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A VALUABLE NATURAL AREA AS A SYSTEM MARKETING PRODUCT *VERSUS* EXPECTATIONS OF TOURISTS AS ACTIVE PURCHASERS

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ABSTRACT

The article is theoretical and empirical in nature. The theoretical part provides a cognitive and critical analysis of the world literature. According to the approach presented in this part, valuable natural areas are 'system marketing products' which should be co-created by purchasers. The research aim of the article is to identify the significance assigned by tourists to various characteristics of valuable natural areas and group the tourists based on this. Three research questions were formed. In order to answer them, primary research was conducted by means of a questionnaire. The results were statistically analysed using the method of averaging and factor analysis. The results indicate that the relatively highest significance from the 25 elements of valuable natural areas evaluated was assigned to cleanliness and food. Untypical elements (e.g. 'photographic safari') were the least significant. Respondents were assigned to six groups linked to various types of activities. This points to the necessity to adapt elements of the product, i.e. a valuable natural area, to the various expectations of the purchasers.

Key words: valuable natural area, product, marketing, expectations, purchasers, tourists
JEL codes: M31

INTRODUCTION

The contemporary final purchaser is becoming a more and more demanding participant in the consumer market. The expectations of the contemporary final purchaser are growing rapidly, and fulfilling these expectations is one of the greatest challenges for offerers. The increasing expectations of purchasers concern not only the products offered (both material and non-material), but also the range of the market activity of purchasers. They would like to purchase products which fulfil their expectations and simultaneously they would like to participate in the preparation of the products and influence their characteristics and marketing attributes. Thus, the role of purchasers is being re-defined: they are becoming active participants of the market, i.e. prosumers [Kotilainen and Saari 2018, pp. 1–22]. The activity of an active participant of the market decidedly goes beyond the purchase behaviour of traditional, i.e. passive, purchasers, as it also includes communication and creation. This significant increase in the level of purchasers' activity in way forces offerers to change their approach towards purchasers, and this entails the necessity to change the model of functioning on the market. It is no longer sufficient to be a creator and supplier of products and other elements of an offer. These roles need to be replaced with a model of co-creating an offer with the final purchaser.

The necessity for the re-orientation has become a base for various contemporary management concepts, such as marketing management, which includes affiliate marketing [Fruchter and Sigue 2005, pp. 18–36], pro-

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sumption [Baruk 2017], experiential marketing [García, Galindo and Suárez 2018, pp. 22–41], and holistic marketing [Soliman 2016, pp. 42–56]. Each concept highlights particular aspects of connections between the offerer and purchaser. The tangible and intangible advantages, valuable for both parties, are generated through the proper creation of the connections, and it is the intangible advantages that are acquiring greater significance as they allow for example building a strategic advantage [Bettencourt, Lusch and Vargo 2014, pp. 44–66]. Improving the image or perpetuating a positive image of the offerer on the one hand, and on the other hand the sense of exerting influence by buyers on past activities reserved exclusively for offerers is often a sufficient stimulus for mutual cooperation and its strengthening.

The implementation of such an approach despite appearances is not easy. It requires mental changes [Fyrberg 2013, pp. 1163–1181] both from offerers and purchasers. It is no longer sufficient for offerers to identify the needs of recipients and use the knowledge of the needs in the process of product creation, which formed the basis for classic marketing orientation. A modern (participative) marketing orientation requires active cooperation between an offerer and a purchaser at each stage of marketing creation process, and acquiring knowledge of purchasers must be replaced with acquiring purchaser knowledge and building new knowledge on the basis of purchaser knowledge and own knowledge.

It is relatively more difficult to follow the assumptions of that approach in the case of non-material products, including the specific tourist products, i.e. valuable natural areas. The literature defines valuable natural areas as areas of great biodiversity or areas hardly transformed by a human being, with the level of contamination not disrupting the functioning of primeval ecosystems [Łuszczyk 2011, pp. 260–276]. The great biodiversity mentioned, i.e. biological and landscape diversity, constitutes or may constitute a dominant determinant of economic activity, or it subsequently limits the conventional forms of management [Jalinik 2002, pp. 87–88]. The values which are distinctive features of these areas can satisfy a number of recipients' needs, and the needs concern not only leisure (psychological, social, security needs) but also aesthetics and knowledge (cultural needs, etc). A wide range of needs which can be met by tourists makes the role of such an area as a marketing product highly significant. A valuable natural area may even be ranked as a product of system (which was analysed among others by Mazurek-Łopacińska [2016, pp. 18–31]), as it constitutes a set of benefits which fulfil an extensive bundle of needs.

Moreover, a valuable natural area as a product of system fits in the current consumer trends, or even cultural megatrends [Mazurek-Łopacińska 2016, pp. 16–31], especially a trend referred to as 'return to the past' [Dąbrowska 2018, pp. 106–117], which is connected with the rediscovery of traditional values including the consumption of traditional foods and spending leisure time according to canons of Polish tradition. They correspond to the assumptions of 'slow life' and 'slow food' – a move initiated in 1986 in Italy [Simonetti 2012, pp. 168–189]. It can therefore be stated that although a part of authors consider consumer trends exclusively or primarily in the context of innovative behaviour and refer them to virtual activity [Zalega 2016, pp. 202–225], the trends also include behaviours referring to the past, enabling the preservation of traditional values such as cultural values, national values, etc.

Therefore, in the case of specific products such as valuable natural areas, it is essential to apply the participative approach presented, attempting to involve tourists in their creation. Tourists should be treated not only as the addressees of a marketing offer but also as co-creators. The implementation of that approach should be evolutionary, and the starting point should be the recognition of recipients' expectations concerning the products mentioned. Contrary to a traditional marketing approach, it is essential not to make do with the recognition, as tourists should be encouraged to actively shape the features of the product according to their needs. Following the assumptions presented, the article aimed to identify the significance attributed by tourists to various characteristics of valuable natural areas and group tourists on account of that variable. The results of cognitive-and-critical analysis of literature indicate cognitive and research gaps existing in this area. Until now, valuable natural areas have not been analysed in the context of their role as products of a marketing system and expectations towards them.

In the process of the realization of the goal formed, an attempt was made to answer the following research questions:

Q1 – what significance did the respondents representing tourists of valuable natural areas attribute to particular characteristics of these marketing products?
Q2 – what hierarchical structure did particular characteristics of valuable natural areas as marketing products have?
Q3 – which groups of respondents formed a segment of tourists visiting valuable natural areas, taking into consideration the significance the tourists assigned to particular characteristics of these marketing products?

GENERAL CHARACTERISTICS OF EMPIRICAL RESEARCH

In order to answer the formulated research questions, in the second and third quarters of 2017 questionnaire survey was carried out, including 216 respondents representing adult tourists visiting valuable natural areas especially from Lubelskie Voivodeship and Świętokrzyskie one. The respondents were chosen by means of non-random sampling (purposive one). The survey was of a direct nature, which requires a personal contact between the pollster and the respondents. All questionnaire papers were qualified for quantitative analysis, which was possible due to a face-to-face contact applied. The primary data gathered were submitted for quantitative analysis, which involved averaging analysis and explorative factor analysis.

The research had a much wider subject range than it is presented in this article. Only a fragment is presented concerning the significance assigned by tourists to 25 elements of tourist reception areas under protection. These elements were identified based on the results of the cognitive-and-critical analysis of literature and the results of non-structured interviews. The interviews were conducted at the stage of preparing for the questionnaire as a research tool. For each element the respondents were supposed to define its significance on a 5-grade Likert scale. The application of the Likert scale determines the applicability of both research methods mentioned above.

Factor analysis was used in order to reduce the number of variables affecting the tested category, i.e. the significance assigned to elements of valuable natural areas, and to reveal internal hidden interdependencies in relations between those variables. The number of common factors was determined using the criterion technique, whereas factor rotation was performed using the standardized varimax method. As part of the factors, the variables with the highest factor loadings against particular factors were distinguished (> 0.7) [Abdi and Williams 2010, pp. 433–459].

The statistical analysis of the collected primary data was made using the IBM SPSS Statistics Ver. 22.

THE RESULTS OF EMPIRICAL RESEARCH

The results of the research conducted indicate that among the 25 elements analysed, a high significance was attributed by at least half of the respondents to 8 elements regarded as those which facilitate the use of values of valuable natural areas (Table 1). This set of elements includes first of all infrastructure, emotional elements ('positive attitude of the local community to tourists') and environmental elements ('cleanliness of the area'). It is worth adding that the last element mentioned was the only one to obtain over 70% definitely positive indications and the only one to have not been indicated as unimportant. As can be seen from Table 2, taking into consideration average rating values, this element took the first position as a feature of the valuable natural area with the relatively greatest significance for the respondents.

In turn, four elements were indicated as very important by less than one in five people, which indicates relatively little significance assigned to those elements from the point of view of satisfying the respondents' needs. None of the elements was included among the key distinguishing features of valuable natural areas, with one of them occupying the last place in the hierarchy of all analyzed elements (Table 2).

Taking into account the values of average ratings, the analyzed elements were divided into the following four groups:
1) group 'A' – elements for which the average rating values were at least 4.5;
2) group 'B' – elements for which the average rating values ranged from 4.0 to 4.5;
3) group 'C'– elements for which the average rating values ranged from 3.5 to 4.0;
4) group 'D' – elements for which the average rating values were less than 3.5.

Table 1. The significance assigned by respondents to the selected elements facilitating the use of assets of valuable natural areas

The element assessed	Symbol	Indications (%)					Average rating
		5	4	3	2	1	
Infrastructure for observing animals (e.g. pulpits)	a	19.4	44.4	28.7	4.6	2.8	3.731481
Infrastructure for admiring the landscape (e.g. viewing tower)	b	41.7	38.4	16.2	2.8	0.9	4.171296
Good marking of tourist routes	c	52.8	34.7	9.3	1.9	1.4	4.356481
Natural educational paths in the open air	d	37.0	28.7	26.9	5.6	1.9	3.935185
Infrastructure enabling safe use of bathing areas	e	49.1	29.2	14.4	6.5	0.9	4.189815
Infrastructure enabling safe sightseeing	f	53.7	31.9	9.7	3.2	1.4	4.333333
Printed guides about local natural values	g	29.2	39.8	22.7	7.9	0.5	3.893519
Free application that enables exploring the local nature	h	33.8	26.9	27.3	10.2	1.9	3.805556
Website with information on the advantages of local nature	i	28.2	40.3	21.8	6.0	3.7	3.833333
Small hostels, camping centres	j	17.1	40.3	28.7	11.6	2.3	3.583333
Stationary exhibitions showing the most valuable values of the local nature	k	19.4	32.9	35.6	10.6	1.4	3.583333
Organising photographic 'safari'	l	14.8	26.4	35.2	18.5	5.1	3.273148
Good accommodation base	ł	46.8	41.7	10.2	0.9	0.5	4.333333
Agritourism farms allowing for better understanding of arable crops, livestock, etc.	m	27.8	40.3	22.2	7.9	1.4	4.092593
Availability and good standard of sanitary facilities	n	52.3	32.9	12.5	0.9	0.9	4.353488
Good gastronomic base	o	50.0	35.6	9.7	3.2	0.5	4.592593
The possibility of tasting local specialties	p	48.6	37.5	9.7	3.7	0.5	4.300926
Road infrastructure allowing for safe access	r	50.9	33.8	13.0	1.9	0.5	4.328704
Cleanliness of the area	s	70.4	24.5	4.2	0.9	0.0	4.643519
Easy access to natural attractions	t	53.7	36.1	9.3	0.5	0.5	4.421296
Facilities for the elderly and disabled	u	37.5	31.0	14.4	10.2	6.9	3.819444
Facilities for children	w	30.1	32.9	13.9	7.9	15.3	3.546296
Facilities for tourists with pets	x	29.6	24.5	26.9	11.6	6.5	3.598131
Internet access, good coverage	y	37.0	36.6	18.1	4.6	3.7	3.986111
Positive attitude of the local community to tourists	z	51.4	35.2	9.3	2.8	1.4	4.324074

5 – very high, 4 – high, 3 – medium, 2 – little, 1 – none.

Source: Own study.

The first group identified includes two elements which, through an analogy to product levels, can be defined as the core of a system product, i.e. valuable natural area. The second and third groups consist of eleven elements each, creating the level of the basic and expected products, respectively. The fourth group, which consists of only one element, can be considered as the level of the extended product.

Elements reflecting product features of a valuable natural area were also submitted for factor analysis. On the basis of the Kaiser criterion, six factors were distinguished with eigenvalues exceeding 1. As results

Table 2. Hierarchy of elements facilitating the use of assets of valuable natural areas

The element assessed	Position	Group
Cleanliness of the area	1	A
Good gastronomic base	2	
Easy access to natural attractions	3	B
Good marking of tourist routes	4	
Availability and good standard of sanitary facilities	5	
Infrastructure enabling safe sightseeing	6	
Good accommodation base	6	
Road infrastructure allowing for safe access	7	
Positive attitude of the local community to tourists	8	
The possibility of tasting local specialties	9	
Infrastructure enabling safe use of bathing areas	10	
Infrastructure for admiring the landscape (e.g. viewing tower)	11	
Agritourism farms allowing for better understanding of arable crops, livestock, etc.	12	
Internet access, good coverage	13	C
Natural educational paths in the open air	14	
Printed guides about local natural values	15	
Website with information on the advantages of local nature	16	
Facilities for the elderly and disabled	17	
Free application that enables exploring the local nature	18	
Infrastructure for observing animals (e.g. pulpits)	19	
Facilities for tourists with pets	20	
Small hostels, camping centres	21	
Stationary exhibitions showing the most valuable values of the local nature	21	
Facilities for children	22	
Organising photographic ‘safari’	23	D

Source: Own study.

from Table 3, the first factor explains almost 30% of the total variability of the phenomenon studied. It consists of three variables with factor loading value exceeding the assumed eligibility value 0.7 (Table 4). These variables refer to elements from groups ‘A’ and ‘B’. The remaining factors selected have relatively lower eigenvalues and explain much smaller part of the total variability of the phenomenon studied than the first factor. However, each factor includes variables with certain common or similar attributes.

Moreover, particular factors can be identified with segments of respondents distinguished in terms of the significance attributed by them to particular elements of valuable natural areas. In marketing research, factor analysis is used among others in the process of inference about a structure of the analysed phenomenon, especially in the case of the research on buyer behaviour [Walesiak 1996; Walesiak and Bąk 1997, pp. 75–87]. The factors identified by conducting the factor analysis of market behaviour can therefore be interpreted as segments of respondents distinguished on the basis of behavioural and psychographic criterion.

Respondents can therefore be divided into six groups according to certain characteristics a valuable

Table 3. Hierarchy of values based on their eigenvalues determined by means of the Kaiser criterion

Factor	Eigenvalue	Total eigenvalues (variance) (%)	Cumulated eigenvalue	Cumulated of eigenvalues (%)
1	7.0996	28.398	7.100	28.398
2	2.4516	9.806	9.551	38.205
3	1.6722	6.689	11.223	44.894
4	1.4833	5.933	12.707	50.827
5	1.2156	4.862	13.922	55.690
6	1.1942	4.777	15.117	60.466

Source: Own study.

Table 4. The results of factor analysis for elements facilitating the use of natural environment values

Variables	Factors					
	1	**2**	**3**	**4**	**5**	**6**
a	–0.1248	0.2667	0.0525	0.0473	**0.7999**	0.0099
b	0.1053	0.5498	–0.0733	–0.0001	0.5123	0.1372
c	0.2645	**0.7416**	–0.1137	–0.0301	0.2673	0.1248
d	0.1871	0.6258	0.1607	0.2471	0.2653	0.2204
e	0.2311	0.5978	0.2588	0.3811	–0.2681	–0.0376
f	0.2575	**0.7607**	0.2404	0.1465	–0.0329	0.1653
g	0.1104	0.4027	0.1405	0.1456	0.2265	0.5825
h	0.1652	0.1656	0.3017	0.1759	0.1066	**0.7081**
i	0.1726	0.0850	0.0764	0.0191	0.0397	**0.8482**
j	0.0889	0.0140	0.5602	0.2458	0.1287	0.2559
k	0.0986	0.0267	0.4428	0.1301	0.6062	0.2168
l	0.0825	–0.0319	**0.7224**	0.1132	0.3772	0.1566
ł	0.5355	0.1773	0.2125	0.2668	0.0382	0.1028
m	0.1436	–0.0215	0.0248	0.1701	0.2952	0.0552
n	0.6893	0.2693	0.1059	0.0035	–0.0927	0.0568
o	**0.8222**	0.0869	0.2138	0.0025	–0.0914	0.0249
p	**0.7107**	0.0361	–0.0423	0.2155	0.0777	0.1420
r	**0.7306**	0.0736	0.1516	0.1958	0.0690	0.0127
s	0.6029	0.0888	–0.1323	–0.0385	0.0674	0.4132
t	0.5643	0.0943	0.0491	–0.0108	0.2210	0.2439
u	0.2275	0.1226	0.1348	**0.8278**	0.0709	0.0821
w	0.0786	0.1793	0.0433	**0.8507**	0.2194	0.1095
x	0.0331	0.2415	0.6089	–0.0438	–0.1653	0.0869
y	0.4370	0.0423	0.4536	–0.0061	0.0692	–0.2269
z	0.6302	0.2814	–0.0558	0.1017	0.0563	0.0657

The meaning of symbol from ‘a’ to z’ as in Table 1.

Source: Own study.

Table 5. The division of respondents based on the significance assigned by them to elements of valuable natural areas

Factor	Elements indicated by representatives of a particular group	Symbolic name
1	– good gastronomic base – the possibility of tasting local specialties – road infrastructure allowing for safe access	culinary-and-road (passive) tourists
2	– good marking of tourist routes – infrastructure enabling safe sightseeing	wanderers
3	– organising photographic 'safari'	passive lovers of fauna
4	– facilities for the elderly and disabled – facilities for children	emphatic tourists
5	– infrastructure for observing animals (e.g. pulpits)	active lovers of fauna
6	– website with information on the advantages of local nature	modern tourists

Source: Own study.

natural area should have in order to satisfy the expectations of the respondents. As can be seen from Table 5, representatives of each of these groups prefer different aspects, beginning with culinary issues through facilities facilitating passive or active discovery of natural values of a particular area, ending with the possibilities of virtual sightseeing of the area. Taking into consideration the distinguishing features, these groups of respondents can be given symbolic names reflecting the specificity of their representatives. Thus, it can be noticed that in the process of shaping the features of a system marketing product, i.e. a valuable natural area, the offer should be differentiated depending on the specific groups of recipients. It will be much easier if they are involved in this process.

CONCLUSIONS

On the basis of the considerations presented, it can be concluded that the key significance for the respondents was assigned to aspects connected with cleanliness of the visited area and appropriate gastronomic base. In the case of valuable natural areas, both elements can be considered a core of the product. Less typical elements such as 'photographic safari' turned out to be relatively the least significant. As the only element analysed, 'photographic safari' obtained an average rating of less than 3.5. The factor analysis allowed the identification of six factors which can be identified with groups of respondent assigning similar significance to the same elements of a system marketing product, i.e. valuable natural area. Assigning a particular significance to particular elements is tantamount to diversifying expectations between the identified groups of respondents. Therefore, the offer addressed to the representatives of each group should be prepared with a view to meet these expectations. It may be recommended that tourists as the purchasers of the tourist offer should be involved in the process of creating the offer.

It is worth adding that the research conducted has certain limitations. The limitations concern, among others, the subjective scope (relatively small population), geographic scope (representatives of Polish tourists only) and objective scope (no differentiation based on demographic and economic characteristics). Recognising these limitations guides the research planned in the future. Conducting the research will allow, among others, a comparative analysis over time.

REFERENCES

Abdi, H., Williams, L.J. (2010). Principal component analysis. Wiley Interdisciplinary Reviews: Computational Statistics, 2, 4, 433–459.

Baruk, A. (2017). Prosumpcja jako wielowymiarowe zachowanie rynkowe. Zakres aktywności marketingowej współczesnych nabywców. PWE, Warszawa.

Bettencourt, L.A., Lusch, R.F., Vargo, S.L. (2014). A service lens on value creation: marketing's role in achieving

strategic advantage. California Management Review, 57, 1, 44–66.

Dąbrowska, A. (2018). Zachowania konsumentów na rynku żywnościowych produktów tradycyjnych i regionalnych. Wyzwania dla marketingu. Handel Wewnętrzny, 3, 106–117.

Fruchter, G.E., Sigue, S.P. (2005). Transactions vs. Relationships: What Should the Company Emphasize? Journal of Service Research, 8, 1, 18–36.

Fyrberg Yngfalk, A. (2013). It's not us, it's them! Rethinking value co-creation among multiple actors. Journal of Marketing Management, 29, 9(10), 1163–1181.

García, J.A.C., Del Valle Galindo, A., Suárez, R.M. (2018) The effect of online and offline experiential marketing on brand equity in the hotel sector. Spanish Journal of Marketing – ESIC, 22, 1, 22–41.

Jalinik, M. (2002). Zarządzanie gospodarstwem ekoagroturystycznym na obszarach przyrodniczo cennych. Zeszyty Naukowe Politechniki Białostockiej, Ekonomia i Zarządzanie, 14, 87–88.

Kotilainen, K., Saari, U.A. (2018). Policy Influence on Consumers' Evolution into Prosumers – Empirical Findings from an Exploratory Survey in Europe. Sustainability, 10, 1–22.

Łuszczyk, M. (2011). Kierunki rozwoju społeczno-gospodarczego obszarów przyrodniczo cennych. [In:] T. Poskrobko (Ed.), Zrównoważony rozwój obszarów przyrodniczo cennych, 1, 260–276.

Mazurek-Łopacińska, K. (2016). Megatrendy kulturowe w kontekście tworzenia produktów systemowych. Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach, 261, 18–31.

Simonetti, L. (2012). The ideology of Slow Food. Journal of European Studies, 42, 2, 168–189.

Soliman, H.S. (2016). An Analytical Study of the Relationship between the Holistic Marketing and Overall Organizational Performance. International Journal of Business and Social Science, 7, 7, 42–56.

Walesiak, M. (1996). Metody analizy danych marketingowych. Wydawnictwo Naukowe PWN, Warszawa.

Walesiak, M., Bąk, A. (1997). Wykorzystanie analizy czynnikowej w badaniach marketingowych. Badania Operacyjne i Decyzje, 1, 75–87.

Zalega, T. (2016). Nowe trendy konsumenckie jako przejaw innowacyjnych zachowań współczesnych konsumentów. Nierówności Społeczne a Wzrost Gospodarczy, 46, 202–225.

OBSZAR CENNY PRZYRODNICZO JAKO SYSTEMOWY PRODUKT MARKETINGOWY A OCZEKIWANIA TURYSTÓW JAKO AKTYWNYCH NABYWCÓW

STRESZCZENIE

Artykuł ma charakter teoretyczno-empiryczny. Do przygotowania części teoretycznej wykorzystano metodę analizy poznawczo-krytycznej światowej literatury przedmiotu. W części tej przedstawiono podejście, zgodnie z którym obszary cenne przyrodniczo są systemowymi produktami marketingowymi, które powinny być współkreowane przez odbiorców. W artykule dążono do osiągnięcia celu, jakim jest zidentyfikowanie znaczenia przypisywanego przez turystów różnym cechom obszarów przyrodniczo cennych oraz pogrupowanie turystów ze względu na tę zmienną. Sformułowano także trzy pytania badawcze. Dążąc do znalezienia na nie odpowiedzi, przeprowadzono badania pierwotne za pomocą metody badania ankietowego, których wyniki poddano analizie statystycznej (metoda analizy ocen średnich i analizy czynnikowej). Wyniki tej analizy wskazują, że relatywnie największe znaczenie wśród 25 ocenianych elementów obszarów cennych przyrodniczo respondenci przypisywali czystości i bazie gastronomicznej, a najmniej istotne były nietypowe elementy („fotograficzne safari"). Wśród ankietowanych wyodrębniono sześć grup wykazujących odmienny zakres aktywności, co wskazuje na konieczność dostosowywania elementów produktu, jakim jest obszar cenny przyrodniczo, do zróżnicowanych oczekiwań odbiorców.

Słowa kluczowe: obszar cenny przyrodniczo, produkt, marketing, oczekiwania, nabywcy turyści

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ASSESSMENT OF WARSAW UNIVERSITY OF LIFE SCIENCES – SGGW STUDENTS' BEHAVIOURS UNDER RISK

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ABSTRACT

In this study, the authors made an attempt to verify the certainty effect and the rebound effect articulated in the 1970s by D. Kahneman and A. Tversky. The research was carried out on a sample of 500 students of economic and technical specializations at Warsaw University of Life Sciences. The authors formulated research hypotheses on how field of studies or gender influence decisions taken under risk. The outcomes were considerably similar to the results of D. Kahneman's and A. Tversky's research, which confirmed that the certainty effect and the rebound effect existed. One disapproved the hypothesis on gender influence and confirmed the hypothesis on the influence of the field of studies on taking decisions under risk. It was found that raising the amount of potential loss has an impact on the willingness to take risk so that the loss can be avoided.

Key words: certainty effect, rebound effect, behavioural finance, rationality of choice
JEL codes: G41

INTRODUCTION

Presenting a human as a rational being (*homo economicus*), who follows logical principles in his actions, is one of the basic premises of classical economics. It assumes that maximizing one's own satisfaction is the main determinant of making decisions. Thanks to people's aiming at satisfying their individual needs, an economy can function as a whole because it is those needs that push people to act and work. A. Smith thought that profit was the main motive to act [Smith 2012].

Subsequent researchers started, however, to extend the meaning of benefits driving people to take up activities. J.S. Mill played a key role here. He is believed to be the author of the *homo economicus* idea. He drew on the approach of D. Bernoulli [Bernoulli 1954], who noticed that profit was not always the determinant of taking particular decisions by society members – it was utility. He claimed that 1,000 ducats have a different utility for a poor man, a rich man or a prisoner who needed exactly this sum of money to regain his freedom. That is why Bernoulli introduces the principle of diminishing utility of income (which was in opposition to the assumptions taken before). Thus, while taking a decision under risk, an individual does not maximize the value possible to gain, but utility. However, it was J.S. Mill, who recognized the paradigm of the economical human as an assumption of scientific economics. *Homo economicus* in classic economics possessed the following characteristics:

– pursuing a specific economic goal,
– possessing the full knowledge on the conditions and effects of the decisions taken,
– using this knowledge to take the right actions aiming at achieving the goals [Szarzec 2015].

This research was extended by J.M. Muth [Muth 1961]. Using enterprises as an example, he stated that

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their predictions concerning an economic situation are more precise than simple economic models and information is such a scarce good that it is both searched for and immediately used by the market actors. He introduced the term of rational expectations, and all deviations of projections which are different from "rational expectations" are stochastic, so after being aggregated, they cancel out. As a result, assumptions were made that a human possessed perfect knowledge on both economic theories and all the available information, which allowed him to appropriately forecast the future and consequences of his actions. In economic discussions, the authors started assuming that there were no irrational, emotional actions or actions based on incomplete knowledge "connected to human factor" [Jurek and Rybacki 2014].

These assumptions, however, started to be more fiercely criticized in the middle of the 20th century. The gap between the human's model in economic theory and other social sciences (psychology, sociology) was noticed by a Noble Prize winner, H. Simon [1955], who created the concept of approximate rationality, limited internally (mentally) and externally (environmentally). He noticed that decisions taken by people cannot always be fully rational. He gave an example of a chess game, where the level of decision complexity does not allow players to fully predict the consequences of subsequent moves, or achieving an acceptable price while selling a house when one does not have knowledge what offers will be placed in the future. The internal attitude of a particular individual (which sometimes changes with time) plays a significant role when a decision is taken [Herbert 1955]. These discussions were the base of the psychological current of economics, where the works of D. Kahneman and A. Tversky were of special importance [Kraciuk 2015].

MAKING DECISIONS UNDER RISK ACCORDING TO D. KAHNEMAN AND A. TVERSKY

The abovementioned scientists carried out research on making decisions under risk [Kahneman and Tversky 1979]. In their publications, they opposed to the approach of a rational *homo economicus* who follows the economic theory in his everyday life, takes decisions in line with the expected utility hypothesis, which was the base of game theory being developed at that time [von Neumann and Morgenstern 2007]. The researchers ran a survey among university students and employees. The survey concerned making a hypothetical decision with a specific probability (A or B) in particular situations (lotteries). During the research, the median of salary at the place where the survey was conducted amounted to 3,000. The participants were informed that there was no right answer and the survey was only to investigate choices under risk.

In Lottery 1, expected value A amounts to 3,200 and B – 3,000. From the point of view of a fully rational individual, it is right to take the risk and choose option B (Table 1). In the research, only 20% of peo-

Table 1. Respondents' behaviour in the profit or loss lottery

Possibility of making a profit and its probability		Choice (A or B)	Possibility of making a loss and its probability		Choice (A or B)
Lottery 1	A. 4 000 – chance of profit 80%	20%	Lottery 5	A. 4 000 – risk of loss 80%	92%
	B. 3 000 – chance of profit 100%	80%		B. 3 000 – risk of loss 100%	8%
Lottery 2	A. 4 000 – chance of profit 20%	65%	Lottery 6	A. 4 000 – risk of loss 20%	42%
	B. 3 000 – chance of profit 25%	35%		B. 3 000 – risk of loss 25%	58%
Lottery 3	A. 3 000 – chance of profit 90%	86%	Lottery 7	A. 3 000 – risk of loss 90%	8%
	B. 6 000 – chance of profit 45%	14%		B. 6 000 – risk of loss 45%	92%
Lottery 4	A. 3 000 – chance of profit 0.2%	27%	Lottery 8	A. 3 000 – risk of loss 0.2%	70%
	B. 6 000 – chance of profit 0.1%	73%		B. 6 000 – risk of loss 0.1%	30%

Source: The author's own work based on Kahneman and Tversky [1979, p. 278].

ple chose this option. Lottery 3 also gives interesting outcomes. The expected value in both cases amounts to 2,700. However, the vast majority of the respondents chooses the safer option, where there is the 90% chance to win a lower profit. The situation changes completely in case of very small chances to gain a profit. Then the respondents take a greater risk to win a higher profit. In case of a risk of making a loss, the respondents' behaviours are totally different. They agreed on a potentially higher loss if the chance to make it was lower.

Considering the outcomes of the research, the investigators noticed that the choices made by the respondents were not right from the point of view of a rational *homo economicus*. They articulated the following phenomena:

1. Certainty effect – people overestimate the results with high probability at the sacrifice of occurrences with low probability. In result, human's actions are not taken according to the value of expected utility.
2. Rebound effect – people try to reduce risk when they can gain profits, and they take excessive risk when it gives them a possibility to avoid a loss.

The existence of these effects became the base of the development of behavioral economics, which stands in opposition to classic economics. The results of the research are still used in many various branches of economics, such as insurance [Wicka and Świstak 2017] or developing real estate prices [Brzezicka 2016]. All the time research widening the study by D. Kahneman and A. Tverski is also being conducted [Czapliński and Panek 2005]. It was observed here that in Polish conditions, the rebound effect has been challenged. Poles not only very strongly avoid the risk when they have a chance to gain profit, which became a proverb "a bird in the hand is worth two in the bush" (literally: "a sparrow in your hand is better than a pigeon on the roof"), but they also choose a certain, yet a lower loss. Domestic research also indicates other contradictions in the certainty and rebound theory in comparison to research results [Czuderna 2016]. Czuderna noticed that these effects are not absolute, but they are related to the profit/loss level, and that the power of the rebound effect had been lower than the power of the certainty effect. These results indicate the need for running further research in this area.

RESEARCH METHODS

Outcomes of the research concerning behaviours of the Warsaw University of Life Sciences students in 2017

The authors of this thesis ran their research in line with the methods proposed by D. Kahneman and A. Tversky with modifications consisting in:

3. Expressing loss/profit in PLN, in 2016, the median of gross salary in Poland amounted to PLN 3,510.67, which gives the net salary of PLN 2,512 [GUS 2016].
4. Adding one row with Lotteries 5 and 10. In the lottery, the probability of occurrence A – loss PLN 30,000 was set as 90%, and occurrence B – profit PLN 60,000 as 45%. Lottery 10 refers to the risk of loss, occurrence A – loss PLN 30,000, probability 90%, occurrence B – loss PLN 60,000, probability 45%.
5. Introducing the respondents' particulars with gender, major, year of studies.
6. It was not assumed that students should not participate in taking decision workshop during their studies.

The research was done in 2017–2018 among 500 students of Warsaw University of Life Sciences studying in different faculties and majors: finance, economics, management, logistics, construction, production management and engineering. The survey was conducted among all the students of a particular year. The years were selected on purpose so that they would include certain specializations (with a different scope of economics and finance classes) and levels of studies (bachelor's and master's ones). The survey was done with the use of anonymous interview questionnaire. The participants were asked to imagine that they were facing a hypothetical decision concerning potential profit or loss. They were informed that there were no right answers in the questions and the survey objective was to find out people's behaviors under risk. By adding Lottery 5 and 10, the authors wanted to find out an additional factor of taking decisions under risk, connected to a radical increase of a profit/loss, which was not included in D. Kahneman and A. Tverski's research. This made it possible to find out the influence of potential profit and loss levels on decisions.

The following research hypotheses were assumed:

1. The Warsaw University of Life Sciences students, who represent Generation Y, take similar decisions under risk to those taken by students of western universities in the 1970s.
2. Taking a decision under risk depends on gender and economic major.
3. The growth of win value influences the willingness to take additional risk.

The following terms were assumed in the study:

1. Risk decisions: for Lotteries 3, 4, 5, they are answers B, where there is a smaller chance of higher value win. For Lotteries 8, 9, 10, they are answers B, where there is a lower probability of making a higher loss.
2. Right decisions: from the point of view of a higher expected value, for Lotteries 1, 2, they are answers A, for Lottery 6, 7, they are answers B. In other lotteries, the expected value for occurrences A and B is the same, so one cannot talk about right decisions here.

The survey was to some extent a repetition of D. Kahneman and A. Tverski's study. Yet the latter research was done 40 years ago among people from another cultural field. In the meantime, huge changes in the society took place, which especially covered young people. They are called Generation Y. Among characteristics of this generations, there are the lack of patience and greater willingness to risk [Baran and Kłos 2014].

This study aims to find out the influence of gender, study specialization and win/loss value on students' decisions taken under risk. The results of the survey were compared to the outcomes gathered in the research by D. Kahneman and A. Tverski to find out potential changes that took place in this area.

RESULTS

The general results of the research are presented in the Table 2.

While comparing the current outcomes to the results obtained by D. Kahneman and A. Tversky, one can state that after 40 years, the research brought very similar results. The differences are not bigger than 7–8%.

Only in 35.99% of the answers, the students chose solutions according to the expected value, and in 58.10% of the cases, they took risky decisions. One should distinguish taking risk for the possibility of gaining profits and making losses.

As far as profits are concerned, in case of high probability, the respondents much more often chose the safer solution (Lotteries 1 and 3), which confirms the certainty effect. On the other hand, a high value of a potential win (Lottery 5) encouraged students to take additional risk. The respondents preferred the option where they could win PLN 60,000 with only 45% probability to the almost certain win of PLN 30,000. What is also important, in case of the choice between two options with low probability (Lottery 4), they definitely more often selected the possibility of higher profit, which proves overestimating the chance of a very little probable occurrence.

As far as the risk of loss is concerned, the respondents' reactions are much more unequivocal. In each lottery with the same expected value (Lotteries 8, 9, 10), the respondents took additional risk not to make a potential loss. It was a high value of a potential loss that finally raised risk aversion a little (comparison of Lotteries 8 and 10, which differ only in the level of a potential loss).

There were some differences observed for particular genders (Table 3).

Table 2. General results of the research (%)

Specification	1	2	3	4	5	6	7	8	9	10
A	26.61	72.58	80.24	18.95	82.26	89.31	65.93	14.92	35.69	19.35
B	73.39	27.42	19.76	81.05	17.74	10.69	34.07	85.08	64.31	80.65

Source: The author's own work.

Table 3. Results depending on gender (%)

Men	1	2	3	4	5	6	7	8	9	10
A	32.52	71.36	78.64	18.45	84.47	87.38	66.99	16.50	32.52	17.96
B	67.48	28.64	21.36	81.55	15.53	12.62	33.01	83.50	67.48	82.04
Women	1	2	3	4	5	6	7	8	9	10
A	22.49	73.70	81.66	19.38	80.97	91.00	65.40	13.84	38.06	20.42
B	77.85	26.64	18.69	80.97	19.38	9.34	34.95	86.51	62.28	79.93

Source: The author's own work.

The study results indicate that men's choices are slightly more governed by expected value than women's choices (37.38% *versus* 35.12%), which is particularly proved by the answers in Lottery 1. Unexpectedly, one cannot find larger differences between genders as far as willingness to take risk is concerned. In lotteries 3, 4, 5 and 8, 9, 10 (with the same expected value), the decision distributions are very similar. Women took more risky decisions – on average in 57.96% of cases and men in 58.58%. These values do not differ significantly.

The study also compared answers to the questions depending on major. Economics and finance were included in the group of economic studies (Table 4). Students who majored in these fields had already acquired wide knowledge on economic and financial phenomena. Their classes covered behavioural finance, so the students possessed knowledge concerning the phenomena which should be considered while taking decisions under risk. Theoretically, they should be able to recognize the choices they faced correctly and use their knowledge on the calculus of probability, risk and finance. The other group covered students who majored in management, logistics, construction, environmental engineering, production management and engineering.

The outcomes of the study indicate a small but significant influence of major on decisions taken under risk. Students who major in economic studies are more often governed by expected value (on average 39.34% of answers *versus* 32.55% in case of non-economic majors). They show higher aversions to risky decisions in case of loss risk (72.11% *versus* 81.3% in case of non-economic majors). On the other hand they much more often take risk if they can make additional profits. It is especially visible in Lottery 4.

SUMMARY AND CONCLUSIONS

The study makes it possible to draw the following conclusions:

1. Despite the generation gap, the outcomes are similar to the outcomes achieved by D. Kahneman and A. Tversky, which confirms the first research

Table 4. Results depending on major (%)

Economic majors	1	2	3	4	5	6	7	8	9	10
A	24.70	79.68	82.07	14.74	83.27	88.45	58.57	18.33	43.82	21.51
B	75.30	20.32	17.9	85.26	16.73	11.55	41.43	81.67	56.18	78.49
Other majors	1	2	3	4	5	6	7	8	9	10
A	28.57	65.31	78.37	23.27	81.22	90.20	73.47	11.43	27.35	17.14
B	71.43%	34.69%	21.63	76.73	18.78	9.80	26.53	88.57	72.65	82.86

Source: The author's own work.

hypothesis. This means that the common belief that Generation Y has greater willingness to take additional risk is wrong.

2. The existence of the certainty effect and rebound effect has been confirmed. However, it should be pointed out that the certainty effect appears in case of occurrences with medium and high probability. In case of occurrences with very low probability, the respondents overestimated the chances of this occurrence.
3. The hypothesis of dependence between decisions and gender has been refuted. There were no significant differences in women's and men's behaviour in this respect.
4. The research hypothesis concerning the influence of education on the decisions taken should be confirmed. People who majored in economic studies were more often governed by expected value than those who majored in other studies. Their willingness to take additional risk was also different from the one in case of students who majored in other studies. This means that the knowledge gathered in the education process, which concerns risk and probability, translates into real (and at least declared) actions. On the other hand, the awareness of this knowledge decreases risk aversion, especially when there is a prospect of achieving profits.
5. The third hypothesis was not proved. The high value of win does not influence the willingness to take additional risk. High value of loss slightly reduces risky decisions.

REFERENCES

Bernoulli, D. (1954). Exposition of a New Theory on the Measurement of Risk. Econometrica, 22, 23–36.

Baran, M., Kłos, M. (2014). Pokolenie Y – prawdy i mity w kontekście zarządzania pokoleniami [Generation Y – truths and myths in the context of generation management], Marketing i Rynek [Marketing and Market], 5, 923–929.

Brzezicka, J. (2016). Znaczenie heurystyki zakotwiczenia i dostosowania w procesie wartościotwórczym na rynku nieruchomości [The meaning of anchoring and adjustment heuristic in the value-creation process in the real estate market], Acta Scientarum Polonorum, Administratio Locorum, 15(1), 31–44.

Czapiński, J., Panek T. (2007). Diagnoza społeczna: Warunki i jakość życia Polaków [Social diagnosis: Conditions and quality of life of Poles]. Wyższa Szkoła Finansów i Zarządzania w Warszawie.

Czauderna, K. (2016). Paradoksy skłonności do ryzyka. O pewnej nieścisłości teorii perspektywy [The paradoxes of risk-taking. About some inaccuracy in the theory of perspective]. Wiadomości Statystyczne [Statistical News], (2), 25-46.

GUS (2016). Structure of wages and salaries by occupations in October 2016. Warszawa.

Jurek, M., Rybacki, R. (2014). Model homo oeconomicus i jego dostosowanie do współczesnych uwarunkowań [The homo oeconomicus model and its application in the current conditions]. Studia Ekonomiczne Uniwersytetu Ekonomicznego w Katowicach [Economic studies of the University of Economics in Katowice], 180, 65–75.

Kahneman, D., Tversky, A. (1979) Prospect theory: An analysis of decisions under risk. Econometrica 47, 2, 263–292.

Kraciuk, J. (2015). Paradygmat homo oeconomicus w aspekcie rozwoju ekonomii heterodoksyjnej [The homo oeconomicus paradigm in the aspect of heterodox economics]. Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu [Research Papers of the Wroclaw University of Economics] 401, 211–219.

Muth, J.F. (1961). Rational expectations and the theory of price movements. Econometrica, Journal of the Econometric Society 29, 3, 315–335.

Simon, H.A. A behavioural model of rational choice. The Quarterly Journal of Economics, 69.1, 99–118.

Smith, A. (2012). Badania nad naturą i przyczynami bogactwa narodów. PWN, Warszawa.

Szarzec, K. (2005). Racjonalny podmiot gospodarczy w klasycznej myśli ekonomicznej i jej współczesnych kontynuacjach [A Rational Business Entity in the Classical Economic Thought and its Contemporary Continuations]. Warszawa, PWN.

Neumann, J. von, Morgenstern, O. (2007). Theory of Games and Economic, sixtieth-anniversary edition. Princeton University Press.

Wicka, A., Świstak, J. (2017). Homo sapiens oeconomicus, Homo oeconomicus czy ubezpieczenia kupujemy w oparciu o tylko racjonalne czynniki? [Homo sapiens oeconomicus, Homo oeconomicus – do we buy insurance based only on rational factors?]. Finanse, Rynki Finansowe, Ubezpieczenia [Finance, Financial Markets, Insurance], 5(89), 2, 403–411. DOI: 10.18276/frfu.2017.89/2-33

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OCENA ZACHOWAŃ STUDENTÓW SZKOŁY GŁÓWNEJ GOSPODARSTWA WIEJSKIEGO W WARSZAWIE W WARUNKACH RYZYKA

STRESZCZENIE

W opracowaniu podjęto próbę weryfikacji efektu pewności i odbicia sformułowanych w latach 70. przez D. Kahnemana i A. Tverskiego. Badania przeprowadzono na próbie badawczej 500 studentów kierunków ekonomicznych i technicznych w SGGW w Warszawie. Postawiono hipotezy badawcze o wpływie kierunku studiów i płci na podejmowane decyzje w warunkach ryzyka. Uzyskano bardzo zbliżone wyniki do badań D. Kahnemana i A. Tverskiego, co potwierdziło istnienie efektu pewności i odbicia. Odrzucono hipotezę badawczą o wpływie płci, a potwierdzono hipotezę o wpływie kierunku studiów na podejmowanie decyzji w warunkach ryzyka. Stwierdzono, że zwiększenie kwoty potencjalnej straty wpływa na chęć podejmowania ryzyka celem jej uniknięcia.

Słowa kluczowe: efekt pewności i odbicia, finanse behawioralne, racjonalność wyborów

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STATISTICAL ANALYSIS OF DEMAND FOR TELECOMMUNICATIONS SERVICES FOR FORECASTING PURPOSES – STUDY OF THE IMPACT OF FACTORS NOT ARISING FROM THE CALENDAR

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ABSTRACT

The aim of this study is to identify the impact of factors (not arising from the calendar) on the demand for connection services offered by a telecommunications operator. The theoretical part of the research presents the importance of the Prediction System (PS) as a kind of Decision Support System in the operational management of the telecommunications operator. Theoretical aspects of PS structure have been included. Special attention has been paid to the statistical analysis module (as the PS subsystem), which was implemented in the adopted (researched) scope in the empirical part of the research. The empirical part presents the results of statistical analyses of demand for telecommunications services in the scope enabling identification of the impact of factors not arising from the calendar (i.e. the impact of category of connection and type of subscribers) on the level and distribution of such demand. The presented research results provide premises for the construction of forecasting tools, carrying out the forecasting procedure and monitoring the forecasts, i.e. they provide the necessary premises for the implementation of subsequent components of the PS.

Key words: Prediction System, telecommunications operator, subscriber group, category of connection
JEL codes: C46, C53, D24

INTRODUCTION

Telecommunications operators deal with increasingly demanding competition. This fact makes it necessary for operators to continuously improve their decision-making processes. Keeping competitiveness and market existence on the telecommunications market is strongly connected with the quality of decisions made by the management staff. However, the quality of these decisions, depends on the reliability of the analyses carried out and the accuracy of forecasts of demand for telecommunications services of the company. Improvement of decision-making processes is based on the use of more and more effective Decision Support Systems (DSS), which enable decision making based on reliable premises and, as a consequence, reduce the level of uncertainty. One of the types of DSS is the Prediction System (PS) used for the analysis and forecasting of telecommunications traffic. A very important part of the PS is a multi-sectional statistical analysis of data, the main aim of which is to identify all factors having a statistically significant impact on the volume of telecommunications services provided. The results of statistical analyses form the

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basis for the construction of forecasting tools, which are based on the identified relations. Other elements of the PS are, among others, a prognostic database, statistical preprocessing of data, forecasting methods [Dittman 2004].

The PS supports operational planning [Daft and Marcic 2011, Griffin 2015]. In this context, the PS provides telecommunications operators with premises for price calculations, financial planning and effective network management. S. Kasiewicz [2005] pays special attention to operational management, indicating this level of management as the main decision-making field for managers, which strengthens the effectiveness of the growth of the company's value. On the other hand, M. Marcinkowska [2000] includes innovation, information and information system among the internal sources of company value. From this point of view, it is very important that the company's decision support procedures are innovative and effective. Nevertheless, telecommunications operators do not disclose their data mining techniques or their level of efficiency. Therefore, the issues of analysis of telecommunications traffic and its forecasting are not widely described in the literature and the knowledge transfer based on the experience of operators practically does not exist [Muraszkiewicz 2000].

The aim of the article is to identify the impact of specific factors (not arising from the calendar) on the level of demand for telecommunications services. Therefore, the demand surveys have been conducted in the categories of connections and subscriber groups (i.e. using classification factors not arising from the calendar). An hourly approach has been applied, which made it possible to analyse the daily courses of demand for telecommunications services of the telecommunications operator. The impact of calendar factors has been omitted, which include e.g. hour in a day, type of day (working day, Saturday, Sunday, holiday), month. Calendar factors constitute a separate and extensive group that would require separate analyses. The analyses carried out constitute suggestions for the implementation of one of the elements of the PS, i.e. statistical analysis of prognostic data. The obtained results of analyses provide premises for the construction of forecasting tools, as well as broaden the scientific basis for the economics of telecommunications traffic in the given scope of demand for connection services.

The research material has been made available by one of the telecommunications operators. The data used in the analysis were the hourly totals (in seconds) of outgoing calls generated by a specific group of subscribers (business or individual), during a selected working 24 hours and within a specific category of connection (mobile networks, local internal, local external, inter-city, international, other). The empirical material with the structure described above covered one year.

The Prediction System (PS) of a company

The PS constitutes a subsystem of an information system. The company's information system is a spatially and temporally ordered collection of information, broadcasters and recipients of information, information channels and technical means of information transmission and processing. The functioning of the information system enables the management of the company. The effects of the PS are prospective information concerning the company's immediate and remote environment, as well as its internal characteristics.

The PS involves the following elements: prognostic database, methods of statistical data preprocessing, methods of statistical data analysis, forecasting methods, forecast monitoring system, computer programmes.

The marketing information system has a significant role in the creation of a prognostic database. Within this system, important external and internal variables of the company are specified and monitored, information is provided to enable the implementation of a proper strategy and the acquisition of data necessary to make forecasts. In the marketing information system one can distinguish: marketing research subsystem, internal registers and reports subsystem, marketing interview subsystem.

Marketing research is a procedure for obtaining and analysing new data. The research serve to make marketing decisions and collect specific data that is not routinely collected in other sources.

Internal data sources should primarily include: registers and reports routinely prepared by various organisational units of the company (e.g. sales department, financial department, production department, analysis department). These sources accumulate information on the company's internal characteristics (sales volumes, costs, receivables, liabilities, orders, etc.).

External data sources collect daily information about changes in the company's immediate and remote environment. Suppliers of such information include: legislator (acts, resolutions), government (documents, statements, programmes, international agreements, government contracts), international communities, suppliers, banks, advertising agencies, intermediaries, competitors.

The marketing information system collects the data which are stored in the form of an electronic database. The part of the database used to make forecasts is defined as a prognostic database. In the conducted research, a prognostic database (prepared on the basis of registers and reports on billing characteristics of a selected telecommunications operator) have been used. The database consisted of hourly counted seconds of outgoing calls from the period of the year in cross-sections of categories of connections and subscriber groups.

The methods of statistical preprocessing of prognostic data include methods of data transformation, data aggregation, and missing data completion.

Statistical analysis of forecast data is carried out, among others, through identification of the components of the time series, identification of relationships between the forecast variable and explanatory variables, measurement of similarity of variables and identification of unusual observations, i.e. influence observations or outliers. The analyses, which have been presented in the empirical part of the article, are included in the scope of statistical analysis of the PS data. The empirical part of this article proposes a way of using several statistical techniques to study the demand for telecommunications services.

Forecasting methods are an important element of the PS. The method of forecasting in the literature of the subject is understood as techniques of information processing describing the forecasting situation and the way of transition from processed data to forecasting, adjusted to the adopted forecasting principle. Within the most forecasting methods, information about the past is processed. Within the framework of the general forecasting principle, different methods of forecasting may be applied, which differ mainly in the way the information is processed [Makridakis et al. 1998; Kaczmarczyk 2017, 2018].

The PS should provide monitoring of forecasts, i.e. checking their accuracy. Monitoring is guaranteed by checking whether the forecasts are free and whether they fall within the tolerance range provided for them.

Presentation of data and research methodology

The measurable dependent (response) variable Y_i was the hourly sums of seconds of outgoing calls generate by a specific group of subscribers during a working 24 hours and within a specific category of connection. A total of 8 measurable dependent variables have been defined. The variables presented below are divided into two sets: set $A_1 = \{Y_1, Y_2, Y_3, Y_4, Y_5, Y_6\}$ and set $A_2 = \{Y_7, Y_8\}$. The studied variables are listed in Table 1.

The classification of variables presented in Table 1 resulted from the specificity of the conducted studies. Statistical analyses concerned first of all the impact of the subscriber category on telecommunications traffic in the understanding of the level of demand for telecommunications services, as well as the distribution of such demand. Subsequent analyses were devoted to the verification of the impact of the connection category on the studied demand in the same scope as above.

In order to carry out these analyses, it was therefore necessary to define the classification factors X for both sets of dependent variables. Table 2 summarises all classification factors and their levels.

The data included a total of $52 \cdot 24 \cdot 2 \cdot 6 = 14{,}976$ observations (52 is the number of all Wednesdays of the year, number 24 indicates hours per day, 2 concerns the number of subscriber groups, 6 is the number of analysed categories of connections). The course of the daily cycle of average demand for connection services in the system described above is presented in Figure 1.

Table 1. The set of all measurable dependent variables which have been used in research study

Variable marking	n	Variable name
		Set A_1
Y_1	2,496	Hourly combined seconds of outgoing calls to mobile network during working 24 hours
Y_2	2,496	Hourly combined seconds of outgoing calls during working 24 hours within the framework of local calls to the same network
Y_3	2,496	Hourly combined seconds of outgoing calls during working 24 hours within the framework of local calls to other network
Y_4	2,496	Hourly combined seconds of outgoing calls during working 24 hours within the framework of trunk calls
Y_5	2,496	Hourly combined seconds of outgoing calls during working 24 hours within the framework of international calls
Y_6	2,496	Hourly combined seconds of outgoing calls during working 24 hours within the framework of other connections
		Set A_2
Y_7	7,488	Hourly combined seconds of outgoing calls generated by business subscribers during working 24 hours
Y_8	7,488	Hourly combined seconds of outgoing calls generated by individual subscribers during working 24 hours

n – numbers of observations within the framework of a given variable. All Wednesdays from the period of a year represent a working 24 hour (52 Wednesdays), so 1,248 observations represent chosen category of connection in one group of subscribers (business or individual).

Source: Author's own coverage.

Table 2. The specification of all applied classification factors and their possible levels

Variable marking	Variable name	Possible values of the variable
	For variable belonging to set Y_1	
X_1	Kind of subscribers group	$x_{1,1}$ – business subscribers
		$x_{1,2}$ – individual subscribers
	For variable belonging to set Y_2	
X_2	Type of connections category	$x_{2,1}$ – mobile networks
		$x_{2,2}$ – local calls to the same network
		$x_{2,3}$ – local calls to other networks
		$x_{2,4}$ – trunk calls
		$x_{2,5}$ – international calls
		$x_{2,6}$ – other connections

Variable name means classification factor. Possible values of the variable mean levels of classification factors.

Source: Author's own coverage.

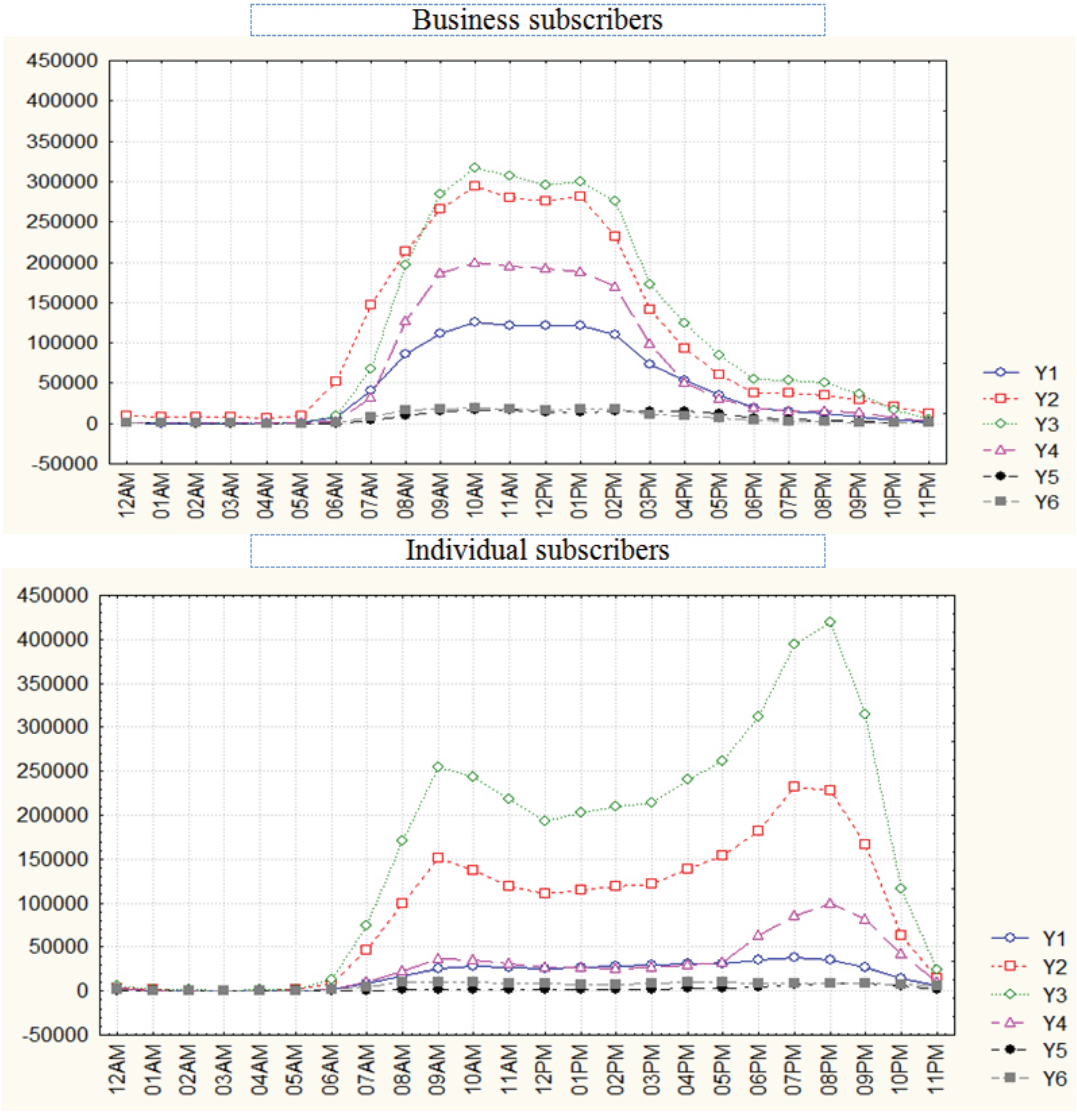

Fig. 1. The average time (sec.) of outgoing calls generated by business subscribers and individual subscribers in hours of working 24 hours

Source: Author's own coverage.

The structure of demand for telecommunications services (a categorised histogram with right-closed intervals) in the studied scope (i.e. during the working 24 hours, within 2 subscriber groups and 6 categories of connections) is presented in Figure 2.

In turn, Table 3 presents a description of all analyses, the results of which are presented and discussed in the calculation part of this research study (i.e. in section 3 of the work). In analysis 1 and 2, the subscriber group acted as a classification factor i.e. as a non-measurable (qualitative) variable assuming two levels. As far as analyses 3 and 4 are concerned, the classification factor is a category of connection – a non-measurable variable assuming 6 levels. Therefore, the set A_1 was used in analysis 1 and 2, and the set A_2 was the basis for the analysis of 3 and 4. Parametric statistical

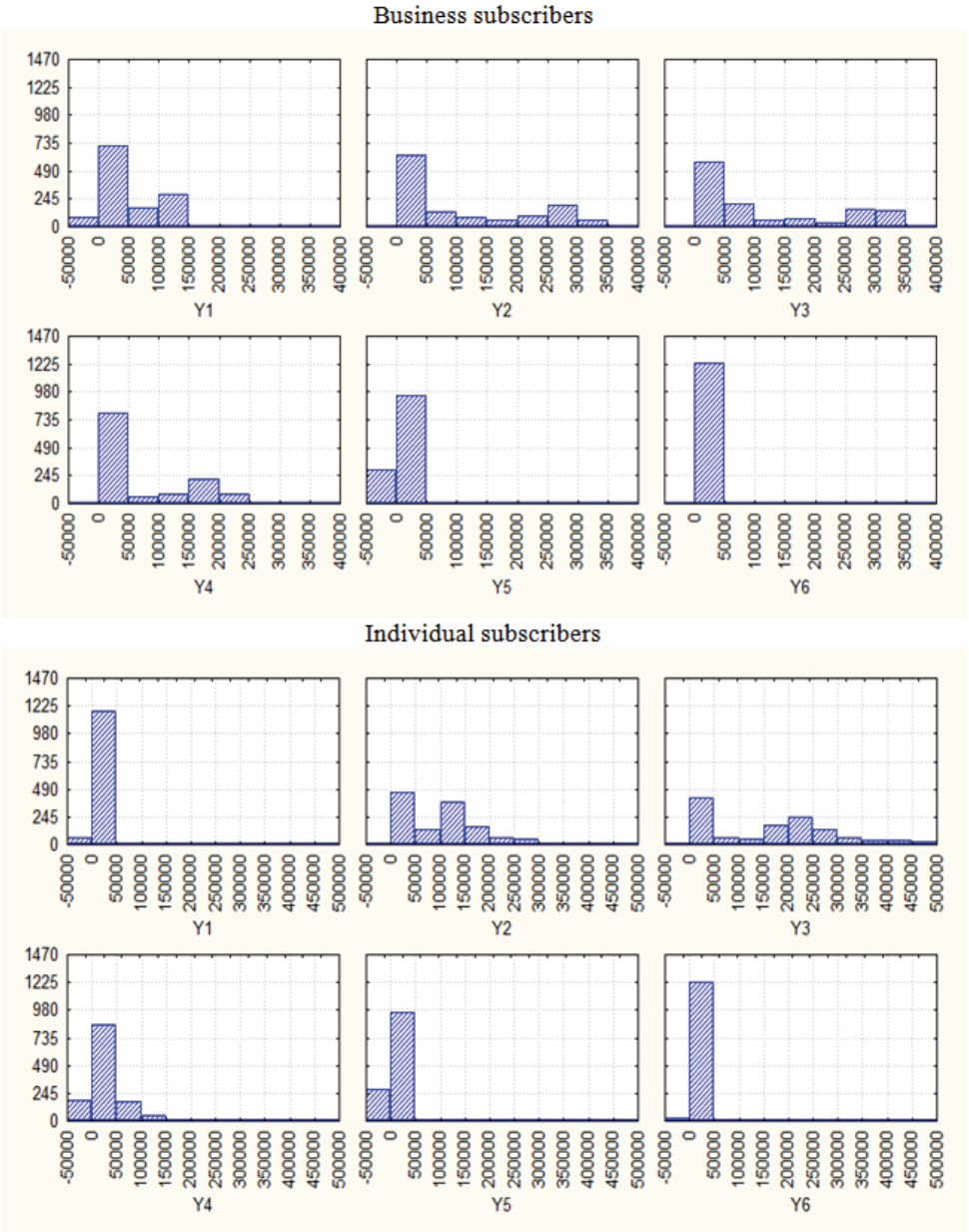

Fig. 2. The structure of observations (hourly counted sec.) of outgoing calls generated by business subscribers and individual subscribers during working 24 hours

Source: Author's own coverage.

tests (comparison of means and ANOVA) were used because for large populations ($n > 100$) parametric tests can be used instead of non-parametric tests, even though the tested variable does not have a normal distribution. This is possible due to the fact that the distribution of means from these populations is normalised [LeBlanc 2004; Black 2010; Healey 2012; Lee et al. 2013]. The power of parametric tests is higher than the power of non-parametric tests. The chosen tests are used when compared data are from two independ-

Table 3. Characteristics of the projected analyses

Analysis no 1–4	Aim of the analysis	Variable Y	Variable X	Statistical method
1	Identification of impact of subscriber group on the level of analyses demand	Set A_1	X_1	Z-test for the difference between the means
2	Identification of impact of subscriber group on the demand distribution of analyses demand			The Kolmogorov-Smirnov test
3	Identification of impact of connection category on the level of analyses demand	Set A_2	X_2	ANOVA test
4	Identification of impact of connection category on the demand distribution of analyses demand			The Kolmogorov-Smirnov test

Source: Author's own coverage.

ent groups (comparison of means) or three or more independent groups (ANOVA). An example of the application of these procedures is when an independent group of respondents attribute ratings to two or three or more products or services. Similarly, when the same product or service is assessed by two or three or more independent groups of respondents.

The Kolmogorov-Smirnov test was used to check the differences in the shapes of the distributions of two independent populations. The test was used to compare the shape of demand distributions in pairs of different categories of connection in the same subscriber group and to compare the shape of the distributions in pairs of the same categories in different subscriber groups.

Results of the study and discussion

The analysis 1 verified the hypothesis H_0 (for each variable of set A_1) that the demand for telecommunications services does not differ significantly between business and individual customers during a working 24 hours, i.e. the subscriber group has not a statistically significant impact on the level of demand for connection services. Assuming that there are two populations with normal distributions $N(m_1, \sigma_1)$ and $N(m_2, \sigma_2)$, the hypothesis H_0 has taken the following form: $H_0 : E(Y_{i, x_{1,1}}) = E(Y_{i, x_{1,2}})$, against the alternative hypothesis H_1 expressed as follows: $H_1 : E(Y_{i, x_{1,1}}) \neq \neq E(Y_{i, x_{1,2}})$, $i = 1, 2, \ldots, 6$.

Z-test has been used for the difference between the means. The visual analysis indicates that the arithmetic means, as well as the standard deviations and variances of the two samples tested are numerically different for each connection category (Fig. 3). However (according to the remarks of Luszniewicz and Słaby [2008]) meeting the assumption of uniformity of variance is not a necessary condition for conducting the *Z*-test (as in the case of ANOVA).

Z-test results (for $p = 0.05$) for the two compared groups (business and individual) within the separately analysed categories of connections are presented in Table 4.

A region of rejection has been formulated $H_0 \in \langle -\infty, -1.6449 \rangle \cup \langle 1.6449, \infty \rangle$. The empirical values of the Z statistics are in this range. For each connection category, the hypothesis H_0 has been rejected. Therefore, there are clear reasons to reject the assumption that there is no impact of the classification factor on the variability of the dependent variable. The impact of the subscriber group on the demand for telephone services is statistically significant.

For each category of connection, another null hypothesis was then put forward, namely that the shape of demand distribution generated by two groups of subscribers during a working 24 hours do not differ (analysis 2). It was assumed $H_0 : F_1(Y_{i, x_{1,1}}) = F_2(Y_{i, x_{1,2}})$, regarding to $H_1 : F_1(Y_{i, x_{1,1}}) \neq F_2(Y_{i, x_{1,2}})$, $i = 1, 2, \ldots, 6$. The results of the analysis are presented in the Table 5.

In the vast majority of cases analysed, there are statistically significant differences (empirical values of λ

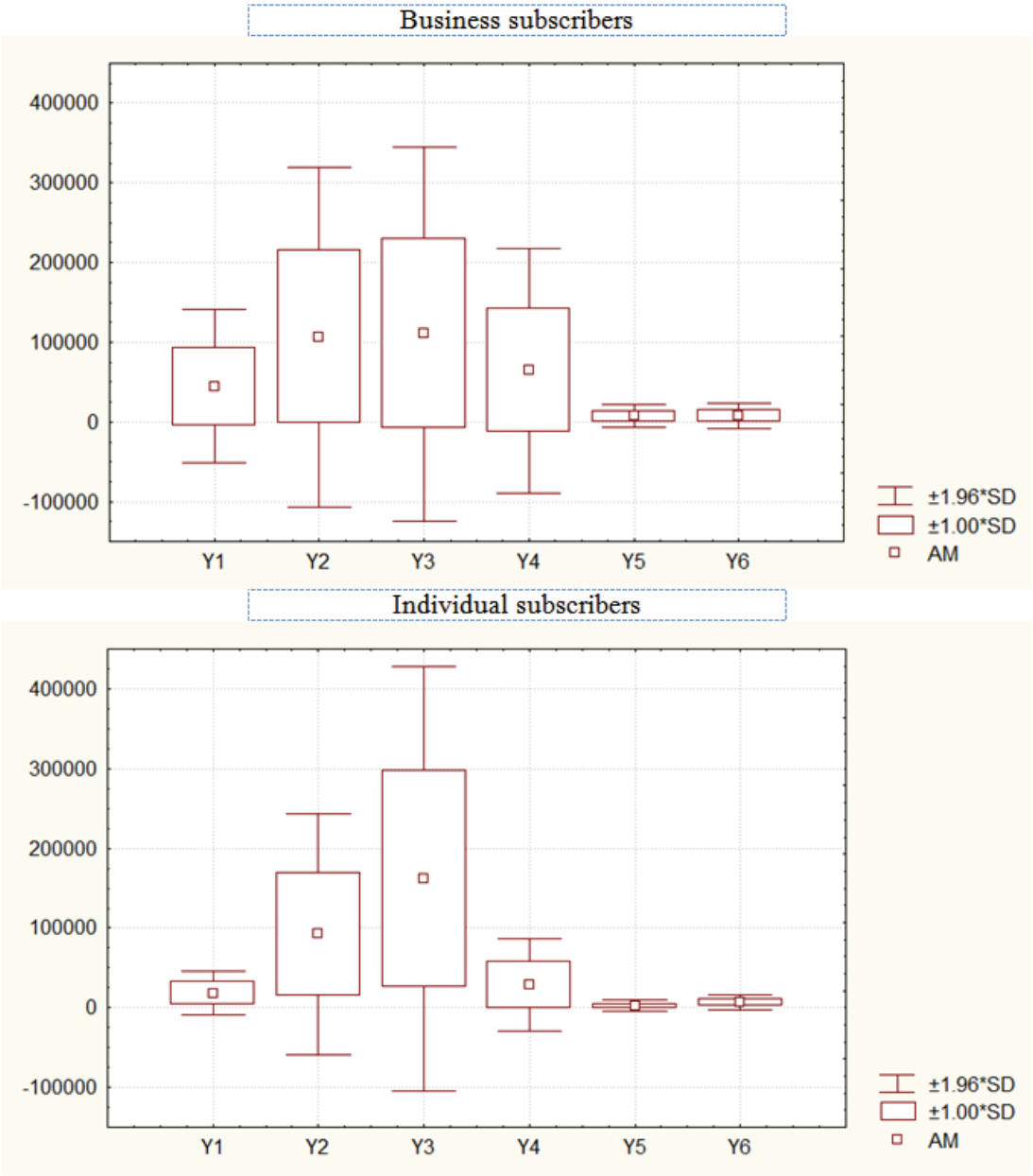

Fig. 3. Box-plots on the basis of demand for telecommunications services within the framework of particular category of connections and chosen group of subscribers

Source: Author's own calculations and coverage.

statistic are higher than the critical value $\lambda_{CV} = 1.358$ for $p = 0.05$). Differences were not found only for international and other calls.

Within the framework of analysis 3 of the study, there has been the hypothesis H_0 that the level of demand for telephone services does not differ significantly from one connection category to another during a working 24 hours. Hypotheses H_0 and H_1 are as follows: $H_0 : E(SSB)_{Y_i} = 0$, $H_1 : E(SSB)_{Y_i} > 0$, where *SSB – Sum of Squares Between*, $i = 7$ or 8.

Table 4. Results of Z-test for the difference between the mean of demand generated by business subscribers and mean of demand generated by individual subscribers within the framework of consecutively analysed categories of connections (sec.)

H_0	$\bar{y}_{i,x_{1,1}}$	$\bar{y}_{i,x_{1,1}}$	Z	n	p
$E(Y_{1,x_{1,1}}) = E(Y_{1},x_{1,2})$	44 641.3317	18 394.6394	18.1295	2 494	0.0000
$E(Y_{2,x_{1,1}}) = E(Y_{2},x_{1,2})$	106 632.4183	92 139.1779	3.8315	2 494	0.0001
$E(Y_{3,x_{1,1}}) = E(Y_{3},x_{1,2})$	110 864.1218	162 012.5369	–9.9709	2 494	0.0000
$E(Y_{4,x_{1,1}}) = E(Y_{4},x_{1,2})$	64 583.5721	28 807.1058	15.0761	2 494	0.0000
$E(Y_{5,x_{1,1}}) = E(Y_{5},x_{1,2})$	7 205.5385	2 540.0064	20.2881	2 494	0.0000
$E(Y_{6,x_{1,1}}) = E(Y_{6},x_{1,2})$	7 323.9391	6 167.1667	4.3577	2 494	0.0000

$\bar{y}_{i,x_{1,1}}$, $\bar{y}_{i,x_{1,1}}$ – arithmetic mean for the business group and individual group respectively.

Source: Author's own calculations and coverage.

Table 5. Results of K-S test to compare distribution function of demand generated by business subscribers and distribution function of demand generated by individual subscribers in terms of consecutively analysed categories of connections (sec.)

H_0	D	λ	H_0	D	λ
$F_1(Y_{1,x_{1,1}}) = F_2(Y_{1},x_{1,2})$	0.3638	9.0873	$F_1(Y_{4,x_{1,1}}) = F_2(Y_{4},x_{1,2})$	0.2708	6.7654
$F_1(Y_{2,x_{1,1}}) = F_2(Y_{2},x_{1,2})$	0.1899	4.7438	$F_1(Y_{5,x_{1,1}}) = F_2(Y_{5},x_{1,2})$	0.0072	0.1801
$F_1(Y_{3,x_{1,1}}) = F_2(Y_{3},x_{1,2})$	0.2460	6.1449	$F_1(Y_{6,x_{1,1}}) = F_2(Y_{6},x_{1,2})$	0.0040	0.1001

D – the highest difference between the cumulative frequencies, λ – the empirical value of the test statistic.

Source: Author's own calculations and coverage.

Conditional means are characterised by (based only on Figure 1) clearly different values. The only exceptions are similar average call times for a pair of variables Y_5 and Y_6 (in both subscriber groups). Conditional variances and standard deviations are also differentiated and do not show a numerical regularity due to a decrease or increase in the levels of conditional means.

Calculated values of statistics F are clearly greater than the critical value of statistics $F_{0.05;\,5;\,7482} = 2.2153$. Therefore, there are clear grounds for rejecting the assumption that there is no impact of the classification factor (i.e. category of connection) on demand volatility in the group of business subscribers and in the group of individual subscribers (Table 6).

Subsequently, for each pair of categories of connections, a null hypothesis (the shapes of demand distribution within a single subscriber group during a working day do not differ due to the categories of connections) was verified (analysis 4). It was assumed $H_0 : F_1(Y_{i,x_{2,k}}) = F_2(Y_{i,x_{2,l}})$, regarding to $H_0 : F_1(Y_{i,x_{2,k}}) \neq F_2(Y_{i,x_{2,l}})$; i = 7 or 8; k, l = 1, 2, …, 6; $k \neq l$. In almost all pairs of data samples compared, the obtained empirical values of the statistics λ Kolmogorov's are higher than the critical value.

Table 6. Results of ANOVA test to compare level of demand generated in 6 categories of connections by particular group of subscribers.

H_0	MSB	s_1	MSE	s_2	F	p
$E(SSB)_{Y_5} = 0$	2 626 309 598 969.7	5	5 820 276 687.3	7 482	451.2	0.0000
$E(SSB)_{Y_6} = 0$	4 973 892 815 318.7	5	4 262 340 559.1	7 482	1 166.9	0.0000

MSB – mean square between; MSE – mean square error, s_1, s_2 – numbers of degrees of freedom.
Source: Author's own calculations and coverage.

This argues in favour of rejecting the hypothesis of equal distribution of collected measurements. So, the classification factor significantly differentiates the shapes of distributions of the examined populations. Differences were not found only for mobile and other calls in terms of individual customers.

CONCLUSIONS

The effective conduct of statistical analyses as a module of the PS is of great importance for the overall functioning of the PS. Statistical research on the demand for telecommunications services generated in individual (separately analysed) analytical cross-sections form the base, which is necessary for the implementation of subsequent PS modules. Such a database plays the role of a detailed image of demand for connection services at a selected time within a specific type of day (working day, Saturday, Sunday, specific holiday), a specific subscriber group (business and individual subscribers), connection category (e.g. mobile networks, internal local network) – i.e. it is the basis for the implementation of those PS modules, in which an appropriate forecasting tool is selected and forecasts are formulated. An effective PS supports the process of creating price lists of connections and network management, i.e. reduces the level of uncertainty in operational management processes.

The first two of the analyses described relate to the comparison of subscriber groups in terms of the level of demand and the shape of its distribution. The first of the described calculation procedures allows for positive verification of the thesis of statistically significant impact of the subscriber group on the variability of hourly demand during the working 24 hours within each analysed category of connection. The second analysis confirms the assumption that the shapes of demand distribution in the studied groups are statistically significantly diversified. Two further analyses are related to the comparison of categories of connections (in terms of level and distribution of demand) within one subscriber group. The results of the conducted tests clearly indicate that the category of connection is a factor which has a statistically significant impact on the level and distribution of demand for telecommunications services.

The obtained results indicate that all the factors adopted for analysis (not arising from the calendar) are of significant importance in constructing forecasting models. These results therefore provide information on important variables that are important from the point of view of forecasting model construction. The classification factors analysed should be included in the model as dependent variables (qualitative variables) if a multi-sectional model is the subject of the construction. The obtained results also suggest that the analysed demand can be modelled in one analytical section only, which would result in a single-sectional model. Due to the significant diversity of distributions, attempts to construct forecasting models based on specific distributions seem to be interesting as well. Such an approach would require tests to check the fit of the distribution in specific analytical sections (determined by statistically significant factors not arising from the calendar).

REFERENCES

Black, K. (2010). Business Statistics for Contemporary Decision Making. John Wiley and Sons Inc., New York.

Daft, R.L., Marcic, D. (2011). Understanding Management. South-Western Cengage Learning, Mason.

Dittmann, P. (2004). Prognozowanie w przedsiębiorstwie. Metody i ich zastosowanie. Oficyna Ekonomiczna, Kraków.

Griffin, R. (2015). Fundamentals of Management. Cengage Learning, Boston.

Healey, J.F. (2012). Statistics: A Tool for Social Research. Wadsworth Cengage Learning, Belmont.

Kaczmarczyk, P. (2017). Microeconometric Analysis of Telecommunication Services Market with the Use of SARIMA Models. Dynamic Econometric Models, 17, 41–57. Doi: 10.12775/DEM.2017.003.

Kaczmarczyk, P. (2018). Neural Network Application to Support Regression Model in Forecasting Single-Sectional Demand for Telecommunications Services. Folia Oeconomica Stetinensia, 18, 159–177. Doi:10.1515/foli-2016-0026.

Kasiewicz, S. (2005). Budowanie wartości firmy w zarządzaniu operacyjnym. Szkoła Główna Handlowa w Warszawie, Warszawa.

LeBlanc, D.C. (2004). Statistics: Concepts and Applications for Science. Jones and Bartlett Publisher, London.

Lee, Ch., Lee, J.C., Lee, A.C. (2013). Statistics for Business and Financial Economics. Springer, New York.

Luszniewicz, A., Słaby T. (2008). Statystyka z pakietem komputerowym Statistica PL. Teoria i zastosowanie. Wydawnictwo C.H. BECK, Warszawa.

Makridakis, S., Wheelwright, S.C., Hyndman, R.J. (1998). Forecasting Methods and Applications. J. Wiley, New York.

Marcinkowska, M. (2000). Kształtowanie wartości firmy. Wydawnictwo Naukowe PWN, Warszawa.

Muraszkiewicz, M. (2000). *Eksploracja danych dla telekomunikacji*. Retrieved from http://www.ploug.org. pl/showhtml.php?file=konf_00/materialy_00 [accessed: 02.07.2015].

ANALIZA STATYSTYCZNA POPYTU NA USŁUGI TELEKOMUNIKACYJNE W CELACH PROGNOSTYCZNYCH – BADANIE WPŁYWU CZYNNIKÓW NIEWYNIKAJĄCYCH Z KALENDARZA

STRESZCZENIE

Celem niniejszego opracowania jest identyfikacja wpływu czynników (niewynikających z kalendarza) na zapotrzebowanie na usługi połączeniowe oferowane przez operatora telekomunikacyjnego. W części teoretycznej pracy przedstawiono znaczenie Systemu Prognostycznego (SP) jako swoistego rodzaju Systemu Wspomagania Decyzji w zarządzaniu operacyjnym operatora telekomunikacyjnego. Zawarto teoretyczne aspekty budowy SP. Szczególną uwagę poświęcono modułowi analizy statystycznej (jako podsystemu SP), który w przyjętym (badanym) zakresie został zaimplementowany w części empirycznej pracy.

W części empirycznej zaprezentowano wyniki analiz statystycznych popytu na usługi telekomunikacyjne w zakresie umożliwiającym identyfikację wpływu czynników niewynikających z kalendarza (tj. wpływu kategorii połączenia i rodzaju abonenta) na poziom i rozkład tego popytu. Zaprezentowane wyniki badań dostarczają przesłanek do konstrukcji narzędzi prognostycznych, przeprowadzania procedury prognostycznej i monitorowania prognoz, tzn. dostarczają niezbędnych przesłanek do implementacji kolejnych elementów składowych SP.

Słowa kluczowe: System Prognostyczny, operator telekomunikacyjny, grupa abonencka, kategoria połączenia

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DIRECTIONS OF DEVELOPMENT OF SELECTED COMMUNES OF THE LUBELSKIE VOIVODESHIP IN THE OPINION OF THEIR RESIDENTS

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ABSTRACT

The goal of the study was to identify the level of local development and assess the directions of activities affecting it from the point of view of residents representing the surveyed communes. The H1 research hypothesis – that there is a positive relationship between the pro-development activities preferred by the residents and commune's current level of development – underwent verification. The research scope included 24 communes from the Lubelskie Voivodeship. The research basically covered 2017. This study utilized the Hellwig's development model method and the questionnaire survey method. The Hellwig's model method made it possible to divide the analysed units into four groups regarding their level of development. The survey was used to identify and evaluate activities which, in the opinion of the respondents, are supposed to boost the development of the communes in the future depending on the level of their development to date. As a result of the conducted research, no statistically significant differences were found between the respondents representing communes that differ in the level of local development in terms of evaluation of the importance of particular activities for the communes' development.

Key words: local development policy, commune, Hellwig's development model, local development
JEL codes: C10, H75, H76, O20

INTRODUCTION

Local development is a multidimensional concept that has a wide variety of definitions in literature. A review of definitions can be found, among others, in the works of Sekuła [2001], Rogerson and Rogerson [2010], Sobczyk [2010], Jakubowska [2013] or Leigh and Blakely [2017]. Brol [1998] defines local development as "harmonized and systematic action of the local community, local authority and other entities operating in the commune aimed at creating new and improving the existing utility values of the commune, creating favourable conditions for the local economy and ensuring spatial and ecological order". This development is taking place simultaneously in the economic, social and cultural spheres. It is worth noting that local development is influenced by many different factors [Warczak 2015].

In many definitions it is stressed that local self-government – through the implementation of both its own and commissioned tasks [*Ustawa*…, 1990] – is one of the main entities responsible for local development. In the opinion of Ziółkowski [2015], local authorities play a special role in the local management system, inter alia, through activities controlling development processes, provision of services (e.g. administrative, social, technical), initiating, organizing, supporting and stimulating economic development, rational use of space, protection of natural and cultural heritage resources, as well as shaping a positive image of the

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commune in its surroundings. Actions taken by local authorities therefore influence the pace and level of development of a given territorial unit. Apart from the local government, activities of the commune residents and other entities operating on the local market contribute to the commune's development.

Activities of the local government should be aimed at creating conditions for high quality of life in a given area. This makes it necessary to correctly identify the needs of residents (using the available tools, e.g. in the form of social consultations), which may have a significant impact on local development [Domańska 2017]. In order to meet the changing needs of the local community, the authorities are looking for new approaches to public affairs management, among which the growing role of residents' involvement, openness and information flow between the authorities and the society is stressed [Wiśniewska and Stawasz 2016]. Therefore, it is important to identify and analyze activities which, in the opinion of the commune residents, are the most important for boosting the development of spatial units. Public acceptance of the activities of local authorities is one of the key conditions for the stable development of the commune [Szaja 2012]. An interesting issue is also an attempt to answer the question whether there is a connection between the current level of the commune's development and actions indicated by the respondents aimed at accelerating this development? Therefore, the goal of the study was to identify the level of local development and assess the directions of activities affecting it from the point of view of residents representing the surveyed communes.

MATERIAL AND METHODS

The subject of the study were 24 communes from the Lubelskie Voivodeship. The paper uses a non-random comfortable sample selection with the use of the snowball technique. Two research methods were used, i.e. the Hellwig's development model method and a questionnaire survey. The Hellwig's development model made it possible to divide the analysed units into four groups regarding their level of development. The second method was used to identify and evaluate activities which, in the opinion of the respondents, are of significant importance for the development of the commune. Afterwards, actions were identified and evaluated which – according to the respondents – will boost the communes' development in the future, depending on the level of their development to date.

Due to the fact that the assessment of the level of local development is multidimensional in its nature, in the first stage of research the Hellwig's development model method [Hellwig 1968] was used. It is one of the most popular methods of determining the level of development of a given unit by means of a single synthetic aggregate measurement. The substantive selection of factors characterizing the level of local development was based on literature studies [Bryden 2002, Kates et al. 2005, Kamińska and Janulewicz 2009, Brooks et al. 2012, Adamowicz and Janulewicz 2013, Jacob et al. 2013, Adamowicz and Janulewicz 2016, Janulewicz 2018]. On this basis, 42 diagnostic variables characterizing the level of local development were selected. The research period covered basically the year 2017 (in case of lack of availability of statistical data from 2017, data from 2016 was used).

It was then checked whether the variables fulfilled the formal criteria: that they were measurable, complete and ensured comparability. Taking into account statistical criteria, excessively correlated variables were removed from the set, e.g.: gas consumption in m^3 per user with electricity consumption in kWh per user (0.99), post-working age population per 100 people of pre-working age with post-working age population per 100 people in working age (0.96). Eventually, 25 characteristics were adopted in the paper, on the basis of which the level of local development was determined:

X_1 – own income of the commune per capita (PLN),
X_2 – share of the residents using water supply systems in the total population (%),
X_3 – share of the residents using the sewage system in the total population (%),
X_4 – share of the residents using the gas pipeline in the total population (%),
X_5 – water consumption per user (m^3),
X_6 – electricity consumption per user (kWh),
X_7 – average usable area of a flat per 1 person – data for 2016 (m^2),

X_8 – number of flats per 1,000 residents – data for 2016 (pcs.),
X_9 – average number of rooms in 1 flat – data for 2016 (pcs.),
X_{10} – average number of persons per room – data for 2016 (persons),
X_{11} – number of marriages per 1,000 population (–),
X_{12} – old-age dependency ratio (persons),
X_{13} – live births per 1,000 population (–),
X_{14} – birth rate per 1,000 population (–),
X_{15} – number of GP consultations per capita total (–),
X_{16} – population per pharmacy open to the general public (persons),
X_{17} – share of residents living below the income criterion (%),
X_{18} – gross enrolment rate – primary schools (%),
X_{19} – number of employed per 1,000 population,
X_{20} – number of household sewage treatment plants (pcs.),
X_{21} – population per 1 km^2 (persons),
X_{22} – change in population per 1,000 residents (persons),
X_{23} – number of entities employing from 50 to 249 employees per 10 thousand working-age residents (–),
X_{24} – number of entities employing more than 250 employees per 10 thousand working-age residents (–),
X_{25} – share of registered unemployed persons in the working-age population by sex (%).

Characteristics X_{12}, X_{15}, X_{16}, X_{17}, X_{25} were considered to be inhibitors (for which low values are desirable from the point of view of a given phenomenon), while others were accepted as stimuli (for which low values are undesirable from the point of view of a given phenomenon).

For selected characteristics the statistical characteristics contained in Table 1 were determined. Disparities between individual units were determined, paying particular attention to minimum and maximum values and the coefficient of variability.

The value of the coefficient of variability of characteristics describing the level of local development ranged from ca. 7 to 909%. The highest variability was recorded in the variables characterizing the natural growth per 1,000 population (V = 909%). The lowest variability occurred in case of the variable describing the average numbers of rooms in 1 flat (V = 7%).

In order to determine the level of local development of selected communes in the Lubelskie Voivodeship, the Hellwig's model method was used [Janulewicz 2009, Adamowicz and Janulewicz 2012], whose main advantage is the fact that it synthesizes one synthetic aggregate measure and assigns it to individual units [Mika 1995, Janulewicz 2011]. This method is also called *Supervised Pattern Recognition* [Kisielińska 2008, Janulewicz 2011], and enables a synthetic comparison of the surveyed communes from the Lubelskie Voivodeship, providing a basis for their division into homogeneous groups regarding the level of local development. The research procedure was based on literature studies [Bąk 2007, Krawiec and Landmesser 2007 based on: Ostasiewicz 1999].

On the basis of the value of the Hellwig's synthetic development measure, the examined units were classified into one of the four groups in terms of the level of local development – group I included communes with the highest level of local development, while group IV – with the lowest level of development.

In the second stage of the study, in order to achieve the research objectives, empirical research was carried out using a sociopsychological research method in the form of a questionnaire survey. The research tool was a questionnaire in paper form. The survey was conducted in 2017 among the residents of selected communes in the Lubelskie Voivodeship. Twelve of the surveyed units were rural in nature located in nine counties, five – urban-rural located in five counties, and also seven urban communes located in seven counties. In total, 1,083 correctly filled in questionnaires were obtained, 470 of which came from respondents from rural communes, 240 from urban-rural communes and 373 from urban communes (Table 2). The results of the research are presented in tabular form. Descriptive statistics, including the analysis of the arithmetic mean, were used to interpret the research.

The studied population comprised 60% of women and 40% of men. Respondents represented the following age groups: 18–25 years – 32.1%; 26–35 years – 23.4%; 36–45 years – 17.2%; 46–55 years

Table 1. Statistical characteristics of diagnostic variables

Variable	Average	Minimum	Maximum	Standard deviation	Coefficient of variability
X_1	4 247.13	3 413 Świdnik*	7 238 Puchaczów**	900.65	0.21
X_2	86.15	7.2 Łabunie**	100 Wólka**	20.06	0.23
X_3	56.10	3 Tomaszów Lubelski**	95.9 Puławy*	31.37	0.56
X_4	37.03	0 Trawniki**	97.7 Świdnik*	34.25	0.93
X_5	33.30	19.9 Tomaszów Lubelski**	68.6 Łabunie**	12.60	0.38
X_6	3 029.14	0 Trzebieszów**, Komarówka Podlaska**, Trawniki**	18 070.6 Wohyń**	3 617.37	1.19
X_7	27.78	23.7 Puławy*	33 Wólka**	2.84	0.10
X_8	348.23	286 Trzebieszów**	412 Puławy*	34.42	0.10
X_9	3.98	3.45 Puławy*	4.62 Niemce**	0.29	0.07
X_{10}	0.73	0.65 Komarówka Podlaska**	0.85 Trzebieszów**	0.06	0.08
X_{11}	5.14	4.12 Puławy*	7.50 Trzebieszów**	0.86	0.17
X_{12}	24.88	13.81 Łęczna***	34.47 Puławy*	4.66	0.19
X_{13}	9.91	7.52 Tarnawatka**	14.99 Trzebieszów**	1.68	0.17
X_{14}	–0.37	–7.51 Krasnobród***	6.96 Trzebieszów**	3.37	–9.09
X_{15}	7.08	1.47 Tomaszów Lubelski**	42.19 Tarnawatka**	8.22	1.16
X_{16}	2 572.62	922 Tarnawatka**	7 442 Trzebieszów**	1 460.91	0.57
X_{17}	0.05	0.015 Łęczna***	0.147 Tarnawatka**	0.03	0.66
X_{18}	98.28	47.08 Wólka**	133.82 Tarnawatka**	16.69	0.17
X_{19}	231.88	46.41 Łabunie**	1 227.56 Puchaczów**	232.51	1.00
X_{20}	66.50	0 Michów**, Tarnawatka**	560 Niemce**	118.14	1.78
X_{21}	486.57	24.72 Włodawa**	2 121.09 Zamość*	700.90	1.44
X_{22}	–1.24	–11.46 Michów**	19.42 Wólka**	7.26	–5.83
X_{23}	10.85	0 Trawniki**	19.65 Puławy*	6.08	0.56
X_{24}	1.09	0 Wiele	2.99 Lubartów*	1.11	1.02
X_{25}	6.08	2.44 Trzebieszów**	11.75 Włodawa**	2.24	0.37

*urban commune, **rural commune, ***urban-rural commune.

Source: Own study based on the GUS [2016–2017].

– 16.4%; 56–65 years – 6.8; over 65 years – 4.0%. Regarding the structure of education, the largest number of people had secondary education (34.3% of respondents). The share of people with higher education in the studied group amounted to 26.0%, with vocational education – 20.6% of respondents, with bachelor-level education – 13.8%, and with primary education – 5.3%.

Table 2. List of communes surveyed

Commune	County	Commune type	Number of respondents
Łęczna	łęczyński	urban-rural	40
Tomaszów Lubelski	tomaszowski	rural	50
Trzebieszów	łukowski	rural	40
Puchaczów	łęczyński	rural	40
Łabunie	zamojski	rural	40
Wólka	lubelski	rural	40
Puławy	Puławy city	urban	83
Chełm	Chełm city	urban	50
Tarnawatka	tomaszowski	rural	40
Bełżyce	lubelski	urban-rural	80
Komarówka Podlaska	radzyński	rural	40
Wohyń	radzyński	rural	40
Biłgoraj	biłgorajski	urban	80
Krasnobród	zamojski	urban-rural	40
Krasnystaw	krasnostawski	urban	40
Lubartów	lubartowski	urban	40
Michów	lubartowski	rural	40
Nałęczów	puławski	urban-rural	40
Niemce	lubelski	rural	40
Parczew	parczewski	urban-rural	40
Świdnik	świdnicki	urban	40
Trawniki	świdnicki	rural	40
Włodawa	włodawski	rural	20
Zamość	zamojski	urban	40
	Total		1083

Source: Own elaboration based on research.

RESEARCH RESULTS

The 25 variables were used to assess the level of local development of selected communes of Lubelskie Voivodeship and the results are presented in Table 3. According to the conducted research, the group of communes with the highest level of local development included 4 communes: one urban-rural and 3 rural. The second group comprised 9 units: 5 urban, 2 rural and 2 urban-rural. The third group includes 7 communes: 2 urban, 4 rural and one urban-rural. In the group with the lowest level of local development there were 4 communes: 3 of the rural nature and one urban--rural.

According to the conducted research (Table 3), the commune with the highest level of local development was Puchaczów. It is a commune where own income per capita is the highest in the whole voivodeship (PLN 7,238). On the territory of Puchaczów is located the only coal mine in Lubelskie Voivodeship. On the other hand, the commune with the lowest level of local development was the rural commune of Michów, characterized, among others, by a very unfavorable rate of population change per 1,000 residents (–11.46).

As part of the survey, respondents were asked to indicate which of the above mentioned activities they considered to be priorities for the development of the commune. 23 directions of activities were proposed, the rank of which was determined by respondents on a five-level scale, where 1 meant insignificant, 2 – medium important, 3 – important, 4 – very important, 5 – most important. Then, the arithmetic mean of the respondents' assessments was determined for particular groups of communes characterized by different levels of local development.

The research did not show statistically significant differences between respondents from particular groups of communes determined on the basis of the Hellwig's model method in the scope of assessment of the importance of particular activities for the development of communes. The greatest differences in the determination of the rank of individual activities were noted in relation to the improvement of safety (e.g. city visual surveillance installation, street lighting). The arithmetic mean of assessments for this type of activities in the group of communes with the highest level of development was 3.61. It can be noted that along with the decrease in the level of the communes' development, the respondents paid less attention to actions aimed at improving safety – in the group of communes with the lowest level of development, the importance of these actions was assessed on average at 2.99.

Next, a ranking of activities for each group of communes was created according to the average weight of respondents' assessments. The rankings created in this way made it possible to compare the importance of particular directions of pro-development activities in the opinion of the respondents from different groups of communes. Regardless of the level of the communes' local development determined using the Hellwig's model method, the respondents considered as the most important the directions of development activities aimed at preventing unemployment, development and modernization of transport infrastructure (roads, pavements, bicycle paths), support for local entrepreneurship by commune authorities, as well as activities aimed at obtaining external funds (Table 4). Therefore, it should be stated that the research hypothesis H1 – there is a positive relationship between the pro-development activities preferred by the residents

Table 3. Classification of the communes with regard to the partial value of the synthetic measure describing the level of local development of selected communes in the Lubelskie Voivodeship

Group number	Number of communes in the group	Level of measure	Communes
I	4	above 0.3280	Puchaczów**, Trzebieszów**, Łęczna***, Niemce**
II	9	from 0.2482 to 0.3209	Biłgoraj*, Lubartów*, Wólka**, Zamość*, Świdnik*, Nałęczów***, Puławy*, Bełżyce***, Wohyń**
III	7	from 0.1735 to 0.2387	Chełm*, Parczew***, Krasnystaw*, Tomaszów Lubelski**, Łabunie**, Tarnawatka**, Włodawa**
IV	4	below 0.1464	Krasnobród***, Trawniki**, Komarówka Podlaska**, Michów**

*urban commune, **rural commune, ***urban-rural commune.

Source: Own study based on GUS [2016–2017].

Table 4. Classification and assessment of the relationship between the pro-development activities preferred by the residents and a commune's current level of local development

Development and pro-development activities	Average scores				Position in the ranking according to the average score			
	I group	II group	III group	IV group	I group	II group	III group	IV group
Development of industry	3.55	3.48	3.75	3.29	13	16	6	18
Development of agriculture	3.82	3.28	3.55	3.7	5	21	11	7
Increasing the quantity and quality of commercial services	3.29	3.37	3.47	3.44	22	19	15	15
Exploitation of tourism potential / support for tourism development	3.38	3.67	3.55	3.64	20	10	10	10
Activities to protect the environment	3.25	3.38	3.24	3.1	23	18	21	19
Improvement of the condition of green & recreational areas	3.49	3.72	3.51	3.71	16	9	13	6
Construction and modernisation of roads, pavements, bicycle paths	4.05	3.84	3.92	4.1	1	3	3	1
Development of the sewage and water supply network	3.62	3.57	3.3	3.55	9	12	20	14
Creation of new or modernisation of existing public spaces	3.61	3.73	3.44	3.69	10	8	17	8
Improvement of safety (city visual surveillance system, street lighting)	3.61	3.52	3.48	2.99	11	15	14	20
Renovation of communal buildings of a residential character	3.49	3.29	3.44	2.98	17	20	16	21
Maintenance works	3.41	3.21	3.23	2.94	19	22	22	22
Launching new educational institutions	3.33	3.07	3.15	2.74	21	23	23	23
Cultural development activities	3.53	3.73	3.39	3.57	14	7	19	13
Actions for raising external funds	3.97	3.82	3.9	3.81	3	4	4	3
Promotion of local entrepreneurship by the commune's authorities	3.92	3.97	4.01	3.78	4	2	2	4
Activities to prevent unemployment	4.03	4.17	4.19	3.83	2	1	1	2
Winning of an external investor	3.74	3.65	3.87	3.64	7	11	5	9
Implementation of new technologies	3.8	3.78	3.63	3.61	6	6	8	11
Improving the management of the commune	3.58	3.54	3.67	3.37	12	14	7	17
Activities for the promotion of the commune	3.53	3.81	3.55	3.75	15	5	9	5
Increased involvement of residents in the affairs of the commune	3.66	3.55	3.54	3.6	8	13	12	12
Increased cooperation with other communes	3.47	3.4	3.42	3.37	18	17	18	16

Source: Own elaboration based on surveys and GUS [2016–2017].

and a commune's current level of development – has not been confirmed and should therefore be rejected.

It is worth noting that the respondents – regardless of the commune's level of local development – considered the use of endogenous potential consisting in the use of local resources by local entities to be the key development direction. At the same time, due to the emphasis on the role of raising external funds, the respondents pointed to a different direction of development, i.e. development that attracts people by acquiring and using external resources by local entities.

Respondents also saw an opportunity for development based on exogenous factors related to the need to attract external investors. Relatively higher activities of this type were assessed in the third and first group of communes than in the other surveyed communes. The respondents also drew attention to the need to intensify activities related to the promotion of the commune (this particularly applies to respondents from the second and fourth group of communes), as well as to the implementation of new technologies (communes with the highest level of development – the first and second group of communes).

Development based on agriculture is particularly important for the respondents from the first and fourth group of communes, which may be related to their nature – these groups include rural and urban-rural communes. At the same time, respondents from the communes with the highest level of local development rated relatively low the importance of activities aimed at exploiting the tourist potential and supporting the development of tourism, as well as improving the condition of green and recreational areas. The importance of the development of industry as a priority development direction was indicated more often by respondents from the third group. The increase in the quantity and quality of commercial services was relatively less important in the opinion of the respondents.

It is worth noting that respondents from all groups of communes rated quite highly the need to increase the involvement of residents in the commune's affairs. In most cases, this type of activity was rated higher than the improvement of commune management (with the exception of the third group communes), and also than the need to intensify cooperation with other communes.

SUMMARY

The goal of the study was to identify the level of local development and assess the directions of activities affecting it from the point of view of residents representing the surveyed communes. In the course the conducted research, no statistically significant differences were found between the respondents representing communes that differ in the level of local development in terms of evaluation of the importance of particular activities for the communes' development. Therefore, it should be stated that the research hypothesis H1 – there is a positive relationship between the pro-development activities preferred by the residents and a commune's current level of development – has not been confirmed and should therefore be rejected. Thus, it can be concluded that the commune's level of local development does not significantly affect the expectations of its residents. It is worth noting that the respondents, regardless of the level of development of spatial units, indicated the existence of deficits in the scope of similar factors responsible for the development of communes. Thus, they stressed mainly the need for active actions on the part of self-government authorities aimed at eliminating these deficits. As the most important directions of pro-development activities they included activities aimed at preventing unemployment, development and modernization of transport infrastructure (roads, pavements, bicycle paths), support for local entrepreneurship by the commune authorities, as well as activities aimed at obtaining external funds. Therefore, it can be concluded that the respondents indicated the need to base local development on endogenous potential (i.e. the use of local resources by local entities). The respondents' highlighting of the role of raising external funds also indicates a different direction of development, i.e. development based on acquiring and using external resources by local entities.

REFERENCES

Adamowicz, M., Janulewicz, P. (2012). Wykorzystanie metod wielowymiarowych w określeniu pozycji konkurencyjnej gminy na przykładzie województwa lubelskiego. Metody Ilościowe w Badaniach Ekonomicznych, 8, 17–28.

Adamowicz, M., Janulewicz, P. (2013). Wykorzystanie analizy czynnikowej do oceny rozwoju społeczno-gospodarczego w skali lokalnej. Prace Naukowe UE we Wrocławiu. Ekonomia, 305, 15–23.

Adamowicz, M., Janulewicz, P. (2016). Ocena poziomu rozwoju dużych miast w Polsce – wyniki badań wykorzystujących wzorzec rozwoju Hellwiga. Studia Regionalne i Lokalne, 2 (64), 68–86.

Bąk, I. (2007). Atrakcyjność regionów turystycznych w Polsce ze szczególnym uwzględnieniem warunków ekologicznych. [In:] W. Ostasiewicz (Ed.), Statystyka w praktyce społeczno-gospodarczej. Wydawnictwo AE, Wrocław, 49.

Brol, R. (red.) (1998). Zarządzanie rozwojem lokalnym – studium przypadków. Wydawnictwo AE, Wrocław.

Brooks, J.S., Waylen, K.A., Borgerhoff Mulder, M. (2012). How national context, project design, and local community characteristics influence success in community-based conservation projects. Proceedings of the National Academy of Sciences of the United States of America 109, 21265–21270.

Bryden, J. (2002). Rural Development Indicators and Diversity in the European Union. Paper presented at the "Measuring Rural Diversity" Conference, Economic Research Service, Washington, DC, 21 November.

Domańska, A. (2017). Samorząd gminny a jakość życia społeczności lokalnej. Handel Wewnętrzny, 4 (369), 2, 99–107.

GUS, Local Data Bank for 2016–2017. Retrieved from: https://bdl.stat.gov.pl/BDL/start [accessed: 18.10.2018].

Hellwig, Z. (1968). Zastosowanie metody taksonomicznej do typologicznego podziału krajów ze względu na poziom ich rozwoju oraz zasoby i strukturę wykwalifikowanych kadr. Przegląd Statystyczny, 4, 307–327.

Jacob, S., Weeks, P., Blount, B., Jepson, M. (2013). Development and evaluation of social indicators of vulnerability and resiliency for fishing communities in the Gulf of Mexico. Marine Policy, 37, 86–95.

Jakubowska, A. (2013). Partnerstwo publiczno-prywatne i jego konsekwencje dla rozwoju lokalnego. Studia Ekonomiczne UE w Katowicach, 156, 177–188.

Janulewicz, P. (2009). Ranking gmin województwa lubelskiego na podstawie rozwoju społecznego. Zeszyty Problemowe Postępów Nauk Rolniczych, 542 (2), 963––969.

Janulewicz, P. (2011). Konkurencyjność gmin na przykładzie województwa lubelskiego. Prace Naukowe UE we Wrocławiu. Polityka Ekonomiczna, 166, 234–245.

Janulewicz, P. (2018). EU funds (RDP) and their impact on local development, Proceedings of the 2018 International Scientific Conference: Economic Sciences for Agribusiness and Rural Economy. Warsaw, 7–8 June 2018, 376–382.

Kamińska, A., Janulewicz, P. (2009). Klasyfikacja gmin wiejskich województwa lubelskiego na podstawie rozwoju społeczno-gospodarczego. Folia Pomeranae Universitatis Technologiae Stetinensis. Oeconomica, 57, 31–42.

Kates, R. W., Parris, T. M., Leiserowitz, A. A. (2005). What is sustainable development? Goals, indicators, values and practice. Science and Policy for Sustainable Development, 47 (3), 8–21.

Kisielińska, J. (2008). Modele klasyfikacyjne prognozowania sytuacji finansowej gospodarstw rolniczych. Wydawnictwo SGGW, Warszawa 14.

Krawiec, M., Landmesser, J. (2007). Analiza taksonomiczna aktywności ekonomicznej ludności na obszarach wiejskich w Polsce. Roczniki Naukowe SERiA, 9, 2, 170–176.

Leigh, N.G., Blakely, E.J. (2017). Planning local development: theory and practise (6th edition). SAGE Publications Los Angeles-London-New Delhi-Singapore-Washington DC-Melbourne.

Mika, J. (1995). Analiza statystyczna pozycji Polski na tle krajów Unii Europejskiej. Spółka z o.o. „Śląsk", Katowice.

Ostasiewicz, W. (1999). Statystyczne metody analizy danych. Wydawnictwo AE, Wrocław.

Rogerson, Ch.M., Rogerson, J.M. (2010). Local economic development in Africa: Global context and research directions. Development Southern Africa, 27 (4), 465––480.

Sekuła, A. (2001). Koncepcje rozwoju lokalnego w świetle współczesnej literatury polskiej – zarys problemu. Zeszyty Naukowe Politechniki Gdańskiej, 588, Ekonomia, 40, 89–95.

Sobczyk, A. (2010). Rozwój lokalny – wybrane problemy finansowania. Zeszyty Naukowe SGGW w Warszawie. Ekonomika i Organizacja Gospodarki Żywnościowej, 81, 125–136.

Szaja, M. (2012). Wspólnoty lokalne w rozwoju gminnych jednostek samorządowych. Zeszyty Naukowe Wyższej Szkoły Bankowej we Wrocławiu, 29, 185–197.

Ustawa z dnia 8 marca 1990 r. o samorządzie gminnym (Dz.U. 1990 nr 16, poz. 95 z późn. zm.).

Warczak, M. (2015). Endogeniczne i egzogeniczne czynniki rozwoju gospodarczego z perspektywy finansów gminy. Współczesna Gospodarka, 6 (4), 111–122.

Wiśniewska, M., Stawasz, D. (2016). Critical analysis of the possibility of application of participatory methods in

local development management in Poland. Fifth International Scientific Conference on Project Management in the Baltic Countries. April 14-15, Riga, University of Latvia, 398–408.

Ziółkowski, M. (2015). Strategiczne zarządzanie rozwojem gminy. Ruch Prawniczy, Ekonomiczny i Socjologiczny, 1, 145–163.

KIERUNKI ROZWOJU WYBRANYCH GMIN WOJEWÓDZTWA LUBELSKIEGO W OPINII ICH MIESZKAŃCÓW

STRESZCZENIE

Celem opracowania była identyfikacja poziomu rozwoju lokalnego i ocena kierunków działań mających na niego wpływ z punktu widzenia mieszkańców reprezentujących badane gminy. Weryfikacji poddano hipotezę badawczą H1 – istnieje pozytywny związek pomiędzy preferowanymi przez mieszkańców działaniami prorozwojowymi a dotychczasowym poziomem rozwoju gminy. Przedmiotem badań były 24 gminy z województwa lubelskiego. Okres badawczy obejmował zasadniczo 2017 rok. W pracy wykorzystano metodę wzorca rozwoju Hellwiga oraz metodę badania ankietowego. Metoda Hellwiga pozwoliła na dokonanie podziału analizowanych jednostek na cztery grupy z punktu widzenia poziomu ich rozwoju. Przy wykorzystaniu badań ankietowych dokonano identyfikacji i oceny działań mających w opinii respondentów zdynamizować rozwój gmin w przyszłości w zależności od dotychczasowego poziomu ich rozwoju. W wyniku przeprowadzonych badań nie wykazano istotnych statystycznie różnic pomiędzy ankietowanymi reprezentującymi różne pod względem poziomu rozwoju lokalnego gminy w zakresie oceny znaczenia poszczególnych działań dla rozwoju gmin.

Słowa kluczowe: polityka rozwoju lokalnego, gmina, metoda wzorca rozwoju Hellwiga, rozwój lokalny

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FACTORS INFLUENCING THE DEVELOPMENT OF NON-AGRICULTURAL BUSINESS ACTIVITIES IN RURAL EASTERN POLAND

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ABSTRACT

The aim of the research was to assess the conditions and identify factors influencing the development of non-agricultural business activities in rural local government areas of Eastern Poland, making use of taxonomic methods and analyses of variance. The empirical content of the article was sourced from the Local Data Bank of Statistics Poland (Bank Danych Lokalnych GUS), including the 2010 Census of Agriculture (Powszechny Spis Rolny 2010), and also data from the Institute of Soil Science and Plant Cultivation (IUNG-PIB) in Puławy. The study findings indicate that rural local government areas of Eastern Poland are strongly differentiated in respect of prevailing conditions for the development of non-agricultural business activities. The most numerous of them was the group consisting of local government areas with moderate conditions while the group of local government areas with better or weaker conditions was less numerous. Moreover, the results of the statistical analysis have shown that significant factors favouring developments of such business activities in rural local government areas of Eastern Poland are essentially the influx of people, municipal investments, as well as European Union financial resources for programs and projects' implementation.

Key words: Eastern Poland, rural areas, non-agricultural business activities, conditions and factors of development, taxonomic methods and analysis of variance

JEL codes: O12, O13, O15, O18, R12, R51

INTRODUCTION

The development of non-agricultural business activities in European Union's rural areas is not only objective, but also a desirable process, which is both a concept of multifunctional and sustainable agricultural and rural development. This is particularly true for peripheral regions, which often lag behind in socio-economic development. Eastern Poland[1] is an example of such a region in Poland.

Non-agricultural business activities play significant roles in rural economies. It transforms the mono-

[1] Eastern Poland is the region which was covered by so-called support program. It is the area of five provinces, i.e.: Warmińsko-Mazurskie, Podlaskie, Lubelskie, Podkarpackie and Świętokrzyskie [Ministerstwo Rozwoju Regionalnego 2011]. The strategic purpose with reference to rural areas of Eastern Poland should be building a social capital and economic diversification. It means differentiation of rural economy through pressure on development of non-agricultural business activities [Wilkin 2007].

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functional nature of villages into multifunctional ones, thus contributing to the economic activation of rural areas and the dynamics of their socio-economic development. It also constitutes a source of enrichment for rural residents, leading to the differentiation and increased economic prosperity of rural economies. Such businesses can be conducted by agricultural-oriented and non-agricultural persons. They can as well be agro-allied or non-agricultural businesses as well as registered or unregistered businesses. It needs to be emphasized, though that the development of non-agricultural businesses in rural areas could emerge from the search for new forms of production, using farm and household production resources. The result is the creation of new products, the offer of new services, and capturing of new markets [Sawicka 2000, Długokęcka et al. 2003, Honjo and Harada 2006, Zając 2014].

It should be additionally noted, that the development of non-agricultural business activities in the country-side in coexistence with agriculture and respect for the natural environment (landscape) effects beneficial transformation of rural areas by not only improving its quality and residents' living standards, but also preserves their economic, social, environmental as well as cultural viability. As a result, such rural areas become more diversified, while serving varied functions, which include very important societal and economic functions [Zając 2014].

Hence, support for the development of non-agricultural business activities in rural areas has drawn the special attention and interest of most countries, including highly developed states, who actively execute economic policies regarding this sector. Undertaking non-agricultural business activities is one the priorities of the Common Agricultural Policy of the EU, with the support for alternative sources of incomes in rural areas being reflected in several of its development programs. As study findings have shown, however, higher levels of budgetary support from the EU leads to greater increase in the number of enterprises, the number of employed persons as well as result in diminishing unemployment rates. The positive impact of EU's budgetary financial support on local economies is also observable in the incomes of local government authorities [Wasilewski 2014, Mickiewicz and Mickiewicz 2016].

Although the development of non-agricultural businesses in rural areas is conditioned by both exogenous and endogenous factors, it has continued to remain under the strong influence of regional and local circumstances. In view of the above, development in non-agricultural business is largely dependent on endogenous local (e.g. a specific local government area) environmental factors, which may either facilitate or hinder such processes [Wilkin 1997, Makarski 2003, Kłodziński 2012, Duczkowska-Małysz and Duczkowska-Piasecka 2014, Wasilewski 2014, Zając 2014, Zarębski 2015].

Consequently, non-agricultural businesses develop well in rural areas located near larger urban centres and along major transport routes, where there is immense concentration of people, extensive labour market, adequate infrastructure, high level of affluent people, high internal incomes of local authorities, and suitable location in relation to outlet markets. Non-agricultural business also develop well in places, where there is prevalence of business culture, with well-educated people – entrepreneurs and leaders – as well as in local government areas with very active local authorities and other institutions. This is also true in local government areas, where there is prevalence of special natural and cultural values and predisposed to tourism development. Therefore, the most important factors stimulating developments of non-agricultural businesses in rural areas include location, human, social and financial capital as well as the actions of local governments, while the most important barriers to its development include demand constraints and unfavourable demographic patterns, especially in peripheral rural areas [Duczkowska-Piasecka 1997, Czarnecki 2006, Pięta and Pomianek 2008, Kamińska 2011, Duczkowska-Małysz and Duczkowska-Piasecka 2014, Kopacz-Wyrwał 2015, Zarębski 2015, Brodziński and Brodzińska 2016].

OBJECTIVE, EMPIRICAL MATERIAL AND RESEARCH METHODS

The objective of the research is to assess the conditions and identify the factors influencing the development of non-agricultural business activities in rural local government areas of eastern Poland using taxonomic methods and analysis of variance.

The empirical data was obtained from the Local Data Bank of the Statistics Poland (Bank Danych Lokalnych GUS), including the 2010 Census of Agriculture (Powszechny Spis Rolny 2010), as well as the Institute of Soil Science and Plant Cultivation – the National Research Institute in Puławy (IUNG-PIB). The collected and sorted empirical data was compiled in a tabular form using the comparative analysis method.

The synthetic measure of Hellwig's development was applied to assess the diversity of rural local government areas [1981] of Eastern Poland. The point of start to determine the synthetic measures of development was the matrix of information regarding each object (the local government in this context), assuming the equation:

$$X = \begin{bmatrix} X_1 \\ X_2 \\ \dots \\ X_k \end{bmatrix} = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1k} \\ x_{21} & x_{22} & \dots & x_{2k} \\ \dots & \dots & \dots & \dots \\ x_{m1} & x_{m2} & \dots & x_{mk} \end{bmatrix}$$

In order to unify the diagnostic variables, expressed in varied units of measurement and characterized by varying time spans a process of unification was carried out using the formulas given below:

$z_{ik} = \dfrac{x_{ik} - \min_i \{x_{ik}\}}{\max_i \{x_{ik}\} - \min_i \{x_{ik}\}}$, in which X_k represents a stimulant, while

$z_{ik} = \dfrac{\max_i \{x_{ik}\} - x_{ik}}{\max_i \{x_{ik}\} - \min_i \{x_{ik}\}}$, in which X_k represents a destimulant;

where

z_{ik} (i = 1, 2, …, n, k = 1, 2, …, K) denotes an uniformed value for X_k factor in O_i set.

The coordinates of the development pattern z_{o1}, z_{o2}, …, z_{ok}; was a set based on the z_{ik} variable; where: $z_{ok} = \max_i \{z_{ik}\}$.

The distances of each object (local government areas) from the designated pattern were calculated based on the formula:

$$d_i = \left[\sum_{i=1}^{k} \left(z_{ik} - z_{ok} \right)^2 \right]^{1/2} \quad (i = 1, 2, \dots, n).$$

Relying on the values of the synthetic variable d_i, a normalized relative measure of levels of development was constructed: $z_i = 1 - \dfrac{d_i}{d_o}$ (i = 1, 2, …, n), where: $d_0 = \overline{d} + 2S_d$;

with: $\overline{d} = \dfrac{1}{n} \sum_{i=1}^{n} d_i$, $S_d = \left[\dfrac{1}{n} \sum_{i=1}^{n} \left(d_i - \overline{d} \right)^2 \right]^{1/2}$.

The resulting measure usually accepts a value range of [0; 1]. The smaller the difference in value of z_i from unity, the lower the difference in levels of development between object O_i and the model object. A negative value of the measure z_i is observable in situations, where the development of a given object is significantly slower than the development of other objects [Nowak 1990].

A starting point for such analyses is by establishing a list of diagnostic variables which should be of significant use in the description of the analysed phenomenon, complete and accessible, weakly inter-correlated (thus avoiding data redundancy) and should have a high degree of variability [Heffner and Gibas 2007].

Given the fact that a diversified number of factors contribute to the development of non-agricultural businesses and relying on the availability of data, a list of potential diagnostic variables was identified, which includes the following:

1. Population density (number of inhabitants per 1 km^2) (S – stimulant).
2. Percentage of working-age population (S).
3. Demographic load index (non-productive age population per 100 people in working-age group) (D – destimulant).
4. Migration balance per 1,000 people (S).
5. Unemployment rate (percentage of the unemployed registered in the working-age population) (D).
6. Employment rate (number of employed in 1,000 inhabitants) (S).
7. Percentage of inhabitants making use of pipe-borne water supply (S).

8. Percentage of people benefitting from sewage systems (S).
9. Percentage of people benefitting from gas installation networks (S).
10. Number of homes per 1,000 inhabitants (S).
11. Average living space per person in m^2 (S).
12. Overall budgetary revenues of local governments in PLN per capita (S).
13. Share of internally generated revenues in total revenues of local governments (S).
14. Share of EU funds in financing EU programs and projects in total revenues of local governments (S).
15. Total budgetary expenditures of local governments in PLN per capita (S).
16. Share of investment expenditures in overall expenditures of local governments (S).
17. Number of business entities per 1,000 inhabitants in their working age (S).
18. Number of newly registered businesses per 10,000 inhabitants in their working age (S).
19. Percentage of businesses delisted in overall number of business listed in the REGON register (D).
20. Forest cover (share of forests in overall land area) (S).
21. Share of legally protected areas in overall land area (D).
22. Valorisation index (quality) of agricultural land area in points (D).
23. Share of cultivable land area in total land area (D).
24. Share of arable land area in total cultivable land area (D).
25. Share of individual farms, 1–5 ha in size in total cultivable land area (S).
26. Average size of individual farms in ha (D).
27. Average size of cultivable land area in individual farms in ha (D).
28. Average size of cultivable land area in good culture in individual farms in ha (D).
29. Share of agricultural family households earning incomes from agriculture (D).
30. Share of agricultural family households earning incomes from non-agricultural business activities (S).
31. Share of agricultural family households with earnings from paid employment (S).
32. Share of agricultural family households with incomes from non-employed sources (pensions etc.) (D).

The predetermined list of 32 potential diagnostic variables was reduced by rejecting the quasi-fixed variables namely, those with relatively low variability and thus have low discriminatory impacts on the objects. Having adopted the critical value for the coefficient of variation at 10%, a percentage of the working-age population (V = 3.9%) eliminated from the list of potential diagnostic variables.

An appropriately selected diagnostic feature should exemplify low correlation with other diagnostic features, but strongly correlated with other potential features that were not considered as diagnostic.

The paper makes use of a parametric procedure for selecting the diagnostic features proposed by Hellwig [1981], which enables the identification of so-called clusters and isolated features. Clusters, usually consisting of similar features due to their high degree of correlation, contain one central feature and a number of satellite features. Features that lie outside the clusters are referred to as isolated features. Both central and isolated features are, in effect, adopted as diagnostic features. Having assumed the critical correlation coefficient to be 0.7, two clusters were identified. In the first case, the role of the central feature was performed by the x_{25} variable, while its satellite features were x_{26}, x_{27} and x_{28}. In the second case, however, the central feature turned out to the x_{23} variable, while its satellite feature was x_{20}. The other features were, thus, assumed as isolated. Finally, 27 diagnostic features were applied to assess the differences between local governments of Eastern Poland in respect of their potentials to develop non-agricultural businesses. Of these, 18 (x_1, x_4, x_6, x_7, x_8, x_9, x_{10}, x_{11}, x_{12}, x_{13}, x_{14}, x_{15}, x_{16}, x_{17}, x_{18}, x_{25}, x_{30}, x_{31}) were considered stimulants, while the other 9 (x_3, x_5, x_{19}, x_{21}, x_{22}, x_{23}, x_{24}, x_{29}, x_{32}) were considered as destimulants.

In addition, an analysis of variance was applied to determine the significance of the differences existing between the average values of the features [Luszniewicz and Słaby 2008] that exist in the identified group of local governments.

RESEARCH FINDINGS

The values of synthetic measures thus obtained, has enabled the ordering of local governments in Eastern Poland, with respect to the level of their potentials to develop non-agricultural businesses. The figure and Table 1 illustrate the classification of local governments into typological groups on the basis their means and standard deviation from the value of the synthetic measure, according to the pattern below:

- Class I (high level of conditions favourable for developing non-agricultural businesses – good condition): $z_i \geq z + S_z$;
- Class II (average level of conditions for the development of non-agricultural businesses – moderate conditions): $z - S_z \leq z_i \leq z + S_z$.
- Class III (low level of conditions for the development of non-agricultural businesses – poor conditions): $z_i < z - S_z$.

The calculations undertaken indicate that rural local governments of Eastern Poland are strongly differentiated in respect of conditions for the development of non-agricultural businesses. The most numerous group of local governments are those characterized by moderate conditions in respect of the issue concerned and it is applicable to all the provinces that constitute the region of Eastern Poland. The group characterized by good conditions for the development of non-agricultural businesses was less numerous. The highest percentage of such entities occurs in Podkarpackie Province with the least being in Lubelskie Province. Similarly, the number of local governments characterized by poor conditions for the development of non-agricultural businesses was small, with the highest percentage of such entities being found in two provinces namely, Lubelskie Province and Podlaskie Province, while the lowest was in Podkarpackie Province (the figure, Table 1).

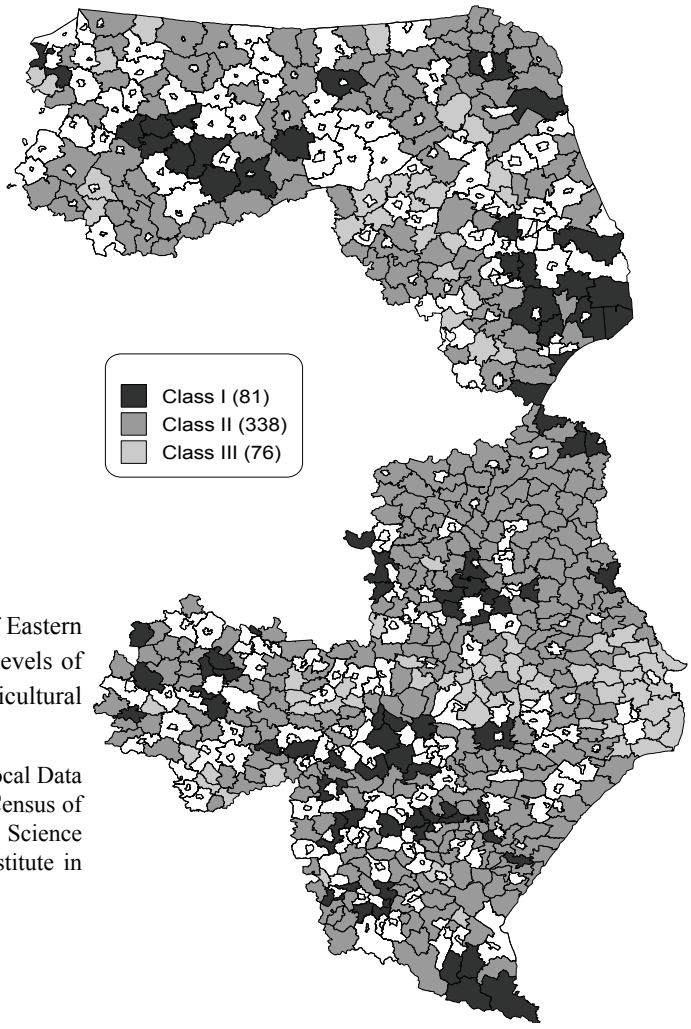

Fig. Classification of rural local governments of Eastern Poland into typological groups, based on their levels of conditions favourable to developing non-agricultural businesses

Source: Own elaboration based on data from the Local Data Bank of the Statistics Poland, including the 2010 Census of Agriculture, as well as data of the Institute of Soil Science and Plant Cultivation – the National Research Institute in Puławy (online access: January 2019).

Table 1. Classification of rural local governments of Eastern Poland into typological groups, based on their levels of conditions favourable to developing non-agricultural businesses

Class	Value range of synthetic measure	Specification	Number of local governments	Percentage of local governments
I	0.326–0.167	Warmińsko-Mazurskie Province	11	16.4
		Podlaskie Province	14	17.9
		Lubelskie Province	16	9.4
		Świętokrzyskie Province	11	15.5
		Podkarpackie Province	29	26.6
		rural governments in total	81	16.4
II	0.166–0.056	Warmińsko-Mazurskie Province	47	70.2
		Podlaskie Province	48	61.6
		Lubelskie Province	118	69.4
		Świętokrzyskie Province	48	67.6
		Podkarpackie Province	77	70.6
		rural governments in total	338	68.2
III	0.055–0.020	Warmińsko-Mazurskie Province	9	13.4
		Podlaskie Province	16	20.5
		Lubelskie Province	36	21.2
		Świętokrzyskie Province	12	16.9
		Podkarpackie Province	3	2.8
		rural governments in total	76	15.4

Source: Own elaboration based on data from the Local Data Bank of the Statistics Poland, including the 2010 Census of Agriculture, as well as data of the Institute of Soil Science and Plant Cultivation – the National Research Institute in Puławy (online access: January 2019).

Tables 2, 3 and 4 are illustrations of the mean values of diagnostic features determined for the rural local governments of Eastern Poland, categorized into typological classes. It can be observed from these data that the good conditions for the development of non-agricultural businesses in rural local governments of Eastern Poland (Class I local governments) are, first and foremost due to favourable demographic features, well-developed technical infrastructure as well as the good financial situation of these local government areas. Consequently, this group of rural local governments of Eastern Poland is characterized by the most developed non-agricultural business activities.

Additionally, Tables 2, 3 and 4 also present the results of the analysis of variance, which enabled the assessment of the significance of differences between the mean values of features in the typological classes of rural local governments of Eastern Poland. While analysing the values presented, attention need to be drawn to the extensive divergences with such features as the migration balance per 1,000 inhabitants. This value in Class I (local governments with good conditions for the development of non-agricultural businesses) averaged 4.8, while in Class III namely (with poor conditions in the range) it averaged –5.0. Significant differences are also observed in respect of such features as

Table 2. Mean values of diagnostic features concerning demographic and employment market conditions, including the technical infrastructure and housing resources as well as the results of analysis of variance in typological classes of rural local governments of Eastern Poland

Feature	Class I	Class II	Class III	*F*	*p*
Density of population	102.3	52.2	37.5	60.302	0.000
Demographic load index	58.4	60.8	62.2	6.320	0.002
Migration balance per 1 000 inhabitants	4.8	–2.4	–5.0	91.857	0.000
Unemployment rate	9.3	10.4	8.6	14.550	0.000
Employment rate	136.3	75.7	56.0	23.552	0.000
Percentage of people benefitting from pipe-borne water supply	85.0	79.4	78.7	2.093	0.124
Percentage of people benefitting from sewage systems	56.6	31.0	15.6	62.842	0.000
Percentage of people benefitting from gas installation networks	48.4	15.2	2.5	77.363	0.000
Number of homes per 1 000 inhabitants	313.7	319.6	300.8	3.074	0.047
Average living space per person in 1 m^2	29.0	27.3	27.2	4.712	0.009

Source: Own elaboration based on data from the Local Data Bank of the Statistics Poland (online access: January 2019).

Table 3. Mean values of diagnostic features concerning demographic and employment market conditions, including the technical infrastructure and housing resources as well as the results of analysis of variance in typological classes of rural local governments of Eastern Poland

Feature	Class I	Class II	Class III	*F*	*p*
Overall budgetary revenues of local governments in PLN per 1 inhabitant	3 560.4	3 354.5	3 239.7	5.108	0.006
Share of internally generated revenues in overall budget of local governments	44.5	31.0	27.4	7.212	0.001
Share of EU funds in financing EU programs and projects in total revenues of local governments	10.0	4.4	1.4	6.141	0.002
Overall budgetary expenditures of local governments in PLN per 1 inhabitant	3 657.7	3 396.4	3 222.6	15.956	0.000
Share of investment expenditures in overall expenditures of local governments	23.4	18.1	13.2	21.280	0.000
Number of business entities per 1 000 inhabitants in their working age	113.4	86.8	75.0	56.224	0.000
Number of newly registered businesses per 10 000 inhabitants in their working age	113.7	87.1	75.1	32.347	0.000
Percentage of businesses delisted in overall number of business listed in the REGON register	7.0	7.3	7.0	0.538	0.584

Source: Own elaboration based on data from the Local Data Bank of the Statistics Poland (online access: January 2019).

Table 4. Average values of diagnostic features concerning demographic and employment market conditions, including the technical infrastructure and housing resources as well as the results of analysis of variance in typological classes of rural local governments of Eastern Poland

Feature	Class I	Class II	Class III	*F*	*p*
Share of legally protected areas in overall land area	28.2	37.0	38.7	2.007	0.136
Valorisation index (quality) of agricultural land area in points	71.4	68.2	65.9	2.343	0.097
Share of cultivable land area in total land area	62.5	65.8	73.5	8.301	0.000
Share of arable land area in total cultivable land area	64.7	69.4	71.5	5.481	0.004
Share of individual farms, 1–5 ha in size in total cultivable land area	73.4	52.9	30.9	74.151	0.000
Share of agricultural family households earning incomes from agriculture	81.8	89.2	93.7	23.585	0.000
Share of agricultural family households earning incomes from non-agricultural business activities	16.2	15.9	17.3	0.711	0.492
Share of agricultural family households with earnings from paid employment	44.7	40.5	29.7	39.999	0.000
Share of agricultural family households with incomes from non-employed sources (pensions etc.)	39.8	37.3	34.3	3.061	0.048

Source: Own elaboration based on data from the Local Data Bank of the Statistics Poland, including the 2010 Census of Agriculture, as well as data of the Institute of Soil Science and Plant Cultivation – the National Research Institute in Puławy (online access: January 2019).

population density, percentage of people benefitting from gas installation networks, share of EU funds for financing EU programs and projects in local governments' overall budgetary revenues, as well as the share of investment expenditures in local governments' overall budgetary expenditures. There is a lack of statistically significant difference between the averages in the various classes observed in respect of such features as percentage of people benefitting from pipe-borne water supply, the share of businesses delisted from the total number of business entered in the REGON register, share of legally protected areas in overall land area, valorisation index (quality) of agricultural land area as well as share of agricultural family households earning incomes from non-agricultural business activities.

CONCLUSIONS

1. The research has shown that rural local governments of Eastern Poland are strongly differentiated in respect of prevailing conditions for the development of non-agricultural business activities. The largest of these groups is that made up of local governments characterized by moderate conditions.
2. The group with good conditions for the development of non-agricultural businesses is less numerous, with the largest of their concentration occurring in Podkarpackie Province. A similar situation, with less abundancy, was associated with the group of rural local governments with poor conditions for the development of non-agricultural business. The highest percentage concentration of such businesses was in the Lubelskie Province and the Podlaskie Province.
3. Prevailing good conditions for the development of non-agricultural businesses in the group of rural local governments of Eastern Poland are due, first and foremost, to the promising demographic features, well-developed technical infrastructures and the favourable economic and financial situation of the local governments concerned. In consequence, this group of local governments have distinguished

themselves as having the most developed non-agricultural business activities.

4. The results of the statistical analysis have indicated that the most important facilitating factors for the development of non-agricultural businesses in rural local governments of Eastern Poland are, chiefly, human inflows, local government investments as well as the use of EU funds for the implementation of programs and projects.
5. The current research have confirmed the notion that local (governmental) environmental features constitute crucial prerequisites for the development of non-agricultural business activities in rural areas. Hence, they ought to be given priority and consideration, both in the local and regional policies being implemented by local government authorities, regarding the multifunctional and sustainable development of rural areas and agriculture in Eastern Poland. In so-doing they will become sooner and more efficiently transformed into effective factors of development, especially with the additional financial support from the EU.

REFERENCES

Brodziński, Z., Brodzińska, K. (2016). Uwarunkowania aktywności społeczno-gospodarczej podmiotów sektora MSP na terenach przygranicznych województwa warmińsko-mazurskiego. Journal of Agribusiness and Rural Development, 1 (39), 31–38.

Czarnecki, A. (2006). Wpływ czynników lokalizacyjnych na rozwój działalności pozarolniczej na obszarach wiejskich. Roczniki Naukowe SERiA, 8 (4), 78–82.

Długokęcka, M., Kurek, I.M., Sawicka, J. (2003). Przedsiębiorczość kobiet i jej znaczenie w wielofunkcyjnym rozwoju obszarów wiejskich. Acta Scientiarum Polonorum, Oeconomia, 2 (1), 55–65.

Duczkowska-Małysz, K., Duczkowska-Piasecka, M. (2014). Rodzinna przedsiębiorczość na obszarach wiejskich wobec wyzwań globalnych. [In:] R. Sobiecki (Ed.), Przedsiębiorstwo rodzinne w gospodarce globalnej. Oficyna Wydawnicza SGH, Warszawa, 117–145.

Duczkowska-Piasecka, M. (1997). Małe i średnie przedsiębiorstwa na terenach wiejskich (ich rola, znaczenie oraz możliwości i bariery rozwojowe). [In:] M. Kłodziński, A. Rosner (Eds.), Ekonomiczne i społeczne uwarunkowania i możliwości wielofunkcyjnego rozwoju wsi w Polsce. Wydawnictwo SGGW, Warszawa, 245–265.

Główny Urząd Statystyczny (2011). Powszechny Spis Rolny 2010 – Raport z wyników [2010 State Agricultural Census – Report on results]. Warszawa.

Heffner, K., Gibas, P. (2007). Analiza ekonomiczno-przestrzenna. Wydawnictwo Akademii Ekonomicznej w Katowicach, Katowice.

Hellwig, Z. (1981). Wielowymiarowa analiza porównawcza i jej zastosowanie w badaniach wielowymiarowych obiektów gospodarczych. [In:] W. Welfe (Ed.), Metody i modele ekonomiczno-matematyczne w doskonaleniu zarządzania gospodarką socjalistyczną. PWE, Warszawa, 46–68.

Honjo, Y., Harada, N. (2006). SME Policy, Financial Structure and Firm Growth: Evidence From Japan. Small Business Economics, 27 (4–5), 289–300.

Kamińska, W. (2011). Pozarolnicza aktywność gospodarcza osób fizycznych na obszarach wiejskich w Polsce. Studia KPZK PAN, 133, 103–127.

Kłodziński, M. (2012). Dywersyfikacja gospodarki ważnym celem polityki wiejskiej. [In:] M. Drygas, K. Zawalińska (Eds.), Uwarunkowania ekonomiczne polityki rozwoju polskiej wsi i rolnictwa. IRWiR PAN, Warszawa, 95–115.

Kopacz-Wyrwał, I. (2015). Przedsiębiorczość a poziom życia na obszarach wiejskich Polski Wschodniej. Przedsiębiorczość – Edukacja, 11, 82–97.

Luszniewicz, A., Słaby, T. (2008). Statystyka z pakietem komputerowym STATISTICA PL. C.H. Beck, Warszawa.

Makarski, S. (2003). Subregionalne uwarunkowania przedsiębiorczości w województwie podkarpackim. [In:] A. Czudec (Ed.), Regionalne uwarunkowania ekonomicznego rozwoju rolnictwa i obszarów wiejskich. Vol. 2. Wydawnictwo Uniwersytetu Rzeszowskiego, Rzeszów, 166–174.

Mickiewicz, A., Mickiewicz, B. (2016). Pozarolnicza działalność gospodarcza na obszarach wiejskich w Polsce. Roczniki Naukowe SERiA, 18 (1), 180–185.

Ministerstwo Rozwoju Regionalnego (2011). Program Operacyjny Rozwój Polski Wschodniej. Narodowe Strategiczne Ramy Odniesienia 2007–2013. Warszawa.

Nowak, E. (1990). Metody taksonomiczne w klasyfikacji obiektów społeczno-gospodarczych. PWE, Warszawa.

Pięta, P., Pomianek, I. (2008). Czynniki wpływające na podejmowanie działalności gospodarczej na obszarach wiejskich w wybranych gminach podregionu olsztyńskiego. Acta Scientiarum Polonorum, Oeconomia, 7 (3), 89–97.

Sawicka, J. (2000). Założenie i prowadzenie małego przedsiębiorstwa. Wydawnictwo SGGW, Warszawa.

Wasilewski, A. (Ed.) (2014). Efektywność instrumentów polityki regionalnej i strukturalnej wspierających rozwój pozarolniczej działalności gospodarczej na obszarach

wiejskich. Raport Programu Wieloletniego 2011–2014 „Konkurencyjność polskiej gospodarki żywnościowej w warunkach globalizacji i integracji europejskiej", 108. IERiGŻ-PIB, Warszawa.

Wilkin, J. (1997). Przedsiębiorczość na wsi – główne determinanty i uwarunkowania. [In:] S. Makarski (Ed.), Przedsiębiorczość w agrobiznesie, a rozwój terenów wiejskich. Wydawnictwo Akademii Rolniczej w Krakowie, Trzcinica, 25–33.

Wilkin, J. (2007). Obszary wiejskie w warunkach dynamizacji zmian strukturalnych. [In:] Ekspertyzy do Strategii Rozwoju Społeczno-Gospodarczego Polski Wschodniej do roku 2020. Vol. 1. Ministerstwo Rozwoju Regionalnego, Warszawa, 593–616.

Zając, D. (2014). Znaczenie pozarolniczej działalności gospodarczej rolników w procesie rozwoju wielofunkcyjności rolnictwa i obszarów wiejskich. Prace Naukowe Wydziału Ekonomii Uniwersytetu Rzeszowskiego, Monografie i Opracowania, 17. Wydawnictwo Uniwersytetu Rzeszowskiego, Rzeszów.

Zarębski, P. (2015). Typy obszarów wiejskich w Polsce ze względu na poziom rozwoju społeczno-gospodarczego i dynamikę przedsiębiorstw. Wieś i Rolnictwo, 3 (168), 63–77.

CZYNNIKI KSZTAŁTUJĄCE ROZWÓJ POZAROLNICZEJ DZIAŁALNOŚCI GOSPODARCZEJ NA OBSZARACH WIEJSKICH POLSKI WSCHODNIEJ

STRESZCZENIE

Celem badań jest ocena warunków oraz identyfikacja czynników kształtujących rozwój pozarolniczej działalności gospodarczej w gminach wiejskich Polski Wschodniej z wykorzystaniem metody taksonomicznej i analizy wariancji. Materiał empiryczny artykułu stanowią dane z Banku Danych Lokalnych GUS, w tym także z Powszechnego Spisu Rolnego 2010, oraz z IUNG-PIB w Puławach. Badania wykazały, że gminy wiejskie Polski Wschodniej są mocno zróżnicowane pod względem warunków do rozwoju pozarolniczej działalności gospodarczej, przy czym najbardziej liczebna jest grupa gmin o umiarkowanych warunkach w tym zakresie, a mniej liczebne są grupy gmin o dobrych i słabych warunkach. Ponadto wyniki analizy statystycznej pokazały, że istotnymi czynnikami sprzyjającymi rozwojowi tego rodzaju działalności w gminach wiejskich Polski Wschodniej są przede wszystkim: napływ ludności, inwestycje gminne oraz wykorzystanie środków finansowych z Unii Europejskiej na realizację programów i projektów.

Słowa kluczowe: Polska Wschodnia, obszary wiejskie, pozarolnicza działalność gospodarcza, warunki i czynniki rozwoju, metoda taksonomiczna i analiza wariancji

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DIFFERENCES IN THE LEVEL OF ENTREPRENEURSHIP AMONG MUNICIPALITIES OF THE WARMIŃSKO-MAZURSKIE PROVINCE IN POLAND

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ABSTRACT

The objective of this study has been to diagnose differences in the level of entrepreneurship in municipalities of the Warmińsko-Mazurskie Province in 2010–2017. Among the 116 municipalities in this province, the highest average entrepreneurship rate was observed in the municipalities of Olsztyn, Stawiguda and Dywity; the lowest one was in Górowo Iławeckie, Kalinowo and Lelkowo. In the municipalities with the highest level of entrepreneurship, the diagnosed rates were as much as four-fold higher than the lowest ones. Compared with the average entrepreneurship rate among all Polish municipalities, as many as 93.10% of the municipalities in the Warmińsko-Mazurskie Province scored lower. The authors have also made an attempt to verify if there is any dependence between the level of investment expenses incurred by a municipality and its level of entrepreneurship. A moderate relationship has been identified, and it was stronger in the distinguished group of 15 municipalities with the lowest and 15 with the highest investment outlays.

Key words: entrepreneurship rate, business enterprises, investment outlays by a municipality
JEL codes: A110, A130

INTRODUCTION

Entrepreneurship can be defined in many ways. The subject literature provides a wide range of notions [Cherukara and Manalel 2011, Boudreaux et al. 2018]. Over the years, definitions previously coined from the viewpoint of supply that focused on who an entrepreneur was have transformed into a demand approach, where the focal point in on where and why new businesses open [Rocha 2004]. Entrepreneurship is also associated with the ability to make proper choices and to engage production means in business activity while maintaining the economic efficiency in the circumstances characterised by uncertainty and risk [Kalantaridis 2004, Siuta-Tokarska 2013]. For years, the concept and role of entrepreneurship in the social and economic development have been an interdisciplinary subject of interest [Rispas 1998, Bieńkowska-Gołasa 2017]. In economic sciences, entrepreneurship is analysed through the prism of benefits on a micro-scale, for individuals and single companies, and on a macro-scale, for regions or for the whole economy [Sikorska-Wolak and Krzyżanowska 2010].

In the economic domain, a company is a structural part of a complex regional system rather than an isolated entity. A decision to establish a company and conduct business is guided by macroeconomic rules [Huggins et al. 2017], where the overriding principle is to maximise the income through efficient management of resources [Zioło 2011]. In the consequence

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of investment inputs and implementation of important product and process innovations, companies exert some influence through which they either petrify or transform spatial structures in the region. They can therefore act as one of the principal determinants of the economic growth [Van Stel et al. 2005].

Entrepreneurship is an integral component of the economic growth and development [Thurik and Wennekers 1999, McMullen et al. 2008]. According to Glinka and Gudkova [2011], positive effects on the local economic and social environment are observable even when considering a single company. By providing employment opportunities, stimulating the foundation of new companies and undertaking cooperation with new business entities, a company encourages the local community to take action. On numerous occasions, the activity of local leaders gives rise to pro-development stimuli for the whole region [Glinka and Gudkova 2011].

Measures undertaken by local councils and community authorities can significantly determine the level of entrepreneurship in the region. Their decisions can indirectly encourage the establishment of new businesses [Pomianek 2018]. By stimulating the influx of new investments, the local government can secure higher budget revenues. The share of own revenues in the total budget reflects the financial standing of a local community, and is a measure applied to determine the investment capacity, economic potential and self-sufficiency of a municipality. Own revenues serve to finance the tasks which contribute to the development of a local community. In turn, investment outlays are classified as one of the tools in the expenditures policy to support entrepreneurship [Marks-Bielska and Serocka 2017].

METHODOLOGY OF THE RESEARCH

The main objective of this study has been to determine differences in the rate of entrepreneurship, to diagnose the level of investment inputs and to verify the presence of any dependence between the analysed variables in the municipalities located in the Warmińsko-Mazurskie Province in Poland.

The scope of the research covered: business entities registered in the REGON system, investment inputs by municipalities in total, and the share of investment expenditure in the total expenditure of municipalities. Our analysis of entrepreneurship in individual municipalities was based on the entrepreneurship rate expressed as the number of business entities registered in the REGON system per 10,000 working age residents, and derived from the formula:

$$W_p = \frac{P}{L_p} \cdot 10\,000$$

where:

P – number of business companies registered in the REGON system;

L_p – number of working age population.

In order to verify the presence of any dependence between the analysed variables, the Pearson's linear correlation coefficient and determination coefficient (R^2) serving to determine the model's adjustment were applied. Statistica was used to analyse the collected data.

The article contains an analysis of the tested variables in all 116 municipalities located in the Warmińsko-Mazurskie Province, including: 16 urban, 67 rural and 33 mixed, i.e. urban and rural municipalities. The time scope spanned the years from 2010 to 2017. The upper time limit was dictated by available secondary data, while the lower one was determined by the record high investment outlays expended by the local governments in the Warmińsko-Mazurskie Province after 1989, which amounted to 1.35 billion PLN in 2010 [Statistics Poland 2018]. Secondary data were obtained from the Local Data Bank at the Statistics Poland.

LEVEL OF ENTREPRENEURSHIP IN MUNICIPALITIES OF THE WARMIŃSKO-MAZURSKIE PROVINCE IN 2010–2017

The Warmińsko-Mazurskie Province is one of the least developed regions in Poland and in the European Union. In the recent years, the level of economic development has increased steadily, although at a slower pace than in the EU's richer regions. The main causes of backwardness are the relatively poor

technical and transportation infrastructure as well as industrial facilities, and low investment inputs in the whole province over many past years. Despite considerable disproportions, following Poland's accession to the EU, the Warmińsko-Mazurskie Province gained 11 p.p. higher in the average GDP per capita relative to the EU-28 countries between the years 2004 and 2015 (38% in 2004 *vs* to 49% in 2015) [Urząd Marszałkowski Województwa Warmińsko-Mazurskiego 2018].

There were 125,377 business entities active in the Warmińsko-Mazurskie Province in 2017 and registered in the REGON system. This corresponded to just 2.91% of all business entities in Poland. Since 2012, the number of companies in Warmińsko-Mazurskie Province has increased steadily. Figure 1 shows the average entrepreneurship rate in 2010–2017 in Poland, according to provinces.

Taking into account the average values of the entrepreneurship rate in 2010–2017, the Warmińsko-Mazurskie Province with its 1,314.45 business entities per 10,000 persons of the working age population was on the 13th position in Poland (one place lower than in the ranking list including only the companies registered in the REGON). During the analysed time period, the highest entrepreneurship rate average values were noted in the provinces which for years have scored the highest in this respect, i.e. the Mazowieckie Province (2,229.24), Zachodniopomorskie Province (2,002.63) and Pomorskie (1,896.02).

Considering the level of entrepreneurship in particular municipalities in the Warmińsko-Mazurskie Province in 2010–2017, attention is drawn to large disparities between these administrative units (Fig. 2). The difference in the average value of entrepreneurship between the municipality with the highest and the one with the lowest rate was as much as 1,551.65 business entities per 10,000 working age population, i.e. 328.01%.

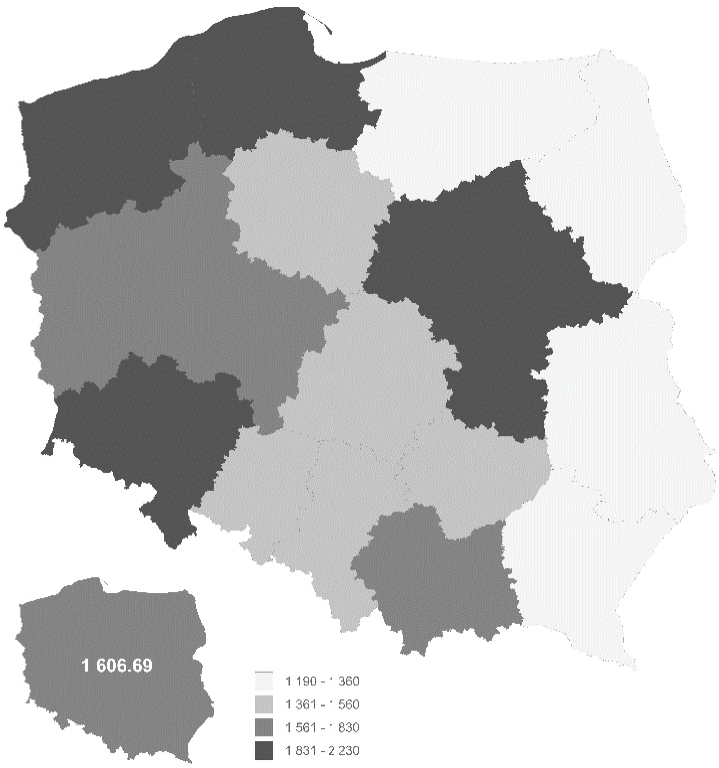

Fig. 1. The average value of entrepreneurship rates in individual provinces in Poland between 2010 and 2017
Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

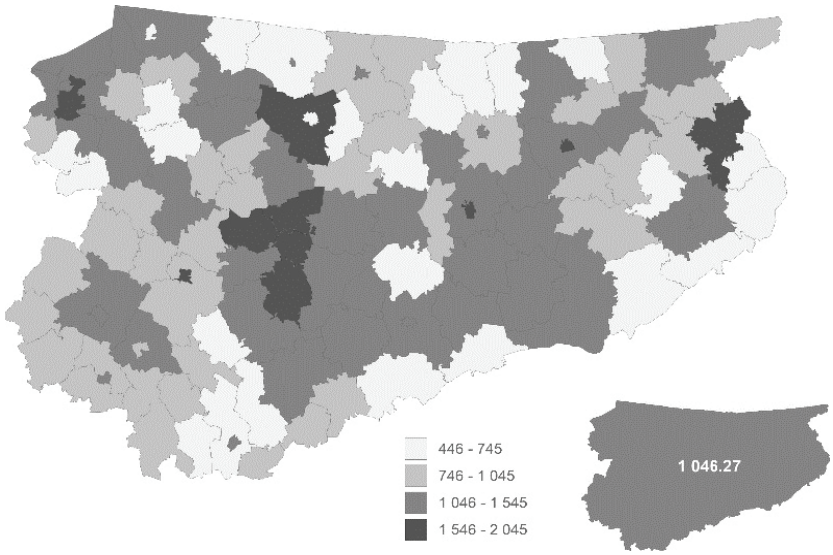

Fig. 2. Average value of the entrepreneurship rate in municipalities of the Warmińsko-Mazurskie Province in 2010–2017
Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

The average value of the entrepreneurship rate for a single municipality in the Warmińsko-Mazurskie Province in 2010–2017 was 1,046.27. Comparing the values achieved for particular municipalities in that time period, it was found that the average rate in 52 municipalities was higher than the mean for a single municipality, while for 64 ones it was lower. With the average value for the whole country, which is 1,606.69, as many as 108 municipalities in Warmińsko-Mazurskie Province (93.10%) were characterised by lower values of this indicator. Table 1 contains data regarding the average value of the entrepreneurship rate in 2010–2017 in all municipalities of the Warmińsko-Mazurskie Province.

Table 1. Municipalities in the Warmińsko-Mazurskie Province with the highest average entrepreneurship rate in 2010–2017

Position in the Province	Municipality	Entrepreneurship rate
1	Olsztyn (1)	2 024.70
2	Stawiguda (2)	2 023.81
3	Dywity (2)	1 872.07
4	Giżycko (1)	1 772.70
5	Mrągowo (1)	1 712.95
6	Olecko (3)	1 696.48
7	Jonkowo (2)	1 638.05
8	Ostróda (1)	1 612.13
9	Elbląg (1)	1 591.36
10	Lidzbark Warmiński (1)	1 571.94

1 – urban municipality; 2 – rural municipality; 3 – mixed rural and urban municipality.
Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

Out of the 116 municipalities in this province, the highest average rate of entrepreneurship in 2010––2017 was noted in the urban municipality of Olsztyn (2,024.70), rural municipality of Stawiguda (2,023.81) and in the rural municipality of Dywity (1,872.07). In the two former municipalities, Olsztyn and Stawiguda, this indicator was more than double the average value for the whole province. The summary of the municipalities of the province by level of entrepreneurship shows that the most dominant administrative units are the one concentrated around the main economic centre of the province – Olsztyn. These municipalities have for years maintained a high level of entrepreneurship, owing to their higher investment attractiveness than attributed to the other municipalities in the province.

A decisions to set up a business in any of the three municipalities mentioned above is guided by their location in the vicinity of state roads and their increasingly better transport accessibility. The main determinant of the economic activities development in selected municipalities is the proximity to the major province city. Olsztyn is the main centre of socio-economic development of the Warmińsko-Mazurskie Province with a well-developed R&D base. The presence of the University of Warmia and Mazury in Olsztyn as well as some other research and development centres ensures a supply of qualified human resources and the concentration of R&D activities in the province's capital city. In addition, Olsztyn is a seat for several business environment institutions, such as: Olsztyn Science and Technology Park, the Warmia and Mazury Regional Development Agency, or the Warmia and Mazury Special Economic Zone, which provide services supporting entrepreneurs. It is worth noticing that the entrepreneurship rate in the above municipalities has been increasing steadily year after year over the past decade, which justifies the conclusion that this growing trend will continue.

For the municipalities with the lowest entrepreneurship rates, the average value of this indicator was as much as fourfold lower than the highest rate in the province. The data regarding the average value of the entrepreneurship rate in 2010–2017 in municipalities situated in the Warmińsko-Mazurskie Province are presented in Table 2.

The lowest average values of the entrepreneurship rate in the Warmińsko-Mazurskie Province in 2010–2017 were recorded in the rural municipality Górowo Iławckie (473.05), rural municipality Kalinowo (572.13) and rural municipality Lelkowo (574.78). The municipalities Górowo Iławeckie and Lelkowo lie in the area adjacent to the Kaliningrad Zone, which belongs to the Russian Federation. Most of the municipalities with the lowest entrepreneurship

Table 2. Municipalities of the Warmińsko-Mazurskie Province with the lowest average rate of entrepreneurship in 2010–2017

Position in the Province	Municipality	Entrepreneurship rate
116	Górowo Iławeckie (2)	473.05
115	Kalinowo (2)	572.13
114	Lelkowo (2)	574.78
113	Kozłowo (2)	613.66
112	Rychliki (2)	624.47
111	Działdowo (2)	638.29
110	Wilczęta (2)	653.15
109	Kolno (2)	670.07
108	Kiwity (2)	670.91
107	Barciany (2)	672.69

1 – urban municipality; 2 – rural municipality; 3 – mixed rural and urban municipality.

Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

rate are the administrative units with a low level of wealth, ongoing negative demographic changes (a decrease in the number of population, negative migration balance, ageing of the society), characterised by a low rate of employment. In addition, the negligible investment appeal of these municipalities is aggravated by their peripheral location and poor transport accessibility. Most of these units are located in areas marginalised due to the dissolution of state farms. This caused severe negative economic and social consequences for the local communities. Any initiatives in the local communities to engage in business activities are hindered by the so-called acquired helplessness, widespread among former state farm workers and their families [Marks-Bielska 2006]. However, it is worth mentioning that in the recent years the situation in these municipalities relative to the analysed factors and the level of entrepreneurship has been slowly but gradually improving.

INVESTMENT EXPENDITURE AS A DETERMINANT OF ENTREPRENEURSHIP IN MUNICIPALITIES OF THE WARMIŃSKO--MAZURSKIE PROVINCE IN 2010–2017

The measures taken by local authorities in order to implement own and delegated tasks determine the level and pace of local development. This is evident especially with respect to economic, social and environmental aspects. The financial policy of municipalities should ensure an integrated local development, as well as contribute to the improved quality of life in the local community. Authors of definitions of local development often emphasise the capacity of a municipal economy to create wealth for the local residents through efficient use of local resources or their reallocation to more efficient sectors. By undertaking various investment projects, local authorities strive to enhance the economic growth. Investment outlays which they incur are one of the business support instruments [Marks-Bielska and Serocka 2017]. The average level of investment inputs in 2010–2017 in all municipalities of the Warmińsko-Mazurskie Province can be seen in Figure 3.

In 2010–2017, the average investment inputs incurred by the municipalities in Warmińsko-Mazurskie Province reached 7.94 million PLN per municipality. The difference between the municipality with the highest and the one with the lowest investment expenditure reached as much as 199.09 million PLN. Among 10 municipalities of the Warmińsko-Mazurskie Province with the highest average investment outlays in 2010–2017, the first places were occupied by the largest urban municipalities (as many as 7 are actually towns). In Olsztyn, the average investment expenditure was 200.09 million PLN annually and corresponded to 20.39% of total expenditure. This was above the average investment outlays by a municipality in the province (the difference of 192.15 million PLN) and by as much as 113.88 million PLN more than the average investment expenditure incurred by the urban municipality of Elbląg (86.21 million PLN) – Table 3. The dominant investments in the analysed period were: the development of transportation systems (including the construction of three tram lines in Olsztyn), municipal management investments and investments into education.

In the group of municipalities with the lowest average investment outlays in 2010–2017, most were rural ones, although the last place was occupied by a mixed, urban and rural administrative unit (Table 4).

The urban and rural municipality of Miłakowo, in the time period from 2010 to 2017, allocated the lowest average amount of funds from its budget to investments. The investment expenditure of the municipality equalled 997.96 thousand PLN and corresponded to 4.91% of total budget expenses, which was nearly eight-fold less than the average investment inputs per municipality in the province.

In order to explore the presence and power of a dependence between investment inputs (which are a growth stimulant) and the level of entrepreneurship in the municipalities of the Warmińsko-Mazurskie Province in 2010–2017, the Pearson's linear correlation coefficient was calculated. Two variables were used in the calculations: average amount of investment expenditure and average value of the entrepreneurship rate for particular municipalities in 2010–2017.

When analysing the research results consisting of the coefficents of the Pearson's correlation between investment expenditure and level of entrepreneurship in municipalities in Warmińsko-Mazurskie Province over

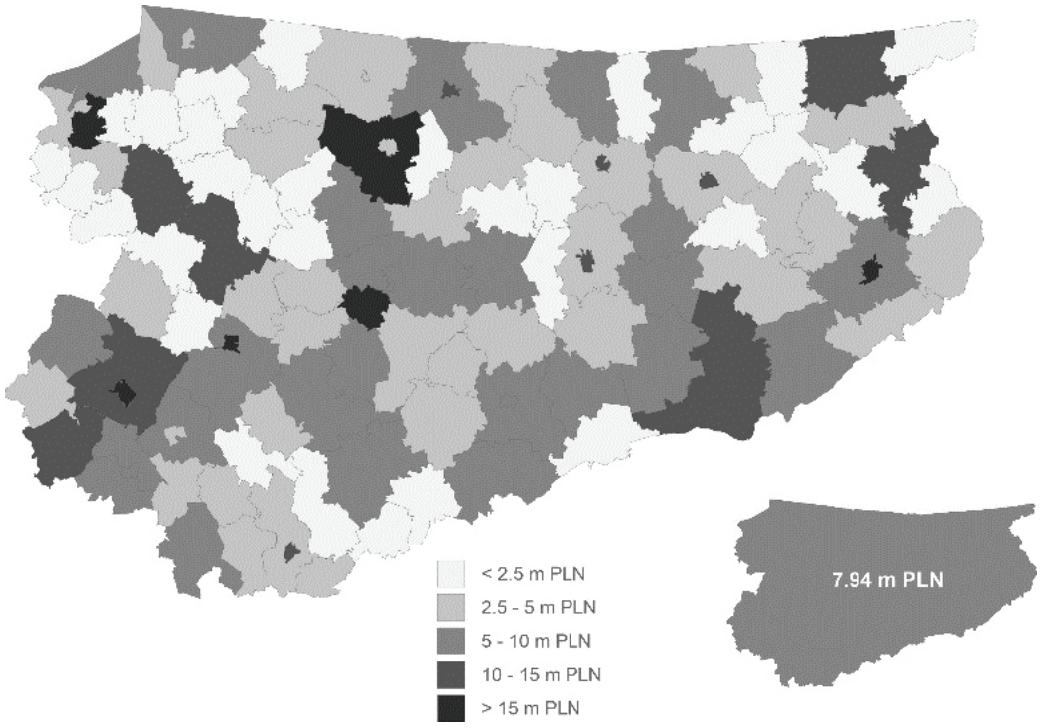

Fig. 3. Average investment outlays in municipalities of the Warmińsko-Mazurskie Province in 2010–2017
Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

Table 3. Municipalities of the Warmińsko-Mazurskie Province with the highest average investment expenditure in 2010–2017

Position in the Province	Municipality	Investment expenditure (million PLN)	Share in total expenditure (%)
1	Olsztyn (1)	200.09	20.39
2	Elbląg (1)	86.21	15.62
3	Ełk (1)	30.21	16.45
4	Iława (1)	20.20	17.85
5	Lidzbark Warmiński (1)	17.85	28.30
6	Ostróda (1)	17.50	15.87
7	Gołdap (3)	14.93	18.37
8	Giżycko (1)	13.66	14.02
9	Olecko (3)	13.34	16.38
10	Morąg (3)	13.16	14.88

1 – urban municipality; 2 – rural municipality; 3 – mixed rural and urban municipality.
Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

Table 4. Municipalities of the Warmińsko-Mazurskie Province with the lowest average investment expenditure in 2010–2017

Position in the province	Municipality	Investment expenditure (million PLN)	Share in total expenditure (%)
116	Miłakowo (3)	1.00	4.91
115	Kiwity (2)	1.05	8.59
114	Gronowo Elbląskie (2)	1.06	5.86
113	Markusy (2)	1.09	7.22
112	Lelkowo (2)	1.14	9.32
111	Milejewo (2)	1.18	9.60
110	Kruklanki (2)	1.21	10.13
109	Miłki (2)	1.27	8.40
108	Godkowo (2)	1.34	10.92
107	Pozezdrze (2)	1.44	11.68

1 – urban municipality; 2 – rural municipality; 3 – mixed rural and urban municipality.

Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

the analysed period, a dependence emerged between the analysed variables. The Pearson's correlation coefficient obtained for all municipalities in the province, which was 0.43, indicates a moderate relationship between these two traits [Sobczyk 2006], while the determination coefficient (R^2) equal 0.19 informs us that 19% of the variation is explained by an increase in investment inputs and the remaining 81% is explained by other factors, not considered in this research. With respect to the 15 municipalities with the highest and 15 with the lowest investment expenditure, the values of the above coefficients are higher – the Pearson's correlation coefficient equalled 0.59 and suggested a stronger relationship between the two variables. In turn, an increase in investment expenditure in these 30 municipalities explains 35% of the variation in the entrepreneurship rate (Table 5).

Investments implemented by municipalities are one of the basic determinants of the scope and pace of local development processes. The level of investment inputs, which determines for example the condition of technical infrastructure, not only affects the level of services offered to residents but also constitutes an important aspect in the process of localisation of business companies. An evaluation of the benefits derived from implemented investment projects is often a complicated process, which requires a multi-dimensional approach including the long-term character of investments, the consequences of which may appear in more distant future [Satoła 2017].

Table 5. The Pearson's correlation coefficient for investment inputs and entrepreneurship rate in municipalities of the Warmińsko-Mazurskie Province in 2010–2017

Investment inputs – entrepreneurship rate	All municipalities	15 municipalities with the highest and 15 municipalities with the lowest investment expenditure
Pearson's correlation coefficient	0.43	0.59
Determination coefficient (R^2)	0.19	0.35

Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

CONCLUSIONS

1. For many years now, entrepreneurship has been an interdisciplinary research subject. Business companies can create one of the principal factors contributing to the local development and stimulating local communities. The municipal authorities, by undertaking successful efforts to attract an influx of new investments and establishment of new economic entities, raise budget revenues of the municipality. Investment inputs are allocated mainly to: roads, waterworks and sewage systems, technical infrastructure, school buildings, health centres, etc. They can improve the attractiveness of a municipality, thereby having a significant influence on decisions regarding the localisation of new companies.
2. In 2017, active businesses located in the Warmińsko-Mazurskie Province corresponded to just 2.91% (125,377 companies) registered in the REGON system in whole Poland. The calculated value of the entrepreneurship rate in 2010–2017 in the Warmińsko-Mazurskie Province equalled 1,314.45 business entities per 10,000 working age population (13th position in Poland). The highest values were scored by the Mazowieckie Province (2,229.24), Zachodniopomorskie Province (2,002.63) and Pomorskie Province (1,896.02).
3. Compared to Poland's average entrepreneurship rate (1,606.69), as many as 93.10% (108) municipalities in Warmińsko-Mazurskie Province scored lower. The lowest entrepreneurship rates were noted in the poorest rural municipalities, lying in areas formely dominated by large-scale state farms, where the following can be observed: a low employment rate, negative demographic changes, and low level of social activity. Examples are the municipalities of Górowo Iławeckie (473.05), Kalinowo (572.13) and Lelkowo (574.78). The municipalities with the highest entrepreneurship rates in 2010–2017 were: the urban municipality of Olsztyn (2,024.70) and the rural municipalities of Stawiguda (2,023.81) and Dywity (1,872.07).
4. The average investment outlays allocated by the municipalities in the Warmińsko-Mazurskie Province in the analysed time period equalled 7.94 million PLN. On a ranking list of the municipalities with the highest investment expenditure, the first places were occupied by the largest urban municipalities. The town of Olsztyn, with its investment inputs of 200.09 million PLN annually, corresponding to 20.39% of total expenditure from the council budget, surpassed the second highest municipality, the urban municipality of Elbląg, by as much as 113.88 million PLN. The lowest investment expenditure in 2010–2017 was incurred by the rural and urban municipality Miłakowo. It was nearly eight-fold lower than the average investment outlays calculated for a municipality in the province, and equalled 997.96 thousand PLN (4.91% of the total expenditure of this municipality).
5. Our analysis of the Pearson's correlation coefficients calculated for the dependence between investment expenditure and entrepreneurship rate in the municipalities of the Warmińsko-Mazurskie Province in 2010–2017 showed the presence of a moderate correlation between these two traits (0.43). The coefficient calculated for 15 municipalities with the highest and 15 with the lowest investment expenses demonstrated a stronger correlation between investment expenditure and entrepreneurship rate in the distinguished group (0.59).
6. The Warmińsko-Mazurskie Province in 2010–2017 was characterised by one of the lowest entrepreneurship rates in Poland. From the point of view of local government, it is important that the actions they pursue can affect the level of entrepreneurship. Consequently, local authorities should strive to shape optimal conditions for the development of economic entrepreneurship.

REFERENCES

Bieńkowska-Gołasa, W. (2017). How university students perceive running a business – selected aspects. Acta Sci. Pol. Oeconomia, 16 (4), 5–6.

Boudreaux, J., Nikolaev, B.N., Klein, P. (2018). Socio-cognitive traits and entrepreneurship: The moderating role of economic institutions. Journal of Business Venturing, 34 (1), 178–196.

Cherukara, J., Manalel, J. (2011). Evolution of Entrepreneurship theories through different schools of thought. [In:] The Ninth Biennial Conference on Entrepreneurship at EDI, Ahmedabad, 3–6.

Glinka, B., Gudkova, S. (2011). Przedsiębiorczość. Oficyna a Wolters Kluwer business, Warszawa.

Huggins, R., Prokop, D., Thompson, P. (2017). Entrepreneurship and the Determinants of Firm Survival within Regions: Human Capital, Growth Motivation and Locational Conditions. Entrepreneurship and Regional Development, 29 (3), 1–33.

Kalantaridis, Ch. (2004). Understanding the entrepreneur: An institutionalist perspective. Aldershot, Burlington, 17–45.

Local Data Bank, Statistic Office Poland. Retrived from https://bdl.stat.gov.pl/BDL/start [accessed: 28.12.2018]

McMullen, J.S., Bagby, D.R., Palich, L.E. (2008). Economic freedom and the motivation to engage in entrepreneurial action. Entrepreneurship: Theory and Practice, 32 (5), 875–876.

Marks-Bielska, R. (2006). Kapitał ludzki a kwestie ubóstwa w środowiskach popegeerowskich. [In]: M.G. Woźniak (Ed.), Nierówności społeczne a wzrost gospodarczy. Problemy Globalizacji i Regionalizacji, 9, Part 2, 429–439.

Marks-Bielska, R., Serocka, I. (2017). Rola wydatków inwestycyjnych samorządów lokalnych w kształtowaniu rozwoju lokalnego. Studia i Materiały. Miscellanea Oeconomicae, 2 (2), 184–185.

Pomianek, I. (2018). Determinants of entrepreneurship development in the opinion of the authorities of rural and semi-urban municipalities in Warmińsko-Mazurskie Voivodeship. Acta Sci. Pol. Oeconomia, 17 (3), 97–98.

Rispas, S. (1998). Towards an Interdisciplinary Theory of Entrepreneurship. Small Business Economics, 10 (2), 109–112.

Rocha, H.O. (2004). Entrepreneurship and Development: The Role of Clusters. Small Business Economics, 23 (5), 363–407.

Satoła, Ł. (2017). Risk of overinvestment in municipalities. Acta Sci. Pol. Oeconomia, 16 (3), 64–70.

Sikorska-Wolak, I., Krzyżanowska, K. (2010). Przedsiębiorczość w ujęciu teoretycznym i w praktyce. [In:] K. Krzyżanowska (Ed.). Przedsiębiorczość na obszarach wiejskich. Stan i perspektywy rozwoju. Wydawnictwo SGGW, Warszawa, 39–40.

Siuta-Tokarska, B. (2013). Zasadnicze aspekty pomiaru przedsiębiorczości. Organizacja i Kierowanie, 3 (156), 91–93.

Sobczyk, M. (2006). Statystyka aspekty praktyczne i teoretyczne. Wydawnictwo UMCS, Lublin.

Thurik, R., Wennekers, S. (1999). Linking Entrepreneurship and Economic Growth. Small Business Economics, 13 (1), 27–31.

Urząd Marszałkowski Województwa Warmińsko-Mazurskiego (2018). Raport okresowy nr XVI z realizacji strategii rozwoju społeczno-gospodarczego województwa warmińsko-mazurskiego do 2025 r. w latach 2016––2017. Olsztyn.

Van Stel, A., Carre, M., Thurik, R. (2005). The Effect of Entrepreneurial Activity on National Economic Growth. Small Business Economics, 24 (3), 311–312.

Zioło, Z. (2011). Funkcjonowanie przedsiębiorstwa w strukturze regionu – zarys modelu. Nierówności Społeczne a Wzrost Gospodarczy, 20, 26–31.

ZRÓŻNICOWANIE POZIOMU PRZEDSIĘBIORCZOŚCI GOSPODARCZEJ W GMINACH WOJEWÓDZTWA WARMIŃSKO-MAZURSKIEGO

STRESZCZENIE

Celem badań była diagnoza zróżnicowania poziomu przedsiębiorczości gospodarczej w gminach województwa warmińsko-mazurskiego w latach 2010–2017. Spośród 116 gmin województwa najwyższy średni wskaźnik przedsiębiorczości odnotowano w gminach: Olsztyn, Stawiguda i Dywity, a najniższy w gminach: Górowo Iławeckie, Kalinowo i Lelkowo. W gminach charakteryzujących się najwyższym poziomem wskaźnika jego wartość była nawet czterokrotnie większa od wartości najmniejszych. W porównaniu ze średnią wartością dla gmin w kraju, aż 93,10% gmin województwa warmińsko-mazurskiego osiągało mniejsze wartości. W opracowaniu podjęto także próbę zidentyfikowania istnienia zależności między poziomem wydatków inwestycyjnych gmin i poziomem przedsiębiorczości. Wykazano istnienie umiarkowanej współzależności obu cech, przy czym była ona silniejsza dla wyszczególnionej grupy 15 gmin z najmniejszymi i 15 gmin z największymi wydatkami inwestycyjnymi.

Słowa kluczowe: wskaźnik przedsiębiorczości, przedsiębiorstwa, wydatki inwestycyjne gminy

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BARRIERS AND FACTORS SUPPORTING AGRITOURISM AND ECO-AGRITOURISM ACTIVITIES IN THE BUG VALLEY MUNICIPALITIES IN THE OPINION OF FARM OWNERS

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ABSTRACT

The objective of the study was to present the barriers as well as factors which, in the opinion of farm owners inhabiting the Bug valley municipalities of the three voivodeships (Lubelskie, Podlaskie and Mazowieckie) support the agritourism and eco-agritourism activities. The result of the survey carried out amongst 99 farm owners, is, among others, a conclusion that from amongst the many barriers in the development of rural tourism, the lack of habit of weekend leisure in potential tourists is the most significant one, whilst the time-consuming and expensive process of transforming the farms into ecological farms, disproportionate towards the profitability of venture is the factor which limits the creation of eco-agritourism farms to the greatest extent. Natural values, quietness and peace prevailing in the vicinity of such farms are the factors which support the development of such activities above all.

Key words: agritourism, eco-agritourism, conventional farms, ecological farms, Bug valley
JEL codes: Q01, Z32

INTRODUCTION

The growing speed of life and the need to take some active rest, away from the city hustle, in quietness, in the bounty of nature, as well as the increasing expectations concerning food products, their origins and quality, stand behind the choices made by tourists in favour of the offer presented by rural tourism. The areas in direct vicinity of the Bug valley are in majority of non-industrial character. These areas are characterized by a diverse degree of anthropogenization related to, above all, agricultural human activity. Agricultural lands occupy on average 64.4% of total area in the Bug valley municipalities. High share of agricultural lands and farmers accompanied by relatively beneficial conditions for agricultural production have made agriculture one of the most important sector of local economy here. There are no major industrial centres in the territory of the Bug valley, which makes these areas relatively clean.

The relief of individual sections of river is quite diverse and within its entire border section – unregulated and strongly meandering. It forms part of the pan-European ecological corridor. These factors as well as the unique, diverse landscape of the valley create huge agritourism potential in this area. An additional advantage of the Bug valley areas is the fact that on the Polish side, they are in vast majority subject to legal protection. The areas of the valley comprise four landscape parks (Strzelecki, Sobiborski, Podlaski Przełom Bugu and Nadbużański), eight areas of protected landscape (Dołhobyczowski, three Nadbużańskie, Grabowiecko-Strzelecki, Poleski, Dolina Bugu and Dolina Bugu i Nurca). Almost entire area of the Bug valley is protected under Natura

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2000[1]. The Bug valley and, above all, its lower section is thanks to this intensively explored by tourists [Wojciechowski et al. 2002, Bernat 2010, Mocior 2014].

Within the protected areas, due to the idea of sustainable growth, ecological farming, which thanks to the so called good farming practices allows to use the creative potential of the area while preserving biological balance in the natural environment to the greatest possible degree, is perceived as a significant direction of development [Haas et al. 2000, Szałda 2002, Żelezik 2009]. Contrary to conventional agriculture, ecological agriculture does not cause eutrophication of ground waters and does not pollute the ground waters, not triggering exhaustion of soils nor its salinity. Researches prove also that both the state of environment, soils as well as ground waters are improved as a result of the introduction of ecological system of farming [Hass et al. 2000, Szałda 2002, Tyburski and Żakowska-Biemans 2007, Żelezik 2009].

Rural areas are also related to the specific form of leisure – agritourism, which is based on closeness to nature, especially in areas with unique natural and cultural values and accommodation in active agricultural farms. If such a farm applies ecological farming system (and a given farm holds „Ekoland"[2] certificate or is in the course of transforming into ecological farm) it obtains the title of ego-agritourism farm [Zaręba 2006]. Rural tourism is becoming more and more popular, especially among the inhabitants of urban agglomerations. The attractiveness of the offer is increased by the location of the farm in environmentally valuable areas [Zawadka 2007, Zawadka and Pietrzak 2016]. Within the Bug valley municipalities there are ideal natural conditions for the creation of such farms or they should be the stimuli for greening of the existing agritourism farms.

MATERIAL AND METHODS

The aim of the work is to analyze and evaluate the barriers and benefits of agritourism and eco-tourism in the Bug river municipalities (Fig. 1).

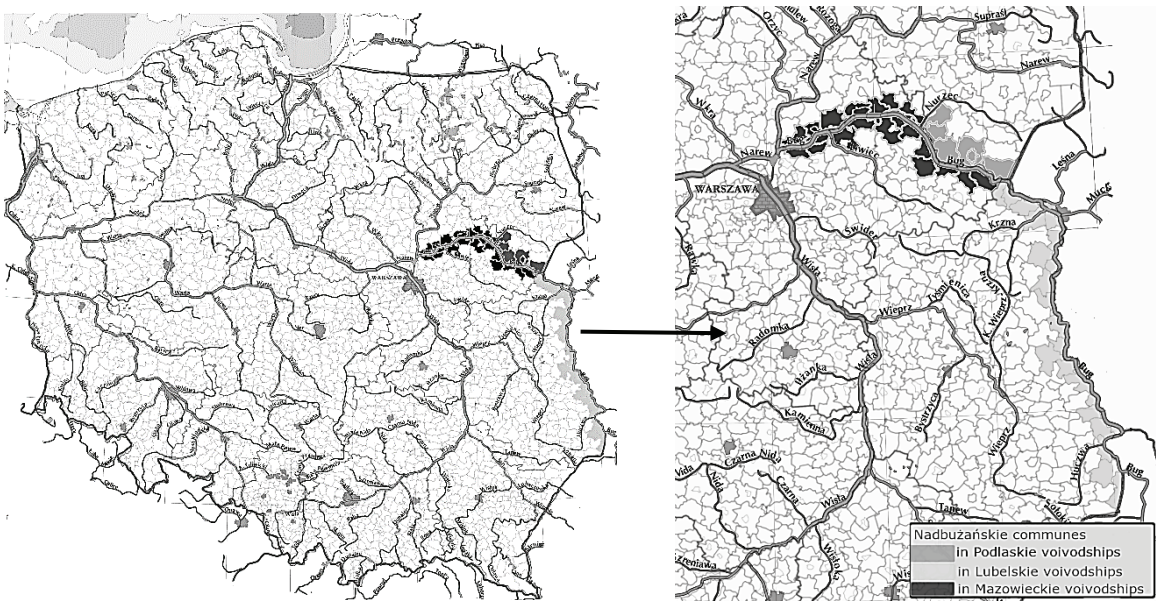

Fig. 1. The Bug river municipalities of voivodeships: Podlaskie, Lubelskie and Mazowieckie
Source: Own elaboration.

[1] The European Ecological Network Natura 2000 is the youngest legal form of protection of nature in Poland, which is targeted at preserving specific types of natural habitats and species of plants and animals which are considered to be valuable (significant for preservation of natural heritage of Europe) and threatened with extinction on the European scale.

[2] Association of producers of foodstuffs via ecological methods, belonging to the International Federation of Ecological Farming (IFOAM).

Empirical research was carried out in summer months of 2018 in the area of three voivodeships (Lubelskie, Podlaskie, Mazowieckie) including 12 poviats and 34 municipalities located in the Bug valley, in the area of Poland.

The method of diagnostic survey was used for the conduct of research, in the framework of which an online interview survey questionnaire was elaborated. Selection of research sample was of targeted character. The amount of 99 agritourism farm owners participated in it (including 76 whose farms were considered as conventional and 23 who run their farms in ecological system, or were in the process of transforming conventional farms into ecological ones). All the farms were located in the Bug valley municipalities. These researches were anonymous and their results were used solely for scientific purposes.

RESULTS AND DISCUSSION

In the opinion of the majority of agritourism farm owners (almost 88% – Fig. 2) in the Bug valley municipalities there are beneficial conditions for agritourism development in their place of residence.

In the opinion of respondents running the farms, the greatest assets which have a positive impact on the development of agritourism in the region are, above all, natural values and quietness and peace prevailing in the vicinity, allowing for a good rest (Fig. 3). Similar conclusions were reached by Zawadka [2010], who showed a very strong positive correlation in the area of Lubelskie Voivodeship (r = 0.80) between the tourist attractiveness of the commune and the level of development of agritourism in its area. Also in the opinion of tourists, the most important reason for choosing nature-value areas is the possibility of rest in a quiet and peaceful place and contact with nature [Zawadka 2012, Zawadka and Pietrzak 2016].

Significant, in the opinion of the surveyed farm owners, is also the expanded network of tourist trails. Ecological farm owners indicate also the will to use ecological products by the tourists and attractiveness and high standard of services, which for the owners of conventional farms is less important (Fig. 3).

All survey participants were asked also about the actions which contribute to increasing popularity of tourism in their region (Fig. 4). According to almost 90% of the respondents (both the owners of the researched conventional farms and ecological ones), adequate tourism information is critical (such which effectively reaches the potential tourists). The interest in promoting tourism in the region is raised by advertising materials (including Internet) which present the values of the region and encouraging tourists to visit this area. An important factor is also the offer of farms and the services related to tourism – in the opinion of respondents, tourists appreciate their high quality and attractiveness. Ecological farm owners consider modernization and lighting systems of roads as significant actions (65% of survey participants) as well as increasing service-commercial offer and gastronomy offer (57% of survey participants). The fact of selecting

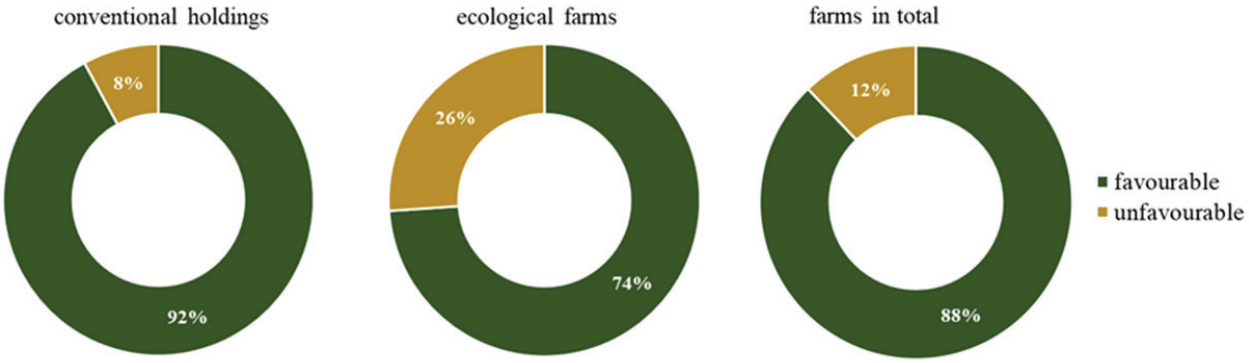

Fig. 2. Assessment of conditions for the development of agritourism in the place of residence, in the opinion of the owners of the agritourism farms

Source: Own elaboration.

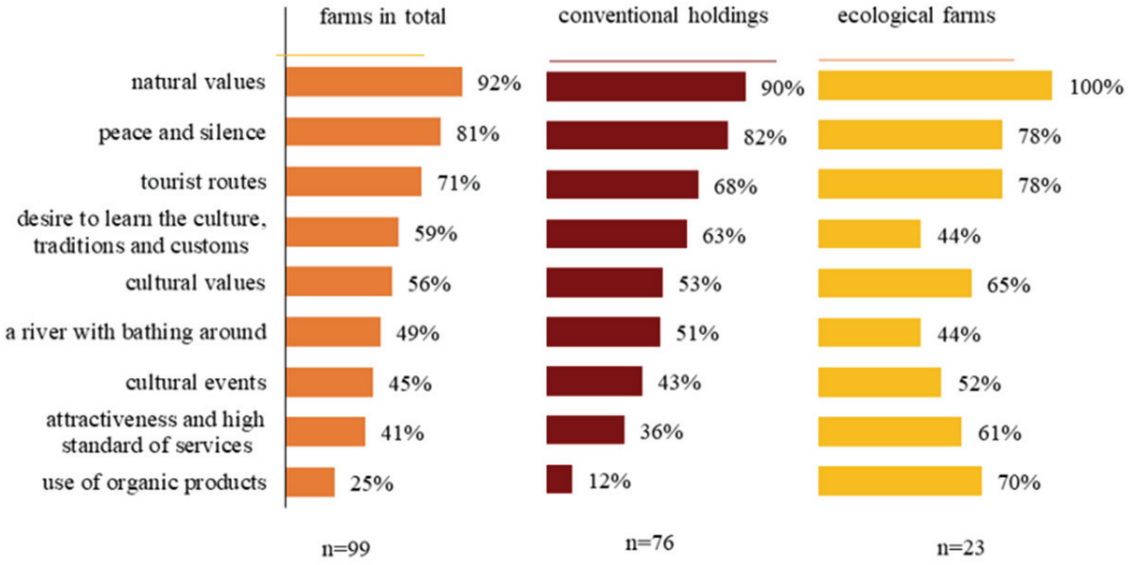

Fig. 3. The factors having a positive impact on the development of agritourism in the region, in the opinion of the owners of the farms

Source: Own elaboration.

these tasks may stem from the location of ecological farms away from the main towns and cities (Fig. 4).

According to the owners of conventional farms (70% of the surveyed), the factor that most restricts the development of rural tourism is the low popularity of weekend holidays in agritourism farms. Significant obstacle might be still low popularity of this form of rest, as well as seasonal nature of the offers in majority (Fig. 5). Owners of ecological farms are of different opinion, for whom the factors which play the largest role in limiting development of agritourism are related to insufficient information and advertisement, as well as lack of adequate technical infrastructure in the municipality (in both cases the replies were granted

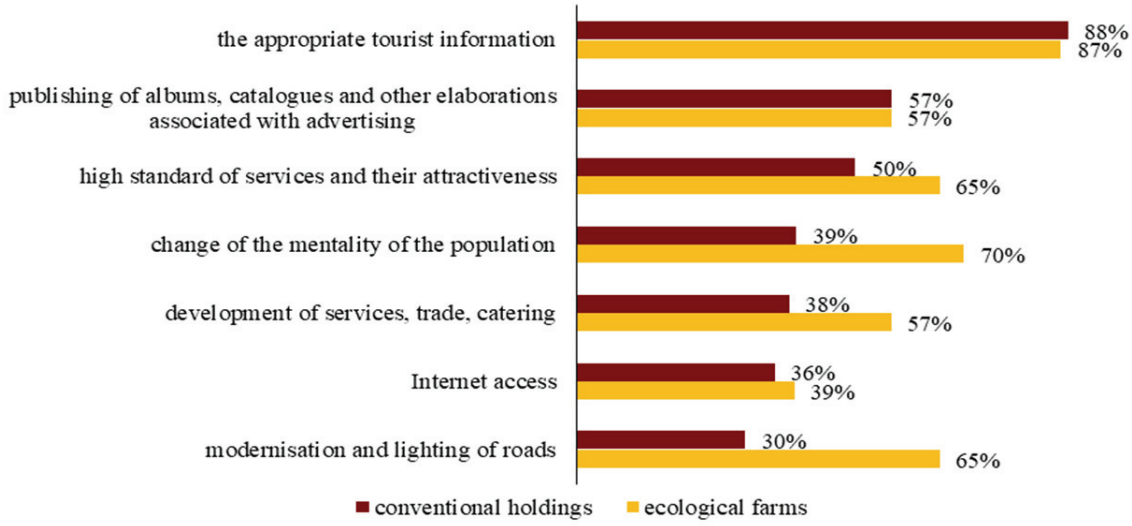

Fig. 4. Actions contributing to the increase of popularity of tourism in the region, in the opinion of the owners of the farms

Source: Own elaboration.

by 74% of survey participants) – Figure 5. It is the underdeveloped technical infrastructure in rural areas that constitutes one of the most important barriers to multifunctional development of rural areas, lowers the standard of living and management, and decides that this area is not attractive for investors [Sikorska-Wolak 2010].

In both groups (both ecological and conventional farms' owners) the survey participants, when asked about the causes of not carrying out actions targeted at increasing the level of greening of agritourism farms, most frequently indicated excess of preparatory actions and control actions which are related to certification as well as a greater workload related to the conduct of an ecological farm (Fig. 6). The causes which in the opinion of ecological farm owners are significant are the financial issues that is lack of funds for transforming and maintaining ecological farms (52%) as well as low profitability of same while at the same time incurring large expenditure (52%). The respondents running

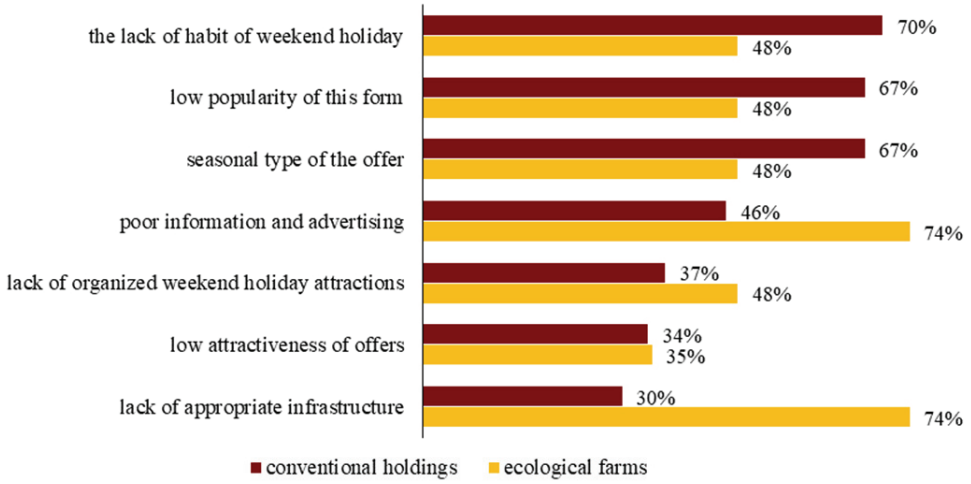

Fig. 5. Factors limiting development of agritourism in the opinion of the owners of the agrotouristic farms

Source: Own elaboration.

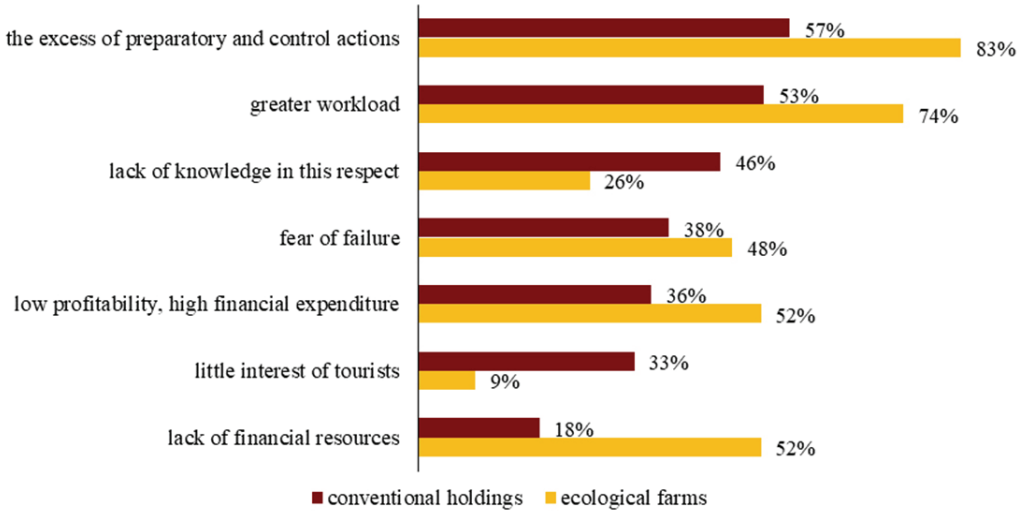

Fig. 6. The reasons for which the actions increasing the level of greening of agrotouristic farms, in the opinion of the respondents are not implemented

Source: Own elaboration.

conventional farms justify the low level of greening due to lack of specialist knowledge in the area of ecological farming (46%) and small interest on the side of tourists in this type of offer (33%) – Figure 6.

The respondents were asked also about the factors which in their opinion were the most significant barriers for the development of eco-agritourism activities (Fig. 7). The most significant problem for both groups was the financial issue – both lack of own financial means and, in case of ecological farms – limit in the access to loans. Furthermore, fear of investing financial means and the related risk of failure was for both groups of great importance.

Owners of ecological farms indicate as an additional obstacle frequently low level of cooperation between the farms and a difficult access to aid measures as well as lack of thematic trainings (Fig. 7). An attempt was made in the course of research to verify the greatest, in the opinion of ecological farm owners, benefits resulting from organic activity in a farm (Fig. 8).

The respondents considered the aspects related to environment protection as the most significant ones.

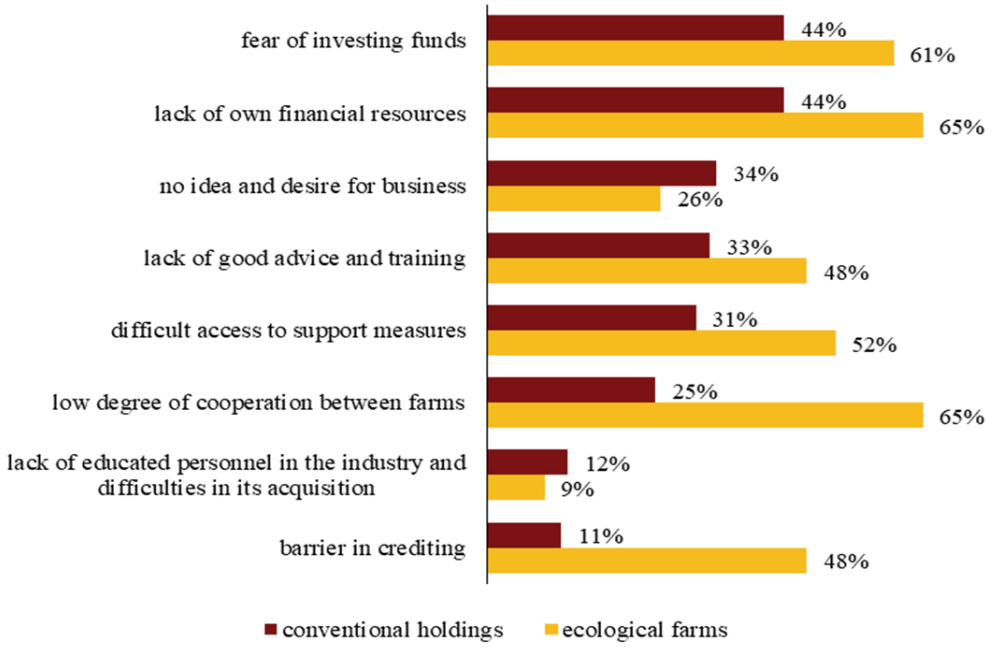

Fig. 7. Factors limiting development of eco-agritourism in the opinion of the owners of agritourism farms
Source: Own elaboration.

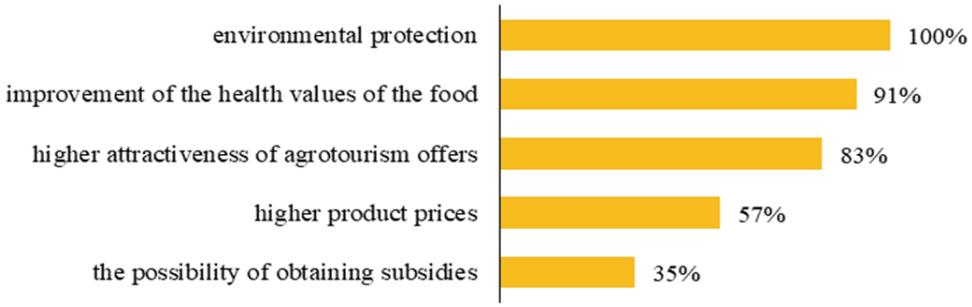

Fig. 8. Benefits resulting from organic activity in a farm in the opinion of the owners of the ecoagritouristic farms
Source: Own elaboration.

The vast majority (91%) also values the improvement of health-related values of food products produced in ecological farms and considers carrying out ecological activity as positively impacting the attractiveness of agritourism offer (83% of respondents). More than half of the survey participants noted that an advantage of ecological farm is a higher price of ecological products in comparison to the products originating from conventional farms, however, relatively few respondents (35%) thought that obtaining surcharges stemming from the title of carrying out ecological activity (from the European Union's funds under technical assistance of the Programme of Development of Rural Areas – direct surcharges and agricultural-environmental-climate surcharges) is an advantage (Fig. 8).

CONCLUSIONS

The Bug valley is characterized by unique natural values. Very good agricultural conditions also prevail within this area. In the opinion of the vast majority of surveyed farm owners, there are beneficial conditions for the development of agritourism within this area. The dominating advantage of the region, impacting the development of agritourism and perfectly fitting into its climate are, according to the respondents, the beauty of nature and the omnipresent in the Bug valley terrains quaintness and peace. The greatest significance in promotion of tourism is assigned to tourist information and advertising materials (include Internet) promoting the region.

Lack of habit of weekend trips in a agritourism farm as well as seasonability of the offer are, according to the survey participants, the key causes of lack of development of this type of tourism. Greening of the farms is limited within the area which, in the opinion of the respondents, is caused by time-consumption of the process of transformation of this type of farms and the later control related to this process. Eco-agritourism farms, according to the survey participants, are a risky venture and not a very profitable one. The owners of eco-agritourism farms consider environment protection and improvement of the quality of food products originating from ecological production to be the benefits stemming from the conduct of ecological activity.

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REFERENCES

Bernat, S. (2010). Walory, zagrożenia i ochrona krajobrazu przygranicznego odcinka doliny Bugu. Problemy Ekologii Krajobrazu, 26, 257–269.

Haas, G., Wetterich, F., Köpke, U. (2000). Life cycle assessment of intensive, extensified and organic grassland farms in southern Germany. [In:] T. Alföldi, W. Lockeretz, U. Niggli (Eds.), Proceedings 13th International IFOAM Scientific Conference, 28–31.09.2000, Basel, 157.

Mocior, E. (2014). Rola agroturystyki w zrównoważonym rozwoju obszarów wiejskich powiatu włodawskiego. Problemy Ekologii Krajobrazu, 37, 103–111.

Szałda, (M). 2002. Stan i perspektywy rozwoju rolnictwa ekologicznego w województwie świętokrzyskim, WODR, Modliszewice [duplicated manuscript].

Tyburski, J., Żakowska-Biemans, S. (2007). Wprowadzenie do rolnictwa ekologicznego. Wydawnictwo SGGW, Warszawa.

Wojciechowski, K.H., Bernat, S., Czubla, P., Janicki, R. (2002). Elementy zagospodarowania dorzecza istotne dla walorów przyrodniczych doliny Bugu. [In:] A. Dombrowski, Z. Głowacki, W. Jakubowski, I. Kovalchuk, Z. Michalczyk, M. Nikiforov, W. Szwajgier, K.H. Wojciechowski (Eds.), Korytarz ekologiczny doliny Bugu. Stan – Zagrożenia – Ochrona. Fundacja IUCN Poland, Warszawa, 456–462.

Szałda, (M). 2002. Stan i perspektywy rozwoju rolnictwa ekologicznego w województwie świętokrzyskim, WODR, Modliszewice 2002, maszynopis powielony.

Zaręba, D. (2006). Ekoturystyka, PWN, Warszawa.

Zawadka, J. (2007). Skala i tendencje zmian liczby kwater agroturystycznych na terenie województwa lubelskiego. [In:] I. Sikorska-Wolak (Ed.), Turystyka w rozwoju obszarów wiejskich. Wydawnictwo SGGW, Warszawa.

Zawadka, J. (2010). Ekonomiczno-społeczne determinanty rozwoju agroturystyki na Lubelszczyźnie. Wydawnictwo SGGW, Warszawa.

Zawadka, J. (2012). Preferencje turystów dotyczące wypoczynku w gospodarstwach agroturystycznych na Lubelszczyźnie. Zeszyty Naukowe Uniwersytetu Szczecińskiego. Ekonomiczne Problemy Usług, 84, 167–179.

Zawadka, J., Pietrzak-Zawadka, J. (2016). Zachowania i oczekiwania turystów dotyczące wypoczynku w gospodarstwach agroturystycznych funkcjonujących na obszarach przyrodniczo cennych. Ekonomia i Środowisko, 1, 117–128.

Żelezik, M. (2009). Dlaczego rolnictwo ekologiczne. Rocznik Świętokrzyski. Seria B. Nauki Przyrodnicze, 30, 155–166.

BARIERY I CZYNNIKI SPRZYJAJĄCE AGROTURYSTYCZNEJ ORAZ EKOAGROTURYSTYCZNEJ DZIAŁALNOŚCI W GMINACH NADBUŻAŃSKICH W OPINIACH WŁAŚCICIELI GOSPODARSTW

STRESZCZENIE

Celem pracy było przedstawienie barier oraz czynników, które w opiniach właścicieli gospodarstw położonych na terenie gmin nadbużańskich trzech województw (lubelskiego, podlaskiego i mazowieckiego) sprzyjają agroturystycznej i ekoagroturystycznej działalności. Rezultatem badań ankietowych, przeprowadzonych wśród 99 właścicieli gospodarstw, jest m.in. wniosek, że wśród barier rozwoju turystyki wiejskiej najważniejszą jest brak nawyku wypoczynku weekendowego potencjalnych turystów, a czynnikiem w największym stopniu ograniczającym powstawanie gospodarstw ekoagroturystycznych jest pracochłonny i kosztochłonny proces przestawienia gospodarstwa na ekologiczne, niewspółmierny do opłacalności przedsięwzięcia. Czynnikami sprzyjającymi rozwój takiej działalności są przede wszystkim walory przyrodnicze oraz cisza i spokój panujące w okolicy.

Słowa kluczowe: agroturystyka, ekoagroturystyka, gospodarstwa konwencjonalne, gospodarstwa ekologiczne, dolina rzeki Bug

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THE LAMB MEAT MARKET IN THE EUROPEAN UNION COUNTRIES IN 2007–2017

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ABSTRACT

The aim of the work was to show the situation and changes on the lamb meat market in the European Union countries. All European Union Member States, which belonged to the EU as of 31 December 2017 were selected for research. The research concerned the years from 2007 till 2017. The period of research concerned the years 2007–2017. Decrease in the sheep population in the EU has been found, the largest in the countries that keep the largest number of animals, such as Spain, the United Kingdom, France and Italy. The decline in the population of sheep influenced the decrease in the production of lamb meat. Another problem was the decline in lamb meat consumption. Nevertheless, the share of self-supply on the market was lower than 90%. The changes that took place on the lamb meat market did not affect the concentration of this production. It was still very high. In 2007–2017, the prices of lamb meat increased, while the decreases concerned a small number of countries. There was also a leveling up of prices. Across the EU, prices have risen by 16% on average. The production volume of lamb meat in EU countries was on average related to the parameters determining the potential of the economy and not related to per capita parameters. Production as well as lamb meat consumption, depend on many market factors and also on social and hard to measure factors.

Key words: European Union, meat market, sheep production, lamb meat
JEL codes: F00, Q02, Q11, Q13, Q18

INTRODUCTION

The meat market for sheep and lamb meat is one of the agricultural markets covered by the Common Agricultural Policy (CAP) in the European Union. The markets of pork, poultry and beef have the greatest significance in the EU meat markets, due to the scale of production and consumption. The market for sheep meat is quite specific, because despite the low level of consumption, the production of lamb meat inside the EU has not covered the reported demand [Rokicki 2005, 2017].

Under the CAP, financial support for sheep production is provided for each Member State as part of direct payments. Other support instruments are also used, such as compensatory payments for producers in less-favored areas and payment from the biological progress fund for stocks with biologically valuable sheep breeds [Niedziółka et al. 2005, FAPA 2008a, b]. In general, the CAP is an ever-changing set of regulations. Common Agricultural Policy purpose is quick adaptation to the changing conditions on agricultural markets, but also in their surroundings [Piworowicz 2015]. The market for live sheep and mutton was covered by the CAP regulations in 1980 by Council Regulation (EEC) 1837/80 and Commission Regulation (EEC) 2966/80. An important regulation was Council Regulation (EC) 2529/2001 on the common organization of the sheep and goat meat market. It included a range of products

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that included the mutton market in the EU. These were lambs (up to one year old), live sheep, fresh, chilled or frozen sheep meat, salted sheep meat, sheep meat in brine, dried or smoked (with bone and boneless), edible mutton offal (fresh and frozen), mutton fat, preserved mutton meat and offal [Rokicki 2015].

The determinants of the lamb market are varied. In many countries, sheep production is a traditional activity. For example, there are many meadows in Romania, and the sheep breeds are strictly adapted to local conditions [Soare et al. 2012, Cofas and Soare 2013]. The whole sector needs to be analyzed from an economic, ecological and social point of view. In the market economy, attention is paid to the profitability of production, which is influenced by many factors, such as lamb market prices, production costs, sheep breed, number of slaughter plants, marketing organization, lamb meat consumption, etc. [Soare and Cofas 2012]. The increasing awareness of consumers expecting healthy, safe food and reducing the adverse impact of agriculture on the environment is of great importance. Sheep production and lamb meat meet these market needs [Klepacka-Kołodziejska 2007, Brodzińska 2009].

Already in the 1980s, it was emphasized that the ability of sheep farms to respond to price and market conditions is limited [Regan 1980]. Modernly, not much has changed in this matter. The main factor of competition on the meat markets is sales prices. More and more attention is paid to quality, which may favor the production of lamb meat. Proper promotion and education of the client is required [Anderson 2001]. According to forecasts included in the EU Agriculture Perspectives report 2017–2030, it is planned to stabilize meat production and consumption in the EU. On the other hand, production and consumption of lamb meat will increase slightly by 2030. This increase will be the result of improved profitability and the use of voluntary support for farmers in some EU countries [EC 2018].

The main purpose of the paper was to show the situation and changes on the lamb meat market in the EU countries. The specific objectives were: to present changes in the production and consumption of lamb meat in the EU, to determine the degree of concentration of lamb production in the EU, to show the dynamics of changes in the production of lamb meat. The paper puts forward a hypothesis according to which the production of lamb meat in the EU was highly concentrated in several EU countries.

MATERIAL AND METHODS

All EU Member States were selected for research purposefully as at 31 December 2017 (28 countries). The research period concerned the years 2007–2017. The sources of materials were Eurostat data, domestic and foreign literature. The analysis and presentation of materials used descriptive, tabular, graphical methods, dynamics indicators based on a constant and variable basis, Gini coefficient, concentration analysis using the Lorenz curve, Pearson's linear correlation coefficient.

RESULTS AND DISCUSSION

Lamb stock is the determining factor for sheep production, which determines the production possibilities, while the consumption of this kind of meat is connected with the demand. On the one hand, limited production reduces consumption, and on the other, the decline in consumer demand is an impulse to reduce production. Therefore, there are bilateral connections. One should also remember about the export and import of lamb meat in relations with non-EU countries. The sheep population in the EU systematically dropped from 95.5 million units in 2007 to 86.8 million in 2017, with a slight increase in the sheep population since 2015 (Fig. 1). The largest sheep population was maintained in the United Kingdom (23.3 million in 2017), Spain (16.0 million), Romania (10.0 million), Italy (7.2 million) and France (6.9 million). These were the countries with the largest area of land. In this situation, the exit of the UK from the EU can have a very strong impact on the situation in the market for lamb meat in EU. The smallest number of sheep was in the smallest countries, such as Luxembourg, Malta, Belgium and Estonia (less than 100,000 each). The population reduction was mainly in the dominant countries in sheep farming. In 2007–2017, the number of sheep in Spain decreased by as much as 6.2 million, in France by 1.4 million, and in Italy by 1 million. There were also countries in which the population grew, such as

Romania (by 1.5 million units) and Ireland (by 0.3 million units). The consumption of lamb meat was associated bilaterally with the sheep population. In 2007–2017, there was a drop in consumption from 2.8 to 1.9 kg per capita, with a slight increase since 2015. This meat is one of the most expensive ones, so the reason for reduced consumption could have been the worse income situation of the EU society during the economic crisis.

In the years 2007–2017, production of lamb meat in the EU decreased by 10% (Table 1). At the same time, consumption of this type of meat on the internal market has decreased by 18%. This means improving the self-sufficiency of the market, however, it was still necessary to import significant quantities of lamb. The main suppliers of this type of meat from outside the EU were New Zealand, followed by Australia and the countries of South America (Uruguay, Argentina, Chile). In 2007–2017, import of sheep meat decreased by 23%, and imports of live animals were virtually absent. Every year, the EU allocates import quotas for each country, but never exceeds them. The most frequently imported is frozen meat, because such method allows to preserve the properties of the raw material during long-term transport. Despite the internal deficit of sheep meat, there was also export of lamb meat and livestock. In the years 2007–2017, meat exports increased from 5.9 thousand up to 20 thousand t in the case of meat and from 4.4 thousand up to 53 thousand t (calculated as livestock) for the transport of live animals. Animals and meat were mainly exported to African and Asian countries. There was also internal trade in the EU, for example, moving live animals from Poland to Italy or livestock from Ireland to France.

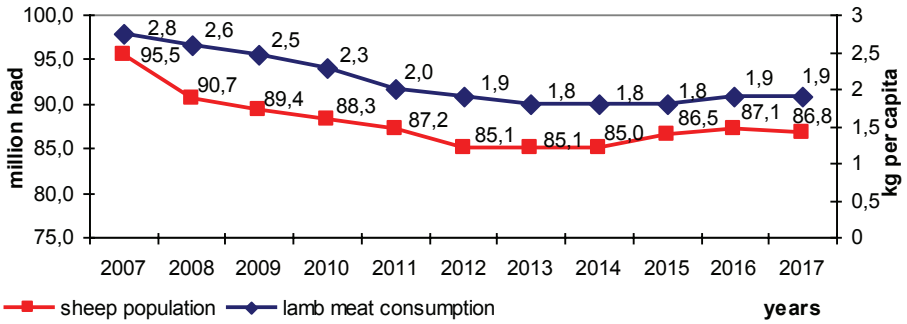

Fig. 1. Sheep population and consumption of lamb meat in the EU in 2007–2017

Source: The author's own study based on Eurostat data.

Table 1. The balance of lamb meat in EU countries in 2007–2017

Specification	The balance of lamb meat in years (thousand t)										
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Gross meat production	1 101	1 030	974	922	978	947	944	917	957	979	986
Import (meat)	272	270	271	239	222	190	200	189	202	206	208
Export (meat)	6	6	8	13	15	25	36	32	20	19	20
import of livestock	0.01	0.01	0.01	0.01	0	0	0	0	0	0	0
Export of livestock	4	3	4	11	22	27	34	36	38	51	53
Internal consumption	1 362	1 291	1 234	1 137	1 163	1 086	1 074	1 038	1 101	1 115	1 121
	Self-sufficiency indicator (%)										
	80.8	79.8	78.9	81.1	84.1	87.2	87.9	88.3	86.9	87.8	88.0

Source: The author's own study based on Eurostat data.

The production of sheep meat was concentrated in countries with the largest stock of sheep, namely in the United Kingdom, Spain, France, Romania and Greece. The smallest production occurred in the Scandinavian and Baltic countries and Central and Eastern Europe. In the years 2007–2017, there were changes in the production of sheep meat in individual countries. Table 2 presents the dynamics of changes in sheep meat production in individual EU countries in 2007–2017. The changes were shown using chain indexes, where

Table 2. The dynamics of changes in sheep meat production in individual EU countries in 2008–2017 (previous year =100)

Country	Changes in sheep meat production (%)									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
United Kingdom	106.1	92.2	96.7	95.5	95.2	105.1	101.1	100.4	98.7	102.4
Spain	76.2	84.2	95.9	108.9	89.7	99.0	95.5	100.3	101.5	97.2
Romania	96.2	104.8	94.4	101.9	103.2	100.6	99.0	102.8	97.7	101.9
Greece	97.8	101.3	99.9	104.4	95.5	87.3	96.2	93.0	97.1	96.8
France	92.0	95.6	91.6	82.9	97.8	95.5	100.7	99.4	102.4	97.4
Ireland	95.6	86.8	100.0	93.1	112.5	107.4	97.8	99.9	102.1	110.1
Italy	96.8	100.2	96.4	74.4	97.1	90.9	83.9	109.8	106.2	97.1
Portugal	90.1	83.7	94.2	103.5	96.3	97.1	104.1	101.1	93.5	94.5
Bulgaria	95.1	94.6	96.4	99.4	110.9	96.8	97.4	95.7	102.2	96.1
Germany	97.9	89.9	94.1	59.3	100.0	100.0	98.6	102.1	105.0	97.4
Hungary	71.1	103.7	98.7	113.6	112.0	101.2	102.6	104.2	103.4	100.6
Netherlands	72.1	103.4	100.0	65.2	100.0	100.0	94.2	98.9	98.6	97.3
Austria	122.4	92.9	90.3	107.9	100.4	100.6	102.6	97.1	92.7	105.4
Belgium	115.6	86.7	98.2	95.0	101.6	98.7	90.4	104.4	110.1	98.5
Croatia	100.0	95.9	95.6	84.1	108.1	97.5	108.2	120.9	112.1	116.3
Sweden	106.6	100.0	115.5	99.6	102.7	100.0	96.1	99.3	98.1	104.1
Slovakia	99.4	97.4	102.8	95.2	102.0	98.6	103.6	103.4	98.4	102.5
Cyprus	115.6	89.9	101.5	98.8	114.4	92.7	104.7	104.2	90.9	107.7
Slovenia	100.7	100.0	102.5	94.5	94.3	95.4	103.7	103.5	108.3	116.1
Poland	118.4	95.1	81.9	110.8	80.6	102.6	97.2	103.8	94.8	104.0
Czech Republic	124.6	102.7	111.0	107.1	91.0	105.1	89.7	93.6	101.7	104.1
Denmark	99.7	92.4	95.4	93.8	99.9	100.1	100.0	101.0	95.9	97.8
Latvia	117.9	118.1	101.4	119.2	106.8	100.4	99.0	116.0	138.6	121.3
Finland	106.8	101.5	100.0	117.9	99.4	99.0	107.8	114.1	107.0	99.9
Estonia	112.0	146.0	97.1	87.1	92.3	122.9	114.1	73.7	117.6	130.1
Lithuania	104.2	102.0	91.4	91.3	105.8	100.1	91.8	123.0	124.6	91.2
Luxembourg	98.8	101.3	97.5	100.0	102.5	98.8	103.5	99.0	113.2	104.3
Malta	0.0	0.0	200.0	103.1	103.0	94.1	135.6	102.1	110.6	118.2

Source: The author's own study based on Eurostat data.

the previous year was accepted as 100. The countries were ranked in descending order according to the size of lamb meat production. Changes in individual countries varied. After a period of decline, the increase was most often recorded in subsequent years. The largest decreases in meat production were recorded in 2009, i.e. at the time of the economic crisis, and the largest increases in the years 2015–2017. This means that the production of lamb meat may be related to the economic situation or regulations supporting this production. In the years 2007–2017, the highest increase in sheep meat production was recorded in Latvia (by 248%), in the Czech Republic (by 29%) and in Lithuania (by 21%). However, these were countries with a small scale of production. Among the leading producers of lamb meat, a slight increase was recorded only in Ireland (by 3%) and Romania (by 2%). In other countries there were declines, the highest in Spain, by as much as 44%. Such a large decrease in meat production was also caused by a significant reduction in the sheep population.

The Gini coefficient was used to determine the concentration of lamb meat production in the EU countries. Data concerned the years 2007 and 2017, and the number of observations was 28. In 2017, the Gini coefficient calculated from the sample was 0.75, and the estimated coefficient for the population 0.77. This means a very high concentration of lamb meat production and diversity in EU countries. In addition, these differences are presented in the Lorenz (Fig. 2). In 2007, Gini coefficients were at a similar level as in 2017. This means that the high concentration of lamb meat production has been maintained and no changes occurred.

The prices of lamb meat are set for "light" lambs (up to 22 kg live weight) and "heavy" lambs (over 22 kg). The higher the weight standard of the animal, the less was paid per kilogram of livestock. In the years 2007–2017 in the EU, average annual prices for "light" lambs decreased by 5% (to EUR 555 for 100 kg of post-slaughter weight) and for "heavy" ones they increased by 34% (up to EUR 494). There were countries specializing in the production of "light" lambs, in which the sheep were kept mainly to obtain milk. Then the lambs were weaned earlier. With the dominant meat direction of sheep use, the lambs were fattened to a higher weight. In individual EU countries, in 2007–2017 various price changes took place. Table 3 presents the dynamics of changes in lamb meat prices in individual EU countries in 2007–2017.

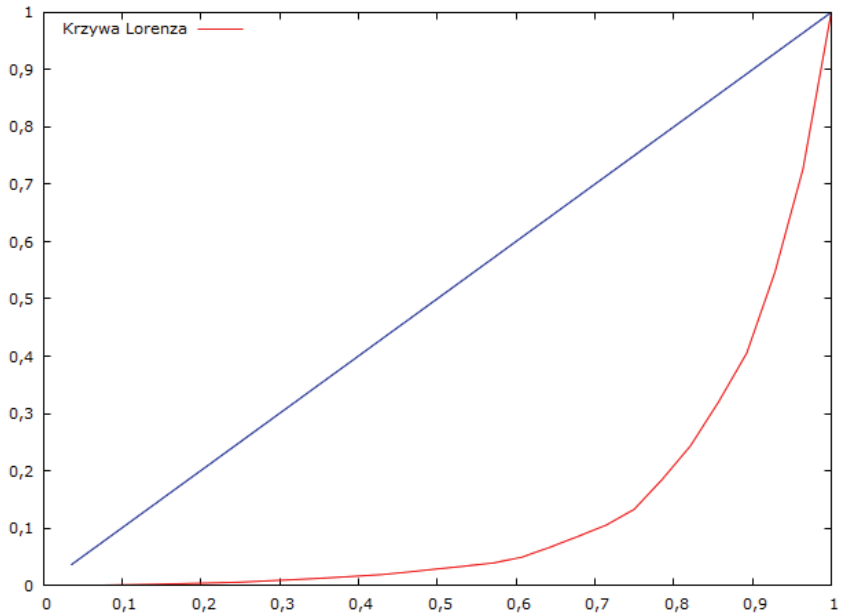

Fig. 2. The Lorenz concentration curve for the production of lamb meat in the EU countries in 2017

Source: The author's elaboration.

Table 3. The dynamics of changes in average annual prices of lamb meat in individual EU countries in 2008–2017 (previous year = 100)

Countries	Changes in lamb meat proces (%)									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estonia	108.5	107.3	90.5	109.2	101.5	96.6	88.1	100.1	100.1	115.3
Croatia	93.7	103.5	92.3	96.6	105.0	94.3	98.8	95.1	101.3	109.5
France	104.3	103.7	99.3	105.8	100.4	101.1	101.8	99.6	98.0	100.0
Italy	95.9	96.8	85.1	101.6	115.1	104.9	98.3	98.4	92.9	105.3
Bulgaria	107.1	99.4	126.8	98.5	104.3	100.0	118.9	103.6	81.2	101.3
Austria	101.3	106.7	99.5	102.8	103.0	100.1	99.5	102.7	104.2	100.8
Hungary	99.8	104.8	101.8	114.7	98.9	92.6	101.6	98.6	93.2	102.1
Germany	105.5	102.8	101.1	111.7	107.1	99.3	101.6	104.0	102.6	100.0
Spain	110.7	102.3	90.0	111.6	98.8	90.6	118.2	91.4	100.5	107.4
Slovenia	101.9	98.3	98.2	98.9	100.3	103.3	115.4	113.4	98.3	99.8
Cyprus	104.3	143.6	86.4	81.1	92.0	102.8	104.3	109.8	96.1	91.4
Belgium	108.4	100.9	97.8	104.4	107.7	94.1	108.5	99.8	100.6	97.4
Czech Republic	97.1	132.8	109.5	85.3	99.5	99.4	100.3	100.2	99.0	99.6
Sweden	100.7	88.8	119.6	109.7	111.5	106.6	98.9	106.3	95.3	98.8
United Kingdom	99.0	101.0	111.0	110.9	100.1	97.6	106.2	100.7	94.0	96.0
Slovakia	118.7	89.0	96.2	124.9	107.6	95.2	92.7	108.7	92.9	106.1
Greece	98.8	104.6	100.6	102.4	94.7	95.9	98.6	101.7	94.2	97.3
Ireland	103.9	103.1	117.7	110.0	94.2	98.9	104.7	102.4	98.1	99.6
Portugal	103.4	110.6	96.0	104.9	98.0	100.5	108.1	97.4	97.9	100.3
Lithuania	141.6	108.4	83.8	151.9	89.2	92.2	118.6	102.7	99.2	99.4
Netherlands	104.1	106.3	115.3	111.0	92.8	101.5	104.7	98.3	98.3	97.7
Malta	105.8	99.9	99.7	99.7	100.3	100.4	100.3	100.5	96.3	103.1
Finland	100.7	108.0	100.5	104.2	114.5	116.8	99.5	90.8	101.0	100.8
Poland	103.0	103.5	105.2	109.9	101.3	92.3	102.9	101.7	92.7	100.9
Latvia	109.3	101.9	101.9	87.4	95.6	90.6	119.1	91.5	101.5	102.0
Denmark	99.6	104.1	102.3	109.1	112.6	97.7	105.6	104.7	101.4	97.7
Luxembourg	98.8	104.0	98.9	103.0	95.7	101.6	104.2	98.8	99.2	103.7
Romania	104.2	96.5	105.2	125.1	97.9	101.7	103.7	98.8	91.4	94.9

Source: The author's own study based on Eurostat data.

Changes were shown using chain indexes, where the previous year was accepted as 100. The countries were ranked in descending order according to the price of lamb meat. Changes in individual countries varied. The largest increases were recorded in 2011, while declines in 2015. In 2007–2017, the highest increase in lamb meat prices occurred in Lithuania, followed by Germany, Bulgaria, Finland and Denmark (about 40% each). The declines concerned only Croatia and Greece (11% each), Italy (8%) and Latvia (3%). It should be emphasized that individual countries in 2007 had a different starting level. As a rule, however, there was a smoothing out of lamb meat prices in the EU. The disproportions in this area still occurring in 2007 were gradually eliminated.

In order to establish the relationship between the production volume of lamb meat in the EU countries and the basic parameters of the economy [Stańko 2008], Pearson's linear correlation coefficients were calculated (Table 4). The significance (p) equal 0.05 was assumed as the threshold of significance level. Significant results have been marked with a grey background in the table. Correlation coefficients have been calculated for the EU countries in individual years as well as in the entire period 2007–2017. The paper tried to check the correlation, which does not indicate that a given factor affects another, only that there is a strong or weak relationship between them.

The choice of parameters for analysis was made on the basis of previous studies by Stańko [2008] and Rokicki et al. [2019]. There were significant average and high positive associations of lamb meat production volume with the value of GDP. These dependencies were particularly strong during the economic crisis. After this period, the dependence power decreased. In the case of economy parameters per person (GDP and household consumption), no significant dependence was found on the production volume of sheep meat. There was also a positive correlation between lamb meat production and export and import values. The impact strength was average and affected only selected years, i.e. before, during and after the crisis, after the economic situation stabilized.

The literature on the lamb meat market in the EU is quite poor. Canali [2006] predicted that the cessation of support for sheep production for the benefit of

Table 4. Pearson's linear correlation coefficients between the volume of lamb meat production and selected economic parameters in 2007–2017

Parameters	Pearson's linear correlation coefficients											
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2007–2017
Value of GDP	0.59	0.59	0.56	0.56	0.48	0.49	0.48	0.49	0.53	0.51	0.49	0.52
p-value	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
GDP per capita	0.07	0.03	0.01	–0.01	–0.05	–0.05	–0.05	–0.03	0.01	–0.03	–0.04	–0.02
p-value	0.74	0.89	0.98	0.97	0.80	0.81	0.80	0.87	0.99	0.90	0.84	0.78
Household consumption per capita	0.26	0.22	0.16	0.16	0.10	0.10	0.10	0.13	0.19	0.15	0.12	0.15
p-value	0.18	0.27	0.41	0.41	0.62	0.60	0.63	0.50	0.34	0.46	0.53	0.01
Value of export	0.38	0.37	0.38	0.36	0.30	0.31	0.31	0.31	0.33	0.32	0.31	0.32
p-value	0.05	0.05	0.05	0.06	0.12	0.12	0.11	0.11	0.09	0.01	0.11	0.01
Value of import	0.49	0.47	0.45	0.44	0.35	0.36	0.36	0.37	0.39	0.38	0.37	0.39
p-value	0.01	0.01	0.02	0.02	0.06	0.06	0.06	0.05	0.04	0.04	0.05	0.01

Source: The authors' elaboration.

unrelated production subsidies could directly and indirectly affect the population reduction and production cessation. As a result, the production of lamb meat was to decrease. The deterioration of the situation on the meat market in Northern Europe was foreseen by Dyrmundsson [2006]. In addition, it linked the unfavorable situation with the liberalization of trade in the world. Similar analyzes were carried out by Niżnikowski et al. [2006], but they concerned the future situation on the lamb meat market in Central and Eastern Europe. The prospects were not promising. Balkhausen et al. [2008], using simulation models, concluded that as a result of separating payments from production, among others production of beef and lamb meat will decrease. Lisiak et al. [2011] emphasized that the decrease in the sheep population in the EU was not compensated by the increase in the import of this meat. That is why the consumption of lamb has decreased.

CONCLUSIONS

The purpose of the paper was to recognize the situation and changes on the lamb meat market in the EU countries. The determinant of production potential is the sheep population. Great decreases occurred in the countries that kept the most sheep, such as Spain, UK, France and Italy. The decline in the population affected the decline in the production of lamb meat. Although the EU imported certain quantities of meat (mainly from New Zealand), the imports were inadequate. At the same time, the export of lamb meat to non-EU countries increased. The problem was the decline in lamb meat consumption. Nevertheless, the share of self-supply on the market was lower than 90%.

The changes that took place on the lamb meat market practically did not affect the concentration of this production. It was still focused on several major producers. The research hypothesis was confirmed. The status quo can be upset in the case of Brexit, because the UK was the largest producer of lamb meat in the EU.

The prices of lamb meat were the highest in the world. There was a great diversity in the EU in this area. It was influenced by the weight of lambs sold. The lighter lambs were more expensive in calculation per kg of post-slaughter weight. In 2007–2017, the prices of lamb meat mainly increased (in the entire EU they increased by 16%), while the decreases concerned a small number of countries. There was also a leveling up of prices.

The production volume of lamb meat in the EU countries was on average related to the parameters determining the potential of the economy. Sheep production was still conducted in the largest EU economies, while in small countries it was marginal. It was also found that dependencies were more visible due to the impact of the economic crisis than in the conditions of stabilizing the economy and agriculture. Such regularities were also demonstrated in the studies of other authors [Tomkiewicz 2011, Rachwał 2014, Dzikowska et al. 2016]. In the case of parameters calculated as per capita, no dependence was found.

The review of the literature shows that only a few authors dealing with lamb meat issues concordantly predicted a decline in lamb production in individual EU countries and regions, as well as throughout the EU. It was found that the reason for the smaller consumption of lamb meat was less imports. In fact, both production and consumption of lamb meat depend on many market factors, but also social and the ones that are hard to measure. They were not the subject of research in the article. Extensive research is required to identify these connections.

REFERENCES

Anderson, J.M.L. (2001). Sheep Meat: Can We Adapt to Forthcoming Demands. Production Systems and Product Quality in Sheep and Goats. Options Méditerranéennes: Série A. Séminaires Méditerrannées, 46, 11–17.

Balkhausen, O., Banse, M., Grethe, H. (2008). Modelling CAP Decoupling in the EU: A Comparison of Selected Simulation Models and Results. Journal of Agricultural Economics, 59 (1), 57–71. DOI: 10.1111/j.1477-9552.2007.00135.x

Brodzińska, K. (2009). Perspektywy rozwoju rolnictwa w kontekście standardów w ochronie środowiska. Zeszyty Naukowe SGGW. Problemy Rolnictwa Światowego, 23 (8), 24–33.

Canali, G. (2006). Common Agricultural Policy Reform and its Effects on Sheep and Goat Market and Rare

Breeds Conservation, Small Ruminant Research, 62 (3), 207–213. DOI: 10.1016/j.smallrumres.2005.08.021

Cofas, E., Soare, E. (2013). Quantitative Study of the World Market of Meat, Scientific Papers, Series: Management. Economic Engineering in Agriculture and Rural Development, 13 (2), 71–74.

Commission Regulation (EEC) No 2966/80 of 14 November 1980 amending certain Regulations on the common organization of the markets in beef and veal, pigmeat and sheepmeat and goatmeat and Regulations (EEC) Nos 827/68 and 950/68. OJ L 307/5 of 18.11.1980.

Council Regulation (EC) No 2529/2001 of 19 December 2001 on the common organisation of the market in sheepmeat and goatmeat. OJ L 341 of 22.12.2001.

Council Regulation (EEC) No 1837/80 of 27 June 1980 on the common organization of the market in sheepmeat and goatmeat. OJ L 183/1 of 16.07.1980.

Dyrmundsson, Ó.R. (2006). Sustainability of Sheep and Goat Production in North European Countries – From the Arctic to the Alps, Small Ruminant Research, 62 (3), 151–157. DOI: 10.1016/j.smallrumres.2005.08.010

Dzikowska, M., Gorynia, M., Jankowska, B. (2016). Determinanty pozycji konkurencyjnej przedsiębiorstwa w okresie globalnego kryzysu gospodarczego 2009 roku i po jego wystąpieniu, Przegląd Organizacji, 4, 29–36.

European Commission (2018). EU Agricultural Outlook for the Agricultural Markets and Income 2017–2030 (European Commission, DG Agriculture and Rural Development, Brussels.

Fundacja Programów Pomocy dla Rolnictwa (2008a). Rynek mięsa, drobiu i miodu. Bieżące informacje i analizy funkcjonowania Wspólnej Polityki Rolnej UE – XII. Zespół Monitoringu Zagranicznych Rynków Rolnych (FAMMU/FAPA), Warszawa.

Fundacja Programów Pomocy dla Rolnictwa (2008b). Rynek mięsa, drobiu i miodu. Bieżące informacje i analizy funkcjonowania Wspólnej Polityki Rolnej UE – III. Zespół Monitoringu Zagranicznych Rynków Rolnych (FAMMU/FAPA), Warszawa.

Klepacka-Kołodziejska, D. (2007). Wsparcie obszarów o niekorzystnych warunkach gospodarowania jako instrument zmieniającej się Wspólnej Polityki Rolnej. [In:] M. Błąd, D. Klepacka-Kołodziejska (Eds.), Społeczno-ekonomiczne aspekty rozwoju polskiej wsi. IRWiR PAN i Europejski Fundusz Rozwoju Wsi Polskiej, Warszawa, 211–224.

Lisiak, D., Borys, A., Lisiak, B. (2011). Rynek mięsa owczego i koziego w Polsce i na świecie. Wiadomości Zootechniczne, 49 (3), 85–90.

Niedziółka, R., Pieniak-Lendzion, K. Borkowska, T. (2005). Handel zagraniczny na rynku mięsa baraniego po wstąpieniu do UE. Monografie 59. Wydawnictwo Akademii Podlaskiej, Siedlce.

Niżnikowski, R., Strzelec, E., Popielarczyk, D. (2006). Economics and Profitability of Sheep and Goat Production under New Support Regimes and Market Conditions in Central and Eastern Europe. Small Ruminant Research, 62 (3), 159–165. DOI: 10.1016/j.smallrumres.2005.08.011

Piworowicz, J. (2015). Wspólna Polityka Rolna i jej wpływ na rozwój rolnictwa w Polsce. Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego w Olsztynie, Olsztyn.

Rachwał, T. (2014). Zmiany strukturalne przemysłu Polski w warunkach kryzysu gospodarczego. Prace Komisji Geografii Przemysłu Polskiego Towarzystwa Geograficznego, 27, 148–163.

Regan, E. (1980). The Sheep Market: Problems and Prospects. OECD, Paris.

Rokicki, T. (2005). Regulacje rynku mięsa baraniego i jagnięcego w Unii Europejskiej. Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu, 7 (2), 188–193

Rokicki, T. (2015). Regulacja prawne dotyczące gospodarstw owczarskich w Polsce. [In:] Prawne mechanizmy wspierania i ochrony rolnictwa rodzinnego w Polsce i innych państwach Unii Europejskiej. Ministerstwo Rolnictwa i Rozwoju Wsi, Fundacja Programów Pomocy dla Rolnictwa FAPA, Warszawa, 407–417.

Rokicki, T. (2017). Zmiany w produkcji mięsa jagnięcego w UE. Gospodarka Mięsna, 6, 22–25.

Rokicki, T., Ratajczak, M., Golonko, M. (2019). The production of sheep's milk in EU countries. [In:] Proceedings of the 2019 International Conference "Economic Science for Rural Development", Jelgava, LLU ESAF, 9–10.05.2019, 375–381.

Soare, E., Cofas, E. (2012). Research on European Union Meat Market. Annals of Constantin Brancusi University, 9, 288–291.

Soare, E., Cofas, E., Balan, A., David, L. (2012). Researches and Results About the Meat Market in Romania. Scientific Papers, Series I, Agricultural Management, 14 (2), 185–192.

Stańko, S. (2008). Zewnętrzne uwarunkowania rozwoju rolnictwa. Roczniki Nauk Rolniczych, Seria G, 94 (2), 65–79.

Tomkiewicz, J. (2011). Reakcja państwa na kryzys gospodarczy – podstawowe dylematy. Master of Business Administration, 5 (162), 56–64.

Rokicki, T. (2019). The lamb meat market in the European Union countries in 2007–2017. Acta Sci. Pol. Oeconomia 18 (1), 71–80, DOI: 10.22630/ASPE.2019.18.1.8

RYNEK MIĘSA JAGNIĘCEGO W KRAJACH UNII EUROPEJSKIEJ W LATACH 2007–2017

STRESZCZENIE

Celem głównym pracy było ukazanie sytuacji i zmian na rynku mięsa jagnięcego w krajach Unii Europejskiej. W sposób celowy wybrano do badań wszystkie kraje członkowskie Unii Europejskiej według stanu na 31 grudnia 2017 roku (28 państw). Okres badań dotyczył lat 2007–2017. Stwierdzono spadek pogłowia owiec w UE; największy w państwach, w których hoduje się najwięcej tych zwierząt, takich jak: Hiszpania, Wielka Brytania, Francja i Włochy. Spadek pogłowia wpływał na zmniejszenie się produkcji mięsa jagnięcego. Problemem był też spadek spożycia mięsa jagnięcego. Pomimo to na rynku udział samozaopatrzenia był mniejszy niż 90%. Zmiany, które dokonały się na rynku mięsa jagnięcego, nie miały wpływu na koncentrację tej produkcji. Ciągle była ona na bardzo wysokim poziomie. W latach 2007–2017 ceny mięsa jagnięcego głównie rosły, a spadki dotyczyły niewielkiej liczby krajów. Następowało też wyrównanie się cen. W całej UE ceny wzrosły średnio o 16%. Wielkość produkcji mięsa jagnięcego w krajach UE była przeciętnie związana z parametrami określającymi potencjał gospodarki, lecz nie była związana z parametrami per capita. Produkcja mięsa jagnięcego i jego spożycie zależą zarówno od wielu czynników rynkowych, jak i społecznych i trudno mierzalnych.

Słowa kluczowe: Unia Europejska, rynek mięsa, produkcja owczarska, mięso jagnięce

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SOCIAL INCLUSION OF INDIVIDUALS SUFFERING FROM EXCLUSION – EVALUATION OF MOTIVES AND ACTIONS IN VIEW OF OWN RESEARCH

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ABSTRACT

Main aim of analyses presented in the article was to determine the motives and actions which promote social inclusion of the unemployed, most frequently suffering from social exclusion. The survey was conducted in 2018 based on the questionnaire among the population of 350 respondents. The analyses included the distribution of answers to survey question within the entire sample together with the verification of statistical significance between the answers provided and such variables as: gender, age, education and period of being registered in Municipal Employment Office. Results of the study show that increasing social awareness on the access to benefits is an important motif influencing social inclusion. The awareness of the fact of being deprived of the right to retirement pension, no access to healthcare and increased creditworthiness shape the knowledge of the society in relation to the importance of working within the official labour market to a significant extent.

Key words: social inclusion, social exclusion, motives for social inclusion, causes and effects of social exclusion

JEL codes: F66

INTRODUCTION

The process of preventing social exclusion is called social inclusion. It makes it possible for the individuals suffering from exclusion to become part of the society as well as enter the market of registered work. The necessary condition here consists in increased social awareness as well as the active approach and motivation of the unemployed. The following reasons are the most important in the context of the subject matter of the research:

- willingness to verify a common opinion that appropriate activities assist the unemployed in entering the market of registered work as well as that the level of social awareness constitutes an important factor of social inclusion;
- lack of comprehensive research in the field of the phenomenon of social inclusion.

Taking the above into consideration, main objective of analyses presented in the article consists in the attempt to specify the motives and activities which promote social inclusion of the unemployed, most frequently suffering from social exclusion. Research task is to assess the motives and actions representing the field of social inclusion.

Main purpose of the empirical study designed and conducted by the author was to collect the information concerning social inclusion.

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The following detailed objectives were adopted for research framework specified in this way:

- Specifying the motives resulting in the individuals suffering from social exclusion returning to registered work.
- Learning about the activities undertaken in order to enter the official labour market by the unemployed.

Conclusions from the empirical research supported with information used in the article acquired from secondary sources made it possible to verify the following hypotheses:

- H1: The perspective of being deprived of retirement benefits as well as no access to public healthcare constitute the most important motives for taking up a job by those suffering from exclusion.
- H2: Psychological readiness to take up registered work, the willingness to conduct legal economic activity constitute some of the motives of social inclusion of the unemployed and the main activity making it possible to enter the market of registered labour consists in believing in their own capacities and skills.

MATERIAL AND METHODS

Questions the answers to which were searched for during the realization of the research project are as follows:

- What are the motives for social inclusion of the unemployed on the labour market?
- What activities are undertaken by those suffering from exclusion in order to enter official labour market?

Subject-related literature together with own empirical research were used in order to realise the research task formulated in this way. Statistical tests and descriptive methods were applied. The results were presented following the descriptive method, presented in tables and charts as well as with the use of graphic means.

Organization of the research process

Analysed data

The survey based on interview questionnaire was conducted in 2018 among the population of 350 respondents (195 individuals responded to paper questionnaires and 155 to online questionnaires).

Statistical analyses plan

Analyses included the distribution of answers to questions among all respondents forming the sample together with verifying statistical significance of relations between the answers provided and such variables as: sex, age, education and period of being registered in Municipal Employment Office. The value of 0.05 was conventionally adopted as statistical significance threshold. Statistical significance was analysed basing on the values of the likelihood ratio used for analysing the relationships between categorical variables, i.e. those which divide the respondents into groups when some of the specified categories do not include a lot of respondents.

Respondents

Three hundred and fifty respondents took part in the survey, including 226 women (64.6%) and 124 men (35.4%). Two hundred and seventy four persons (78.3%) were the citizens of Płock, while 73 respondents (20.9%) resided in the vicinity of the city.

DISCUSSION AND FINDINGS

Social inclusion – considerations

Work constitutes one of basic notions in the theory of economy [Lange 1978]. Due to the fact that performing the work represents key importance for human existence, different approaches towards this aspect can be observed – from treating the obligation to work as an unpleasant effort, through practicing the skills and spending the workforce, up to creative expression. Each of these approaches finds it justification in economic theories [Nowak 2011].

Social inclusion (Latin) means incorporation, joining. In the field of sociology, this notion is defined as the process of secondary socialization, getting individuals and social groups back for the society[1].

According to Grotowska-Leder and Faliszek, the process of abandoning social exclusion is called social inclusion, i.e. creating for those vulnerable to social exclusion the opportunity to get the chance and appropriate resources necessary for full participation in economic, cultural and social life as well as reaching

[1] http://pkps.org.pl/wp-content/uploads/2016/12/Inkluzja-społeczna.pdf [accessed: 20.12.2018].

the level of life considered normal in a given society [Grotowska-Leder and Faliszek 2005]. In order to add logic to this process, it should be analysed in three dimensions: political, economic and civil (Table 1).

Inclusive activities undertaken in the three above-mentioned dimensions mean implementing in practice the multi-sector social policy [Grewiński 2009].

According to Szatur-Jaworska, modern social policy concept defines social inclusion as the process of "incorporating" marginalised individuals into the so-called stream of life through their full participation in social life [Szatur-Jaworska 2005].

According to Broda-Wysocki, the definitions of social inclusion put important emphasis on external influence with relation to the excluded individuals or groups. "Creating the opportunities" or "community activities" are quoted here. The analysis assumes that social inclusion is a targeted and consciously undertaken activity of organized entities. Basing on the recognition of different reasons of social exclusion, different strategies of social inclusion are also formulated [Broda-Wysocki 2012]. The following strategies can be enumerated: reproductive, palliative, preventive as well as emancipative (Table 2).

Table 1. Social inclusion dimensions

Social inclusion dimensions	Characteristics
Political	It can be analysed following two dimensions: individual and territorial. The notion of individual dimension refers to extending individual rights: from the right to freedom, through political rights up to the right to social security. Territorial dimension refers to the area of the European continent, which after the centuries of wars became a relevant oasis of peace, tolerance and wellbeing. This field includes an increasing number of countries.
Economic	It is connected with having a job which, apart from economic benefits connected with it, often refers to acquiring additional social rights (the possibility to acquire the rights is connected in many countries with having a job, e.g. the right to retirement pension). Remaining without a job means also some specific social stigmatization as a person useless for the society.
Civil	Connected with active social participation. It may be connected with inclusion-related activities undertaken by social organizations (the third sector, social economy entities) as well as all types of non-formalized groups (neighbours, family). This dimension may complement the first two, but it cannot totally replace them.

Source: Woodward and Kohli [2003], Sobczak [2016].

Table 2. Social inclusion strategies

Social inclusion strategies	Characteristics
Reproductive	In reproductive strategies it is assumed that poverty forms part of social life and constitutes its inherent element. It is thus claimed that activities undertaken in one field will have a negative influence on the other. According to this strategy, there are no uniform and universal methods for preventing poverty or fighting it off.
Palliative	Activities within the palliative strategy are addressed to specific social problems which occur unexpectedly, without prior symptoms. These events require fast and decisive reaction from entities involved in solving social problems.
Preventive	Preventive strategies are mechanisms preventing the occurrence of negative social phenomena. They take the form of "campaigns" carried out in the field of healthcare, education and professional trainings.
Emancipative	Emancipative strategy includes the activities aiming at the elimination of exclusion and transforming the individuals affected by it into fully-fledged and fully involved citizens.

Source: Own study on the basis of Raczkowska [2013].

Social exclusion – definition, causes and consequences

The notion of social exclusion in its modern sense was probably used for the first time in the publication by René Lenoir from 1974 entitled *Les exclus*. It referred to persons residing in France who were not taking part either in social or economic development [Broda-Wysocki 2012].

According to the National Strategy of Social Integration for Poland [MRPiPS 2004] social exclusion is in turn defined as "the lack or limited possibility to take part in, influence and use basic public institutions and markets, which should be accessible to everybody, in particular to the poor", i.e. it is the "situation making it impossible or significantly harder for an individual or a group, according to the law, to fulfil their social roles, use public assets and social infrastructure, collect resources and acquire income in a decent way" [Frąckiewicz 2005].

Due to the complex character of social exclusion it is difficult to establish its unique and synthetic definition. The notion of social exclusion is very broad, as it can be caused by many different factors. Table 3 presents chosen causes and consequences of social exclusion.

Table 3. Chosen causes and consequences of social exclusion

Causes of social exclusion	Consequences of social exclusion
Poverty	– consumption limited to goods necessary for survival – limited functioning in different areas of life – individuals and their families being deprived of professional aspirations, education, healthcare and other – impossibility to follow the culture of consumption
Unemployment	– poverty – changing social environment from co-workers to other persons without employment – self-isolation and depression – losing the competencies necessary for reintegrating the labour market – dysfunctions appearing in the family – development of pathological social phenomena (violence, addictions etc.)
Disability	– no access or limited access to decision-making within the society – limited opportunity to choose and bigger necessity to act under duress in life – fewer opportunities and less favourable economic situation – limited professional opportunities, including education and developing qualifications – limited access to culture – remaining in isolation from the rest of the society in medical and care establishments
Inappropriate living conditions	– impeded relax and development of family life – neglected social and educational infrastructure – more difficult to raise children – low guarantee of protection for the possessed goods and security of domicile
Addictions	– deteriorating health condition – occurrence of depression disorders – problems with finding a job or losing the job – conflicts with the law
Imprisonment history	– negative attitude of the society towards individuals with imprisonment history – difficulties in finding a job – addictions – getting into wrong living space – poverty

Table 3 – cont.

Causes of social exclusion	Consequences of social exclusion
Forming part of a sexual, national or ethnic minority, being a migrant or refugee	– limited access to goods and benefiting from different assets (economic, political, social, cultural) – no social trust
Low degree of education	– unemployment
Unequal access to education	– limited access to textbooks, additional classes – necessity to discontinue education earlier – limited access to the labour market
Health condition	– limited access to the labour market – poverty – impeded functioning in different areas of life
No access or skills necessary to use modern information techniques	– limited access to the labour market – limited development of professional qualifications – limited educational opportunities – limited development and possibility to function within the society

Source: Developed on the basis of Sobczak [2016].

Motives of social inclusion in view of own research

The respondents were asked to select a few motives of social inclusion. Table 4 presents the distribution of frequency of social inclusion motives selected by the respondents.

Motives most frequently quoted in connection with returning to official work were: the awareness of no right to retirement pension (73.7% of responses) as well as the awareness of no access to healthcare (70.9% of responses).

Women would refer more frequently than men to the motif of conducting business activity legally (28.3%). Men, in turn, would more frequently quote feeling psychologically mature for registered work (Fig. 1).

Statistically significant correlations were obtained between the sex of respondents and:

- feeling psychologically mature for registered work $\lambda = 13.30$, $df = 2$, $p = 0.001$, $V = 0.19$ (where: λ – value of the likelihood ratio; df – number of degrees of freedom; p – statistical significance; V – value of V Cramer's measure);
- willingness to conduct business activity legally $\lambda = 11.94$, $df = 2$, $p = 0.003$, $V = 0.18$.

Statistically significant correlations were also obtained between the level of education of respondents and all of the motives quoted.

Table 4. Motives of social inclusion

Motives	*n*	%
The awareness of no right to retirement pension results in returning to official employment	258	73.7
The awareness of no access to public healthcare results in returning to official employment	248	70.9
Feeling psychologically mature for registered work	179	51.1
Willingness to conduct business activity legally	183	52.3
Increased creditworthiness	201	57.4
Other	124	35.4

n – number of respondents; % – group percentage.

Source: Own survey.

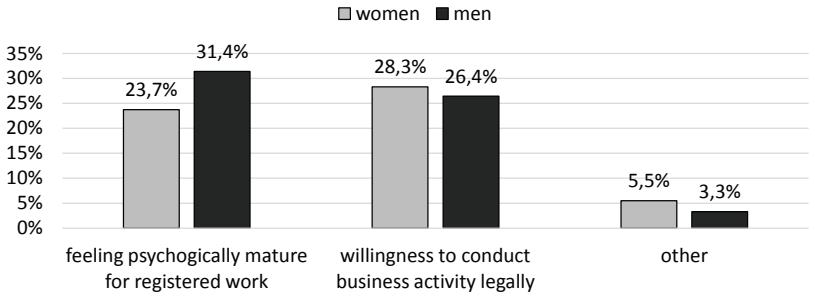

Fig. 1. Motives of social inclusion according to the sex of respondents

Source: Own study basing on the surveys conducted.

Table 5. Relationship between the level of education and social inclusion motives

Motives	λ	*df*	*p*	*V*
The awareness of no right to retirement pension results in returning to official employment	16.39	4	0.003	0.14
The awareness of no access to public healthcare results in returning to official employment	16.53	4	0.002	0.14
Feeling psychologically mature for registered work	23.84	4	0.001	0.18
Willingness to conduct business activity legally	31.49	4	0.001	0.21
Increased creditworthiness	18.74	4	0.001	0.17
Other	33.00	4	0.001	0.21

λ – value of the likelihood ratio; *df* – number of degrees of freedom; *p* – statistical significance; *V* – value of V Cramer's measure.

Source: Own study basing on the surveys conducted.

Statistical power of the effects obtained was limited. Research results were presented on Figure 2.

The awareness of no right to retirement pension, the awareness of no access to public healthcare as well as including respondents' creditworthiness were the most frequently quoted by the respondents with university or secondary education. Feeling psychologically mature to registered work, willingness to conduct business activity legally and other motives were more frequently quoted by the respondents who did not obtain secondary education (Fig. 2).

Activities undertaken by individuals suffering from exclusion in order to enter the market of official work in view of own research

The unemployed, in order to join the market of official work, have to undertake specific steps in this direction. They should most importantly develop their professional

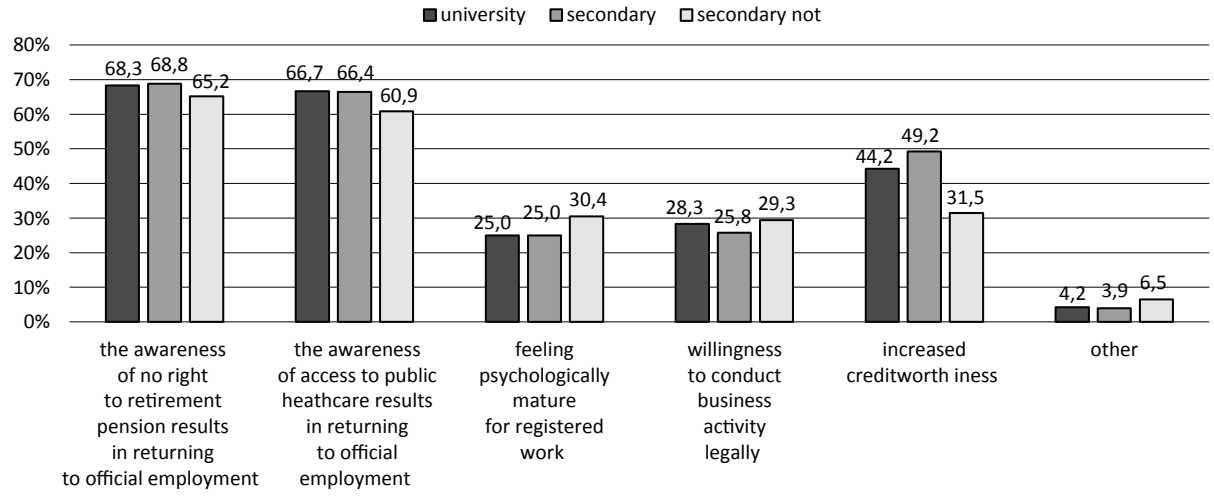

Fig. 2. Motives of social inclusion depending on the level of education of respondents

Source: Own study basing on the surveys conducted.

qualifications. Table 6 presents the distribution of frequency for activities undertaken by the respondents in order to enter the official labour market.

Table 6. Activities undertaken by the respondents in order to enter the official labour market

Activities	*n*	%
Developing professional qualifications	176	50.3
Completing the education	108	30.9
Believing in their own capacities and skills	167	47.7
Acquiring the knowledge on how to open and conduct business activity	71	20.3
Other	20	5.7

n – number of respondents; % – group percentage.

Source: Own study basing on the surveys conducted.

The majority of respondents quoted developing professional qualifications as main activity undertaken by them (50.3%) in order to enter the official labour market.

Table 7 presents the values of likelihood ratio used for the analysis of correlation between the sex of respondents, their level of education, age and the period of being registered in Municipal Employment Office and the presented activities as well as V Cramer's values of relationship strength measures.

Statistically significant correlations were obtained between the sex and level of education of respondents and quoting "believing in their own capacities and skills" as the motive for entering the labour market.

Believing in the respondents' capacities and skills as a motif encouraging to enter the labour market was more frequently quoted by men as well as by respondents who did not obtain secondary education (Fig. 3).

Table 7. The analysis of correlation between the sex of respondents, their level of education, age and the period of being registered in Municipal Employment Office and the presented activities in order to enter the labour market

Specification	Activities	λ	*df*	*p*	*V*
Sex	believing in their own capacities and skills	7.05	1	0.008	0.14
Education	believing in their own capacities and skills	14.26	2	0.001	0.20

λ – value of the likelihood ratio; *df* – number of degrees of freedom; *p* – statistical significance; *V* – value of V Cramer's measure.

Source: Own study basing on the surveys conducted (only statistically relevant correlations were presented in the table).

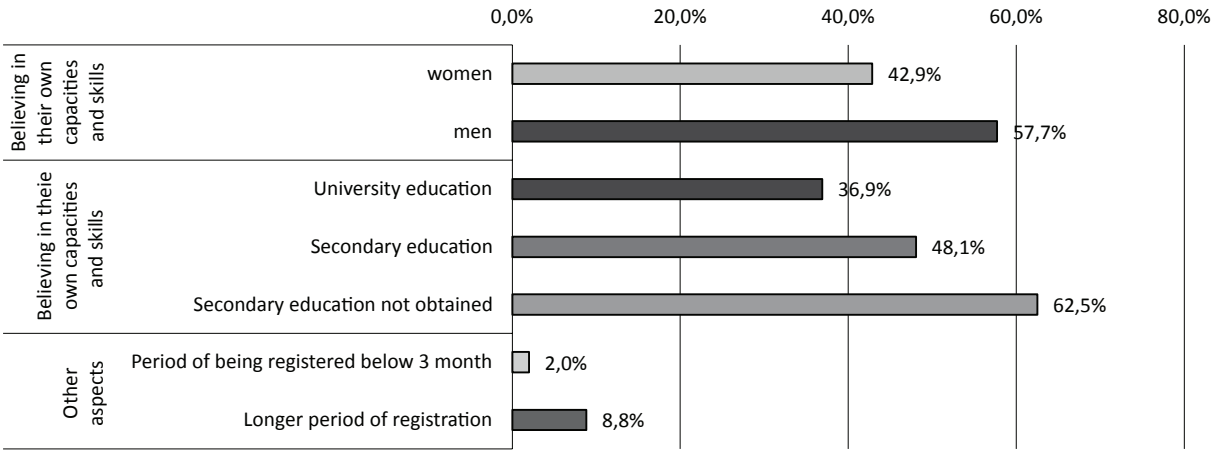

Fig. 3. Other statistically significant correlations between the means/activities undertaken in order to return to official labour market and the sex, level of education and period of being registered in Municipal Employment Office

Source: Own study basing on the surveys conducted.

SUMMARY AND CONCLUSIONS

Summing up the results of empirical research it should be stated that the activities undertaken by the unemployed respondents registered in Municipal Employment Office promote entering the market of registered work. Developing professional qualifications constitutes an important argument for taking up a job on the abovementioned market. Believing by the respondents in their own capacities and skills may have an important impact on the unemployed fitting in the market of registered work. In this way, next to economic aspects, psychological ones play a crucial role.

The society's awareness and knowledge of rights connected with the access to social benefits constitute an important motif influencing social inclusion. Being aware of not having the right to retirement pension or the access to public healthcare or issues connected with creditworthiness importantly shape the knowledge of the members of society concerning the importance of the work on official market. Unregistered and illegal work will not, in a longer perspective, provide the individuals performing it with the access to the abovementioned rights. What is more, feeling psychologically mature and the willingness to conduct business activity legally constitute important motivators for those who want to join the official labour market.

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REFERENCES

Broda-Wysocki, P. (2012). Wykluczenie i inkluzja społeczna. Paradygmaty i próby definicji [Social exclusion and inclusion. Paradigms and definition attempts]. IPiSS, Warszawa.

Frąckiewicz, L. (Ed.) (2005). Wykluczenie społeczne [Social exclusion]. Wydawnictwo Akademii Ekonomicznej, Katowice.

Grewiński, M. (2009). Wielosektorowa polityka społeczna. O przeobrażeniach Państwa opiekuńczego [Multi-sector social policy. On transformations of the Welfare State]. WWSP TWP, Warszawa.

Grotowska-Leder, J., Faliszek, K. (Eds.) (2005). Ekskluzja i inkluzja społeczna. Diagnoza – uwarunkowania – kierunku działań [Social exclusion and inclusion. Diagnosis – conditions – directions for activities]. Wydawnictwo Edukacyjne AKAPIT-DTP, Toruń.

Lange, O. (1978). Ekonomia polityczna [Social economy]. Vol. 1, 2. PWN, Warszawa.

Ministerstwo Rodziny, Pracy i Polityki Społecznej (2004). Narodowa Strategia Integracji Społecznej. Warszawa.

Nowak, K. (2011). Status pojęcia pracy w teorii krytycznej i teorii ekonomii [Status of the notion of work in critical theory and the theory of economy]. Wydawnictwo Naukowe UAM, Poznań.

Raczkowska, M. (2013). Procesy inkluzji społecznej na obszarach wiejskich w Polsce [Social inclusion processes in rural areas in Poland]. Roczniki Naukowe Stowarzyszenie Ekonomistów Rolnictwa i Agrobiznesu, 15 (5), 241–248.

Sobczak, M.J. (2016). Wykluczenie społeczne i inkluzja społeczna z wykorzystaniem podmiotów ekonomii społecznej w Polsce na przykładzie województwa łódzkiego [Social exclusion and social inclusion with the use of social economy entities in Poland at the example of the Łódź voivodeship]. Wydawnictwo Uniwersytetu Łódzkiego, Łódź.

Szatur-Jaworska, B. (2005). Uwagi o ekskluzji i inkluzji na przykładzie polityki społecznej wobec ludzi starszych [Remarks on exclusion and inclusion at the example of social policy towards the elderly]. [In:] J. Grotowska-Leder. K. Faliszek (Eds.), Ekskluzja i inkluzja społeczna. Diagnoza – uwarunkowania – kierunku działań [Social exclusion and inclusion. Diagnosis – conditions – directions for activities]. Wydawnictwo Edukacyjne AKAPIT-DTP, Toruń.

Woodward, A., Kohli, M. (2003). Inclusion and Exclusion in European Societies. Routledge, London, New York.

Szewczyk-Jarocka, M. (2019). Social inclusion of individuals suffering from exclusion – evaluation of motives and actions in view of own research. Acta Sci. Pol. Oeconomia 18 (1), 81–89, DOI: 10.22630/ASPE.2019.18.1.9

INKLUZJA SPOŁECZNA OSÓB WYKLUCZONYCH – OCENA MOTYWÓW I DZIAŁAŃ W ŚWIETLE BADAŃ WŁASNYCH

STRESZCZENIE

Głównym celem rozważań zaprezentowanych w artykule jest próba określenia motywów i działań, które sprzyjają włączeniu społecznemu osób bezrobotnych, najczęściej osób społecznie wykluczonych. Badania ankietowe według kwestionariusza wywiadu przeprowadzono w 2018 roku na populacji 350 respondentów. Analizy obejmowały rozkład odpowiedzi na pytania ankietowe w całej badanej próbie oraz weryfikację istotności statystycznej zależności między udzielanymi odpowiedziami a takimi zmiennymi, jak: płeć, wiek, wykształcenie i długość okresu zarejestrowania w miejskim urzędzie pracy. Wyniki badań wskazują na to, że istotnym motywem wpływającym na włączanie społeczne jest podwyższenie świadomości społeczeństwa w zakresie dostępu do świadczeń. Świadomość braku uprawnień do emerytury oraz braku dostępu do służby zdrowia, a także zwiększenie zdolności kredytowej w sposób istotny kształtują wiedzę społeczeństwa w zakresie ważności pracy na oficjalnym rynku.

Słowa kluczowe: inkluzja społeczna, wykluczenie społeczne, motywy włączania społecznego, przyczyny i skutki wykluczenia społecznego

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POLITICAL BUDGET CYCLES – GOING BEYOND THE AVERAGE

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ABSTRACT

We test whether there are country-specific election cycles present in the public expenditure in the European Union. Using panel data on all 28 current EU Member States from 1995 to 2015, we find in general evidence for an election-induced expansion in total government spending and within the categories of public services, safety, housing, recreation, and education. Our contribution is to combine the notion of targeting specific public spending categories and the occurrence of country-specific political budget cycles in the EU. The results indicate that election cycles vary substantially across countries. We observe a significant election effect in about 77% of our estimates. Two thirds of these observed significant effects represent increased spending in pre-election period.

Key words: political budget cycle (PBC), election cycle, general government expenditure, European Union, country-specific PBCs

JEL codes: E62, H11, H30, H50, H62

INTRODUCTION

In the 1970s, Nordhaus [1975] introduced his theory about political budget cycles (PBCs). The theory can best be summarized as election induced manipulations in fiscal policy by the incumbent to maximize electoral support [Shi and Svensson 2003]. Voters generally prefer candidates from whom they expect to deliver greater material well-being [Franzese 2000]. Meanwhile, it is also assumed that the electorate is backward looking and evaluates the performance of the government only on its recent past. This gives incumbents great incentives to adopt expansionary fiscal policies in the late year(s) of their term in office.

The more recent empirical literature provides a more nuanced picture as voters are more fiscal conservative than expected and punish politicians who create large public deficits [Peltzman 1992, Brender 2003, Brender and Drazen 2008, 2013, Drazen and Eslava 2010, Garmann 2017]. This latter implies that when elections are upcoming there might be a shift in the composition of the public spending rather than an increase in the total. In an election year, the public expenditure shift towards easily targeted and observed spending categories and away from less visible areas. It leaves the aggregate expenditure unaffected [Rogoff 1990, Kneebone and McKenzie 2001, Block 2002, Vergne 2009, Katsimi and Sarantides 2012, Brender and Drazen 2013].

Additionally, previous research already argued that political budget cycles are not uniform across countries. The older literature suggests that election cycles emerge predominantly in new democracies and low-income countries as voters are less experienced with the electoral system in these countries [Schuknecht 1996, Shi and Svensson 2002, 2006]. However, a number of more recent studies contradict this conclusion as they show that electoral manipulation also takes place in EU and OECD countries [Buti and Van den Noord 2004, Mink and De Haan 2006, Tujula and Wolswijk 2007, Efthyvoulou 2012,

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Enkelmann and Leibrecht 2013]. One possible explanation is that the occurrence of election cycles is actually more country-specific rather than country-group-specific [Klomp and De Haan 2013a, 2013b]. According to Pesaran et al. [1999], neglecting the parameter instability in a pooled panel estimation procedure can produce inconsistent and misleading estimates.

The contribution of this study is to combine the notion of targeting specific public spending categories and the occurrence of country-specific PBCs. In more detail, we explore whether there are country-specific election cycles in aggregate spending and ten different expenditure categories in 28 EU countries in the period 1995–2015. Our results indicate that election cycles vary substantially across countries and among spending categories. In about 77% of our estimates there is a significant election effect present. Two thirds of these observed significant effects indicate increased spending in pre-election period.

The outline of the paper is as follows. The next section sets out a description of the material and research methods used. Posterior section presents the empirical findings and the final section offers our conclusions.

DATA AND RESEARCH METHODS

We use an annual panel dataset covering 28 European Union countries in the period 1995–2015. The public spending data are taken from the AMECO database collected by the European Commission, while the election data come from the Database of Political Institutions reported by the World Bank. However, there is always the trade-off between pooling the data and thereby increasing the efficiency of the estimate and the bias of not controlling for sample heterogeneity [Baltagi 1995]. Therefore we use a so-called semi-pooled model in which we balance the efficiency gains obtained using a pooled model, however, the impact of the elections differs across countries. The used OLS-FE model is specified as follows:

$$\ln spend_{it} = \alpha_i + \beta \ln spend_{it-1} + \gamma X_{it-1} + \\ + \lambda elec_{it} + \sum_{27}^{n=1} \eta_n (elec_{it} \times \delta_i) + \varepsilon_{it} \quad (1)$$

A detailed description of all control variables used and their sources are presented in Table 1.

The variable *spend* is the amount of public expenditure per capita (taken in natural logarithms) and refers either to the total spending or one of ten expenditure categories by government functions in country *i* in year *t*. We consider the following specific spending categories: general public services, defence, public order and safety, economic affairs, environmental protection, housing and community amenities, health, recreation, culture and religion, education, and social protection. In order to make the value of public spending comparable over time, we have converted them into constant EUR (in 2010 prices). To control for autoregressive tendencies and policy smoothing, we include the lagged dependent variable. By using country-specific intercepts α_i, we control for time-invariant unobserved and observed characteristics and place the emphasis of the analysis on the identification of the within country variation over time.

The variable $elec_{it}$ is an election variable developed by Franzese [2000]. It is computed as $M/12$ in election year and $(12\text{-}M)/12$ in pre-election year, where M stands for a month of election. In all other years the value of the election indicator is set to zero. For countries classified in the Database of Political Institutions as a parliamentary system, we consider parliamentary elections, while for the remaining countries we concentrate on presidential elections. Besides, we only include elections if the government has sufficient time to change its fiscal policies. When there are, for instance, elections shortly after the fall of a cabinet, the government may have little opportunity to change fiscal policy or face capacity constraints in extracting additional resources. An election is therefore only included if it is held on the fixed date (year) specified by the constitution rules, or if the election occurs in the last year of a constitutionally fixed term for the legislature. Also when an election is announced more than one year in advance, it is taken up in the analysis.

The interactions between our election indicator and the series of country-specific dummies δ_i capture whether there is a significant deviation in the election effect in country *i* from the reference country. Moreover, the vector $X_{it\text{-}1}$ contains (lagged) control variables suggested by previous studies [Shi and Svennson

Table 1. Variables used – description and sources

Variable	Description	Source
gdp_{it}	GDP per capita taken in natural logarithms in constant EUR from 2010	AMECO database
gdp_growth_{it}	real GDP growth rate	Eurostat
$deficit\_rule_{it}$	dummy variable that stands for one when we observe an excessive budget deficit (greater than 3.5% of GDP)	Eurostat
$openess_{it}$	sum of export and import per capita taken in natural logarithms in constant EUR from 2010	AMECO database
cpi_{it}	consumer price index (CPI) in percentage points	World Bank
$dependency_{it}$	total dependency ratio measured as a sum of two generally inactive groups (i.e. under 15 years of age and aged 65 and over), compared to the number of people of working age (i.e. 15–64 years old)	AMECO database
$urban_{it}$	urban population rate measured as percentage of total population	World Bank
$unemployment_{it}$	unemployment rate	Eurostat
eu_member_{it}	dummy variable that stands for one if a country is a member of the European Union	European Union
emu_member_{it}	dummy variable that stands for one if a country is a member of the European Economic and Monetary Union	European Union

Source: Own elaboration.

2006, Klomp and De Haan 2013a, b]. To be more precise we consider the following control variables: real GDP per capita, growth rate of GDP, trade openness, age-dependency ratio, urban population share, unemployment rate, EU and EMU membership dummies. Finally, the parameter ε_{it} is an error term. To test whether the election effect differs between countries, we use the following marginal effect.

$$\frac{\partial \ln spend}{\partial elec} = \lambda + \eta_n \delta_i \tag{2}$$

When the marginal effect significantly different from zero, there is an election effect present in public spending in country *i*. This is tested using a joint *F*-test with the null hypothesis that the estimated coefficients are jointly equal to zero.

RESULTS

Table 2 reports the estimation results for existence of PBCs in EU countries. The findings suggest that on average, EU governments increase their public spending by 2% when elections are upcoming. However, the electoral manipulation might differ between spending categories as switching might take place.

Specific spending categories go up at the expenses of others. The results reported in Table 2 confirm that some targeting takes place in EU countries. However, the additional spending in the targeted categories is not financed through switching, but by an increase in the public deficit as in none of the considered expenditure categories, there is a significant negative election effect. In more detail, pre-election manipulation positively affects five out of 10 spending categories, i.e. general public services, public order and safety, housing and community amenities, recreation, and education (Table 3).

However, as indicated by Klomp and De Haan [2013b], election cycles could be really country-specific rather than a common effect or group-specific. Focussing only on the aggregate masks this significant heterogeneity across countries. To verify the existence of country-specific election cycles in aggregate spending and the 10 specific categories, we report in the remaining of the table the results of the semi-pooled

Table 2. Estimation results for political budget cycle in the European Union – pooled election effects

Specification	Results
Total	0.020**
	(–2.59)
Public services	0.031*
	(–1.77)
Defence	0.004
	(–0.24)
Order, safety	0.030***
	(–3.65)
Economic affairs	0.037
	(–1.06)
Environment protection	0.001
	(–0.04)
Housing	0.041*
	(–1.75)
Health	0.007
	(–0.83)
Recreation	0.030***
	(–2.91)
Education	0.010*
	(–1.92)
Social protection	0.007
	(–1.58)
Observations	526
Countries	28

Note: the table shows the election effects in total public expenditure and ten spending categories.

*/**/*** denote significance at the 10, 5 and 1% respectively.

Source: Own calculations using STATA based on: AMECO database, Eurostat, World Bank, and Database of Political Institutions.

Table 3. Estimation results for political budget cycle in the European Union Member States – country-specific election effects

Specification	Total spending	Public services	Defence	Order, safety	Economic affairs	Environment protection	Housing	Health	Recreation	Education	Social protection	Positive election effects	Negative election effects
Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	+	–
Austria	NS	1.8%	–1.8%	NS	–11.3%	9.7%	–2.4%	0.9%	2.4%	1.9%	1.4%	6	3
Belgium	–2.8%	NS	NS	–1.5%	–10.9%	–13.5%	1.7%	–2.1%	2.8%	NS	–0.8%	2	5
Bulgaria	6.3%	15.1%	–3.0%	14.0%	18.0%	NS	9.4%	–1.8%	2.1%	1.2%	NS	6	2
Croatia	2.4%	5.8%	2.6%	8.6%	7.6%	6.2%	NS	2.5%	2.7%	NS	–4.1%	7	1
Cyprus	–3.2%	8.4%	–3.9%	NS	–20.6%	–7.6%	NS	NS	NS	–4.8%	–6.5%	1	5
Czech Republic	NS	NS	10.3%	8.5%	NS	19.0%	NS	5.6%	13.4%	5.1%	3.9%	7	0
Denmark	0.6%	NS	–1.1%	NS	4.3%	2.4%	–20.0%	NS	0.9%	1.3%	0.7%	5	2
Estonia	–0.6%	5.5%	–8.7%	2.8%	–2.5%	NS	NS	6.2%	2.1%	–0.9%	–2.3%	4	4
Finland	NS	–3.1%	–8.1%	–2.7%	3.2%	–8.2%	–7.6%	–1.6%	–2.9%	1.1%	NS	2	7
France	NS	5.4%	7.5%	NS	–6.1%	–5.1%	NS	NS	NS	NS	NS	2	2
Germany	1.6%	–1.7%	6.0%	1.2%	9.9%	4.6%	5.3%	–0.7%	2.6%	–1.4%	1.4%	7	3
Greece	–5.2%	NS	18.5%	NS	–35.8%	NS	NS	–4.1%	NS	1.0%	3.1%	3	2
Hungary	3.6%	6.0%	10.1%	2.6%	6.1%	33.8%	–14.4%	1.3%	–6.9%	NS	2.8%	7	2
Ireland	13.0%	–5.6%	1.5%	NS	66.1%	–4.7%	8.8%	–2.8%	NS	–0.6%	NS	3	4
Italy	1.7%	7.8%	–3.3%	NS	–4.1%	–2.6%	19.7%	2.7%	NS	3.1%	–1.8%	4	4
Latvia	6.3%	2.6%	2.5%	4.8%	13.6%	–6.4%	16.3%	8.9%	9.4%	5.9%	2.8%	9	1
Lithuania	10.2%	36.3%	4.7%	7.4%	–3.6%	–6.5%	31.3%	–4.6%	17.6%	NS	1.3%	6	3
Luxemburg	3.2%	3.9%	–15.0%	5.3%	3.2%	1.9%	–11.7%	6.6%	10.1%	1.9%	3.2%	8	2
Malta	3.4%	NS	–23.4%	4.4%	15.9%	NS	36.1%	NS	–5.3%	NS	2.8%	4	2
Netherlands	4.4%	NS	NS	4.4%	13.6%	NS	16.3%	9.4%	NS	–2.3%	1.9%	5	1
Poland	1.0%	–8.3%	–11.9%	2.2%	10.6%	11.1%	–7.6%	NS	7.8%	4.4%	0.8%	6	3
Portugal	1.4%	1.5%	9.3%	–3.9%	NS	NS	3.9%	4.0%	6.7%	5.6%	0.7%	7	1
Romania	0.5%	–4.2%	–2.8%	9.4%	11.2%	NS	NS	–7.1%	2.8%	NS	2.2%	4	3
Slovakia	2.4%	3.1%	12.1%	9.8%	3.6%	–4.8%	NS	3.9%	5.2%	–4.5%	3.2%	7	2
Slovenia	2.3%	NS	–7.5%	1.3%	16.9%	5.1%	9.4%	NS	–2.5%	0.7%	2.2%	6	2
Spain	–0.8%	–2.3%	NS	NS	NS	–4.8%	NS	NS	3.0%	1.4%	–1.4%	2	3
Sweden	1.3%	1.6%	1.1%	2.2%	4.8%	–3.0%	–1.3%	1.1%	7.5%	3.6%	–0.3%	7	3
UK	–1.4%	–5.5%	NS	NS	–17.7%	–9.6%	7.0%	NS	–4.8%	2.7%	1.5%	3	4
Positive election effects	18	14	12	16	16	9	12	12	17	15	17	sum of positive effects: 140	
Negative election effects	6	7	12	3	9	12	7	8	5	6	7	sum of negative effects: 76	

Note: the table only reports the significant election effects based on a joint F-test for equation (2), NS – not significant effect.

Source: Own calculations using STATA based on: AMECO database, Eurostat, World Bank, and Database of Political Institutions.

model. The two final columns and rows in Table 3 indicate the number of significant positive and negative marginal effects for each country and spending category. An election-induced significant increase in total spending is observed in 18 countries, while a decrease appear in six EU Member States. The most visible election-induced increase in aggregate expenditure is observed in Ireland (13.0%), Lithuania (10.2%), Bulgaria (6.3%), Latvia (6.3%), and Greece (5.2%). Meanwhile, we find that electoral manipulation negatively affect total spending in four EU Member States as a result of too much switching as the reduction in some of the categories is higher than the increase in spending in other categories. In case of Austria, the Czech Republic, Finland and France there are observed no pure PBC (aggregate spending effect) but switching within specific expenditure categories.

When we split the total public spending into 10 categories, we find that elections significantly affect expenditure in 77% of cases (216 out of 280 cases) of which about two thirds represent increased spending. Regarding nine out of 10 analysed expenditure categories election-manipulated increased spending occurs more often than a decrease in expenditure in 28 EU Member States. In case of social protection, recreation, public order and safety, and economic affairs the increase in pre-election spending is observed in at least 16 countries. Environmental protection is the only one category where we report decreased expenditure more frequent in analysed countries.

CONCLUSIONS

The paper shows that election cycles vary substantially across EU countries and spending categories. We first find that total government spending and five out of 10 expenditure categories are on average subject to an election cycle. Exploring more the country-specific effects, about 77% the estimates report a significant election effect and about two thirds of them indicate increased spending in pre-election period. Regarding nine out of 10 spending categories, pre-election extra-spending is more frequent than an election-manipulated expenditure decrease in EU countries. In this paper we extend the literature by testing a hypothesis that election cycles are country-specific. Explaining the drivers and mechanisms of country-specific PBCs in EU Member States is a challenge for future research.

REFERENCES

Baltagi, B.H. (1995). Econometric Analysis of Panel Data. John Wiley & Sons, Hoboken NJ.

Block, S.A. (2002). Political business cycles, democratization, and economic reform: the case of Africa. Journal of Development Economics, 67, 205–228. DOI: 10.1016/S0304-3878(01)00184-5

Brender, A. (2003). The effect of fiscal performance on local government election results in Israel: 1989–1998. Journal of Public Economics, 87, 2187–2205. DOI: 10.1016/S0047-2727(02)00045-2

Brender, A., Drazen, A. (2008). How do budget deficits and economic performance affect reelection prospects? American Economic Review, 98 (5), 2203–2220. DOI: 10.1257/aer.98.5.2203

Brender, A., Drazen, A. (2013). Elections, leaders, and the composition of government spending. Journal of Public Economics, 97 (1), 18–31. DOI: 10.1016/j.jpubeco.2012.08.011

Buti, M., Van den Noord, P. (2004). Fiscal discretion and elections in the early years of EMU. Journal of Common Market Studies, 43, 737–756. DOI: 10.1111/j.0021-9886.2004.00527.x

Drazen, A., Eslava, M. (2010). Electoral manipulation via voter-friendly spending: theory and evidence. Journal of Development Economics, 92, 39–52. DOI: 10.1016/j.jdeveco.2009.01.001

Efthyvoulou, G. (2012). Political budget cycles in the European Union and the impact of political pressures. Public Choice, 153, 295–327. DOI: 10.1007/s 11127-011-9795-x

Enkelmann, S., Leibrecht, M. (2013). Political expenditure cycles and election outcomes: Evidence from disaggregation of public expenditures by economic functions. Economics Letters, 121, 128–132. DOI: 10.1016/j.econlet.2013.07.015

Franzese, R. (2000). Electoral and partisan manipulation of public debt in developed democracies, 1956–1990. [In:] R. Strauch, J. Von Hagen (eds.), Institutions, Politics and Fiscal Policy. Kluwer Academic Press, Dordrecht, 61–83.

Garmann, S. (2017). Political budget cycles and fiscally conservative voters. Economics Letters, 155, 72–75. DOI: 10.1016/j.econlet.2017.03.023

Katsimi, M., Sarantides, V. (2012). Do elections affect the composition of fiscal policy in developed, established

democracies? Public Choice, 151, 325–362. DOI: 10.1007/s11127-010-9749-8

Klomp, J., De Haan, J. (2013a). Political budget cycles and election outcomes. Public Choice, 157, 245–267. DOI: 10.1007/s11127-012-9943-y

Klomp, J., De Haan, J. (2013b). Do political budget cycles really exist? Applied Economics, 45 (3), 329–341. DOI: 10.1080/00036846.2011.599787

Kneebone, R., McKenzie, K., (2001). Electoral and partisan cycles in fiscal policy: an examination of Canadian provinces. International Tax and Public Finance, 8 (5), 753–774. DOI: 10.1023/A:1012895211073

Mink, M., De Haan, J. (2006). Are there political budget cycles in the euro area? European Union Politics, 7, 191–211. DOI: 10.1177/1465116506063706

Nordhaus, W.D. (1975). The Political Business Cycle. The Review of Economic Studies, 42 (2), 169–190.

Peltzman, S. (1992). Voters as fiscal conservatives. Quarterly Journal of Economics, 107, 325–345. DOI: 10.2307/2118475

Pesaran, M.H., Shin, Y.,Smith, R., (1999). Pooled mean group estimator of dynamic heterogeneous panels. Journal of the American Statistical Association, 94, 621–634.

Rogoff, K. (1990). Equilibrium Political Budget Cycles. The American Economic Review, 80, 21–36.

Schuknecht, L. (2000). Fiscal policy cycles and public expenditure in developing countries. Public Choice, 102, 115–130. DOI: 10.1023/A:1005026806998

Shi, M., Svensson, J. (2002). Conditional political budget cycles. CEPR Discussion Paper 3352.

Shi, M., Svensson, J. (2003). Political Budget Cycles: A Review of recent Developments. Nordic Journal of Political Economy, 29, 67–76.

Shi, M., Svensson, J. (2006). Political budget cycles: do they differ across countries and why? Journal of Public Economics, 90, 1367–1389. DOI: 10.1016/j.jpubeco.2005.09.009

Tujula, M., Wolswijk, G. (2007). Budget balances in OECD countries: what makes them change? Empirica, 34, 1–14. DOI: 10.1007/s10663-006-9015-y

Vergne, C. (2009). Democracy, elections and allocation of public expenditures in developing countries. European Journal of Political Economy, 25 (1), 63–77.

ZJAWISKO POLITYCZNEGO CYKLU BUDŻETOWEGO – WYCHODZĄC POZA ŚREDNIĄ

STRESZCZENIE

Celem artykułu była weryfikacji hipotezy traktującej o występowaniu politycznych cykli budżetowych w Unii Europejskiej, specyficznych dla danego kraju (ang. *country-specific*). Wykorzystując dane panelowe dotyczące wszystkich 28 państw członkowskich UE za lata 1995–2015, wykazano, że przedwyborcza manipulacja fiskalna skutkowała wzrostem wydatków sektora instytucji rządowych i samorządowych ogółem oraz wzrostem wydatków związanych z działalnością ogólnopaństwową, bezpieczeństwem i porządkiem publicznym, gospodarką mieszkaniową i komunalną, rekreacją i edukacją. Badanie stanowi nowatorskie połączenie koncepcji ukierunkowanych na poszczególne kategorie wydatków publicznych i występowanie specyficznych dla danego kraju cykli budżetowych w UE. Wyniki wskazują, że cykle wyborcze różnią się znacznie w poszczególnych państwach UE. Statystycznie istotny efekt wyborczy zaobserwowano w około 77% badanych przypadków, z których dwie trzecie reprezentuje wzrost wydatków w okresie przedwyborczym.

Słowa kluczowe: polityczny cykl budżetowy, PBC, cykl wyborczy, wydatki sektora instytucji rządowych i samorządowych, Unia Europejska, specyficzne dla danego kraju polityczne cykle budżetowe

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DO CHILD AND ELDER CARE INFLUENCE WORKTIME OF POLISH EMPLOYEES?

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ABSTRACT

Economic activity is an important issue, and it depends on many determinants. The aim of our research is the identification of the most important factors which affect the female and male employees' worktime in Poland. The research is provided on the basis of individual data, originating from Polish Labour Force Survey. In our study, we estimate econometric models, which are built for: the whole sample and separately for women and men. The models describe number of working hours provided by employees (in a month prior to the survey), which is explained by the characteristics of the employee and workplace. In the study we found out that there are different effects of distinguished factors to the male and female employees' activity. These differences are especially visible for the variables related to respondents' family situation, education level and occupation.

Key words: economic activity, worktime, child care, elder care, workplace's characteristics, employee's attributes

JEL codes: C21, E24, J13, J23

INTRODUCTION

Economic activity is an important issue, and the simplest way to measure it is so-called participation rate which refers to the number of people who are either employed or are actively looking for a job. Therefore, the participation rate measures the active portion of an economy's labour force. In developed countries, it is assumed that participation rate for men and women should be high and similar. Usually Scandinavian countries are given as an example of good practice in labour market.

The reasons of low participation rate are usually connected with different economic features, but the household's situation should be also taken into account. The impact of family policies to economic activity is considered in Jaumotte [2003], van Ham and Mulder [2005], Gehringer et al. [2014], Ferragina [2017], Hook and Paek [2018] among others.

There are different family duties however in our research we consider only care providing, i.e. child and elder care. The former is discussed in literature quite often [Correll et al. 2007, Gangl and Ziefle 2009, Budig and Hodges 2010, Napari, 2010, Cukrowska 2011] and many problems seem to be solved by appropriate parenthood policy. Whereas problems concerning elder care are seldom investigated and there is usually lack of the family policy solutions dedicated to the elderly although ageing of societies profoundly impacts families in majority of developed countries. There is also no doubt that informal elder care responsibilities affect the employment [Viitanen 2010, Bauer and Sousa-Poza 2015] since care providers substantially reduce working hours or give up job [Johnson and Lo Sasso 2006]. According to Resolution 238 of the Council of Ministers of 2013, two thirds of informal caregivers in Poland are

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unemployed or they gave up job, and others share care duties with professional work. Caregivers are usually women, daughters and wives of the elderly and mothers or grandmothers of children.

The aim of our research[1] is identification of the most important factors which affect economic activity in Poland. However, in contrast to the majority of research, we consider only employees and their economic activity is measured by the number of hours spent at work. In other words, worktime is used as a proxy of activity in labour market, and we use not macro but micro data. In the study, investigation is provided applying individual data, originating from Polish Labour Force Survey (Badanie Aktywności Ekonomicznej Ludności – BAEL). Research concerns female and male employees' worktime, regarding the duties concerning child and elder care. In our analysis, we estimate econometric models, which are built for: the whole sample and separately for women and men. The models describe logarithms of number of working hours provided by employees (in a month), which are explained by individual attributes of employees together with features regarding their family situation, and workplaces characteristics.

DATA AND MODEL CONSTRUCTION

The original Polish Labour Force Survey of first quarter of 2009 data base contains 54,666 records [GUS 2009]. For our research we selected respondents who declared that they were working during the month preceding the survey. We also removed all records with incomplete data concerning the defined features which are needed in our investigation. As a result, the sample used in our research contains observations regarding 7,044 respondents, among them 3,293 women and 3,751 men.

We construct econometric models describing worktime, represented by the natural logarithms of number of hours overworked by respondents in the month preceding the survey:

$$\ln\left(y_i\right) = \sum_{k=1}^{K}\left(\alpha_k \cdot x_{ki}^{1}\right) + \sum_{l=1}^{L}\left(\beta_l \cdot x_{li}^{2}\right) + \\ + \sum_{n=1}^{N}\left(\gamma_n \cdot x_{ni}^{3}\right) + \varepsilon_i$$

where:

y_i – working hours provided by employees;
x_{ki}^{m} – explanatory variables (m = 1, 2, 3) representing (1) respondents' family structure; (2) employees; (3) workplace controls;
α_k, β_l, y_n – regression parameters;
ε_i – regression residual.

There is rich literature concerning wages and its determinants. Remuneration depends not only on hourly wages but also on worktime. Economic activity depends on many factors such as: level of education, place of living, occupation, economic sector of employment, hourly wages and family situation which are also used in description of wages [Grajek 2001, Blau and Kahn 2006, 2011, Cukrowska 2011, Witkowska 2012, 2013].

In our study, we assume that explanatory variables in the models describing worktime should be similar to the ones used in the models of wages, i.e. both quantitative and qualitative. Qualitative variables are represented by nine dummies, which are presented in Table 1 where the symbol of the variable together with its description, information about number of variants for each variable (in parenthesis) and the reference variant are given.

The former describes age (*AGE*) and age squared, hourly wages (*WAG*) together with eight variables related to the family situation (*NUM*) which are described in Table 2. It is worth mentioning that we selected six different sets of variables describing situation in family. It is done to provide more profound analysis for distinguished situations concerning child and elder care, and the fact not all "family" variables should be included in one model at the same time because some information is repeated by more than one variable. The specification of the models is given in

[1] This work was supported by the National Science Centre in Poland, Grant 2015/17/B/HS4/00930 *Changes of women's position in the labour market. Analysis of the situation in Poland and in the selected European Union States in the years 2002–2014*.

Table 1. List of dummies

Variable	Dummies description of (number of variants)	Reference variant
GEN	gender (2)	women
REL	relationship with the head of the household (2)	not a household head
MAR	marital status (2)	not married
RES	size class of the place of residence – number of inhabitants (6)	countryside
EDU	education (6)	lower than preliminary
SIZ	size of employee's firm (6)	20–49 employees
OWN	ownership of the enterprise or institution (2)	private
SEC	sector of employment (4)	other
OCU	occupation (9)	industry workers

Source: Own elaboration.

Table 2. The sets of "family" variables – variables describing situation in family (NUM)

Number of	Data set					
	S1	S2	S3	S4	S5	S6
Persons (individuals) living in the household	+		+	+		
Children ≤ 5 years old		+	+			+
Children 6–15 years old		+				+
Children 16–18 years old		+				+
Persons 19–65 years old			+			
Elderly persons > 65 years old		+		+	+	+
Unemployed children living in the household				+	+	
Employed persons living in the household						+

Symbol + denotes that particular variable is included into the model.

Source: Own elaboration.

Table 2 (the sets of explanatory variables are denoted as S1, S2, …, S6).

Models, describing working hours provided by employees during the month preceding the survey, are estimated using OLS method for the whole sample and separately for subsamples of men and women which is an ordinary approach [Grajek 2001, Blau and Kahn 2006, Witkowska 2012, 2013]. These models are denoted by letters, T, M and W, respectively. One should also notice that there are six model's specifications due to variable sets, presented in Table 2. Therefore, symbols of models inform about the specification of the model and estimation sample. For instance, MT1 denotes the model containing the first set of "family"

variables S1 with only one variable describing count of persons living in the household (Table 2) estimated for all respondents while MW6 – the model containing the sixth set of "family" variables estimated for women.

EMPIRICAL RESULTS

Estimation results obtained for all 18 models are presented in Tables 3 and 4, in form of significance level of parameters and adjusted determination coefficients. Symbol: * denotes significance level $\alpha = 0.1$, ** for $\alpha = 0.05$, and *** for $\alpha = 0.01$; × denotes lack of variables. In our study we assume that variable is statistically significant if the null hypothesis can be rejected at significance level $\alpha = 0.05$ or less.

Taking into account quality of models, it is visible that the models estimated for the whole sample and for the subsample of women well describe the logarithm of monthly worked hours (adjusted R^2 is over 0.996) while the models estimated for the subsample of men do not explain the changes of the dependent variable since adjusted R^2 is below 0.125. It means that there must be different factors influencing time overworked by male employees during the month. However, the models, estimated for the whole sample, show that men spend significantly more time at work than women since the parameter standing by variable *GEN* is significantly bigger than zero.

Although we expect that explanatory variables may influence dependent variable differently for both genders, there are some factors which influence a worktime similarly in all models, i.e. regardless the sample used for their estimation. Positive and significant impact is observed for age and the economic sector. The former is quantitative variable, i.e. the increase of age causes the increase of the worktime. The latter is a set of dummies so the positive parameters standing by them mean that the dependent variable increases for all variants of this feature in comparison to the reference variant, i.e. "other sectors".

The significantly negative parameters are standing by: age squared, the type of ownership, and hourly wages. Negative parameter standing by squared age says that increase of age causes the increase of worktime but only to some extent. Variable describing hourly wages is also quantitative therefore the negative significant parameter means that the higher wages make employees work shorter which seems to be quite transparent conclusion. The type of ownership is dichotomous variable thus negative value of the parameter means lower value in comparison to the reference variant: private. In other words, employees of public institutions spend less time in job than the ones working in private sector.

We may also distinguish factors which influence the worktime in different way for each gender. Being a household head significantly increases number of hours spent at work during a month in all models estimated for women while it is insignificant factor for men and the models estimated for the whole sample, with exception of the model MT3 (Table 3). Married women work significantly less than unmarried ones. The conclusion from the models estimated for the whole sample is the same while the parameter estimates standing by this dummy in the models estimated for the sample of men are positive in all models and statistically significant in models MM1and MM5. These results suggest that married men work more than unmarried while in case of female employees, the situation is opposite.

Also dummies representing different size classes of the place of residence have different impact to the dependent variable since in case of men, the character of the resident place is insignificant. It means that regardless if they live in towns or cities with different number of inhabitants there is no difference of their working time in comparison to men living in the countryside. For women, significant increases are observed when they live in big cities over 100 thousand inhabitants, cities with 10–50, and 2–5 thousand citizens (except models MW2 and MW6) in comparison to countryside residents. It may be caused by the fact that in the countryside there is relatively not many jobs outside private farms and that kind of job might be treated by respondents as an unpaid housework.

Taking into consideration the level of education we notice differences between both genders. Again, the conclusions derived from the models estimated for the whole sample and for female employees are quite similar because for all levels of education higher than primary and lower vocational education, time

Table 3. Parameter estimates: general models (MT), for men (MM) and for women (MW)

Variable	Variable explanatory	Model																	
		MT1	MT2	MT3	MT4	MT5	MT6	MM1	MM2	MM3	MM4	MM5	MM6	MW1	MW2	MW3	MW4	MW5	MW6
AGE	age	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
	age^2	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
GEN	man	***	***	***	***	***	***	×	×	×	×	×	×	×	×	×	×	×	×
REL	household head	*		***	*									**	**	***	***	**	**
MAR	married	***	***	***	***	***	***	**		*	*	**		***	***	***	***	***	***
RES	> 100 thousands	***	*	**	**	*	**							***	**	***	***	**	**
	50–100 thousands																		
	10–50 thousands	**	*	**	**	**	*							***	**	***	***	**	**
	5–10 thousands																		
	2–5 thousands													**	*	**	**	**	*
EDU	university (at least PhD)	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
	university	***	***	***	***	***	***							***	***	***	***	***	***
	post secondary	***	***	***	***	***	***							***	***	***	***	***	***
	vocational or general secondary	***	***	***	***	***	***							***	***	***	***	***	***
	primary or lower vocational							**	**	**	**	**	**						
SIZ	≤ 10 employees	**	**	**	**	**	**												
	11–19 employees	**	**	**	**	**	**							**	**	**	**	**	**
	50–100 employees	***	***	***	***	***	***							***	***	***	***	***	***
	101–250 employees	***	***	***	***	***	***							***	***	***	***	***	***
	> 250 employees	***	***	***	***	***	***							***	***	***	***	***	***
OWN	public	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
SEC	agriculture	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
	industry	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
	service	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
OCU	managerial	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
	professional	***	***	**	***	***	***	***	***	***	***	***	***	**	**	***	***	**	**
	technical	***	***	***	***	***	***							***	***	***	***	***	***
	clerical	***	**	**	**	***	**	*	*	*	*	*	*	***	***	***	***	***	***
	sales and services	***	***	***	***	***	***							***	***	***	***	***	***
	farmers, fishers etc.																		
	skilled workers	***	***	***	***	***	***	**	**	**	**	**	**	***	***	***	***	***	***
	unskilled workers							***	***	***	***	***	***	***	***	***	***	***	***
WAG	hourly wages	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
NUM	persons in the household	***	×	***	***	×	×		×	***		×	×	***	×	***	***	×	×
	children ≤ 5 years old	×		***	×	×		×		**	×	×		×			×	×	
	children 6–15 years old	×	**	×	×	×	**	×	**	×	×	×	**	×		×	×	×	
	children 16–18 years old	×	***	×	×	×	***	×	***	×	×	×	***	×	***	×	×	×	***
	persons 19–65 years old	×	×	***	×	×	×	×	×	***	×	×	×	×	×	***	×	×	×
	elderly persons > 65 years old	×		×	**			×	*	×	*	*	*	×	**	×		**	**
	unemployed children	×	×	×	***		×	×	×	×			×	×	×	×	***		×
	employed persons	×	×	×	×	×	**	×	×	×	×	×		×	×	×	×	×	***

Source: Own elaboration.

Table 4. Adjusted determination coefficient of estimated models

Model	MT1	MT2	MT3	MT4	MT5	MT6	MM1	MM2	MM3
R^2 adjusted	0.9972	0.9972	0.9973	0.9972	0.9972	0.9972	0.1208	0.1242	0.1239
Model	MW1	MW2	MW3	MW4	MW5	MW6	MM4	MM5	MM6
R^2 adjusted	0.9962	0.9962	0.9963	0.9962	0.9962	0.9962	0.1211	0.1213	0.1242

Source: Own elaboration.

spending for job is significantly bigger. Whereas it is not a case of men who work significantly more than individuals with education lower than primary only if they are PhD or obtained higher scientific title. Men with primary and lower vocational education work significantly less than the ones without any education. In all other cases worktime seems to be the same.

Considering the influence of size of the workplace, we compare enterprises or institutions where respondents are employed, to the unit employing 20–49 employees. For the whole sample, all dummies have a significantly positive impact to working time. If the subsample of women is taken into account, the results are similar to the ones just mentioned with the exception of the smallest enterprises (i.e. with less than 10 employees). Whereas for men, size of the place of employment is insignificant in all models.

Occupation is also a feature which shows different impact on worktime if different group of respondents is considered. One can see that for the whole sample only professionals work significantly less than industry workers (which is the reference variant of this variable), while in the groups of farmers, fishers, etc. and unskilled workers there is no significant differences in comparison to industry workers. Other selected groups of occupation work significantly longer than reference variant of this variable. For the sample of male employees, significantly more time spent in the workplace is observed for managers and skilled workers, while significantly less for professionals. For the rest of occupations, the worktime does not significantly differ than for industry workers. Situation of female employees is completely different since for all occupations except farmers, fishers, etc., working time is significantly bigger than for industry workers.

Models denoted as M2 contain four variables representing number of children in different age and elderly persons. Models estimated for all respondents and men show the similar impact of these variables to the worktime i.e. it significantly increases when number of children in age 6–15 increases and decreases with the increase of count of children in age 16–18 years old, whereas number of children below 5 years old and elderly persons over 65 years old are not statistically significant. In case of women, the last-mentioned variable significantly rises the working time and number of children in age 15 or less (representing by two explanatory variables) does not significantly influence the dependent variable. Number of children in age 16–18 is significant with positive parameter estimate also when female employees are considered.

Models M5 contain number of elderly persons and unemployed children in the household, while models M4 include additionally number of persons in the household. All these variables are statistically significant in the model MT4, i.e. last-mentioned variable has positive impact whereas two others – negative, and these two variables are insignificant in the model MT5. When models M4 and M5 are estimated for men – all these variables are insignificant. Whereas for female employees, number of persons in the household has significantly positive impact and number of unemployed children is also significant, but the parameter shows that increase of this variable causes decrease of the working time in the model MW4. In the model MW5 parameter standing by number of elderly persons is significantly positive.

Models M6 contains variables describing number of children below 19 years old (three variables for different age intervals) children employed and elderly persons in the household. Number of employed persons and children from 6 to 15 years old have sig-

nificantly positive impact to the time spending in job, whereas number of children in age 16–18 has significantly negative influence in the model MT6. Similar results but with lack of significance of the variable describing number of elderly persons in the household are observed in the model MM6. For women, significant and positive parameters stand by number of employed and elderly persons, and negative – for the number of children in age 16–18.

CONCLUSIONS

In our research we consider only respondents working during the month preceding the Polish Labour Force Survey, omitting inactive portion of labour force. We attempt to answer if factors affecting level of economic activity differ for men and women. Among distinguished variables the same impact for both genders are observed for hourly wages, age and age squared, which are quantitative, and ownership of the workplace and economic sector which are qualitative features. Due to obtained results the increase of hourly wages causes the decrease of worktime, working time increase with age but only to some extend since the parameter standing by the age squared is negative. Employees from public sector work significantly less (in terms of working hour) than the ones from private sector. Time spent at work is significantly longer in agriculture, industry and service than worktime in other sectors. For the rest of variables, differences in the direction or strength of influence are observed for at least one variant of variable. Details are presented in Tables 5 and 6, where sign in parenthesis denotes if the impact of variable is negative or positive, and bold letters point out models with opposite impact observed for both genders.

Among variables related to family situation (Table 5), we notice that each of them is significant at least in one model but they cause different effects for male and female employees. The positive impact on worktime is observed for number of: children in age 15 years and below, and persons aged 19–65 in models estimated for men. While significantly negative influence is visible for number of children in age 16–18, and number of persons living in one household. It means that increase of these variables causes the decrease of working time provided by male employees. The same impact is observed for these variables in models estimated for women. However, in the models MW1 and MW4 the increase of the number of persons on the household cause the decrease of worktime provided by female employees. The negative and significant parameter standing by the number of children who are not employed (in the model MW4) informs that women work less if this variable increases. Whereas the bigger number of grownup and employed persons (also aged more than 65 years old) causes that women's worktime is longer.

To conclude, in our research we prove that the increase of number of children (unemployed) and the elderly in the household causes reduction of worktime (model MT5). However, this conclusion is not true for

Table 5. Models with significant "family" variables

Number of	Men	Women
Persons (individuals) living in the household	S3(–)	S1(+), S3(–), S4(+)
Children ≤ 5 years old	S3(+)	
Children 6–15 years old	S2(+), S6(+)	
Children 16–18 years old	S2(–), S6(–)	S2(–), S6(–)
Persons 19–65 years old	S3(+)	S3(+)
Elderly persons > 65 years old		S2(+), S5(+), S6(+)
Unemployed children living in the household		S4(–)
Employed persons living in the household		S6(+)

Source: Own elaboration.

Table 6. Models with significant qualitative variables

Variable	Variable explanatory	Men	Women
REL	household head		S1–S6(+)
MAR	married	S1(+), S5(+)	S1–S6(–)
RES	> 100 thousands		S1–S6(+)
	10–50 thousands		S1–S6(+)
	2–5 thousands		S1(+), S3–S5(+)
EDU	university (at least PhD)	S1–S6(+)	S1–S6(+)
	university		S1–S6(+)
	post secondary		S1–S6(+)
	vocational or general secondary		S1–S6(+)
	primary or lower vocational	S1–S6(–)	
SIZ	11–19 employees		S1–S6(+)
	50–100 employees		S1–S6(+)
	101–250 employees		S1–S6(+)
	> 250 employees		S1–S6(+)
OWN	public	S1–S6(–)	S1–S6(–)
SEC	agriculture	S1–S6(+)	S1–S6(+)
	industry	S1– S6(+)	S1–S6(+)
	service	S1–S6(+)	S1–S6(+)
OCU	managerial	S1–S6(+)	S1–S6(+)
	professional	S1–S6(–)	S1–S6(+)
	technical		S1–S6(+)
	clerical		S1–S6(+)
	sales and services		S1–S6(+)
	skilled workers	S1–S6(+)	S1–S6(+)
	unskilled workers	S1–S6(–)	S1–S6(+)

Source: Own elaboration.

model estimated separately for men and women. In case of male employees, the parameters are negative but insignificant, while for females – positive and significant only for number of elderly persons. The reason of such results may be giving up jobs, especially by women who are caregivers (such a case is omitted in our research). One should also notice that not all people in retirement age require care, and, to the contrary, some of them might provide care for grandchildren. That might be the reason of positive and significant parameter standing by the variable representing number of the elderly in the household. It is also worth mentioning that application of variables which disaggregate (by age) number of children did not give expected results i.e. significant impact on number of hours overworked, except children in high school age.

Taking into account qualitative variables (Table 6) the most important results are:

1. If a woman is a household head, she spends in job more time than female employee who is not a head of family. There is no such effect for male employees.
2. Married women spend less time in the workplace than unmarried ones. For men this relation is either opposite or insignificant.
3. Female employees in cities with 2–5, 10–50 and over 100 thousand inhabitants work more than in the countryside. No significant dependency for this group of dummies is observed for men.
4. Women with general secondary or vocational and higher education spend more time in their job than uneducated female employees while such relation is observed only for men with university (PhD or higher) education. Male employees with general secondary or vocational education work less than uneducated employees.
5. Women employed in the workplaces with 11–19, and over 50 employees spend in their job more time than the ones who work in units employed 20–49 employees. Whereas there is no significant dependency for this group of dummies for men.
6. Women classified as: managerial, professional, technical, clerical, sales and services, skilled and unskilled workers work longer than industry workers. The same relation for male employees is observed for managers and skilled workers only whereas for unskilled workers this relation is opposite. The negative impact on worktime is visible also for professionals, while other variants of this variable are insignificant.

REFERENCES

Bauer, J.M., Sousa-Poza, A. (2015). Impacts of informal caregiving on caregiver: Employment, health and family. Journal of Population Ageing, 8 (3), 113–145.

Blau, F.D., Kahn, L.M. (2006). The U.S. Gender Pay Gap in the 1990s: Slowing Convergence. Industrial and Labor Relations Review, 60 (1), 45–66.

Budig, M.J., Hodges, M.J. (2010). Differences in Disadvantage: Variation in the Motherhood Penalty Across White Women's Earnings Distribution. American Sociological Review, 75 (5), 705–728.

Correll, S.J., Benard, S., Paik In (2007). Getting a job: Is there a motherhood penalty? American Journal of Sociology, 112 (5), 1297–1338.

Cukrowska, E. (2011). Investigating the motherhood penalty in a post-communist economy: evidence from Poland (master thesis). Central European University, Budapest [manuscript].

Ferragina, E. (2017). Does family policy influence women's employment?: Reviewing the evidence in the field. Political Studies Review, November, 1–16.

Gangl, M., Ziefle, A. (2009). Motherhood, Labor Force Behavior, and Women's Careers: An Empirical Assessment of the Wage Penalty for Motherhood in Britain, Germany and the United States. Demography, 46, 341–394.

Gehringer, A., Klasen, S., Witkowska, D. (2014). Labour force participation and family policies in Europe: An empirical study. Quantitative Methods in Economics, 15 (1), 37–49.

Grajek, M. (2001). Gender Pay Gap in Poland. Discussion Paper FS IV 01-13. Wissenschaftszentrum, Berlin.

GUS (2009). Badanie Aktywności Ekonomicznej Ludności, 1 kwartał 2009 [Polish Labour Force Survey, 1Q 2009]. Warszawa.

Ham, M., van, Mulder, C.H. (2005). Geographical access to childcare and mothers' labour-force participation. Journal of Economic and Social Geography, 96 (1), 63–74.

Hook, J.L., Paek, E. (2018). A stalled revolution for whom? Decomposing change in women's labor force participation in 12 countries, 1988–2015. Discussion paper. University of South California, Los Angeles.

Jaumotte, F. (2003). Labour force participation of women: empirical evidence on the role of policy and other determinants in OECD countries. OECD Economic Studies, 37 (2), 51–107.

Johnson, R.W., Lo Sasso, A.L. (2006) The impact of elder care on women's labor supply. Inquiry, 43, 195–210.

Napari, S. (2010). Is There a Motherhood Wage Penalty in the Finish Private Sector? Labour, 24 (1), 55–73.

Uchwała Nr 238 Rady Ministrów z dnia 24 grudnia 2013 r. w sprawie przyjęcia dokumentu Założenia Długofalowej Polityki Senioralnej w Polsce na lata 2014–2020. M.P. 2014, poz. 118 [Resolution No 238 of the Council of Ministers of 24 December 2013 regarding the adoption of the document on the Long-Term Policy of the Senior Policy in Poland for the years 2014–2020]. Polish Official Gazette 2014, item 118.

Viitanen, T.K. (2010). Informal Elderly Care and Women's Labour Force Participation across Europe: Estimates from the European Community Household Panel. Economic Analysis and Policy, 53 (2), 127–138.

Witkowska, D. (2012). Wage disparities in Poland. Econometric models of wages. Quantitative Methods in Economics, 15 (1), 192–208.

Witkowska, D. (2013). Gender disparities in the labor market in the EU. International Advances in Economic Research, 19 (4), 331–354.

CZY OPIEKA NAD DZIEĆMI I OSOBAMI STARSZYMI WPŁYWA NA CZAS PRACY POLSKICH PRACOWNIKÓW?

STRESZCZENIE

Aktywność zawodowa jest istotnym problemem, na który wpływa wiele determinant. Celem badań jest identyfikacja najważniejszych czynników oddziałujących na czas pracy pracowników w Polsce. Badania są realizowane na podstawie danych indywidualnych pochodzących z Badania Aktywności Ekonomicznej Ludności za pierwszy kwartał 2009 roku. W artykule przedstawiono modele ekonometryczne oszacowane dla całej próby oraz oddzielnie dla kobiet i mężczyzn. Modele opisują przepracowane godziny (w ciągu miesiąca poprzedzającego badanie), które są objaśniane przez indywidualne cechy pracowników, ich sytuację rodzinną oraz charakterystyki miejsca zatrudnienia. Badanie wykazało, że wyróżnione czynniki w odmienny sposób oddziałują na aktywność zawodową kobiet i mężczyzn. Te różnice są szczególnie widoczne w przypadku zmiennych odnoszących się do sytuacji rodzinnej, poziomu wykształcenia i zawodu respondentów.

Słowa kluczowe: aktywność zawodowa, czas pracy, opieka nad dziećmi, opieka nad osobami starszymi, charakterystyka miejsca pracy, atrybuty pracowników

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JOB INSECURITY – CONCEPTUALIZATION OF THE NOTION AND METHODS OF MEASUREMENT

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ABSTRACT

Increasing globalization and transformation of the modern labour market have changed the traditional employment model, introducing insecurity associated with taking up and maintaining work. Job insecurity, understood as a "perceived threat of job loss and concerns related to this threat" is an unavoidable and widespread phenomenon in today's professional world. Job insecurity has been of great interest to researchers since the 1980s. Job insecurity is one of the emerging research directions in economic theory. The aim of the article is to try and provide an interdisciplinary conceptualization of job insecurity. The article presents different ways of understanding job insecurity and discusses the methods of its measurement. A systematic review of world literature was conducted to identify and assess the current state of knowledge in this area. The analysis of scholarly publications on job insecurity confirms the existence of a relatively small number of scientific and research studies in this field in Poland. Therefore, a cognitive gap is identified which invites a more in-depth investigation of job uncertainty, in particular its integrated review and conceptual framework as well as designing the relevant measurement tool. The article is analytical and conceptual, and can be a contribution to the discussion on job insecurity and a starting point for empirical research in economic sciences.

Key words: job insecurity, measuring job insecurity, labour market
JEL codes: J24, J28, J62

INTRODUCTION

Over the last few decades, there has been a considerable increase in the number of studies conducted on the job insecurity [De Cuyper et al. 2014, Richter et al. 2018]. Job insecurity refers to employees' negative reactions to changes concerning their jobs and reflects anxiety caused by serious and undesirable organizational transformations that threaten the continuity of employment. This phenomenon is a subjectively experienced anticipation of an important, undesirable event regarding job situation.

With the rapid changes in the organizational environment and the growing number of temporary and short-term employment contracts, job insecurity is becoming increasingly unavoidable in the current business environment [Sverke and Hellgren 2002]. It is important to seek effective strategies to help employees cope with job insecurity so that they may stay engaged and productive in their work, particularly under difficult economic conditions.

The experiencing of job insecurity has been found to be more complex, as studies show that individual employees working at the same organization experience different levels of job insecurity, which can be explained through inter-individual differences that may affect the perception of a common work situation [Sverke et al. 2002, De Witte and Näswall 2003].

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A study comparing subjectively to objectively defined insecurity found that individually perceived job insecurity was more strongly associated with negative consequences than were environmentally determined indicators of job insecurity such as temporary work [De Witte and Näswall 2003]. Thus, approaching job insecurity subjectively, through measuring employees individually, makes it possible to capture a greater variability in job insecurity perceptions [Richter 2011].

Researchers and organization managers therefore need to know under what conditions employees' negative responses to job insecurity can be buffered. In particular, Rosen et al. [2010] advocated more research on work contextual moderators of job insecurity, because it is not only crucial for the theoretical development of the job insecurity literature, but also provides practical implications for organizations to manage job insecurity crisis. Nevertheless, in the literature only limited studies have examined work contexts as moderators of the effects of job insecurity on behavioural outcomes, and most of them focus on work-related support [Loi et al. 2011]. In addition, many of the existing empirical studies on job insecurity are limited to cross-sectional data [Sverke and Hellgren 2002, Greenhalgh and Rosenblatt 2010].

The problem of job insecurity has been recently the subject of increasing interest in economic theory. Therefore, the aim of these considerations is to present the essence of this phenomenon. In Poland, research on job insecurity is not yet very common [Chojnacki 2015].

This article provides an overview of the rapidly growing job insecurity literature aimed at identifying crucial gaps and providing a general framework through which to guide future work. To that end, it calls for greater attention to the conceptualization and measurement of job insecurity. Research is additionally needed to expand knowledge of antecedents of job insecurity, in particular by recognizing that job insecurity occurs not only when individuals perceive that future of the job itself is threatened but also when they perceive certain risks to themselves as jobholders. Different ways of understanding job insecurity were presented, and different methods of its measurement were discussed, in the article using a critical literature review. The review of the literature was carried out using the Ebsco Business Source Complete, Emerald and Proquest database, with preference for full-text, peer-reviewed articles published in scientific journals in 2000–2018, containing the following two key words in their abstract: *job insecurity* and *research*.

LITERATURE REVIEW

The content of job insecurity

The term "job insecurity" is used in a variety of ways. This poses a challenge, as the building of a coherent and practically useful body of knowledge surrounding job insecurity requires a clear conceptualization of the construct. Job insecurity exists on a continuum from insecure to secure, where employees experience job security when they perceive that the continuity and stability of their jobs are unthreatened.

Job insecurity can be defined as the perception that the future of one's job is unstable or at risk, regardless of any actual objective level of job security [Lixin 2017]. This definition points to several core elements of job insecurity [Shoss 2017]. First, job insecurity is a subjective experience [De Witte 1999]. This focus on perceptions, though consistent with most conceptualizations, contrasts with the designation of jobs as objectively insecure – for example, based on contract type (e.g. temporary workers) or objective organizational circumstance (e.g. layoffs). Given the subjective nature of job insecurity, two persons in the same objective situation may experience very different levels of job insecurity. Second, the notion of threat highlights job insecurity as a future-focused phenomenon. Job insecurity reflects a forecast about an event, specifically a loss event, which might happen at some point in the future. Thus, not all anticipated or potential job-related events create job insecurity – rather, only those that involve the "potential for harm or loss" [Boswell et al. 2014]. Because threats have not yet materialized, job insecurity involves uncertainty [De Witte 1999, Sverke et al. 2002, Probst 2003]. Hence, the study of job insecurity is the study of how people perceive and respond to "visualized [job or job feature] loss" [Greenhalgh and Rosenblatt 1984, p. 441] as opposed to actual job or job feature loss. Finally, what is under threat in the case of job insecurity is the stability and continuity of one's current employment – specifically,

one's current job in one's current organization [De Witte 1999, Probst 2003]. This differentiates job insecurity from related constructs, such as employability, which captures an individual's perceived ability to obtain a new job, for example, due to "know-how, skills, knowledge of the labour market, and adaptability" [De Cuyper et al. 2008, p. 490].

Job insecurity is a complex phenomenon that can affect not only the individual at work, but also the individual outside work, and his or her organization. Job insecurity has been defined as the employee's "perceived powerlessness to maintain desired continuity in a threatened job situation" [Greenhalgh and Rosenblatt 1984, p. 438]. The two key aspects affecting the experiencing and severity of job insecurity, as stressed by these researchers, are: (1) powerlessness, a feeling of not being able to change the situation and (2) the perceived threat of job loss [Richter 2011].

Greenhalgh and Rosenblatt [1984, p. 438] define job insecurity as "the perceived powerlessness to maintain desired continuity in a threatened job situation". In their model, the job insecurity construct is multidimensional, consisting of five components[1] [Ashford et al. 1989]. The first four make up what Greenhalgh and Rosenblatt [1984, p. 440] labelled "the severity of threat", or the degree of perceived threat to continuity in a job situation. This threat may pertain to various features of a job or to the entire job. Thus, the first component of the job insecurity construct is perceived threat to various job features such as opportunities for promotion and freedom to schedule work. The more features that an individual perceives to be threatened, the greater the job insecurity. However, as in expectancy-valence formulations, in Greenhalgh and Rosenblatt's model the perceived importance of each feature to an individual – the second component of the insecurity construct – weights the first dimension. To achieve this weighting, researchers would multiply the perceived threat to each feature by its importance and then sum the scores for each feature to obtain an overall severity rating. This operation relies on the assumption that a threat to an important job feature will contribute more to job insecurity reactions than will a threat to a minor feature [Greenhalgh and Rosenblatt 1984]. The construct's third component is the perceived threat of the occurrence of various events that would negatively affect an individual's total job; being fired or laid off for a short while are examples. The fourth component is the importance attached to each of those potentialities. These two components would also combine multiplicatively and, when summed, yield a weighted rating of the severity of the threat to a total job. The fifth component of the job insecurity construct is powerlessness. Although Greenhalgh and Rosenblatt did not explicitly define powerlessness, it seems to encompass an individual's ability to counteract the threats identified in the first four components. Thus, even if they perceive a threat to their jobs or job features, people who have the power to counteract threats – those who are low in powerlessness – should not experience much job insecurity.

Subsequent authors have widened the concept to include not only perceptions of unwanted job termination, but the implications of such an event should it happen. Sverke and Hellgren [2002, p. 39] have devised an integrated model, describing job insecurity "as a subjectively experienced multidimensional phenomenon which may arise as a function of the interaction between the objective situation... and subjective characteristics".

Other authors have proposed alternative definitions: "the subjectively experienced anticipation of a fundamental and involuntary event related to job loss" [Sverke et al. 2002], "a discrepancy between the level of security a person experiences and the level she or he might prefer" [Hartley et al. 1991, p. 7], the

[1] The elements were combined to form a multidimensional construct of job insecurity, an alternative concept to the unidimensional construct previously used [Greenhalgh and Rosenblatt 2010]. This factor structure of the job insecurity construct has faced criticism and controversies in a number of subsequent studies. For example, some researchers claimed that powerlessness should be regarded as either an antecedent or outcome of job insecurity, and not as another dimension of this construct. However, the multi-factorial structure of the job insecurity concept has proved quite robust and is viewed as superior to the unidimensional construct. This structure was used as a foundation for a number of studies over the years and was central in the development of a measure to test the theory [Ashford et al. 1989, Lee et al. 2008].

"one's expectations about continuity in a job situation" [Davy et al. 1997, p. 323], as well as the "concern about the continued existence of jobs" [Van Vuuren 1990, cited in De Witte 1999]. These definitions highlight a number of important issues such as job insecurity and job loss, and subjective and objective job insecurity.

The uncertainty and the powerlessness the workers suffer refers to a future situation, making the individual wondering about the future employment prospects of the present job. And this can be a very precarious situation: when the workers are actually fired or have been notified that they will be fired soon, they can take actions or do something to buffer the negative consequences of the dismissal. In this case, the workers can cope with the possible results of the job loss by doing something against it. In contrast, job insecurity implies that there is no certainty about losing the job. Hence, the worker is located in the middle of two possible positions: keeping his job or losing it. As a result, there is uncertainty about the future. And the future not only refers to the working situation, but also to aspects as family, social relations or health. Losing the job may have a negative effect on a lot of different situations and persons [Awosusi and Fasanmi 2014].

However, all authors agree in presenting subjective job insecurity as the result of a two-stage process by which a subjective threat is derived from an objective threat. Selected definitions of job insecurity are included in the table.

RESULTS AND DISCUSSION

Measuring job insecurity

There are different ways to measure job insecurity. Most researchers currently assume that job insecurity includes cognitive and affective aspects [Johnson et al. 1984, Borg and Elizur 1992, Mauno and Kinnunen

Table. Selected definitions of job insecurity

Definition	Reference
Perceived powerlessness to maintain desired continuity in a threatened job situation.	Greenhalgh and Rosenblatt 1984
An overall concern about the continued existence of the job in the future.	De Witte 1999
Quantitative job insecurity refers to concerns about the future existence of the present job. Qualitative job insecurity pertains to perceived threats of impaired quality in the employment relationship, such as deterioration of working conditions, lack of career opportunities, and decreasing salary development.	Hellgren et al. 1999
A fundamental and involuntary change concerning the continuity and security within the employing organisation.	Sverke and Hellgren 2002
Job security [is] the perceived stability and continuance of one's job as one knows it.	Probst 2003
Employees' perceptions about potential involuntary job loss.	De Cuyper et al. 2008
A concern about the future of one's job.	Klandermans et al. 2010
A psychological state in which workers vary in their expectations of future job continuity within an organization.	Loi et al. 2011
Worker's perception or concern about potential involuntary job loss.	De Cuyper et al. 2012
The overall apprehension of the continuing of one's job.	Keim et al. 2014
The subjectively perceived and undesired possibility to lose the present job in the future, as well as the fear or worries related to this possibility of job loss.	Vander Elst et al. 2014
The perceived threat of losing the current job in the near future.	Vander Elst et al. 2016

Source: Own elaboration based on the sources provided.

2002, Sverke et al. 2002, Probst 2003]. This distinction is most often reflected in both the adopted definitions and the operationalizations of the phenomenon in question[2]. The cognitive dimension[3] mainly refers to the rationale assumed by employees in the face of the probability of losing their job, whereas the affective dimension concerns their emotional response, usually expressed in the form of anxiety and fear for potential loss of job. Under this operationalization, people who perceive the possibility of losing their jobs do not necessarily have to be emotionally affected by that fact provided that they have the resources to find a way out of that situation. Since this hypothesis defines job insecurity as a subjective phenomenon and stresses the importance of personal perception, the affective element appears to be more significant when examining job insecurity and individual well-being. Richter [2011] argues that subjective treatment of job insecurity, based on the measuring of individual employees, allows to identify greater variability in the perception of job insecurity.

One of the first operationalizations of job insecurity, referring mainly to its affective aspect[4], was developed by Johnson et al. [1984], who nevertheless failed to justify the methodology of formulating test items on theoretical grounds. It was the case until Borg and Elizur [1992] demonstrated the justification for distinguishing the cognitive and affective aspects, and developed an instrument made up of two scales that measured both these facets. Some researchers have adapted the scale developed by Borg and Elizur [1992], selecting from it only those items related to the risk of job loss [Stiglbauer et al. 2012][5].

In the following years, the cognitive approach dominated the mainstream of research on job insecurity. Even though the affective scales were still partially applied [Mauno and Kinnunen 2002], the act of doing so lacked proper theoretical justification. This was pointed out by Sverke et al. [2002], who observed in the meta-analysis of the effects of job insecurity that only the cognitive operationalizations contradicted the definitions accepted by the researchers. They also postulated to include affective scales, i.e. scales exploring the concerns related to job loss. Probst [2003], meanwhile, developed two instruments: the Job Security Index and the Job Security Satisfaction, which examine the cognitive and affective aspect of the phenomenon in question. An instrument developed by De Witte, which accounts for both cognitive and affective items, has been used since 2000[6]. A significant contribution to the study of both aspects of job insecurity was also made by Huang et al. [2010]. They developed and empirically tested a model in which affective job insecurity was a partial mediator of the relationship between cognitive insecurity and job satisfaction and organizational involvement. They pointed out that one should avoid combining test items examining the cognitive and affective aspects into one scale as this makes it impossible to differentiate individual constructs and discover their correlation with other variables [O'Neill and Sevastos 2013].

[2] Some researchers combine cognitive and affective aspects into one indicator [Vander Elst et al. 2011], while others use two separate scales [Huang et al. 2010]. According to O'Neill and Sevastos [2013], the second approach should be adopted since combining two separate aspects into one indicator makes it impossible to find their differential relations with other variables. The scale of job insecurity of O'Neill and Sevastos includes elements that focus on changes at work and explicitly consider the concept of potential job loss. Unfortunately, it has not yet been possible to reach a consensus whether the items analyzing these aspects should be grouped into one indicator or treated as two separate scales [Chojnacki 2015].

[3] The cognitive approach clearly refers to man's rational vision, presenting people as "probability calculators" who process available information in a logical way [Huang et al. 2010]. Chojnacki [2015], however, poses the question of whether this corresponds to the subjective states experienced by employees in the face of fear of losing employment, adding that at an early stage of the theory of job insecurity there were voices for it to include both cognitive and affective element.

[4] It was part of the work opinion questionnaire, whose goal was to anticipate the effectiveness of working low-paying jobs.

[5] The tools intended to explore the affective aspect of job insecurity also referred to job as a whole, rather than its individual features [Johnson et al. 1984, Huang et al. 2010].

[6] Unfortunately, it was published in Dutch, while the test items used in various studies did not always coincide. It was not until 2014 that four test items in English were unified, and the instrument itself was translated and validated in five European countries: Belgium, the Netherlands, Spain, Sweden and the United Kingdom [Vander Elst et al. 2014].

Another method of measuring job insecurity was proposed by Greenhalgh and Rosenblatt [1984] and Ashford et al. [1989], who suggested that job insecurity concerned not only the loss of job as such, but also the insecurity associated with the loss of important functions of that job. These conditions may include career and development opportunities, recognized co-workers or valued professional responsibilities. In order to obtain a more complete picture of job insecurity, it should be noted that organizational changes may affect the desired qualities of employment. In addition, Hellgren et al. [1999] emphasize that valued aspects of work should also be considered as potential objects at risk. They even developed a scale taking into account the essential features of work as part of the overall structure of job insecurity. They called that dimension "qualitative job insecurity", while the term "quantitative job insecurity" was used to describe the uncertainty associated with the loss of employment understood in the holistic context[7].

Ashford et al. [1989] developed a measure covering three basic parts: (1) insecurity concerning the loss of job as a whole (global work), (2) insecurity concerning the loss of individual job elements (job features) and (3) powerlessness in preventing the loss of job. Each of these three components was functionally defined by a scale consisting of multiple elements[8]. This multifaceted scale of job insecurity includes the following elements: job functions (significance of job features × probability of losing a given job function), total work (significance of job loss × probability of losing a given element of total work) and powerlessness (perceived powerlessness to confront the threat). Ashford et al. [1989] empirically supported the multifaceted nature of job insecurity, demonstrating that their theoretical measure has superior predictive validity compared to previous measures assessing the global perception of job insecurity.

The complexity of the measure developed by Ashford et al. [1989] prompted other researchers to simplify it. Lee et al. [2008] worked out a shorter version of the original instrument while maintaining its psychometric properties. Reisel and Banai [2002] showed that the global element of work, as well as the dimension of valence (threat), are more important than other elements[9].

Sverke and Hellgren [2002] presented a global (one-dimensional) approach as referring to the "threats of immediate job loss", indicating that the multidimensional approach accounts for other aspects, such as loss of job features. At the same time, the scale created by Caplan et al. [1975] was classified by them as global, although it contains, among other things, the question about the anticipated scope of duties, which clearly indicates the intention to examine the loss of job characteristics, not employment as such. Another example of an instrument covering both work as a whole as well as its features was the scale by Hellgren et al. [1999]. These authors referred to the threat of job loss as quantitative job insecurity, and to the threat of losing specific job features – as qualitative job insecurity. The approach focusing on losing job as such is now widely used.

Based on the literature analysis, it can be concluded that one generally accepted view has not been worked out in this area. It seems, however, that the use of instruments to examine job insecurity in terms of loss of job as such, rather than its individual features, should be the desired direction of future research.

[7] Most studies focus primarily on quantitative uncertainty of employment, which is normally referred to as job insecurity [Richter 2011].

[8] Multiplicative scales are criticized for conceptual and statistical reasons. In particular: (a) only the highest and lowest results provide unique solutions, which makes interpretation of the remaining results difficult, (b) not every total result is possible, making the measurement segmental rather than interval; and (c) analyses using multiplicative measures imply the inclusion of the cross product into the regression model without taking into account its component parts.

[9] Greenhalgh and Rosenblatt [2010] stated that the global measure of job insecurity, based on the seriousness (threat) and probability of losing a job as a whole, can work for private sector organizations in which job security is regularly challenged. On the other hand, a multifunctional instrument referring to the threat and likelihood of losing various aspects of work may be appropriate for public sector organizations where there are fewer worries about direct dismissal and more fear of losing a job "as one usually does" (e.g. by transfer or withdrawal of professional qualifications).

CONCLUSIONS

How to measure job insecurity (i.e. what constructs and components to incorporate) is an important topic in the literature. Job insecurity refers to a "sense of powerlessness to maintain desired continuity in a threatened job situation". Early research often measured the construct as a unidimensional phenomenon, reflecting a general concern over future employment. As noted by several authors, job insecurity has been measured in an ad hoc manner, often with single items, scales with unknown psychometric properties, or measures devoid of a theoretical basis. However, a number of conceptual clarifications have been made over the years. First, job insecurity by definition reflects a fundamental and involuntary change concerning the continuity and security within the employing organization. Second, job insecurity is a subjective phenomenon based on the individual's appraisal of uncertainties in the immediate work environment, which implies that the feeling of job insecurity may differ between individuals even if they are exposed to the same objective situation. A third, and highly important, conceptual advancement is represented by the introduction of multidimensional definitions. Although research on job insecurity has traditionally focused on threats of imminent job loss, several commentators have argued that this definition is too narrow in that it fails to encompass concerns about deteriorated employment conditions and career opportunities. Given the prevalence of job insecurity across the globe and its negative consequences, it seems imperative to identify potential moderators that might attenuate one's perception of and reactions to job insecurity.

REFERENCES

Ashford, S.J., Lee, C., Bobko, P. (1989). Content, causes and consequences of job insecurity: A theory-based measure and substantive test. Academy of Management Journal, 32 (4), 803–829.

Awosusi, O.O., Fasanmi, S.S. (2014). Who's next for the Axe? Procedural Justice and Job Insecurity among bankers in Nigeria. Procedia – Social and Behavioral Sciences, 114, 403–409.

Borg, I., Elizur, D. (1992). Job Insecurity: Correlates, Moderators and Measurements. International Journal of Manpower, 13 (2), 13–26.

Boswell, W.R., Olson-Buchanan, J.B., Harris, T.B. (2014). I Cannot Afford to Have a Life: Employee Adaptation to Feelings of Job Insecurity. Personnel Psychology, 67 (4), 887–915.

Caplan, R.D., Cobb, S., French Jr., J.R.P., Van Harrison, R., Pinneau Jr., S.R. (1975). Job Demands and Worker Health. Main Effects and Occupational Differences. U.S. Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control, National Institute for Occupational Safety and Health, Washington.

Chojnacki, P. (2015). Niepewność zatrudnienia – czy jest się czego obawiać? Zeszyty Naukowe Politechniki Łódzkiej. Organizacja i Zarządzanie, 61 (1202), 49–62.

Davy, J.A., Kinicki, A.J., Scheck, C.L. (1997). A Test of Job security's Direct and Mediated Effects on Withdrawal Cognitions. Journal of Organizational Behaviour, 18 (4), 323–349.

De Cuyper, N., Bernhard-Oettel, C., Berntson, E., De Witte, H., Alarco, B. (2008). Employability and Employees' Well-Being: Mediation by Job Insecurity. Applied Psychology: An International Review, 57 (3), 488–509.

De Cuyper, N., Mäkikangas, A., Kinnunen, U., Mauno, S., De Witte, H. (2012). Cross-lagged associations between perceived external employability, job insecurity, and exhaustion: Testing gain and loss spirals according to the Conservation of Resources Theory. Journal of Organizational Behavior, 33 (6), 770–788.

De Cuyper, N., Schreurs, B., Vander Elst, T., Baillien, E., De Witte, H. (2014). Exemplification and Perceived Job Insecurity. Associations with Self-Rated Performance and Emotional Exhaustion. Journal of Personnel Psychology, 13 (1), 1–10.

De Witte, H. (1999). Job Insecurity and Psychological Well-being: Review of the Literature and Exploration of Some Unresolved Issues. European Journal of Work and Organizational Psychology, 8 (2), 155–177.

De Witte, H., Näswall, K. (2003). 'Objective' vs 'Subjective' Job Insecurity: Consequences of Temporary Work for Job Satisfaction and Organizational Commitment in Four European Countries. Economic and Industrial Democracy, 24 (2), 149–188.

Greenhalgh, L. Rosenblatt, Z. (2010). Evolution of research on job insecurity. International Studies of Management & Organization, 40 (1), 6–19.

Greenhalgh, L., Rosenblatt, Z. (1984). Job Insecurity: Toward Conceptual Clarity. Academy of Management Review, 9 (3), 438–448.

Hartley, J., Jacobson, D., Klandermans, B., Van Vuuren, T. (1991). Job Insecurity: Coping with Jobs at Risk. Sage Publications, London.

Hellgren, J., Sverke, M., Isaksson, K. (1999). A Two-dimensional Approach to Job Insecurity: Consequences for Employee Attitudes and Well-being. European Journal of Work and Organizational Psychology, 8 (2), 179–195.

Huang, G-H., Lee, C., Ashford, S., Chen, Z., Ren, X. (2010). Affective Job Insecurity. International Studies of Management & Organization, 40 (1), 20–39.

Johnson, C.D., Messe, L.A., Crano, W.D. (1984). Predicting job performance of low income workers: The work opinion questionnaire. Personnel Psychology, 37, 291–299.

Keim, A.C., Landis, R.S., Pierce, C.A., Earnest, D.R. (2014). Why Do Employees Worry About Their Jobs? A Meta-Analytic Review of Predictors of Job Insecurity. Journal of Occupational Health Psychology, 19 (3), 269–290.

Klandermans, B., Hesselink, J.K., Van Vuuren, T. (2010). Employment status and job insecurity: On the subjective appraisal of an objective status. Economic and Industrial Democracy, 31 (4), 557–577.

Lee, C., Bobko, P., Ashford S., Chen Z.X., Ren X. (2008). Cross-cultural development of an abridged job insecurity measure. Journal of Organizational Behavior, 29, 373–390.

Lixin, J. (2017). Perception of and reactions to job insecurity: The buffeting effect of secure attachment. Work & Stress, 31 (3), 256–275.

Loi, R., Ngo, H.Y., Zhang, L.Q., Lau, V.P. (2011). The interaction between leader-member exchange and perceived job security in predicting employee altruism and work performance. Journal of Occupational and Organizational Psychology, 84 (4), 669–685.

Mauno, S., Kinnunen, U. (2002). Perceived job insecurity among dual-earner couples: Do its antecedents vary according to gender, economic sector and the measure used? Journal of Occupational and Organizational Psychology, 75, 295–314.

O'Neill, P., Sevastos, P. (2013). The Development and Validation of a New Multidimensional Job Insecurity Measure (JIM): An Inductive Methodology. Journal of Occupational Health Psychology, 18 (3), 338–349.

Probst, T.M. (2003). Development and validation of the Job Security Index and the Job Security Satisfaction scale: A classical test theory and IRT approach. Journal of Occupational and Organizational Psychology, 76 (4), 451–467.

Richter, A. (2011). Job Insecurity and Its Consequences Investigating Moderators, Mediators and Gender. Department of Psychology, Stockholm University, Stockholm.

Richter, A., Tavfelin, S., Sverke, M. (2018). The Mediated Relationship of Leadership on Job Insecurity. Scandinavian Journal of Work and Organizational Psychology, 3 (1), 1–14.

Reisel, W.D., Banai, M (2002). Comparison of a multidimensional and a global measure of job insecurity: predicting job attitudes and work behaviors. Psychological Reports, 90 (3), 913–922.

Rosen, C.C., Chang, C.H., Djurdjevic, E., Eatough, E. (2010). Occupational stressors and job performance: An updated review and recommendations. [In:] P.L. Perrewé, D.C. Ganster (eds.), New Developments in Theoretical and Conceptual Approaches to Job Stress (Research in Occupational Stress and Well-being, Volume 8), Emerald Group Publishing Limited, Bingley, 1–60.

Shoss, M.K. (2017). Job Insecurity: An Integrative Review and Agenda for Future Research. Journal of Management, 43 (6), 1911–1939.

Stiglbauer, B., Selenko, E., Batinic, B., Jodlbauer, S. (2012). On the Link Between Job Insecurity and Turnover Intentions: Moderated Mediation by Work Involvement and Well-Being. Journal of Occupational Health Psychology, 17 (3), 354–364.

Sverke, M., Hellgren, J. (2002). The nature of job insecurity: Understanding employment uncertainty on the brink of a new millennium. Applied Psychology: An International Review, 51 (1), 23–42.

Sverke, M., Hellgren, J., Näswall, K. (2002). No security: A Meta-Analysis and Review of Job Insecurity and Its Consequences. Journal of Occupational Health Psychology, 7 (3), 242–264.

Vander Elst, T., De Cuyper, N., Baillien, E., Niesen, W., De Witte, H. (2016). Perceived Control and Psychological Contract Breach as Explanations of the Relationships Between Job Insecurity, Job Strain and Coping Reactions: Towards a Theoretical Integration. Stress and Health, 32 (2), 100–116, DOI: 10.1002/smi.2584

Vander Elst, T., De Cuyper, N., De Witte, H. (2011). The role of perceived control in the relationship between job insecurity and psychosocial outcomes: Moderator or mediator. Stress and Health, 27 (3), e215–e227.

Vander Elst, T., De Witte, H., De Cuyper, N. (2014). The Job Insecurity Scale: A psychometric evaluation cross five European countries. European Journal of Work and Organizational Psychology, 23 (3), 364–380.

Wyrwa, J. (2019). Job insecurity – conceptualization of the notion and methods of measurement. Acta Sci. Pol. Oeconomia 18 (1), 107–115, DOI: 10.22630/ASPE.2019.18.1.12

NIEPEWNOŚĆ ZATRUDNIENIA – KONCEPTUALIZACJA POJĘCIA I METODY POMIARU

STRESZCZENIE

Postępująca globalizacja i przeobrażenia współczesnego rynku pracy zmieniły tradycyjny model zatrudnienia, wprowadzając „niepewność" związaną z podjęciem i utrzymaniem pracy. Niepewność zatrudnienia rozumiana jako „postrzegane zagrożenie utraty pracy oraz obawy związane z tym zagrożeniem" jest zjawiskiem nieuniknionym i powszechnym we współczesnym świecie pracy, które budzi ogromne zainteresowanie badaczy od lat osiemdziesiątych ubiegłego wieku. W teorii ekonomii tematyka dotycząca niepewności zatrudnienia stanowi jeden z wyłaniających się obecnie kierunków badań. Celem artykułu jest próba interdyscyplinarnej konceptualizacji zagadnienia niepewności zatrudnienia. W artykule zaprezentowano różne sposoby rozumienia niepewności zatrudnienia oraz omówiono metody jej pomiaru. Dla potrzeb identyfikacji oraz oceny dotychczasowego stanu wiedzy na temat niepewności zatrudnienia przeprowadzono systematyczny przegląd światowej literatury. Analiza publikacji dotyczących niepewności zatrudnienia potwierdza istnienie stosunkowo małej liczby opracowań naukowo-badawczych z tego obszaru w Polsce. Istnieje zatem luka poznawcza, która skłania do koncentracji uwagi badawczej na zagadnieniu niepewności zatrudnienia, w szczególności zintegrowanego przeglądu i ram koncepcyjnych oraz konstrukcji narzędzia pomiarowego. Artykuł ma charakter analityczno-koncepcyjny i może stanowić przyczynek do dyskusji nad podjętą problematyką oraz punkt wyjścia do badań empirycznych w naukach ekonomicznych.

Słowa kluczowe: niepewność zatrudnienia, pomiar niepewności zatrudnienia, rynek pracy

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CONSUMER ETHNOCENTRISM AMONG YOUNG POLISH CONSUMERS

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ABSTRACT

This article is a research exercise examining consumer ethnocentrism among young Polish consumers. Its primary goal is to identify ethnocentric attitudes and behaviours of young people. The study consists of two parts: theoretical and empirical. The first one explains the concept and essence of ethnocentrism as a consumer trend, building upon a critical analysis of literature. The second, major part is empirical. The basis for conclusions is provided by the research material from a questionnaire-based survey that was conducted among young consumers. Undertaking such a research project is justified since ethnocentric tendencies have a direct impact on purchase decisions of consumers, including young people, while making it difficult for enterprises on the market to develop marketing strategies.

Key words: young people, consumer ethnocentrism, consumer patriotism
JEL codes: D12, M31

INTRODUCTION

In today's world, where globalisation and digitisation are progressing, most consumers have easier access to many products manufactured abroad. The resultant modification of buying patterns is characteristic especially of Generations Z. Therefore, by taking over active roles in the purchasing process, young people are susceptible to new consumer trends including consumer ethnocentrism. In addition, cultural integration that has been visible for more than three decades is intensifying the unification of behaviour patterns of buyers regardless of their ethnicity. The opposite trend is the heterogenisation of consumption, which is conducive to ethnocentric attitudes. Ethnocentrism is generally thought to involve a substantial cognitive ability in individuals and to be based on complex social and cultural inputs. Ethnocentric consumers believe that purchasing imported products affects the internal domestic economy and can lead to a decrease in employment opportunities within a country. Ethnocentric consumers have different perceptions with regard to product purchasing judgements [Balabanis and Siamagka 2017]. They attribute merit to products depending on the satisfaction that is derived from their consumption, regardless of the product's country of origin.

Young consumers were chosen for the research in view of their growing importance and decision-making power in today's households, and because they respond to the changing environment, globalisation and its impact on consumption, lifestyle and emerging new consumer trends more intensely than other market participants. Undoubtedly, understanding their reasons, behaviours and market attitudes can help enterprises not only to decide on appropriate in-

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novative marketing strategies but also to determine the right development path, allowing companies to remain in the market and make their product (service) offer attractive to new customers, especially young ones, despite dynamic changes in consumption and ever faster development of mobile technologies and applications.

The structure of this article is as follows. The first part synthetically explains the concept and essence of consumer ethnocentrism. The next section focuses on the research conceptualisation and a description of the research sample and its characteristics. Based on the conducted research, the last part attempts to define consumer ethnocentrism within the consumer decision-making process among young Polish consumers. Finally, major conclusions end this study.

THE CONCEPT AND ESSENCE OF CONSUMER ETHNOCETISM –THEORETICAL BACKGROUND

Ethnocentrism was first defined in 1906 by William Graham Sumner, an American ethnologist and sociologist, in his famous book *Folkways*. He understood ethnocentrism as the "view of things in which one's own group is the center of everything, and all others are scaled and rated with reference to it" [Sumner 1906, cited in Hammond and Axelrod 2006]. Sumner introduced the concepts of we-group and others--group, arguing that the members of a particular group live together in peaceful relations, whereas relations with other (outside) groups are usually those of war. Groups feed on their pride, praise their superiority and look at others with disregard. Ethnocentrism makes people change what differentiates them from others. This contributes to the strengthening of the group (folkways). People, their behaviours, and things are evaluated and judged from the perspective of one's own environment. This means that one's own culture is praised, with an others-group's culture being depreciated [Khan and Rizvi 2008].

In the second half of the 1980s, Shimp and Sharma were the first to use this term. They construed consumer ethnocentrism as people's belief that the purchase of products imported from abroad adversely affects economic development at home, results in inefficient use of available technologies and resources, including labour, which in turn leads to increased unemployment and represents an unpatriotic behaviour [Shimp and Sharma 1987]. Matsumoto defined consumer ethnocentrism as a perception of the world through a cultural filter [Matsumoto 1996]. It can therefore be said that consumer ethnocentrism is considered as consumer behaviour involving a consistent preference for home-produced products [Sharma et al. 1995]. This tendency generally stems from a sense of national identity, concern for the homeland, and fear of negative consequences of imports for individuals, businesses and society at large.

Consumers who are ethnocentrically oriented make their purchase decisions based on moral considerations. Simultaneously, they must have some socio-economic knowledge to enable them to assess the market situation, develop their own opinions in this respect and make informed decisions. Where consumers associate buying local products with the situation in the country or region (for example, an increase in demand for local products may translate into more jobs), this may strengthen their ethnocentric attitude in consumer behaviour and make them base their choices on duties and moral obligation rather than on rationality or emotions[1] [Zalega 2017].

According to Han, direct influence on the level of consumer ethnocentrism is mainly exerted by psychosocial and demographic factors. Numerous studies in different countries worldwide have confirmed a statistically significant impact of these determinants on consumer purchasing behaviour as regards the choice between domestic and imported products [Min Han 1994]. On the basis of his research findings, that author showed that patriotism and conservatism have a very significant impact on the expressed intentions to purchase domestic and foreign products. Han found that younger people, who are generally less patriotic, are characterised by weaker consumer ethnocentrism than

[1] Klein et al. [1998] stated that consumer ethnocentrism is negatively correlated with the assessment of and inclination to buy foreign products. Balabanis and Diamantopoulos [2004] claimed that consumer ethnocentrism is positively correlated with consumer preference for domestic products.

others. The same is true of conservatism, understood as the attachment to and preservation of traditions that have survived the test of time and the reluctance to make any changes.

An important variable differentiating consumer behaviour as regards ethnocentrism is gender. It turns out that women display more ethnocentric attitudes than men, which is explained by the female nature: they are more caring, have a greater sense of responsibility for others and strive for harmony in society [Jain and Kaur 2006]. Another variable affecting ethnocentric behaviour is disposable income. It can interact with other variables, sometimes making them significant and sometimes insignificant.

RESEARCH CONCETUALISATION

In order to identify ethnocentric attitudes, many variables can be used. The simplest ones include demographic variables such as: gender, age, education level, and disposable income. However, these variables have some limitations as they only provide information on the state and structure of ethnocentric attitudes, without explaining their sources at all. Nonetheless, related literature provides information on the correlations between the said variables and consumer ethnocentrism. The article aims to identify ethnocentric attitudes among young Polish consumers. With this in mind, four research hypotheses were formulated:

- H1: Disposable income is an important determinant of the attitude of young consumers to imported products. The lower the income, the more negative the attitude of young people to foreign products.
- H2: Consumer ethnocentrism is less visible among better educated young consumers who are open to foreign cultures.
- H3: Young women exhibit greater ethnocentric tendencies than young men.
- H4: Young consumers' preference for domestic products is closely correlated with their patriotic attitude.

The tool used to conduct the research was the author-designed questionnaire comprising 50 closed-ended questions regarding alternative consumer trends, including consumer ethnocentrism. The CETSCALE scale was the research tool used to assess the ethnocentric attitude of young consumers. In addition, respondents were presented, among others, with cases concerning various imaginary situations in which young people had to imagine themselves as potential buyers. Those cases were intended to check whether they exhibited ethnocentric attitudes. The survey was carried out from 1 February to 1 May 2018. The difficulty lay in appropriate definition of the study subject because the category of "young consumer" is not clearly specified in the literature. Scholarly publications refer to various age ranges for the group of young consumers, for example 15-34 years [Olejniczuk-Merta 2001], 18–30 years [Kumar and Kapoor 2017], 18–35 years [Ofosu et al. 2013]. In this article, those between 18 and 34 years of age are considered to be the population of young people. The upper age limit, that is 34 years, is regarded as the end of youth in the Polish literature. The participants were recruited via the "ankietka.pl" website and social media such as Facebook, WhatsApp, Messenger, and e-mail. In order to partake in the survey, those interested had to visit a specific website containing the questionnaire. It was also distributed across special forums, university and private school fanpages. In accordance with the research assumptions, the sample included persons aged 18–34, representatives of Generations Z, who took independent purchasing decisions in the market. In order to select the sample, the selective quota sampling procedure was used. The characteristics (quotas) covered by the research were: gender and age. During the data processing, information from respondents was eliminated if the questionnaires were incomplete or incorrect (17 instances). From among 606 initial questionnaires, 589 were considered eligible, representing 97.19% of the total sample. Further, they were coded, and the data set thus created was processed by a statistical package.

SELECTION AND CHARACTERISTICS OF THE RESEARCH SAMPLE

Five hundred eighty nine people took part in the survey, including 325 women and 264 men. Nearly half of respondents lived in cities of more than 500 thousand inhabitants. Every third participant had completed secondary education, less than 2/5 of

respondents held a bachelor's or engineering degree, and every fifth held a master's degree. The average age of respondents is around 25 years. They were mostly students who combined studies with work, whereas the unemployed formed the smallest group. Almost half of respondents lived in cohabitation or LAT (living apart together) relationships. More than 2/5 of them were single and one in eight was married. As regards monthly disposable income per capita, the largest group earned from PLN 2,001.00 to PLN 3,000.00. However, astonishingly many (almost half of respondents) assessed their current financial situation as good, and 5.9% as very good.

CONSUMER ETHNOCETRISM AMONG YOUNG POLISH CONSUMER AS RESEARCHED EMPIRICALLY

The research examined the attitudes of young consumers towards consumer ethnocentrism. It essentially checked whether young people understood the concept and idea of consumer ethnocentrism and whether their possible competences translated into practical behaviour. To this end, respondents were asked about their understanding of the term "consumer ethnocentrism". Based on the results, it was established that more than 2/5 of respondents not only knew the notion but also understood its essence. In turn, 35% of those surveyed had merely heard this term but could not explain its meaning correctly. Every fifth young respondent did not know this concept at all or heard it for the first time.

Another issue was whether young consumers considered themselves to be ethnocentric in their consumer decisions. The survey shows that 2/5 of respondents identify themselves with ethnocentric attitudes. In that group of young consumers, 51.6% often pay attention to the country of origin of products (mainly food), 30.6% do so very often, and 17.8% do so always or almost always. However, only one in five young respondents uses the "Pola" application, which informs users about the origin of products. These are mainly respondents in the 30–34 age group (25.7%), mostly women (27.3%) who have completed higher education (28.6%) and live in cities of over 500 thousand inhabitants (24.4%).

Based on the conducted survey, the results concerning the correlations between consumer ethnocentrism and selected demographic variables (Table 1) were compiled.

The correlation analysis indicated a statistically significant but weak relationship between ethnocentric behaviour of respondents and demographic variables. Taking into account the economic factor affecting consumer ethnocentrism, it may be stated that a lower disposable income is generally accompanied by stronger ethnocentric attitudes. Respondents with a monthly per capita income not exceeding PLN 2,000.00 almost three times more often display ethnocentric tendencies than those earning more than PLN 4,000.00 per capita a month. As they more frequently travel around the world, are open to foreign cultures and more familiar with foreign products, wealthier consumers perceive such products more positively. Hence, they

Table 1. Correlations between consumer ethnocentrism and selected demographic variables

Specification	Sperman's rho
Age	0.278*
Gender	0.234**
Education	–0.312*
Income	–0.360*
Place of residence (city population)	–0.277*

* The correlation is significant at 0.01; ** the correlation is significant at 0.05.

Source: The author's research.

show weaker ethnocentric and stronger cosmopolitan attitudes. A negative correlation between the level of disposable income and ethnocentric attitudes is confirmed by numerous research results [Richardson 2012, Wolanin-Jarosz 2015]. It should be noted, however, that with respect to income levels, the research findings do not show a clear link between income and ethnocentric attitudes. Studies by Balabanis and Diamantopoulos [2011] reveal a positive correlation between higher disposable incomes and stronger ethnocentric attitudes among consumers (this more often applies to older consumers though).

The proportion of young people who declare that they act fully in line with the idea of ethnocentrism is much higher among women (56.2%) than men (41.8%) aged 30–34 as well as among those with secondary education (14.1%) and a monthly per capita income of no less than PLN 3,000.00, living in rural areas (45.7%) and cities of no more than 50 thousand inhabitants (44.3%). On the other hand, consumers aged 18–23 who hold a bachelor's or engineering degree, earn a monthly disposable income of above PLN 3,000.00 per capita and live in large urban agglomerations quite often display cosmopolitan attitudes in addition to ethnocentric ones. Cosmopolitan consumers like experiencing cultural diversity and are therefore more open to other cultures and their products. This is because they frequently travel around the world (for student exchange, their hobbies, work abroad, etc.) and fairly well know foreign products[2].

Less than 4% of respondents, mainly aged 24–29, who earn a monthly disposable income of above PLN 4,000.00 per capita, hold a master's degree and live in cities of over 500 thousand inhabitants exhibit consumer behaviours that can be classified as both consumer cosmopolitanism and consumer internationalism, in addition to ethnocentric behaviours [Zalega 2018].

The described attitudes of young respondents that can, to varying degrees, be classified as consumer ethnocentrism are convergent with research conducted among young people in Poland [Marcoux et al. 1997, Wolanin-Jarosz 2015] and many other countries worldwide [Renko et al. 2013, Makanyeza and du Toit 2017, Savitha and Dhivia 2017].

Another issue in the research was verifying whether young consumers consider the country of origin when buying products. According to the survey, only every third respondent takes into account the country of origin when making decisions about the purchase of goods and services. Over 3/5 of young consumers exhibit cosmopolitan attitudes essentially, disregarding the country of product origin in their purchase decisions.

To determine the relationship between consumers' ethnocentric tendency and purchase intentions towards domestically produced goods, Spearman's correlation coefficient was used (Table 2).

The correlation analysis indicated a statistically significant but weak relationship between consumer ethnocentrism and purchase intentions towards

Table 2. Spearman's correlation analysis between consumer ethnocentrism and purchase intentions towards domestically produced goods

Sperman's rho	I would feel guilty if I did not buy Polish products	I always buy Polish products	Whenever possible, I buy Polish products
Consumer ethnocentrism	0.0211*	0.0199*	0.0187*
	0.000	0.000	0.000

*Correlation is significant at 0.01.

Source: Author's research.

[2] Consumer cosmopolitanism is attracting more and more attention as a potentially important factor influencing consumer behaviour as regards the preference for foreign products. Nonetheless, empirical evidence about its impact on consumer behaviour remains limited.

domestically produced goods. Young Polish consumers expressed a degree of domestic preference.

An important factor affecting the level of ethnocentrism among young consumers is the type of product. The survey shows that ethnocentric attitudes are most strongly displayed by respondents towards food products (milk and milk products, bread and cereals, meat and meat products, fruit and vegetables) and most weakly towards mechanised household appliances (washing machines, refrigerators, microwave ovens), infotainment equipment (TV sets, home cinema, personal computers, laptops, mobile phones), mobile equipment (passenger cars, motorcycles, bicycles), clothing and footwear, and chemical products.

Classical ethnocentric attitudes are most commonly exhibited in the market of food products, with their strength depending on demographic and social characteristics of consumers. The survey reveals that young people preferring Polish food products often follow recommendations of their friends or closest family members when choosing such products (49.7%). The consumers surveyed also admitted that they preferred Polish to imported food products because the former are not only of better quality (65.3%) and much tastier (62.7%) but also contain smaller amounts of preservatives (61.3%). Over 2/5 of respondents claimed that they wanted to support domestic producers by buying home-produced products. They emphasised that Polish food products were better known to them (43.2%), more easily available (28.7%) and generally cheaper than those imported from abroad (31.5%).

It can also be concluded from the analysis that the so-called declared ethnocentrism is common among young consumers. This means that their interest in buying domestically made products does not always go hand in hand with declared preference for domestic goods. It relatively often remains solely in the sphere of respondents' declarations. In addition, many young consumers are unaware of what kind of product they buy, whether it is imported or national. This can be partly explained by the fact that in order to lessen the watchfulness of ethnocentric consumers, companies sometimes give their products names that sound "national" and place the information that they were made at home or that some ingredients are of national origin on product packaging. However, brands often sounding familiar and having been valued for generations are owned by international corporations. The survey reveals that young respondents are not always able to identify a Polish brand correctly. For example, almost 4/5 of those surveyed identify "Lajkonik" belonging to German Bahlsen and "Żywiec Zdrój" owned by the Danone corporation as Polish brands. Over 3/5 of respondents are convinced that "Wedel", managed by Japanese Lotte, and Krakus ham and Morliny sausages (part of the Chinese WH Group, the largest pork producer in the world) are also domestic brands. Almost every third young survey participant associates "Pudliszki" (belonging to American Heinz), "Winiary" (belonging to Swiss Nestlé) and "Turek" (belonging to French Bongrain) with Polish brands.

The next two questions were case studies where respondents were presented with a specific problem. First and foremost, their task was to choose a product (washing machine) whose price and country of origin was known. Assuming the same quality of domestic and foreign washing machines, more than half of the consumers surveyed would decide to buy a cheaper version of the product, disregarding the country that it comes from. Only 2/5 of respondents would consider the domestic origin of the product despite its higher price. Such ethnocentric behaviour was indicated more often by women (57.5%) than men (45.1%), aged 30–34 (43.5%), holding a master's degree (46.2%), earning a monthly per capita income exceeding PLN 3,000.00 (57.1%), and mostly living in cities of over 500 thousand inhabitants (41.4%).

Subsequently, young consumers were asked to decide about the purchase of a washing machine, taking into account the product quality and country of origin. Where the imported product is cheaper and of better quality than its national counterpart, most consumers, guided by the utility maximisation principle known in economics, would behave rationally and buy a cheaper and better-quality product, disregarding the country that it comes from. This option would be chosen by more than 4/5 of respondents, who would buy a Chinese washing machine. Only every tenth young person would be inclined to buy a washing machine produced in Poland, despite knowing about its inferior quality and less attractive price compared to a washing machine made in China. It can thus be concluded

that young people who gave such an answer are driven mainly by emotional or moral reasons (as manifestations of consumer patriotism) and to a lesser extent by economic considerations when making consumer decisions. In other words, highly ethnocentric buyers tend to prefer domestic products even when they perceive foreign products as better-quality and less expensive. According to Supphellen and Rittenburgh [2001], these preferences do not necessarily have to be correlated with actual consumer choices, as evidenced by their research.

Both case-study-based questions were aimed at verifying the strength of ethnocentric attitudes among the young people surveyed. The choice between washing machines produced in Poland and China could prove difficult to respondents since most Polish consumers usually associate products imported from China with poorer quality, high defectiveness and even junk.

The key factors affecting consumer ethnocentric behaviour include the aforementioned consumer patriotism. It is understood as consumer behaviour that involves conscious support for the national economy through the purchase of domestic products or products commonly associated with the home country[3]. Kucukemiroglu [1999], citing existing research, argues that the attitude towards products and purchase intentions are determined by the patriotic emotions of consumers. In order to specify the impact of patriotism on the strength of consumer ethnocentrism, respondents were asked: "Would you choose a given product simply because it was produced in Poland?". Almost half of respondents responded in the affirmative. These were mostly women aged 30–34 (51.7%) who had completed secondary education (51.2%), earned a monthly per capita income not exceeding PLN 3,000.00 (52.6%), and usually lived in cities of no more than 200 thousand inhabitants (50.8%). It can therefore be concluded that young consumers who are more patriotic exhibit stronger consumer ethnocentrism than others. Spearman's correlation coefficient between the variables "ethnocentrism level" and "consumer patriotism" was statistically significant but weak and had a value of $r = 0.325$, with $p < 0.01$. This positive correlation between patriotism and a high level of consumer ethnocentrism has been confirmed in many studies [Hall and Sevim 2015, Lopez and Zunjur 2016, Kragulj et al. 2017].

The level of consumer ethnocentrism was determined by means of the CET scale (CETSCALE, Consumer Ethnocentrism Tendency Scale) specifying the tendency to buy and prefer domestic products as compared to the same products from foreign markets. Bearing in mind the response time, the CET scale was restricted to 10 questions. The questionnaire used a five-point Likert scale (where 1 meant "strongly disagree" and 5 – "strongly agree"). On the basis of the answers, the averages for each statement were calculated and then summed up to obtain the ethnocentrism index. With the scale used, this index could range from 10 to 50; however, in the conducted study, these values ranged from 14 to 42. None of young respondents obtained the maximum score on the scale. The survey carried out with the use of this scale confirmed its high reliability (Cronbach's alpha equal 0.95). Among the respondents, people with low ethnocentric tendencies predominate. The distribution is right-skewed (skewness coefficient of 0.50). The ethnocentrism index in the group surveyed was 22.632 (standard deviation of 8.268489, median of 23). The level of ethnocentrism was higher and more diversified in the 30–34 age group, among women, those with secondary education, a monthly per capita income not exceeding PLN 3,000.00, living in rural areas and cities of up to 50 thousand inhabitants.

CONCLUSIONS

The preliminary analysis of the empirical material obtained in the survey indicates that consumer behaviours that can be classified as consumer ethnocentrism are determined by demographic and social characteristics such as gender, age and place of residence. 40%

[3] The logic behind such behaviours is connected with the so-called "new" patriotism (I am Polish, so I buy Polish milk; I am French, so I buy French wine, etc.). This is particularly true for people who have lived abroad for a long time and who buy products coming from their home countries. Undoubtedly, today's consumers need patriotism to achieve two goals: to feel a sense of community and to build their own individual identity.

of young survey participants consider themselves to be ethnocentric consumers. Ethnocentric attitudes are most evident in the oldest respondents aged 30–34, who additionally are the most patriotic among all young respondents. The percentage of consumers regarding themselves as ethnocentric was also much larger among women than men, those with basic and secondary education, a monthly per capita income not exceeding PLN 3,000.00, and living in rural areas and cities of up to 50 thousand inhabitants. Ethnocentric attitudes are mainly exhibited in the case of food purchases and, to a lesser extent, in the case of durable goods. On the other hand, the youngest respondents, aged 18–23, exhibit cosmopolitan purchasing behaviours in addition to ethnocentrism when making purchase decisions. In turn, wealthier university graduates in the 24–29 age group who live in large urban agglomerations also display internationalist attitudes. The empirical research has also confirmed a well-established positive correlation between age and gender of respondents (especially women) and consumer ethnocentrism as well as a negative correlation between ethnocentric attitudes and the level of education and disposable income. To conclude, it can be unequivocally stated that all the research hypotheses adopted in the article have been positively verified.

Taking into account the presented survey results, some limitations ensuing from a small research sample should be borne in mind. Following the conclusions made, they should not be treated as representative of the population of young Polish consumers. They only provide some insight into actual consumer behaviours of young people as part of consumer ethnocentrism.

This publication should contribute to a broader discussion and exchange of views on ethnocentrism, thereby encouraging other Polish scholars and researchers from various scientific and research centres to carry out extensive research in this area.

REFERENCES

Balabanis, G., Diamantopoulos, A. (2004). Domestic Country Bias, Country-of-Origin Effects, and Consumer Ethnocentrism: A Multidimensional Unfolding Approach. Journal of the Academy of Marketing Science, 32 (1), 80–95.

Balabanis, G., Diamantopoulos, A. (2011). Gains and Losses from the Misperception of Brand Origin: The Role of Brand Strength and Country-of-Origin Image. Journal of International Marketing, 19 (2), 95–116.

Balabanis, G., Siamagka, N-T. (2017). Inconsistencies in the behavioural effects of consumer ethnocentrism: The role of brand, product category and country of origin. International Marketing Review, 34 (2), 166–182.

Hall, E.E., Sevim, N. (2015). Role of Demographics and Generations on Consumer Ethnocentrism of Turkish Immigrants in Germany. International Journal of Business and Social Research, 5 (9), 65–78.

Hammond, R.A., Axelrod, R. (2006). The Evolution Ethnocentrism. Journal of Conflict Resolution, 50 (6), 926––936.

Jain, S.K., Kaur, G. (2006). Role of Socio-demographics in Segmenting and Profiling Green Consumers: A Study of Consumers in India. Journal of International Consumer Marketing, 18 (3), 107–146.

Khan, M.N., Rizvi, S.R. (2008). Consumer Ethnocentrism: Relevance and Implications for Marketers. Journal of Consumer Behaviour, 3 (1), 304–316.

Klein, J.G., Ettenson, R., Morris, M.D. (1998). The animosity model of foreign product purchase: an empirical test in the People's Republic of China. Journal of Marketing, 62 (1), 89–100.

Kragulj, D., Parežanin, M., Miladinović, S. (2017). Consumer Ethnocentrism in Transitional Economics: Evidence from Serbia. Sociološki Pregled, 51 (1), 59–79.

Kucukemiroglu, O. (1999). Market segmentation by using consumer lifestyle dimension and ethnocentrism. European Journal of Marketing, 33 (5–6), 470–487.

Kumar, N., Kapoor, S. (2017). Do labels influence purchase decisions of food products? Study of young consumers of an emerging market. British Food Journal, 119 (2), 218–229.

Lopez, J., Zunjur, A. (2016). A Study of Consumer Ethnocentrism in the Pimpri-Chinchwad Region, Pune. Journal of Business and Management, 18 (2), 72–78.

Makanyeza, Ch., Toit, F., du (2017). Consumer ethnocentrism in developing countries: Application of a model in Zimbabwe. Acta Commercii, 17 (1), 2413–1903.

Marcoux, J.S., Filiatrault, P., Cheron, E. (1997). The attitudes underlying preferences of young urban educated Polish consumers towards products made in western countries. Journal of International Marketing, 9, 5–29.

Min Han C. (1994). Assessing the Roles of Cognitions, Country of Origin, Consumer Patriotism, and Familiarity in Consumer Attitudes Toward Foreign Brands. [In:]

J.A. Cote, S. Meng Leong (eds.), Asia Pacific Advances in Consumer Research. Vol. 1. Association for Consumer Research Provo, UT, 103–108.

Ofosu, D., Gyanewa, M., Boadi, I. (2013). The Influence of Short Message Service (SMS) Advertising on the Purchase Behaviour of Young Consumers in a Tertiary Institution in Ghana. Review of Integrative Business & Economics Research, 2 (2), 276–303.

Olejniczuk-Merta, A. (2001). Rynek młodych konsumentów [Young consumer market]. Difin, Warszawa.

Renko, N., Karanović, B.C., Matić, M. (2012). Influence of Consumer Ethnocentrism on purchase intentions: Case of Croatia. Ekonomska Misao i Praksa DBK, 21 (2), 529–544.

Richardson, C.W. (2012). Consumer Demographics as Antecedents in the Animosity Model of Foreign Product Purchase. International Journal of Business and Social Science, 3 (4), 13–21.

Savitha, N., Dhivya, K.N. (2017). Consumer ethnocentrism: A comparison between generations X and Y. South Asian Journal of Marketing & Management Research, 7 (3). DOI: 10.5958/2249-877X.2017.00010.8

Sharma, S., Shimp, T., Shin, J. (1995). Consumer Ethnocentrism: A Test of Antecedents and Moderators. Journal of the Academy of Marketing Science, 23 (1), 26–37.

Shimp, T., Sharma, S. (1987). Consumer Ethnocentrism: Construction and Validation of the CETSCALE. Journal of Marketing Research, 24 (3), 280–289.

Sumner, W.G. (1906). Folkways. Dover Publications, New York.

Supphellen, M., Rittenburgh, T. (2001). Consumer ethnocentrism when foreign products are better. Psychology and Marketing, 18 (9), 907–927.

Wolanin-Jarosz, E. (2015). Etnocentryzm konsumencki w środowisku międzynarodowym – Studium rynkowe Euroregionu Karpackiego [Consumer ethnocentrism in the international environment – A market study of the Carpathian Euroregion]. Difin, Warszawa.

Zalega, T. (2017). Consumer ethnocentrism and consumer behaviours of Polish seniors. Handel Wewnętrzny, 4 (369), 304–316.

Zalega, T. (2018). Consumer cosmopolitanism among young Polish consumers. Handel Wewnętrzny, 64 (6), Vol. 1, 584–597.

ETNOCENTRYZM KONSUMENCKI POLSKICH MŁODYCH KONSUMENTÓW

STRESZCZENIE

Artykuł ma charakter badawczy i dotyczy analizy zjawiska etnocentryzmu konsumenckiego wśród polskich młodych konsumentów. Jego podstawowym celem jest identyfikacja postaw i zachowań etnocentrycznych osób młodych. Opracowanie składa z dwóch części: teoretycznej i empirycznej. W pierwszej z nich na podstawie krytycznej analizy literatury wyjaśniono pojęcie i istotę etnocentryzmu jako trendu konsumenckiego. Druga zasadnicza część pracy ma charakter empiryczny. Podstawę wnioskowania stanowi materiał badawczy pozyskany dzięki przeprowadzonym przez autora badaniom w formie wywiadu kwestionariuszowego wśród młodych konsumentów. Podjęcie takiego projektu badawczego jest uzasadnione, ponieważ tendencje etnocentryczne mają bezpośredni wpływ na decyzje zakupowe konsumentów i utrudniają opracowanie strategii marketingowych przedsiębiorstw na rynku.

Słowa kluczowe: osoby młode, etnocentryzm konsumencki, patriotyzm konsumencki

CONTENTS
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The journal *Acta Scientiarum Polonorum Oeconomia* features original scientific articles related to all aspects of economy, for example: food economy, European consumer goods market, sustainable regional development, development of culture environment, post crises political and social processes, human and social capital, labour market – gender perspective, public finances, rural development and entrepreneurship, social and innovative entrepreneurship, tourist economy.

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Patkowska, E., Konopiński, M. (2008a). Pathogenicity of selected soil-borne microorganisms for scorzonera seedlings (*Scorzonera hispanica* L.). Folia Horticul., 20(1), 31–42.

Patkowska, E., Konopiński, M. (2008b). Pathogenicity of selected soil-borne fungi for seedlings of root chicory (*Cichorium intybus* L. var. *sativum* Bisch.). Veg. Crops Res. Bull., 69, 81–92.

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Patkowska, E., Konopiński, M. (2008b). Pathogenicity of selected soil-borne fungi for seedlings of root chicory (*Cichorium intybus* L. var. *sativum* Bisch.). Veg. Crops Res. Bull., 69, 81–92.

Turski, W. (1972). Projektowanie oprogramowania systemów liczących. Mat. konf. Projektowanie maszyn i systemów cyfrowych. Warszawa 2–5 czerwca 1971. PWN, Warszawa, 132–139.

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