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Analysis of customers' preferences in the aspect of modernization or formation of distribution channels of organic products

Analiza preferencji klientów w aspekcie modernizacji lub tworzenia kanałów dystrybucji produktów ekologicznych

Abstract. The objective of the paper was to analyse the selected factors that influence the size of the demand for organic products in the contexts of modernization or designing new highly effective distribution channels. The research was performed by means of a questionnaire in the form of a guided survey on 50 respondents living in the south part of Poland. The obtained results are a source of precious knowledge particularly for producers of organic products who want to reach as many final purchasers as possible. The place of living and level of education of potential customers were found to be the most important criteria which should be considered when designing or modernizing distribution channels. The amount of monthly income does not affect considerably the size and frequency and the place of where organic products are purchased. Adjusting the existing distribution channels to customers' requirements will allow companies to achieve success in the form of high profits and strengthen their market position.

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Key words: analysis, customer, preferences, channels, distribution

Synopsis. Celem pracy była analiza wybranych czynników wpływających na wysokość popytu na produkty ekologiczne w kontekście modernizacji lub projektowania nowych kanałów dystrybucji o wysokiej efektywności. Badania przeprowadzono za pomocą kwestionariusza, w formie wywiadu kierowanego na próbie 50 osób zamieszkujących rejon Polski południowej. Uzyskane wyniki stanowią źródło cennej wiedzy szczególnie dla producentów produktów ekologicznych, którzy chcą dotrzeć do jak największego grona finalnych nabywców. Stwierdzono, że najistotniejsze kryteria, jakie należy brać pod uwagę przy projektowaniu lub modernizacji kanałów dystrybucji to miejsce zamieszkania oraz poziom wykształcenia potencjalnych klientów. Wysokość miesięcznych dochodów nie wpływa w istotny sposób na wielkość i częstotliwość, a także miejsca zakupów produktów ekologicznych. Dopasowanie istniejących kanałów dystrybucji do wymagań klientów pozwoli przedsiębiorstwom na odniesienie sukcesu w postaci wysokich zysków i wzmocnienia swojej pozycji rynkowej.

Słowa kluczowe: analiza, klient, preserencje, kanały, dystrybucja

JEL codes: L 91, R 40, R41, M20

Introduction

The main objective of running and developing enterprises is to distribute manufactured goods and services through sales. Due to the dynamic changes in the environment, which are caused by intensive technical and technological progress, it is necessary to adapt skilfully and quickly to changing trends in the market of demand and supply. Distribution, next to production and other marketing instruments [Cyrson 1994, Żabiński 2002, Olech and Kuboń 2015], is a key element that determines the position and success of a company in the market, and at the same time, it is one of the most important links in the logistics chain. One of the most important functions performed by distribution is the disposal and sale of manufactured products to participants, called consumers. This makes it possible to survive in the market and fulfil the basic tasks of the enterprise while satisfying market needs. Considering the contemporary economy and the role of distribution in it, an increase in its importance is observed, since it is in this area that key decisions are made that translate into financial results. In addition, distribution activities manifest themselves in the responsibility for reaching the offer of a particular company's assortment in an appropriate form and to the right place – the market. According to Żakowska-Biemans et al. [2017] and Grzybowska-Brzezińska [2017], the market and distribution channels are often the object of interest for many authors. The efficiency of distribution channels is becoming increasingly important in the aspect of the requirements and expectations of final buyers who increasingly pay attention to the product quality and form of sales. As consumer expectations increase, the level of customer service must be improved, and with the right flow of products and the desired information about them in the supply chain. Without a flexible approach to supply chain control, it becomes impossible to gain a competitive advantage. To succeed in the market, it is necessary – in addition to high-quality products supply – to ensure an optimal flow of goods with channels meeting the expectations and requirements of potential [Krawczyk 2004, Pecold 2014].

Characteristics of distribution channels

The essence of distribution strategy is influenced by the overarching objective of high profits, with reduced acquisition costs and high levels of customer service. This is achieved through marketing variables realised through transactional distribution, which takes into account the product and the customer, and logistical variables strongly related to the flow of flows, defined as physical distribution.

Variables directly related to the customer and the level of customer service refer to the preferences of the participants in the distribution channels - disregarding the scale of demand – understood as required purchasing methods, order sizes, and individual products, delivery, and sales conditions. The aforementioned variables are negotiable, as their participation is the greatest in the selection of relevant distribution strategies and has a significant impact on the configuration of the logistical systems through which product distribution takes place [Koalicja na rzecz BIO 2021].

The influence of variables related to the distribution channel manifests itself in the number and type of links that mediate between product manufacturers and final buyers. The identification of consumer requirements significantly influences decisions on the form of the channel [Kempny 2001, Sołtysik 2001]. Classification of distribution channels is possible by identifying their individual characteristics and allows interpretation of the structure of functions performed in channels. It also defines the processes of interaction of links (actors) involved in the implementation of the distribution process. The essence of classification is also to provide the necessary information useful in the process of design and selection of the distribution channel. The classification uses the following criteria, which take into account:

- type of participants – respectively direct or indirect channel using intermediary links in the process of delivering the product from the manufacturer to the buyer;
- the number of rungs (short or long);
- the number of intermediaries at the same level - narrow and wide;
- the type of flow – considering transactional and material flows;
- the degree of integration of the participants, including conventional and vertically integrated: administered, contractual or corporate;
- importance to the manufacturer – primary or secondary channels.

When deciding on the choice of distribution channels, the characteristics of the target market in which the products are to be located should be considered, i.e., first of all the type of sales (direct or indirect), market absorption and sales revenue generated, which will make it possible to determine the funds worth spending on shaping the channels. Equally important are product characteristics and frequency of purchase, the impact of which can determine success – tailoring products to customer expectations is significant and increases channel effectiveness. Not without importance are the characteristics of the enterprise, affecting its position in the market and factors that allow identifying competition, the knowledge of which will allow to use an unconventional, previously unused channel – and thus increase the chances of gaining an advantage [Szymanowski 2008]. There is a phenomenon of synergy between distribution channels, which can be observed in the form of acquiring information from one channel to make other, better purchasing decisions in other channels [Verhoef et al. 2007].

An undoubted opportunity is the increasing diversification of forms of modern trade, manifested in wholesale and retail. The growing popularity of new retail units, understood as supermarkets, logistics centres, and shopping malls, is enjoying increasing approval from

buyers. Most of these units are formed by global distribution companies, which are usually unwilling to work with smaller suppliers or set conditions that are unacceptable for many producers, thus necessitating the creation of new channels that also include smaller suppliers. The choice of the right distribution channel is related to the competitive struggle that increasingly takes place in the sphere of distribution and today is one of the essential areas of increased expansion of producers [Szymanowski 2008].

The study aimed to determine the factors influencing the size of demand for organic products in the context of modernising or designing new distribution channels with high efficiency. The research was carried out by means of a questionnaire in the form of a guided survey and its results are a source of valuable knowledge for producers who want to reach the largest possible group of final buyers.

A working hypothesis was set that the size of demand for organic products significantly depends on the place of living, education level and monthly income of people.

The scope of the study covered a group of potential customers for organic products in the south part of Poland. The sample consisted of 50 people randomly selected with different age, places of living, education, or monthly income. The aim of the study was to collect the information about the tastes of potential consumers for organic products and allowed to determine:
- motives for choosing organic food,
- preferred places of purchase and their distance and designation,
- chances of increasing the propensity to buy organic products.

The preferences identified will make it possible to identify the characteristics of organic products that are important from the consumer's point of view, which influence their demand and determine their form, and will thus be useful at the stage of designing or modernization of a distribution channel with a high level of efficiency.

Materials and methods

The research was conducted on a group of 50 people residing in the south part of Poland from July to October 2020. Due to the formulation of questions with permissible multiple answers, it is possible to obtain a sum of results exceeding 100%.

Place of residence, education, and monthly income were used as independent variables, which were juxtaposed with criteria to obtain information on respondents' preferences for choosing organic food, preferred places to buy products and reasons for not buying, and willingness to buy it in the future.

To examine the relationship between the random variables whose realisations were observed during the study, the χ^2 test was used. It was based on the division of the sample space into separate classes and comparison of empirical and theoretical numerical sizes in set classes [Małoń and Ziółkowska 2007]. Moreover, the Fisher test was applied for contingency tables in the case when the total number of observations is small or when the expected numbers were too small [Tadeusiewicz et al. 1993].

An integrated *R* software set for data processing and statistical analyses was used. A significance level of $\alpha = 5\%$ was assumed for conclusion. If the obtained *p*-value is lower than the assumed level of statistical significance, then the null hypothesis is rejected and the relationship between random variables is present. On the other hand, if the *p*-value is higher

than the assumed level of statistical significance then there are no grounds to reject the null hypothesis, so the random variables are independent.

Characteristics of the consumer group

In the analysed sample 58% of the respondents were women and 42% men. Considering the category related to education and comparing it with the obtained results, we can state that almost half (48%) of the respondents are people with secondary education. In the remaining groups, the number of people is similar, but there are 4 % more people with higher education.

Most of the respondents live in villages – about 36%. From small and big cities come in total 48% of people surveyed (respectively 26% from cities up to 20 thousand inhabitants and 22% above 50 thousand inhabitants). The smallest group of respondents lived in medium-sized towns, i.e., between 20–50 thousand inhabitants.

Considering the financial situation of the respondents, it can be noted that the highest number of answers was obtained in the category of the family income up to 2.5 thousand PLN per month. This is the lowest range among all income-related answers. The least numerous group – in terms of answers – where people with the highest income above PLN 5 thousand.

Results and Discussion

The functionality of the distribution channel is influenced by many factors that are responsible for the chance of products reaching a group of potential consumers. The choice of an appropriate channel, as well as the determination of its width and organisation (in the context of vertical and horizontal integration), is related to the creation of characteristics of the final product's consumers [Nowakowska-Grunt and Starostka-Patyk 2017].

Before choosing the distribution channel for organic products, the expected consumers must be defined – whether they are institutional buyers (for whom a direct channel would be the most appropriate) or individual buyers, for whom an indirect channel would be the best choice. Another important task is to consider the characteristics of the target market – its size and absorption capacity and, above all, the characteristics of the product to be placed in the distribution channel. It is also necessary to determine the frequency of purchase and to adapt the channel to specific, desired product characteristics. These factors, to a greater extent than others, may determine the effectiveness of the distribution channel [Szymanowski 2008].

Consumer preferences are caused by determinants, among which groups of factors such as [Jasiulewicz 2008, Kowalska 2017] are distinguished:

- psychosocial (internal), among which there are motives for behaviour, habits, personal needs,
- demographic-economic (external), shaped by age, place of residence, education, financial situation
- socio-cultural (external) factors such as prevailing fashion, professional activity, lifestyle, or membership of social groups,

• marketing – price, form of packaging, advertising, availability.

The activities of organic food producers need to focus on the maximum use of distribution channels, because inappropriate management may cause the creation of market niches and, consequently, a decrease in satisfaction of final buyers and loss of the company's position among the market competition. On the other hand, using modern channels increases the chances of gaining a wide range of consumers [Piwnicka 2008].

To realise the aim of the thesis, the preferences of customers were studied according to the criterion adopted, to be able to meet their expectations. To recognise the situation in the consumer market, respondents were asked to indicate the arguments for buying organic products.

People living in rural areas choose organic products mainly because of health concerns and the absence of harmful substances, and they are least influenced by persuasion from friends (Figure 1). Residents of large cities with more than 50 thousand inhabitants choose organic food only because of the absence of harmful substances, health concerns, and the advantage in taste compared to conventional food. In medium-sized towns with between 20 thousand and 50 thousand inhabitants, the lack of harmful substances and health care are equally important reasons for buying organic. For inhabitants of small towns, i.e., up to 20 thousand inhabitants, the choice of organic food is motivated by the lack of harmful substances – which constitutes 32.43% of the answers in this group – and by health problems – 27.03% of the answers. For this group of respondents, the least important is the fact that organic food is tastier – only 5.41% of respondents chose this answer.
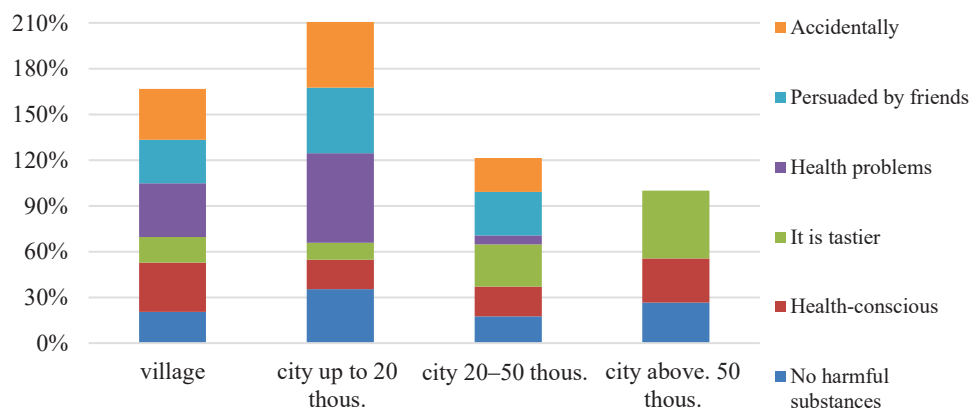

Figure 1. Organic food choice preferences in relation to place of residence
Rysunek 1. Preferencje wyboru żywności ekologicznej w odniesieniu do miejsca zamieszkania
Source: own study.

Since in the contingency table presented in Figure 2 there is a considerable number of zeros, for simulation of *p*-value Monte-Carlo method was used with the number of iterations of $B = 2 \cdot 10^5$. The *p*-value obtained from such an experiment is lower than the assumed level of significance which proves that based on the investigated sample one may state that the place of living and argument for selection of organic products are interdependent.

```
> tab3
   [,1] [,2] [,3] [,4]
c1   7   12    6    9
c2  10    6    6    9
c3   3    2    5    8
c4   6   10    1    0
c5   2    3    2    0
c6   3    4    2    0
>
> fisher.test(tab3,simulate.p.value = TRUE,B=200000)

        Fisher's Exact Test for Count Data with simulated p-value (based on 2e+05 replicates)

data:  tab3
p-value = 0.0178
alternative hypothesis: two.sided
```

Figure 2. Results of testing of the relation between place of living and arguments for organic food consumption
Rysunek 2. Wyniki badań zależności między miejscem zamieszkania a argumentami przemawiającymi za spożyciem żywności ekologicznej
Source: [Obrzut 2021].

Among the respondents of the group with vocational education the answers were as follows (Figure 3): the biggest number of respondents mentioned the lack of harmful substances (23.33%) and the smallest (3.33%) the persuasion of friends. The remaining answers, i.e., the choice because of taste i.e., organic food is tastier, accidental choice, and health problems are on the same level (20%). Among respondents with secondary education, the most common arguments were health care (35.85%) and lack of harmful substances (28.30%). This group was least likely to be persuaded by friends and accidental choice – both 5.66%. People with higher education indicated the most important arguments: lack of harmful substances (36.36%) and care for health (24.24%). The least influential in their choice is the persuasion of friends – 9.09%. People in this group do not buy organic food by chance and the other indicated arguments have the same importance for them.

The results of testing presented in Figure 4 concern the *p*-value obtained from the Fisher test with the *p*-value simulated with the Monte-Carlo method which is higher than the set level of significance. Therefore, there is no reason to reject the zero hypothesis on the absence of relation between the education and the argument for selection of organic products – these variables are not interdependent.
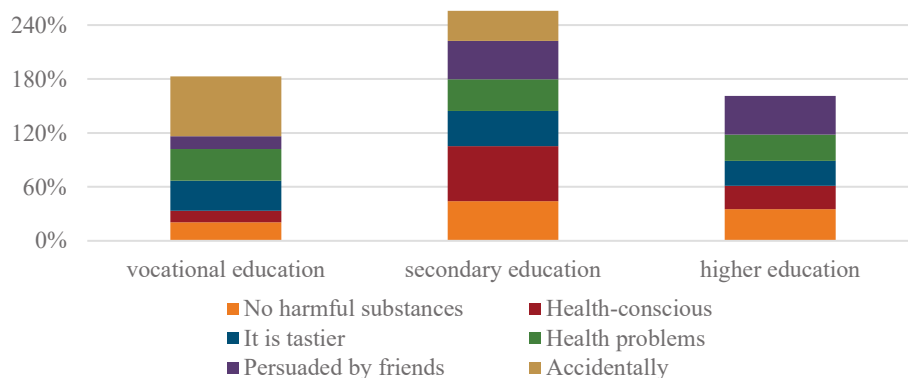
Figure 3. Food choice preferences in relation to education of respondents
Rysunek 3. Preferencje żywieniowe w odniesieniu do edukacji respondentów
Source: own studies.

```
> tab5
    [,1] [,2] [,3]
e1    7   15   12
e2    4   19    8
e3    6    7    5
e4    6    6    5
e5    1    3    3
e6    6    3    0
>
> fisher.test(tab5,simulate.p.value = TRUE,B=200000)

        Fisher's Exact Test for Count Data with simulated p-value (based on 2e+05 replicates)

data:  tab5
p-value = 0.1247
alternative hypothesis: two.sided
```

Figure 4. Results of testing of the relation between education and arguments for selection of organic food
Rysunek 4. Wyniki badań zależności między edukacją a argumentami za wyborem żywności ekologicznej
Source: [Obrzut 2021].

Among the respondents with monthly income up to PLN 2,5 thousand, the most frequently indicated argument influencing the purchase of food is lack of harmful substances, which constitutes 29.55% of all answers in this group (Figure 5). The least frequently indicated argument in this group is accidental purchase – 4.55%. For respondents with a financial situation between PLN 2.5 and 5 thousand, the most important argument for choosing organic food was caring for health – 29.27% of all answers, and the least important were persuasion from friends and accidental purchase (7.32% each). For respondents with the highest income above PLN thousand, the most important argument is the absence of harmful substances, as for the group of people with the lowest income, which accounts for 35.48% of all responses in this group. The least important argument for them is the persuasion of friends, which constitutes only 3.23% of all answers in this group.
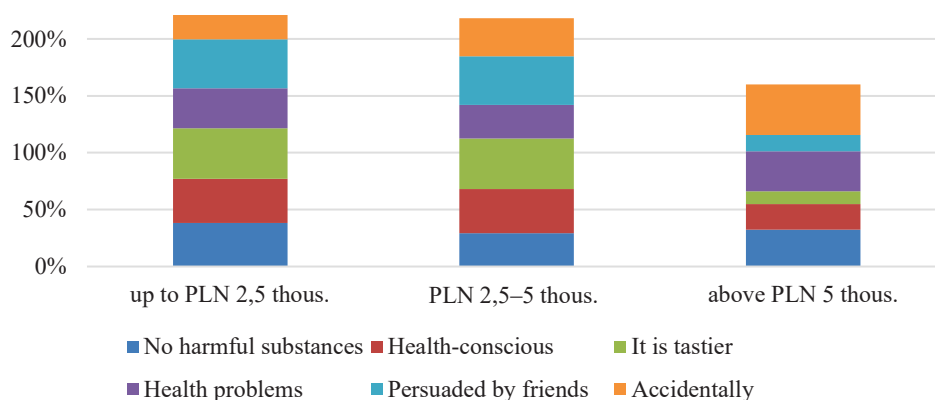
Figure 5. Food choice preferences in relation to family income
Rysunek 5. Preferencje żywieniowe w odniesieniu do dochodu rodziny
Source: own studies.

The obtained *p*-value in testing presented in Figure 6 is higher than the set level of significance which indicates that there is a relation between the monthly income and the argument for choice of organic products.

```
> tab7
    [,1] [,2] [,3]
g1   13   10   11
g2   12   12    7
g3    8    8    2
g4    6    5    6
g5    3    3    1
g6    2    3    4
>
> fisher.test(tab7)

        Fisher's Exact Test for Count Data

data:  tab7
p-value = 0.8031
alternative hypothesis: two.sided
```

Figure 6. Results of testing of the relation between family income and arguments for choice of organic products
Rysunek 6. Wyniki badań zależności między dochodem rodziny a argumentami przemawiającymi za wyborem produktów ekologicznych
Source: [Obrzut 2021].

In order to be able to determine the length and width of the distribution channel, respondents were asked about their preferred organic food shops – thanks to the answers obtained, it will be possible to determine the number of levels, i.e., intermediaries in the channel, as well as the width of the channel, which defines the degree of sophistication of the distribution [Nowakowska-Grunt and Starostka-Patyk 2017]. The analysis results obtained also focus on the existing distribution channels and their distance from the respondents taking part in the survey.

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Health food stalls were the most popular place to buy organic food – 45.45% of respondents opted for this choice. Health food shops and buying from the producer have similar popularity, with the advantage of buying directly from the producer being about 1.51 pp. higher than buying from a health food shop. For respondents to the survey, online shopping was the least popular source, with about 13.64% of all responses.

Among inhabitants of rural areas, the dominant place of purchase was health food stands – this answer constituted more than half of all answers (53.33%). The distribution of answers is presented in Figure 7. Internet shopping concerned respondents from cities with up to 20 thousand inhabitants – 18.18 and 29.41% of inhabitants of cities with between 20 and 50 thousand inhabitants.
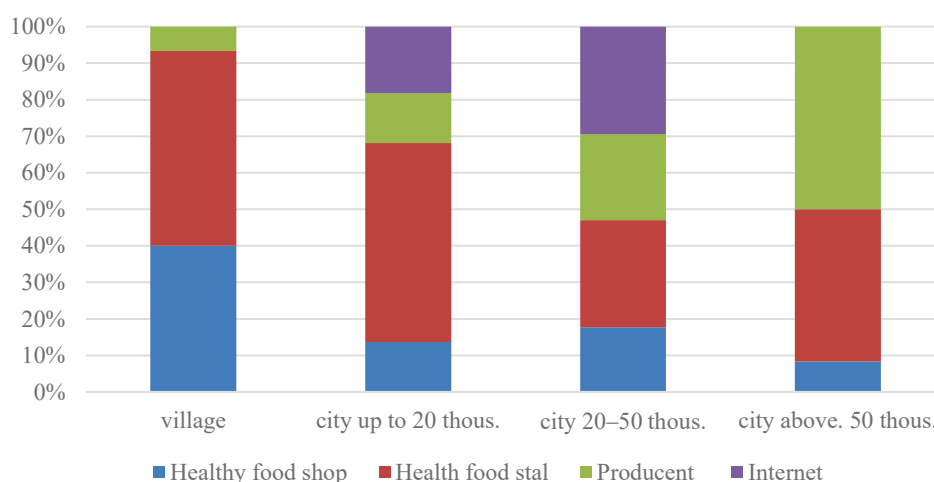

Figure 7. Preferred places to buy food depending on where you live
Rysunek 7. Preferowane miejsca zakupu żywności w zależności miejsca zamieszkania
Source: own studies.

Among the formulated groups covering a given level of education, health food is predominant stands as preferred shops where respondents did their shopping (Figure 8). This indication reaches almost half (47.37%) in the group of people with vocational education, 37.04% in the group of people with secondary education, and 55% in those with higher education. Respondents using online shopping in 77.78% were people with vocational education, the rest had higher education.
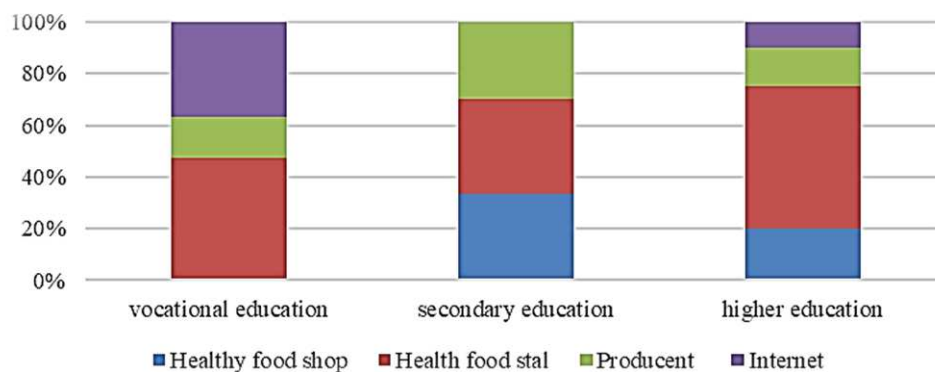
Figure 8. Preferred places to buy food according to education
Rysunek 8. Preferowane miejsca zakupu żywności zgodnie z wykształceniem
Source: own studies.

Considering the income level (Figure 9), the choice of healthy food stands dominates among each monthly income bracket, which was as follows: 47.83% for those with incomes up to PLN 2,5 thousand, 37.50% for the range of PLN 2,5–5 thousand, and the highest (52.63%) for those with the highest incomes – above PLN 5 thousand per month.
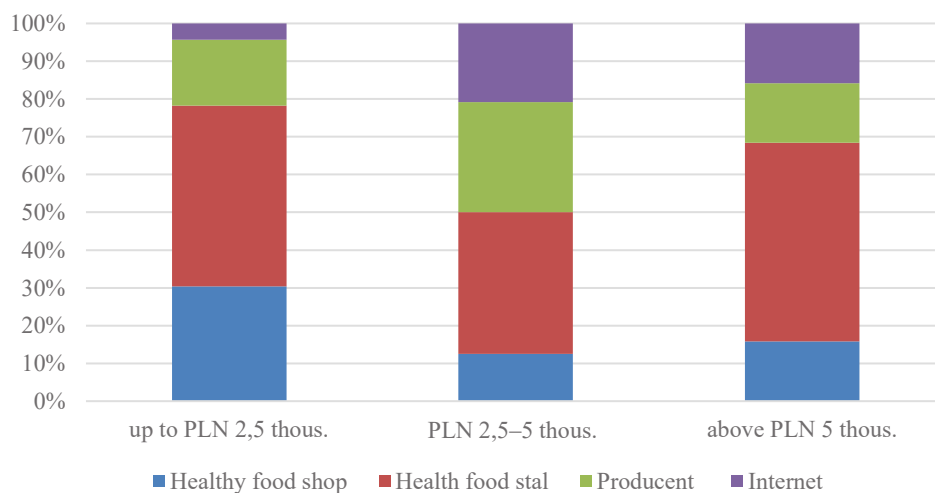

Figure 9. Preferred places to buy food according to family income
Rysunek 9. Preferowane miejsca zakupu żywności w zależności od dochodu rodziny
Source: own studies.

When analysing the answers obtained, attention was paid to the reasons for not buying organic food and the potential reasons that will increase the willingness to buy these products in the future. For this purpose, the focus was on the respondents who declared not buying

organic products and they were asked to indicate the reasons for their lack of interest in these products and the reasons that are able to change their attitude towards organic products. Of the total respondents, about 16% are those who show no interest in buying organic food. Of the possible answers regarding the reasons for not buying, the highest number was related to the high cost – accounting for 31.58%, while the least number of indications was the lack of faith in organic products – respondents do not think they are better than ordinary conventional food.

For rural residents, the main reason for no interest in buying organic food is its high cost – 27.27%, and the other answers contain an equal number of indications. In Figure 10, showing the structure of the answers, it is possible to notice the absence of the group concerning the city with a population of 20–50 thousand, which allows us to draw the conclusion that all residents from this group of respondents purchase organic food.
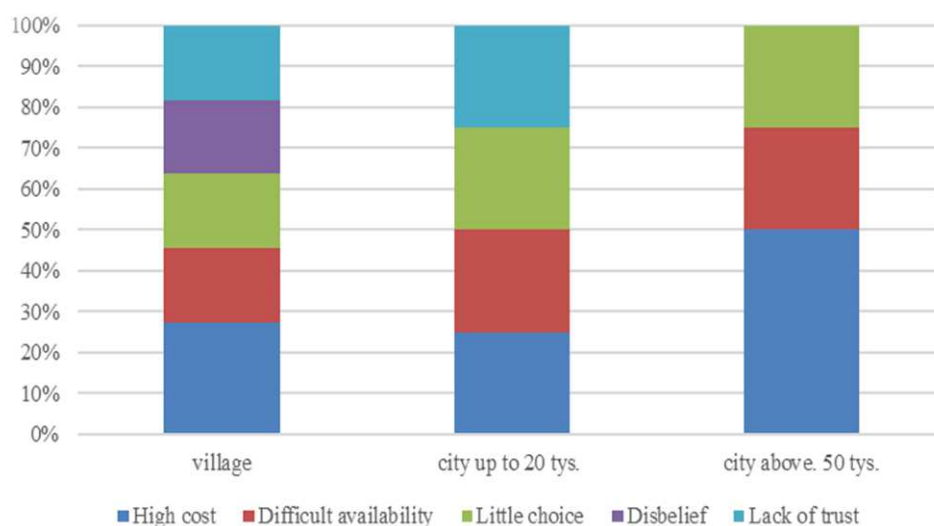

Figure 10. Reasons for not buying organic products with reference to the place of living
Rysunek 10. Powody niekupowania produktów ekologicznych w odniesieniu do miejsca zamieszkania
Source: own studies.

Taking education into account, the highest number of answers comes from the group of respondents with vocational and secondary education: the biggest problem for this group is the high cost and difficult accessibility of these products. The distribution of answers for each level of education is shown in Figure 11.
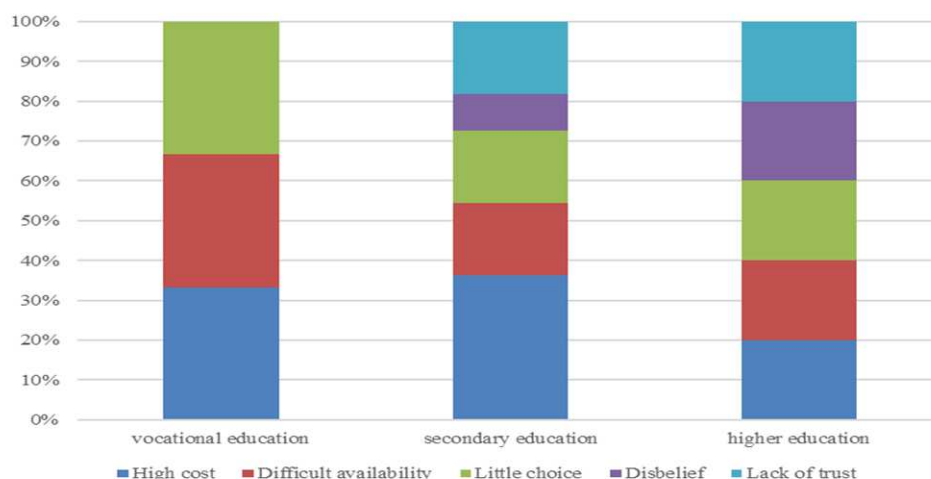
Figure 11. Reasons for not buying organic products with reference to education
Rysunek 11. Powody niekupowania produktów ekologicznych w odniesieniu do edukacji
Source: own studies.

Among those who show no interest in buying organic products, there are no people whose monthly income exceeds PLN 5 thousand. Approximately 42.86% of respondents with incomes up to PLN 2.5 thousand think that the cost of organic products is too high and that the choice among the available assortment is too small (28.57%) which is reflected in the lack of interest in this food category. For people with an income between PLN 2.5 and 5 thousand, the predominant choices are high cost and difficult availability – representing 25% of the answers each (Figure 12).
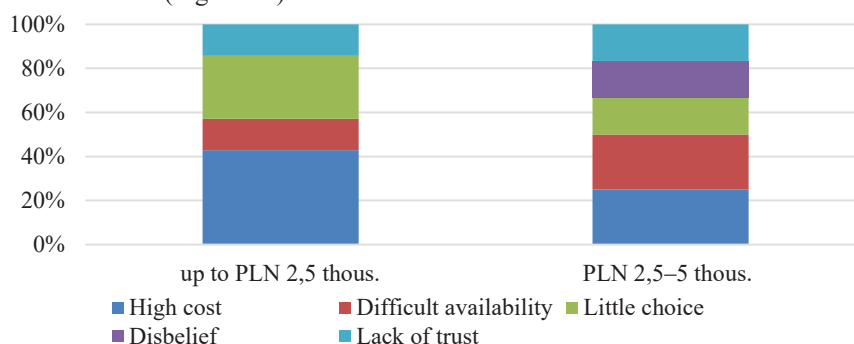

Figure 12. Reasons for not buying organic products with reference to monthly income
Rysunek 12. Powody niekupowania produktów ekologicznych w odniesieniu do miesięcznych dochodów
Source: own studies.

Summary and conclusions

The design or modernisation of existing distribution channels should take into account periodic surveys of customer preferences, which significantly affect the intensity of the flow of products through these channels and determine the directions of these changes.

The performed statistical analysis of the answers given by the selected group of respondents allowed us to draw conclusions that the factors significantly influencing the structure of demand for organic food in the south part of Poland are:

- place of residence – significantly influencing the choice of organic products, the expenditure spent on them, and the preferred place of purchase, and
- customers' education, which also influences the choice of organic food, the type of shops preferred, and the chances of buying such products in the future.

No significant relationship was observed due to the criterion of monthly income spent on buying organic food.

These conclusions show that the set working hypothesis was only partially confirmed. The aim should be to integrate links in the production and distribution chain, making organic products distributed through indirect distribution channels by producers more accessible to consumers wherever they live. Indirect channels will make it possible to increase sales and thus profits, while at the same time resolving problems relating to storage, delivery, and promotion of organic products.

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