet. In addition, it can be concluded that age is not significant when it comes to the perception of purchasing risks when shopping online, while concerns about buying online are dependent on the respondents' sex. There is also a statistically significant difference between the respondents' sex and sensitivity to purchase risk in various aspects.

Conclusions: This paper fulfils a gap in knowledge about shopping risk perceptions among consumers during the Covid-19 pandemic.

Keywords: *organic products, consumer behaviour, purchase decisions, organic food, eco labelling, online shopping*

Introduction

With the society's increasing environmental awareness, organic products are becoming increasingly popular among consumers. *The Green Generation 2021 together for the Earth report* (Mobile Institute, 2022, p. 42) indicates that 98% of respondents have some ecosolutions at home, e.g. household appliances with a high energy class or energysaving lighting. However, even the Covid19 pandemic did not stop the organic food market growth rate, which was doubledigit. Organic product sales are growing rapidly in both traditional and online shops. However, due to the increase in the number of internet

users accelerated by the Covid19 pandemic, purchasing decisions for specific groups of ecological products in physical stores and online require examination. Simultaneously, it is necessary to verify the existence of a correlation between demographic and social characteristics and respondents' declarations, as the Covid19 pandemic may have significantly changed the perception and value of organic products in the consumer's eyes. From the perspective of ecommerce companies offering environmentally friendly products, this is very important. Hence, the research aims to indicate the direction of the organic market based on consumer interest in different groups of organic products and their purchasing decisions, allowing companies to flexibly adapt to the changing needs of their potential customers.

Organic products are produced in harmony with the environment, without endangering nature, using renewable energy sources. They are made of environmentally friendly, natural materials or recycled plastics. Organic products include natural and organic cosmetics, ecological cleaning products and organic textiles products. Energyefficient household appliances, i.e. those with a high energy efficiency class, are a separate group. However, the most important are products of organic agriculture (bio food), the production of which does not use artificial chemical additives such as artificial fertilisers, pesticides, growth regulators or antibiotics (Kociszewski et al., 2023, pp. 261–264).

Organic food which is approved for the market should be packed in special unit packages labelled with the information specified in the legislation. (Wrona et. al., 2020, pp. 1–2). However, current legislation does not require information on the organic origin of products but only regulates the use of voluntary EU ecolabels (*Rozporządzenie…*, 2011). Meanwhile, the description on a product's packaging and the ecological signs, labels and logos on it, along with people's opinions about the product, are the main sources of information about its ecological origin (Żelazna et al., 2021, pp. 315–320). When the product is sold directly, e.g. from a farmer with a valid food product certificate, no such packaging is required as in the case of market trading. This is extremely important in relation to the product's safety, which goes directly to the consumer. The implemented quality policy provides consumers with safety, i.e. guarantees that they will receive highquality food, produced with the appropriate method (Łukasiński, 2008).

The main motivation for buying organic food is the health aspect – eating organic food helps prevent disease, gives you better wellbeing, encourages a more attractive appearance and provides nutritional security (Michaelidou et al., 2012, p. 18). Decisions to purchase organic products are also influenced by ethical motives – purchasing organic products out of concern for the environment (Żakowska Biemans, 2009, pp. 770–773). Other studies of consumer behavioural motives revealed the dominance of egoistic over altruistic motives when deciding to purchase organic products. The research shows that there is a correlation between the respondents' opinion on their knowledge of the human impact on the functioning of the environment and their declaration to purchase organic products, as well as between the respondents' perceived reasons for not purchasing organic products and their attitudes towards ecology (Mazurek Łopacińska et al., 2022, pp. 6–23). The Gemius Poland (2023) report also revealed that ecology influences consumers' purchasing decisions. In this context, ecofriendly packaging (e.g. made of recycled or biodegradable plastics, or reusable) appeared to be the most important to respondents. Meanwhile, according to respondents, delivery to a parcel locker was considered the most ecological form of delivery.

There have already been conducted studies on the organic product purchasing decision. For example, research on responsible and sustainable consumerism indicated that very often decisions to buy organic products are made based on the description on the packaging and based on labels, signs and logos confirming their quality and ecological characteristics. They also showed differences in behaviour between men and women (Żelazna Blicharz, 2013, pp. 10–11). The high importance of ecolabels and ecocertificates on product packaging for consumer decisions was also confirmed by subsequent research (Kabaja et al., 2022; Panopoulos et al., 2023; Hameed, Waris, 2018). This is particularly noticeable in relation to food products, the labels of which influence the final decision to purchase them and are influenced by gender, age, eating habits and place of residence. Consumers pay attention to all the product features, both specific and quality, that affect their health (Kumar, Kapoor, 2017, p. 226).

Consumers' shopping habits have changed following the Covid19 pandemic outbreak. Consumers were more likely to choose organic food, which they believed to be healthier, as it increases the body's resistance to infection. However,

no increase in interest in all organic product groups was observed (Mobile Institute, 2022). Simultaneously, the percentage of consumers purchasing online has increased (Truong, Truong, 2022). Therefore, they eliminated the need for physical contact with the salesperson and other customers that occurred when shopping in physical stores. Online shopping allowed customers to purchase the goods they needed even during isolation or quarantine periods (Reformat, 2020, pp. 179–183). People who feared a pandemic and whose loved ones were severely ill from Covid were more likely to use online shopping (Chlipała, Żbikowska, 2021, s. 6). *The Ecommerce in Poland 2022* report (Gemius Polska, 2023) shows changes in respondents' behaviour after the Covid19 pandemic, with 29% of respondents buying more online and 30% of respondents shopping online more often. Research was also conducted into the impact of the Covid19 pandemic on changes in customer purchasing behaviour in the green products market. Research conducted in 2020 (Buraczyńska et al., 2022), for example, revealed that the pandemic had not reduced interest in buying organic products, and even 33% of respondents said they were purchasing them more often than before. The research also confirmed an increase in online shopping frequency among 55% of respondents.

The literature analysis revealed the existence of research gaps. Research conducted to date has shown an increase in interest in online shopping following the Covid19 pandemic outbreak, but does not indicate the purchasing frequency of various groups of organic products by place of transaction – either a physical shop or online. The existence of a correlation between purchasing decisions for specific groups of organic products in physical stores and via the Internet and the demographic and social characteristics of Internet users after the Covid19 pandemic outbreak was also not confirmed. Meanwhile, this knowledge can be a source of recommendations for retail companies, especially ecommerce companies, regarding their current operations as well as the development of a longterm strategy.

Based on the literature review and the observed research gaps, the following hypotheses were formulated:

H1: Organic products are more often purchased by internet users in physical stores than online.

H2: Gender influences internet users' decision to purchase organic products.

H3: Age influences internet users' decision to purchase organic products.
H4: The residential town size influences internet users' decision to purchase organic products.
H5: Income influences internet users' decision to purchase organic products.

The first specific objective of the research is to determine the predispositions of Internet users regarding the purchase of different groups of ecological products in traditional shops and online. The second specific objective of the research is to verify whether consumers' demographic and social characteristics influence their decision to purchase these products.

Research method

The diagnostic survey method was used to achieve the research objective. This method enables knowledge to be gathered on the views and opinions of the population under study, on their behaviour and attitudes, and on the dynamics and intensity of social phenomena (Łobocki, 2009, pp. 245–274). It is advisable to use a diagnostic survey especially to study large populations that are difficult to observe directly (Babbie, 2019, pp. 267–303). The research instrument was an online survey, conducted in January 2022 by a research agency among 1,000 adult Polish Internet users making purchasing decisions in the consumer market. The structure of the research sample was consistent with the structure of Polish society, including the percentage of people using the Internet by gender and age according to the CBOS research statement *Using the Internet* (2020). Respondents differed in gender, age, education level, size of place of residence and income size (Table 1).

Table 1. *Characteristics of the research sample*

	Number of respondents	Percentage (%)
Gender		
Men	480	48.0
Women	520	52.0
Age		
Under 25 years	114	11.4
25 to 34 years	218	21.8
35 to 44 years	261	26.1
45 to 54 years	169	16.9
55 to 64 years	143	14.3
Over 64 years	95	9.5
Education		
Primary/junior secondary	43	4.3
Secondary	550	55.0
Higher	407	40.7
Monthly income (PLN/person)		
Less than 1000	62	6.2
From 1100 to 2000	344	34.4
From 2100 to 3000	353	35.3
From 3100 to 4900	184	18.4
Over 5000	57	5.7

Source: own elaboration.

The research tool was a questionnaire, which included 10 closed questions on shopping frequency and five questions on sociodemographic characteristics. Respondents answered a question about the frequency of purchases in physical stores and online. Their opinions concerned the following groups of organic products: natural and organic cosmetics, energyefficient household

appliances, ecological agricultural products, ecological cleaning products and organic textile products. A fivepoint Likert scale was used to assess the frequency of purchases, where 1 meant never, 2 – occasionally, 3 – sometimes, 4 – often, 5 – very often. The research questionnaire was verified during a pilot study involving 10 experts in management and quality sciences.

Statistical analysis was conducted using the Statistica program to verify the validity of the hypotheses. Pearson's Chisquare statistic and the maximumlikelihood Chisquare statistic (ML) were used to test the validity of the null hypothesis that there was no dependence between the responses of the different groups of respondents (including divisions by sociodemographic characteristics). Both statistics test the same hypotheses. Maximumlikelihood Chisquare tests base the method of calculation on maximumlikelihood theory. Chisquare significance tests can be used assuming random sampling and for expected counts in individual cells greater than or equal to 5 (Aczel, Sounderpandian, 2018, pp. 946–951). A confidence level of 95% was assumed for the statistical analysis.

Research results

An analysis of respondents' answers to questions on the purchasing frequency of different groups of organic products in physical and online shops revealed that the majority of surveyed Internet users purchase them. The largest percentage, 97%, indicated that they at least occasionally buy energyefficient household appliances. Meanwhile, organic textile products are purchased at least occasionally by 87% of respondents (table 2).

Table 2. Percentage of respondents declaring to purchase organic products in physical stores and online

	Percentage of respondents declaring to purchase organic products		
	in physical stores or online	in physical stores	online
Natural and organic cosmetics	94.3%	92.4%	76.9%
Energyefficient household appliances	97.0%	94.7%	78.0%
Ecological agricultural products	90.4%	88.3%	59.6%
Ecological cleaning products	88.2%	86.4%	65.5%
Organic textile products	87.0%	84.4%	67.0%

Source: own elaboration.

The research revealed that respondents are more likely to buy organic products in physical stores than online. The biggest difference concerns ecological agricultural products, which 88.3% of respondents declare to purchase in physical stores, while as many as 28.7 percentage points less purchase these products in online shops (i.e. 59.6%). There is a slightly smaller difference (20.9%) between the percentage of respondents who purchase ecological cleaning products, with 86.4% of survey participants purchasing them in physical stores and 65.5% purchasing them online. For the other product groups, the difference between the percentage of respondents declaring they purchased them in physical and online shops is smaller. The respective figures are 17.4% for organic textiles, 16.7% for energyefficient household appliances and 15.5% for natural and organic cosmetics. The obtained results are not consistent with the research results on the interest of internet users in purchasing different product groups (ecological and nonecological). *The Ecommerce in Poland 2022* report (Gemius Polska, 2023) indicates that respondents most frequently purchase textiles (clothing, accessories – 79% of respondents) and cosmetics/perfumes (65%) online, and slightly less frequently consumer electronics/appliances (52%) and food products (45%).

The research conducted revealed that, both online and in physical stores, organic products from the groups 'energyefficient household appliances' and 'natural and organic cosmetics' are most frequently purchased (Tables 3 and 4). Energyefficient household appliances are often or very often purchased in physical stores by 43.5% of respondents and online by 27.2% of respondents. Often or very often, 32% of internet users declare to buy natural and organic cosmetics in physical shops and 25.9% in online shops.

Table 3. *Frequency of purchasing different organic product groups in physical stores*

	Frequency of purchases in physical stores				
	Never	Occasionally	Sometimes	Often	Very often
Natural and organic cosmetics	7.6%	22.5%	37.9%	24.8%	7.2%
Energyefficient household appliances	5.3%	20.7%	30.5%	28.9%	14.6%
Ecological agricultural products	11.7%	24.7%	31.7%	23.4%	8.5%
Ecological cleaning products	13.6%	26.3%	32.2%	20.2%	7.7%
Organic textile products	15.6%	29.2%	32.0%	17.7%	5.5%

Source: own elaboration.

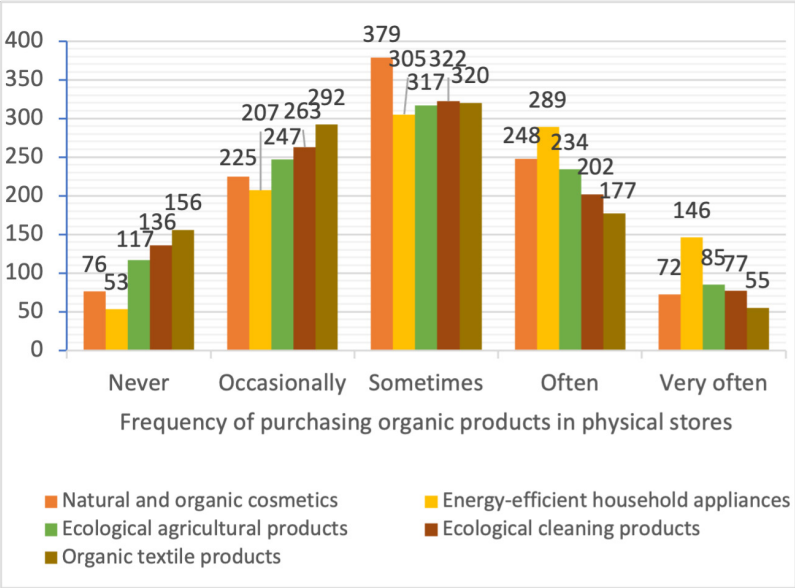
Table 4. *Frequency of purchasing different organic product groups online*

	Frequency of purchases online				
	Never	Occasionally	Sometimes	Often	Very often
Natural and organic cosmetics	23.1%	24.4%	26.6%	19.3%	6.6%
Energyefficient household appliances	22.0%	23.3%	27.5%	17.8%	9.4%
Ecological agricultural products	40.4%	22.6%	20.6%	11.7%	4.7%
Ecological cleaning products	34.5%	22.4%	24.3%	13.2%	5.6%
Organic textile products	33.0%	25.3%	22.5%	13.7%	5.5%

Source: own elaboration.

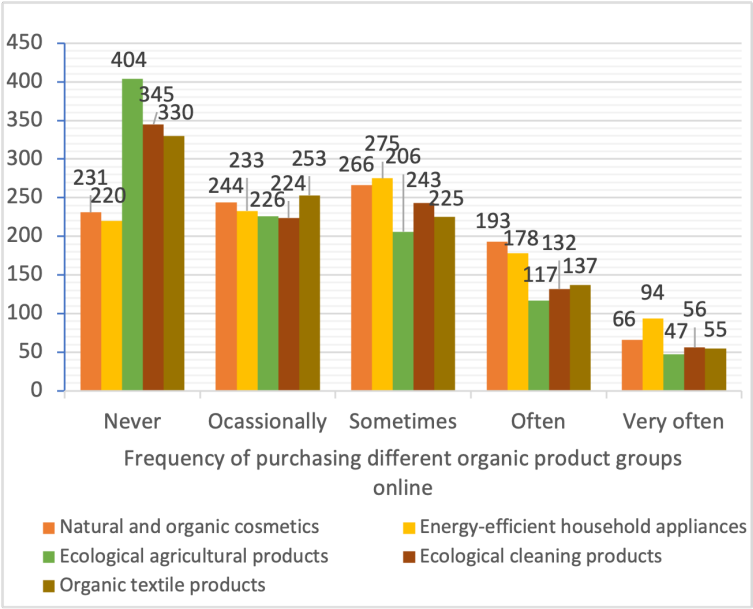
There is a noticeable difference in the structure of responses regarding the purchase of organic products in physical stores and online (Figures 1 and 2). For purchases of all groups of organic products in physical stores, the highest number of Internet users indicated the answer 'sometimes'. The next most frequently indicated responses were, depending on the product group, 'occasionally' or 'often'. Meanwhile, for online shopping, the answer 'sometimes' dominated for only two product groups – energyefficient household appliances and natural and organic cosmetics. For online purchases of other product groups, the most frequently indicated answer was 'never'.

Figure 1. *Frequency of purchasing different organic products groups in physical stores*



Source: own elaboration.

Figure 2. *Frequency of purchasing different organic product groups online*



Source: own elaboration.

To verify the hypotheses H1H5 validity, the null hypothesis of no dependency between the responses of the different groups, i.e. no statistically significant differences between them, was set for each question. Based on the results of Pearson's Chisquare and the maximumlikelihood Chisquare tests presented in Tables 58 and their significance level ($p<0.05$), the null hypotheses were rejected and the alternative hypotheses were accepted that a relationship existed, i.e. that there were statistically significant differences between the groups indicated.

The research showed that there is a statistically significant relationship between the declaration of purchasing energyefficient household appliances online and the respondents' gender (Table 5). A higher percentage of men (81.0%) than women (75.2%) purchase products in this group online. For the purchase declarations for the other product groups, the null hypotheses cannot be rejected. Therefore, hypothesis H1 can only be considered true for energyefficient household appliances.

Table 5. *Chisquare statistic results for the relationship between the declaration of* purchasing organic products and the gender variable

	Chisquare statistic			
	Pearson's	**p**	**ML**	**p**
Purchasing energyefficient household appliances online	4.9767	.02569	5.0014	.02533

Source: own elaboration.

The results of the Chisquare statistics for the relationship between the declaration of purchasing organic products and the education variable showed the existence of a statistically significant relationship between the declaration of purchasing ecological cleaning products in physical stores and the declaration of purchasing energyefficient household appliances online and the education variable (Table 6). An analysis of the proportion of individual responses given by respondents with different educational backgrounds showed that the highest percentage of respondents declaring to purchase ecological cleaning products in physical stores (88.0%) and declaring to purchase energyefficient household appliances online (82.6%) is among those with a university education. For secondary education, it is 86.9% and 75.3% respectively, and for lower secondary and primary education combined, 65.1% and 69.8%.

Table 6. Chisquare statistic results for the relationship between the declaration of purchasing organic products and the variable education

	Chisquare statistic			
	Pearson's	**p**	**ML**	**p**
Purchasing ecological cleaning products in physical stores	17.5422	.00016	13.4162	.00122
Purchasing energyefficient household appliances online	9.0039	.01110	9.0876	.01063

Source: own elaboration.

A statistical analysis of the relationship between the declaration of purchasing organic products and the variable age confirmed a number of correlations (Table 7). The age of respondents influences internet users' purchasing

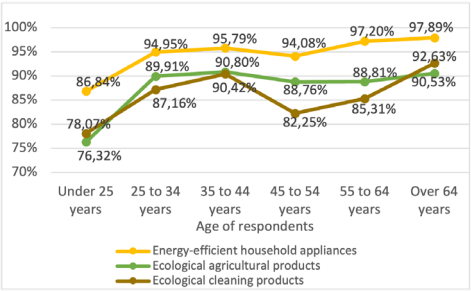
decisions in both physical and online shops.The research showed that there is a statistically significant relationship between the age of respondents and their decisions to purchase such organic products as energyefficient household appliances, organic agricultural products and ecological cleaning products in physical stores. In each case, the smallest percentage of respondents declaring purchases comes from the group of respondents under the age of 25, with 86.8%, 76.3% and 78.0%, respectively (Figure 3).

Table 7. *Chisquare statistic results for the relationship between the declaration of* purchasing organic products and the variable age

	Chisquare statistic			
	Pearson's	**p**	**ML**	**p**
Purchasing energyefficient household appliances in physical stores	18.5101	.00237	15.5546	.00824
Purchasing organic agricultural products in physical stores	18.5048	.00238	15.5214	.00835
Purchasing ecological cleaning products in physical stores	16.1916	.00632	16.0088	.00682
Purchasing natural and organic cosmetics online	26.6434	.00007	26.2197	.00008
Purchasing energyefficient household appliances online	14.2971	.01383	13.8900	.01632
Purchasing organic agricultural products online	33.7935	.00000	33.6867	.00000
Purchasing ecological cleaning products online	17.9630	.00299	17.6440	.00343
Purchasing organic textile products online	14.0299	.01542	13.9219	.01611

Source: own elaboration.

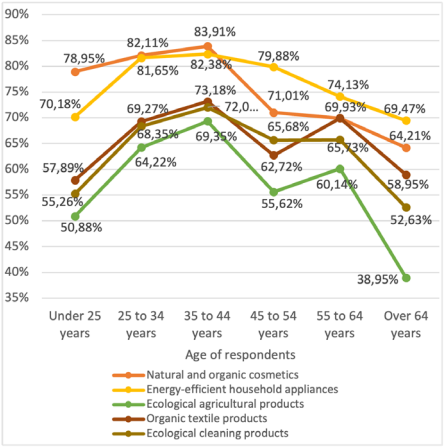
Figure 3: *Percentage of respondents declaring to have purchased selected organic* products in physical stores by age of respondents



Source: own elaboration.

For online purchases, there were statistically significant correlations between the age of respondents and their decisions for all organic product groups surveyed. This confirms the validity of hypothesis H3 that age influences the decision to purchase organic products. The percentage of respondents declaring to purchase selected organic products online by age is presented in Figure 4.

Figure 4. *Percentage of respondents declaring to purchase selected organic products* online by age of respondents



Source: own elaboration.

Pearson's Chisquare and ML statistical tests for the relationship between the declaration of purchasing different product groups in physical stores or online and the place of residence variable do not allow the rejection of the null hypothesis that there is no statistically significant relationship between them. Therefore, the alternative hypothesis H4 that purchasing decisions for organic products are influenced by the size of the place of residence cannot be positively verified.

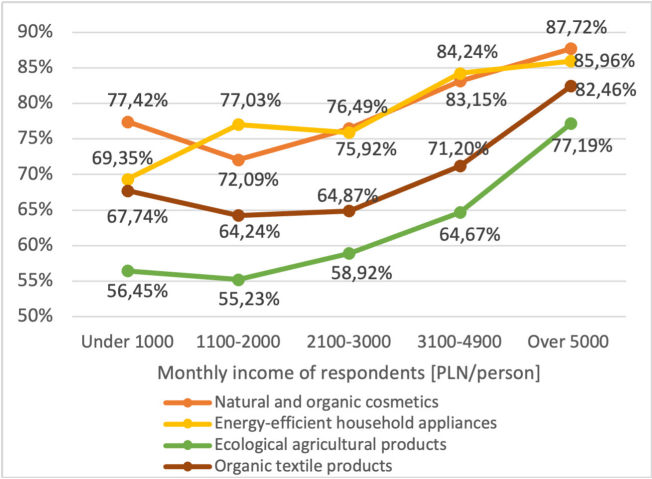
The Chisquare statistic for the relationship between the declaration of purchasing organic products and the income variable showed a statistically significant relationship only for online purchases. Research has shown that the income of internet users influences their decisions to purchase natural and organic cosmetics, energyefficient household appliances, organic agricultural products and organic textile products online. Therefore, hypothesis H5 that income influences the decision to purchase organic products can be assumed to be valid. Figure 5 shows the percentage of respondents declaring to purchase selected organic products online by income.

Table 8. *Chisquare statistic results for the relationship between the declaration of* purchasing organic products and the income variable

	Chisquare statistic			
	Pearson's	**p**	**ML**	**p**
Purchasing natural and organic cosmetics online	12.3230	.01510	12.9930	.01131
Purchasing energyefficient household appliances online	10.0577	.03947	10.3947	.03428
Purchasing organic agricultural products online	12.3418	.01498	12.9115	.01172
Purchasing organic textile products online	9.5433	.04886	10.2720	.03609

Source: own elaboration.

Fig. 5. *Percentage of respondents declaring to purchase selected organic products online* divided into groups by income



Source: own elaboration.

Discussion and conclusions

The research conducted showed that organic products are more often purchased by internet users in physical stores than online. This may be due to the specificity of organic products, which are not always different in appearance from standard products. They are also characterised by a higher price, and may be distinguished by labels with organic labels and certificates, which are not always evident in product images in online shops (Strambu Dima, 2022, pp. 1–5). Customers may choose not to purchase organic products online when their detailed descriptions lack information on the ecological origin of the products (Kabaja et al., 2022). Respondents' answers indicate that they are least likely to buy organic agricultural products online (59.6%), while up to 88.3% of respondents declare purchasing this group of products in physical stores. This is consistent with the general tendency of consumers to have limited confidence in purchasing food products online, as they often require appropriate storage and transport conditions (e.g. dairy products),

and without being able to view them before purchase, it is difficult to assess their quality (e.g. fruit, vegetables) (Kuźniar et al., 2021).

Entrepreneurs selling organic products wanting to reach the broadest possible range of potential customers should consider their preferences and concerns. It is not advisable to limit sales exclusively to online sales, as studies show that for some groups of organic products, even more than 20% of respondents declare that they are purchased exclusively in physical stores. Consumers are more likely to buy organic products in physical outlets because it allows them to check their quality and organic origin. When preparing an online offer of organic products, proper presentation must be ensured. Their photos should show not only the product itself, but also the labels (marks/certificates) proving the ecological performance of the product. The product specification should include full information on the standards fulfilled by the product, as well as the quality marks and certificates awarded to it, with their explanation. The description of the product should include information on the use of environmentally friendly materials for its manufacture (e.g. from recycled paper); on the method of production (e.g. with no negative impact on the environment); or on high efficiency (e.g. class A+++).

The influence of gender, age, education and income, confirmed in the research, on the purchasing decisions of certain groups of organic products in physical stores and/or online, can be a source of knowledge for ecommerce companies about the demographic and social characteristics of potential consumers of organic products. This knowledge can be used in developing a business model (Szarucki et al., 2021), a flexible commercial offer that responds to customers' needs and expectations (Buraczyńska, 2022), and in preparing a plan for marketing activities whose content and form will be appropriate to the characteristics of the target group.

The authors are aware of the research's constraints due to the length of time it was conducted and its scope. Consumer behaviour observed during the Covid19 pandemic may become entrenched, disappear or change. Consequently, once the influencing factor (pandemic) has disappeared, they can vary significantly. In addition, the research does not cover all organic product groups, and there are very different products in the groups examined. For example, among organic products, we can distinguish between products that are longlasting and do not

require special storage conditions (processed) and those with a short shelf life, whose storage requires refrigeration. Therefore, it is planned to repeat the study and extend it to more specific groups of organic products. Further research could explore the identification of the determinants of purchases of these product groups and the creation of a model for consumer decisions in the organic market.

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