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THE PHENOMENON OF ECOLOGISATION IN THE FOOD BEHAVIOUR OF POLES – RESULTS OF EMPIRICAL RESEARCH

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ABSTRACT: The main purpose of this research is to identify and characterise the phenomenon of ecologisation in the food behaviour of Polish consumers and the factors shaping it. The research was conducted in 2018, covering the entire territory of Poland. The measurement tool in the primary research was a questionnaire. The collected data is analysed using factor analysis (main component method), Cronbach's alpha-factor, ordered logit models, Pearson's $\chi 2$ and Cramer's V coefficients, as well as descriptive statistics and structure indicators. The analyses show that the phenomenon of ecologisation is clearly visible in the food behaviour of Polish consumers, especially among older people. It is associated with higher food awareness in Poles and manifests itself, in particular, in the relatively frequent purchase of organic products and their introduction to the daily diet. The most important factors shaping their attitude to organic food are age, education level and place of residence.

KEY WORDS: ecologisation; new trends; food behaviour in Poland; organic food

Introduction

Due to the increasingly serious health problems caused by the excessive consumption of highly processed and genetically modified food produced by modern food conglomerates, for many consumers health has become the key factor determining their food choices (Goetzke and Spiller, 2014; Larue et al., 2004, p. 155). Consumers take various steps to improve their health by following diets and purchasing organic products and functional foods. Studies show that, in North America, consumers believe that modifying their diet and using supplements are the two most important conditions to reduce treatment costs and improve overall health (Milner, 2002). Changes in consumer behaviour on the food market are mainly caused by demographic changes and, above all, by the ageing of societies in most developed countries, higher life expectancy and the desire to improve quality of life. Health and wellness promotion, as well as preventing or minimising the occurrence of diseases, such as heart disease, cancer or diabetes, are also very important factors (Doyon and Labrecque, 2008). It should be noted that health and disease begin to be perceived by consumers as a consequence of individual behaviour rather than as a result of the external environment or genetic load. As a result, governments begin to place emphasis on preventive action, opening up many development opportunities for the food market aimed at improving health. This contributes to the growing interest of consumers in alternative treatments, i.e. without medicines, using natural ingredients or diets (Thompson and Moughan, 2008). Nowadays, when the relationships between unhealthy eating habits and some diseases are known, organic food, known as healthy or eco-food, is becoming increasingly important in the nutritional market.

The main purpose of this research is to identify and characterise the phenomenon of ecologisation in the food behaviour of Polish consumers and the factors shaping it. Two hypotheses have been drawn up: 1) The phenomenon of ecologisation is clearly visible in Polish consumers' food behaviour; 2) The phenomenon of ecologisation is most often manifested in the food choices of the elderly.

In order to achieve the objectives of this paper and to verify the assumed hypotheses, it was necessary to conduct primary and secondary studies of a quantitative nature. The primary and secondary sources used in this paper include scientific publications, as well as data from the Institute of Market and Social Opinion Research. The original sources are the result of an online and distributed survey covering the whole of Poland.

For data analysis, some statistics methods were used. A factor analysis and Cronbach's alpha-factor measured the reliability of scales describing

consumer behaviour. In order to verify the hypotheses concerning the relationship between consumer behaviour and consumer characteristics, ordered logit models were used. Additionally, Pearson's $\chi 2$ and Cramer's V coefficients were employed in the analysis of dependencies between pairs of variables. Descriptive statistics and structure indicators for single questions and summary scales were also determined.

Although this topic is often raised by scientists, new factors have emerged that may influence the degree of ecologisation in consumer food behaviour, such as an increase in the wealth of Poles, for instance, resulting from low unemployment, dynamically growing wages and more specific measures, such as the grant of a child-rearing benefit of 500+ for each child up to 18 years old, which increased the average disposable income of the programme beneficiaries by almost 20%. Moreover, society is still ageing, while consumers are increasingly more nutrition aware. Therefore, it is very important to present the latest empirical research on this topic and compare it with previous studies.

This study, however, has some limitations, which should be indicated. First of all, the studies carried out are non-exhaustive. As such, it is not possible to generalise them for the entire population. Secondly, the research method was a questionnaire, which is not without flaws, such as superficiality and limited opportunity for a more in-depth examination of the subject.

The subjective scope of the primary research concerns individual consumers, who independently decide about their diet (over 18 years of age). The temporal scope of direct research falls in the third quarter of 2018. The spatial scope of the research covers the whole of Poland.

The paper is divided into the following sections. The first presents organic food and the organic food market in theory. The second is dedicated to methodology and data collection, while the third presents the empirical results. The fourth section concerns a comparison of the present results with the research of other authors and discusses in general terms the phenomenon of ecologisation in the eating behaviour of Poles. The conclusion provides a summary and indicates applications of the work and further research directions.

An overview of the literature

The growing nutritional awareness of Poles means that increasingly more consumers take care of the natural environment, prefer ecological products that are healthy, safe and produced in a traditional way, and limit their post-consumer waste and the use of non-renewable resources. Organic food is defined as food created in sustainable conditions of plant and animal

production, using non-industrial mineral and biological agents. The basic principle is the rejection of agricultural, veterinary and food chemistry. Voinea (2011) defines organic food as natural products that are created in a manner compatible with natural biological processes and certified by an independent institute. An organic farm must be located away from areas burdened with contamination, emitted by industrial plants, landfills or roads. Organic farms are based on a sustainable, non-degraded natural environment (Shafie and Rennie, 2012). The quality of organic products depends on many different factors, such as the quality of raw materials, processing, storage and distribution technologies. It should be noted that the quality of organic food is recognised as its main source of competitive advantage over conventional products. Consumers are motivated towards the purchase of organic food by such reasons as health, taste, environmental concerns, concern over animal welfare, support for the local economy, a desire to sustain traditional cooking, concern over food safety and current food fashions (Zanoli and Naspetti, 2002; Krystallis and Chryssohoidis, 2005; Tarkiainen and Sundqvist, 2005; Honkanen et al., 2006; Hughner et al., 2007).

Consumers appreciate the nutritional value, quality and taste of products supplied by organic farming, and pay attention to the lack of growth hormones and cleaning. What is more, organic food is rich in vitamins, minerals, fatty acids and antioxidants, which have a positive effect on the human immune system. Eco-food, introduced into the daily diet reduces allergic reactions to the body, while nitrates help reduce the risk of cancer. Examples of organic food include organic eggs from poultry that is not fed with modified feed, milk, a solution containing conjugated linoleic acid 60% higher than its standard equivalent, products from organically farmed animals, cold oil, twice as rich in vitamins A, D and E than other types of refined oil, including olive oil.

The organic food market is considered to be the fastest-growing food production sector in the world. This phenomenon is positively influenced, for example, by the increase of affluence in societies, as well as by the growing nutritional awareness of consumers, and food safety and its significant impact on human health. In 2015, the world market for certified organic food and beverages was estimated at $77.4 billion, and the turnover of organic products has more than doubled since 1999. By 2025, the global organic food and beverage market is expected to reach $320.5 billion. According to a report by the Foundation for Assistance to Agriculture, the value of the global market increased by 355% between 2000 and 2015. In 2017, according to Ecovia Intelligence, organic food and drink sales reached $97 billion. The largest market remains the United States (worth almost €40 billion), followed by Germany (worth €10 billion), France (€7.9 billion) and China (€7.6

billion). The largest annual consumption is recorded in Switzerland (about €177 per capita), Denmark (about €162), Luxembourg (about €134) and Austria (about €127). The CEE countries have the lowest share of organic food consumption in Europe but are on an upward trend (Willer and Lernoud 2019). Willer and Lernoud (2019) noted that there are more than 69.8 million hectares of organic farmland. The largest areas of organic agricultural land can be found in Oceania (35.9 million hectares) and Europe (14.6 million hectares). Australia (35.6 million hectares) and Argentina (3.4 million hectares) are the two countries with the most organic agricultural land. In 2017, there were at least 2.9 million organic producers. Compared to 2016, there has been an increase of producers of nearly 5%. Analysing organic farming and market development in Europe and the European Union, it should be noted that its development is characterised by two trends. Firstly, the market has shown a double-digit growth rate (1.5% in Europe; 10.9% in the European Union). Secondly, the growth of organic agricultural land continues to be slower than market growth, but is much faster than in the first years of the previous decade, increasing by 7.9% in Europe and 6.4% in the European Union. The trend towards market growth at a faster rate than organic farmland growth has been observed for several years, which shows that production is still not keeping pace with consumer demand. The total organic area, however, is only one factor. Comparing the development of organic areas with the development of retail sales, it is more profitable to look at land use and cultivation practices, types of animal husbandry and, above all, production values. It is also important to note in this context that growth rates of more intensive production, such as fruit, vegetables and milk, have increased significantly in the last few years (Hermaniuk, 2018; Willer et al., 2019).

Research methods

The main secondary sources used in work are scientific publications and international reports. The primary source of the survey includes the results of an online and a distributed survey covering the whole of Poland. A total of 660 people took part in the study, including 393 women (59.5%) and 267 men (40.5%). People aged 18–34 constituted about 42% of those surveyed, people aged 35–54 formed 28%, and people aged over 55 were 31% of those surveyed. The structure of the sample in terms of age and gender resulted from the quota selection, which reflected the structure of the population in Poland as of 31.12.2016. Other characteristics of the research sample included: education, income situation and place of residence. Almost half of the respondents had secondary education (49.5%), over 1/3 had vocational

education (35.3%), and every seventh person had higher education. Only 2.3% of respondents declared primary or lower secondary education. Table 1 presents characteristics of consumers participating in the survey. Table 2 characteristics of consumers participating in the survey (n=660).

The empirical information was collected through direct research using quantitative methods. Individual consumers independently deciding on their diet (over 18 years of age) took part in direct research using quantitative methods. The research was conducted in 2018 across Poland. The measurement tool in the primary research was a questionnaire, which consisted of an introduction, instructions for the respondents, ten relevant questions and five questions about demographic items. The main goal of the study was to identify new trends in Poles' eating behaviour. This was possible by learning about the food choices of consumers (in terms of selected types of food consumed and restaurants), the importance of selected factors when purchasing food products (composition, price, calorific value, company, packaging), ways of organising food purchases (who buys food most often, where is it acquired from) and planning and eating meals (regularity and frequency, method of preparation), as well as the overall quality of Poles' diets.

Table 1. Characteristics of consumers participating in the survey (n=660)

Characteristics of respondents	Respondents	
	Quantity	%
Sex		
Female	393	59.50%
Male	267	40.50%
Age		
18–24	103	15.6%
25–34	166	25.2%
35–44	102	15.5%
45–54	84	12.7%
55–59	50	7.6%
60–64	50	7.6%
65 and above	105	15.9%

Source: author's work based on the results of primary research.

In order to examine the degree of occurrence of selected new trends in Poles' eating behaviour, variables were operationalised. Table 2 presents how the phenomenon was measured.

Table 2. Operationalisation and measurement of variables

Studied phenomenon	Scale position (questions)*	Cronbach's alpha for the scale
Ecologisation	Purchase of food labelled organic, healthy Dominance of organic food in the diet	Alpha=0.687***

* Intensity scales from 1 to 5 were used in the questions; the ends of these scales are described differently, depending on the question asked *** Not reliable; analysis of answers to individual questions.
Source: author's work.

In the study, a target-quota sample selection was applied, and the amounts were determined with reference to age and gender criteria, which reflected the structure of the population in Poland as of 31 December 2016.

Results of the research

In order to examine the extent to which the phenomenon of ecologisation occurs in the nutritional behaviours of Polish consumers, some questions were asked in the questionnaire concerning the frequency of purchasing organic food and the evaluation of the diet in terms of the share of organic food in the diet on a scale from 1–5 (where 1 = does not fit at all, and 5 = fits very well). The results of the study show that ecologisation is a trend clearly visible in the behaviour of Polish consumers. The mean score for behaviours in the field of ecologisation is 3.03, and the standard deviation on a five-grade scale is 1.17 (table 3).

Table 3. Descriptive statistics for new trends in the nutritional behaviours of Poles*

Phenomenon	Average	Standard deviation
Ecologisation	3.03	1.17

* In the questions, the intensity scales from 1 to 5 were used, and the ends of these scales were described differently, depending on the question asked.
Source: author's work based on primary research results.

Although compared to other highly developed countries, the size of the Polish organic food market is negligible, a steady increase in sales and the

number of companies producing certified organic food is observed. According to the Agricultural and Food Quality Inspection, in 2015, 23,000 organic producers were registered on the Polish market. This market is in a phase of intensive development, far from maturity, with a large potential for further growth of up to 20% per year. In 2016, the organic food market accounted for only 0.5% of the Polish grocery market. In Western European countries, this market accounts for 2–8% of the grocery market. According to industry forecasts, the upward trend on the Polish market is expected to continue at least until 2030 (IMAS International, 2017)

Direct research indicates that the level of ecologisation can be conditioned by many factors. Among demographic factors, it is found that the age of consumers is very important. Research shows that people aged 55 and above show a higher level of ecologisation of nutritional behaviours than those aged 18–24 (table 4). There is no doubt that consumer behaviour changes with age. The source of this may be the different perceptions, needs, as well as experiences gained over time. Direct research shows that ecologisation is visible especially among older people, which confirms the hypotheses set out in this paper. Age significantly differentiates consumers' food behaviour, influencing, among other things, the perception of the importance of selected factors when purchasing food products, the choice of food and the place of its purchase, and the organisation of meals. Age also clearly determines the diet of consumers. It should be noted that older people, whose health condition usually deteriorates, focus more on health and nutritional issues, and prefer healthy food more than young people. At the same time, their propensity to buy innovative products decreases and the importance of habits increases (Cheah et al., 2015). The connection between age and purchasing organic food is also noticed by Muhammada et al. (2015), who shows that the age of the consumer has a significant impact on the acquisition of organic products in the United Arab Emirates. As age increases, consumers tend to spend more money on organic food. Generally, young people show less care for their health. Awareness in this respect only increases with age.

Direct research also shows that consumer education is important in purchasing organic products. The analysis of the questionnaires shows that people with primary education show a higher degree of ecologisation in their behaviours than people with vocational education (table 4). It is not shown that people with higher education are more inclined to buy eco-food, but other authors' research confirms this. It is indicated that people with higher education have a broader knowledge of pro-health food and its basic bioactive components. Moreover, according to American researchers, better edu-

cated, wealthier and older pregnant women follow a better quality diet (Kranjac et al., 2017; Bodnar and Siega-Riz, 2002).

It is also found that a higher level of ecologisation is observed among rural inhabitants than in urban areas (table 4). It should be noted that the different behaviour of consumers living in other areas is not the result of different needs, but rather of different ways of meeting them. Hence, a higher share of natural product consumption can be observed in rural households than in households from urban areas, where market consumption dominates the total volume of consumption.

Among economic factors, the price that determines the real value of organic food and the purchasing power of consumers are often indicated. They are treated as two of the most important criteria for purchasing decisions, regardless of the place of residence of consumers, their professional group, gender or professional activity. Although the importance of price as a determinant of choice is inversely proportional to the increase in consumer income, wealthy buyers also take this factor into account in their purchasing decisions, including of organic food (Aschemann-Witzel, Zielke and Thøgersen, 2014; Aschemann-Witzel and Zielke, 2017; Smoluk-Sikorska, 2017).

Table 4. Results of estimation of ordered logit models for questions regarding the phenomenon of ecologisation

	Purchase of food labelled organic		Dominance of organic food in the diet	
	b	std(b)	b	std(b)
According to the "you are what you eat" principle, do you pay attention to what food products you choose?_yes	0.926	0.235***	1.315	0.281***
What does packaging mean for you when choosing a food product?	0.127	0.078	0.161	0.078**
What does price mean for you when choosing a food product?	−0.153	0.113	−0.174	0.126
What does the company mean for you when choosing a food product?	−0.039	0.095	−0.014	0.091
What does quality mean for you when choosing a food product?	0.394	0.141***	0.175	0.156
What does caloric content mean for you when choosing a food product?	0.082	0.107	−0.071	0.092
What does composition mean for you when choosing a food product?	0.476	0.118***	0.218	0.116*

	Purchase of food labelled organic		Dominance of organic food in the diet	
	b	std(b)	b	std(b)
Do you think you are eating healthily?_yes	0.444	0.195**	1.116	0.198***
Do you use any diet (e.g. vegetable and fruit)?	0.136	0.212	0.036	0.202
Do you broaden your knowledge of proper nutrition?	0.365	0.227	0.813	0.220***
Do you use dietary supplements advertised in the media?	−0.012	0.236	−0.028	0.233
sex_female	0.049	0.177	0.025	0.179
age_25_34	0.076	0.263	0.047	0.256
age_35_44	0.377	0.290	0.308	0.274
age_45_54	−0.022	0.280	0.505	0.313
age_55_59	0.567	0.327*	0.954	0.389**
age_60_64	0.102	0.414	0.759	0.334**
age_65_and_above	−0.432	0.327	0.948	0.328***
primary education	1.711	0.807**	2.306	1.182*
junior high school education	0.466	0.535	−0.199	0.631
secondary education	−0.084	0.270	0.063	0.270
higher education	0.040	0.275	0.120	0.288
very poor income situation	0.388	0.830	−2.053	1.299
bad income situation	−0.658	1.346	0.590	0.966
good income situation	0.240	0.193	0.145	0.187
very good income situation	0.364	0.292	−0.034	0.293
place of residence_city	0.137	0.191	−0.560	0.199***
_cons	0.129		0.135	
R2	637		637	

Column b provides estimates of regression coefficients; column std (b) contains the average parameter estimation errors calculated using a formula resistant to random component heteroscedasticity; statistically significant estimates are marked with stars:
* p <0.1; ** p <0.05; *** p <0.01
Source: author's work based on the results of primary research.

Nowadays, the average Pole spends about PLN 20 a year on organic food, while the average Swiss spends up to EUR 190, and the average for the European Union is EUR 44 per inhabitant per year (IMAS International, 2017). Interestingly, the research does not show statistical significance in terms of

the impact of the consumers' income situation on the purchase of organic food. Also, the price is not a statistically significant factor in determining food purchases. There is some research, however, which argues that consumers must accept a higher price if they prefer organic products over conventional ones. This reasoning suggests that it is not the price but the willingness to pay (WTP) that is the key factor in the decision to purchase organic products. If companies are able to justify a premium through benefits, consumers will be willing to pay a higher price. The benefits offered to the consumer are able to recoup a higher price, and the price premium should not be seen as a barrier. The perceived dependence of value and price, and thus willingness to pay, is an important predictive factor in purchasing decisions (Gil et al., 2000). It can be assumed that a similar phenomenon is beginning to appear among increasingly wealthy and nutrition-conscious Polish consumers.

In this context, it should also be mentioned that, in previous years, when the price was the main obstacle to buying organic products, large-format stores were not interested in promoting this type of food; thus, its availability was significantly limited for the average Pole. Due to the systematic improvement of the income situation of Poles, the rapid development of specialised food stores, offering local, organic and regional products, as well as the expansion of the range of premium products in large supermarkets and hypermarkets are observed. Increasingly more brands, present on the Polish market, are introducing their own eco-product lines, e.g. Lidl Bio, Rossmann EnerBio or the K-Bio Kaufland line. Therefore, the availability of organic products has significantly increased and is no longer a serious barrier. It should be noted that a sufficient quantity and variety of goods on the market makes it possible to increase the appeal of such products, while insufficient supply may be a reason for limiting consumption until the consumption of certain goods is almost entirely eliminated.

It is worth noting that research also shows that people who declare a healthy diet and pay attention to the composition and quality of food products are more likely to purchase organic food, which confirmed that the phenomenon of ecologisation is more visible in the food behaviour of consumers with a higher level of nutritional awareness.

Finally, it should be noted that increased interest in organic food is generally due to consumers' growing awareness of sustainability. Therefore, changes in nutrition are only one aspect of consumers' ecological attitude, which is also manifested in the growing importance of packaging, confirmed by direct studies presented in this paper. The information on food packaging, as a marketing element, is a factor that significantly influences consumers' opinion on products. Consumers indicate food packaging as one of the most important sources of information on food and is now essential for consum-

ers. Eco-consumers notice that packaging should be biodegradable while guaranteeing food safety and maintaining its high sensory quality throughout the chain from producer to consumer. Scientists emphasise that increasingly more consumers appreciate innovative materials used in food production, based on the latest solutions in the field of bio- and nanotechnology. In collective and individual packaging, sensors monitoring the conditions during production and distribution, as well as the quality and durability of food have also become common. They allow full traceability of products, taking into account their regional origin (Orzan et al., 2018), which seems to be particularly important nowadays, due to the increasing ethnocentric attitudes among Poles.

Conclusions

The organic food market develops very fast alongside the rapidly changing reality and behaviour of consumers. In this context, the identification of the phenomenon of ecologisation in Poles' food behaviour and the factors shaping it are a very important research subject.

The main purpose of this study was to identify and characterise the phenomenon of ecologisation in the food behaviour of Polish consumers and the factors shaping it. The analyses show that ecologisation is clearly visible in the food behaviour of Polish consumers, especially among the elderly. It is associated with the higher food awareness of Poles and manifests itself in particular in the relatively frequent purchase of organic products and their introduction to the daily diet. Therefore, the two hypotheses that were drawn up are positively verified.

The most important factors shaping consumers' attitudes to organic food are age, education level and place of residence. Moreover, it is indicated that eco-consumers pay attention to the packaging of products, while organic food is definitely more often purchased by people who prefer healthy eating, broaden their knowledge in this field and pay attention to the composition and quality of food products. Importantly, there is no statistical significance of income and price in the purchase of organic food, which has been previously demonstrated by many authors.

This paper presents some application advantages. The identification of new phenomena driving consumers' food behaviour is significant for the food and catering industry in Poland. The results clearly show which path should be taken in order to achieve a competitive advantage in the modern food market. In Poland, the number of people for whom the improvement of quality of life is closely related to the promotion of a healthy lifestyle, including a rational diet, is constantly increasing and, consequently, there will be

wider demand for organic food. Therefore, given the growing wealth of Poles, their fast and busy lifestyle and the high level of ecologisation in their food behaviour, it can be assumed that today's consumers are looking for a dietary alternative that will allow them to shorten the time of preparing meals and cleaning up after, while maintaining their health. This trend is confirmed by the growing popularity of diet catering and healthy convenience food prepared from high-quality ingredients of ecological origin, with reduced content of fats and other substances unfavourable to health, as well as enriched with vitamins and minerals. Against this background, it is assumed that fast food bars offering healthy, organic food from a proven source may be a profitable investment.

It should be noted that the considerations presented in this paper do not exhaust the entire catalogue of trends on the food market, but rather present one aspect of it, which is ecologisation. Further studies can be associated with the identification of other factors motivating Poles to purchase organic food, comparing the findings with other countries. In addition, the study may be supplemented with the typology of consumers in the organic food market, which is also a very important research area.

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