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DEVELOPMENTS IN THE HOUSEHOLD DEBT-TO-GDP RATIO ACROSS THE OECD COUNTRIES SINCE THE GLOBAL FINANCIAL CRISIS

Piotr Marek Bolibok✉

The John Paul II Catholic University of Lublin, Poland

ABSTRACT

The paper aims to investigate the developments in the household debt-to-GDP ratio across OECD countries over the period 2007–2017 from the standpoint of the individual tendencies in the numerator (household debt) and denominator (GDP) of the ratio, and to identify the groups of countries exhibiting similar patterns in the post-crisis evolution of these variables. The investigation employs a comparative analysis of the average rates of change in household debt and GDP in the sample, as well as *k*-medians clustering aimed at identifying similarities. The results of the research reveal significant disparities in the development of the household debt-to-GDP ratio across the examined countries in the analysed period driven by the dominant tendencies in its numerator and denominator, which in turn appear to be related to the pre-crisis levels of household sector indebtedness and GDP per capita, as well as the depth of recession that affected each of the particular economies.

Key words: households, debt, global financial crisis, economic growth
JEL codes: E21, E51, D14, G01

INTRODUCTION

Since the beginning of the twenty-first century, household debt across the globe has been exhibiting an overall rising trend. In many developed countries household debt-to-GDP ratios have already reached extremely high levels and the emerging economies are quickly catching up. Even though in the wake of the recent global financial crisis household sectors in some countries managed initially to deleverage, over the recent years this tendency has started to backtrack. Simultaneously, in many emerging and developing economies, household debt has been generally on the rise throughout the entire decade, remaining largely unaffected by the turmoil in the global financial market. This broad access to credit, acquired relatively recently, has been fuelling consumption and economic growth, thus enabling these countries to reduce the distance that separates them from more developed economies [Hays 2018]. The combination of the above processes has given household debt a new impetus (Fig. 1). According to Hays [2018], this renaissance of credit expansion might have significantly contributed to the recent improvements in economic growth rates observed around the globe.

The extent of household indebtedness in a given economy is often assessed by the relation of total outstanding debt to GDP. Naturally, variations in the household debt-to-GDP ratio result from differences in the direction and relative magnitude of changes in its numerator (household debt) and denominator (GDP). The value of the ratio increases (declines) when household debt grows faster (slower) than GDP, or when GDP declines faster (slower) than the amount of debt. Another, however much less likely, possibility is when the amount of debt rises during a recession (falls during an expansion).

Piotr Marek Bolibok https://orcid.org/0000-0002-5649-181X
✉piotr.bolibok@kul.pl

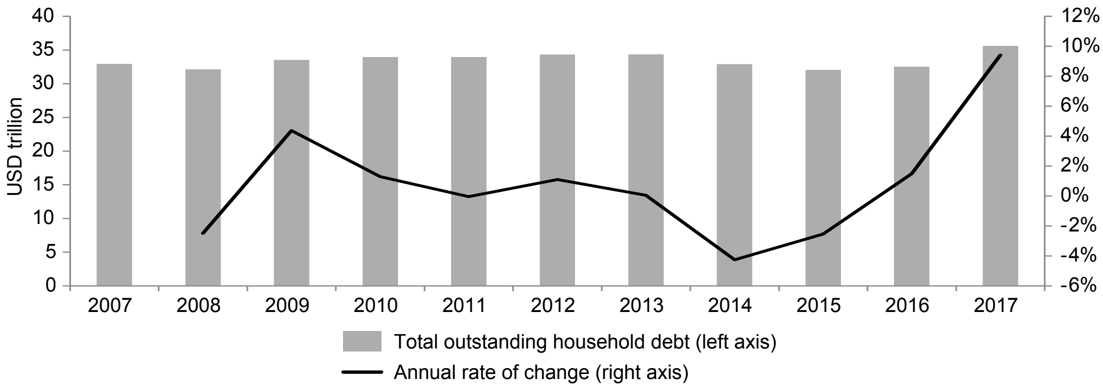

Fig. 1. Total outstanding household debt in OECD countries over the period 2007–2017
Source: Author's own elaboration based on the OECD [2019b].

Given the above, the paper aims to investigate developments in the household debt-to-GDP ratio across OECD countries over the period 2007–2017 from the standpoint of the individual tendencies in its numerator and denominator, and to identify the groups of countries exhibiting similar patterns in the post-crisis evolution of these variables. To the author's knowledge, no prior study has attempted to address these issues empirically, hence the present paper seeks to fill this apparent gap in the related literature.

The evidence in the relevant literature, discussed in detail in the next section of the paper, allows to formulate the following hypothesis: "The disparities in the post-GFC (global financial crisis) developments in the household debt-to-GDP ratio across OECD countries result from differences in the evolution of its numerator and denominator, determined by the initial levels of household sector indebtedness and GDP per capita as well as the severity of recession that affected each of their economies".

The remainder of the paper is composed of three sections. Section 2 provides a review of the relevant literature on household sector indebtedness with a particular focus on the linkages and feedbacks between the accumulation of debt and performance of the economy. Section 3 discusses the details of the data selection procedures and the methodological framework of the paper. The main findings of the study are given in Section 4. The paper closes with conclusions summarising its key findings and providing some suggestions on directions for future research.

LITERATURE REVIEW

The evidence in the relevant literature indicates that household indebtedness is driven by a complex set of macroeconomic, socio-demographic and psychological factors. The surge in household debt prior to the recent global financial crisis is often attributed to the widespread liberalisation of financial regulations [Aron and Muellbauer 2000] which increased the appetite for risk, intensified competition among lenders, and fostered financial innovation, leading to eased lending standards and greater accessibility of credit [Dynan and Kohn 2007, Barba and Pivetti 2009, Bloxham and Kent 2009]. According to Zinman [2014], this process involved various advances in 'loan production technology', including the development of advanced risk management techniques, reduction of distribution costs, as well as a rapid evolution of financial services marketing and the 'technology of persuasion'.

In addition, the years preceding the great recession were characterised by a relatively low macroeconomic volatility that dampened risk aversion perceived by both lenders and borrowers. The combination of a decent pace of economic growth with low inflation, unemployment, and interest rates strongly favoured the debt-driven model of development.

A considerable bulk of empirical studies reports a positive association between the nominal level or the rate of growth in GDP and the extent of household indebtedness [Meng et al. 2011, Mason and Jayadev 2014, Rubaszek and Serwa 2014] which likely results from the pro-cyclical nature of lending and borrowing activities. In times of expansion growing incomes improve households' creditworthiness and optimism about their debt-paying ability. Not surprisingly, therefore, in the micro-level studies current and expected future incomes are often listed among the most important drivers of household debt [Del Rio and Young 2006, Magri 2007, Brown and Taylor 2008, Anioła-Mikołajczak 2016]. Simultaneously, the increase in debt-levered expenditure boosts the aggregate demand and ultimately accelerates GDP.

Another feedback emerges between the supply of credit and the prices of assets due to collateral and wealth effects. As growing demand for assets fuels debt and pushes their prices up, the increased value of collaterals reduces credit constraints and facilitates equity withdrawals. This feedback seems particularly pronounced in the case of mortgage loans and residential property prices [Oikarinen 2009, Gimeno and Martinez-Carrascal 2010, Anundsen and Jansen 2013, Turk 2015, Moore and Stockhammer 2018].

Several studies suggest, however, that a long-run growth in GDP before the crisis might have failed to translate adequately and uniformly into labour compensation. According to Barba and Pivetti [2009], the surge in U.S. household debt had been strongly driven by a persistent stagnation in real wages and retrenchments in the welfare state that inclined many Americans to reach for an easily available debt in order to fill the gap between their income and consumption needs. In this way, debt actually became a substitute for productivity-enhanced labour compensation, allowing households to simulate their social class and create the 'debt-driven illusion' of prosperity [Leicht 2012]. Such a substitutive relationship between labour compensation and household debt is not limited to the U.S. economy, but appears to be widely spread across both developed and emerging economies around the world [Bolibok and Matras-Bolibok 2018]. In a similar vein, the results of many studies indicate that as income inequality increased, poorer households were forced to take on debt to keep up with social consumption standards in spite of stagnating or declining real incomes [Frank et al. 2014, Stockhammer 2015, Klein 2015, Malinen 2016].

An elevated level of household debt has some serious macroeconomic implications. Even if, on its own, it might not generate adverse shocks to an economy, it definitely increases the sensitivity of the household sector to changes in interest rates, labour compensation, and asset prices [Debelle 2004]. From the standpoint of the monetary transmission mechanism, it also increases the probability of asymmetrical responses of an aggregate demand to changes in interest rates, i.e. when the household sector is significantly indebted, a contractionary impact of an increase in interest rates is expected to be much stronger than an expansionary effect of an equal-sized rate cut [Zabai 2017].

Jordà et al. [2016] examined a long-run dataset covering disaggregated bank credit for 17 advanced economies since 1870, demonstrating that throughout the 20th century the share of mortgages on bank balance sheets roughly doubled, primarily due to a sharp rise of mortgage lending to households. Moreover, in the post-WWII era bank loans have become a specific source of financial instability in advanced economies, as a high rate of credit extension seems to be a reliable indicator of an increasing risk of a financial crisis. They also argue that financial crisis recessions tend to be significantly more costly than others, since credit booms (in particular, mortgage booms) are associated with deeper recessions and slower recoveries.

Having examined an unbalanced panel of 30 countries over the period 1960–2012, Mian et al. [2017] report that increased household debt-to-GDP ratios predict slower economic growth and higher unemployment in the medium and long run. Their results also highlight the importance of credit supply shocks by demonstrating how low mortgage spreads lead to an increase in the household debt-to-GDP ratio and a decline in subsequent GDP growth. Also, Alter et al. [2018] analysed a sample of 80 advanced and emerging economies over the period 1950–2016 and found that over the medium term, high growth in household borrowing is negatively associated with economic growth. On average, a one standard deviation increase in the household debt ratio is associated with a 1.2 percentage point lower output growth over the following three years, with the effect being stronger for advanced economies.

The results of the aforementioned studies generally suggest that an expansion of household debt results in a trade-off between fuelling short term growth and placing a significant drag on long-run demand [Hays 2018]. Accumulation of debt forces households to allocate an increasingly higher share of their incomes to its service which, *ceteris paribus*, imposes a downward pressure on consumption, especially if monetary policy in a given country is tightened or real labour compensation declines.

An attempt to classify some major economies according to the level and trend in their household debt-to-GDP ratio after the global financial crisis was made by Zabai [2017]. From that standpoint she distinguishes four broad categories of countries, in which household debt relative to GDP is:

- high (above 60% of GDP) and rising (Australia, Canada, Korea, Norway, Sweden, Switzerland),
- high and flat/falling (the Netherlands, Spain, the United Kingdom, the United States),
- low (below 60% of GDP) and rising (Belgium, Brazil, China, France, Singapore),
- low and flat/falling (Germany, India, Italy, Japan, Mexico).

The above approach, however, does not take into account the tendencies exhibited separately by the numerator and denominator of the ratio. Despite relatively abundant literature on the relationships between household debt and GDP, to date apparently no study has attempted to investigate the patterns of evolution of the household debt-to-GDP ratio in the international context from the standpoint of the individual trends in its numerator and denominator. The present study attempts, therefore, to fill this gap with a special regard to the factors that had likely affected the above tendencies in the post-GFC period.

MATERIAL AND METHODS

The first stage of the research involved a comparative analysis of the average annual rates of change in the household debt-to-GDP ratio, as well as in its numerator and denominator across OECD countries in the period 2008–2017. According to OECD methodology, household debt is defined as all liabilities that require future payments of interest or principal to the creditor [OECD 2019a]. Therefore, in the present study, the household debt-to-GDP ratio for a given country and year has been measured as the relation of total outstanding loans to households to GDP.

The second stage aimed at identifying similarities in the patterns of evolution of the ratio across the sample from the standpoint of the tendencies in the annual real rates of change in total loans to households and GDP. The investigation was based on a cluster analysis with the *k*-medians algorithm to control for the presence of outliers and minimize error over all clusters. The number of centroids was arbitrarily set at 8 to reflect the number of combinations of tendencies that might theoretically exist in the numerator and denominator of the ratio. Following the evidence in the relevant literature discussed in Section 2, which suggests that the evolution of the household debt-to-GDP ratio is likely influenced by the overall level of incomes and performance of a given economy, as well as the initial indebtedness of the household sector, the identified clusters were compared with respect to the median values of pre-crisis GDP per capita and household debt-to-income ratios, as well as the medians of the average rates of growth in the post-GFC period.

The examined sample covers all (36) OECD member countries. The data on household debt, inflation (CPI), GDP (including per capita GDP in thousand USD) and its growth rates were extracted from the OECD.Stat database [OECD 2019b].

RESULTS AND DISCUSSION

Figure 2 illustrates the differences in the average rates of growth in total loans to households to GDP across the examined sample over the period 2008–2017. The majority of the examined countries exhibit a growing tendency in the household debt-to-GDP ratio in the period succeeding the global financial crisis (GFC). The composition of this group, however, is quite diversified. Apart from the emerging economies, where a fast increase in the ratio likely reflects a low-base effect, many developed economies with much higher initial indebtedness experienced a steady growth in this ratio, as well. The highest average annual rates of growth have been found in the Slovak Republic, Poland, and Chile. Among the advanced economies the fastest average growth in the relation of household debt-to-GDP occurred in Scandinavian countries – Norway, Sweden and Finland, while the slowest growth took place in Italy, New Zealand and Denmark.

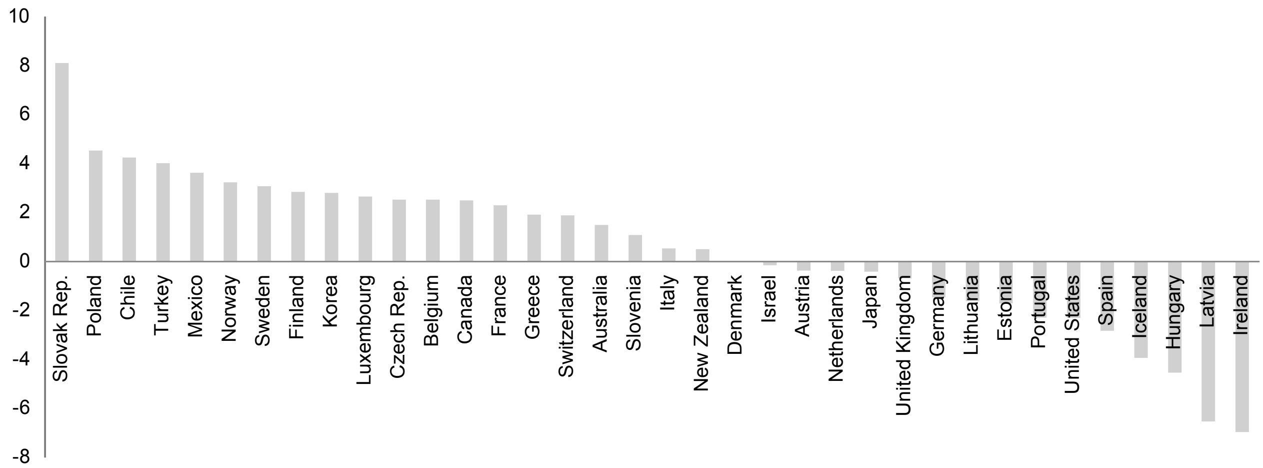

Fig. 2. Average rate of change in household debt-to-GDP over the period 2008–2017
Source: Author's own elaboration based on OECD [2019b].

The deleveraging of the household sector was observed in both some advanced and developing economies. Among the advanced economies, the fastest decline in household debt-to-GDP ratio occurred in Ireland, Iceland, and Spain, while the latter group comprises the post-transition economies of the Baltic states and Hungary.

In the next stage of the research a cluster analysis was employed to identify similarities in the patterns of post-crisis evolution of the investigated ratio in the sample, from the standpoint of the general tendencies in the numerator and denominator (Fig. 3).

The median values of pre-crisis GDP per capita and household debt-to-GDP ratios, as well as the medians of the average rates of growth in GDP and household debt in the post-GFC period for each of the identified clusters are given in the table.

The majority of the investigated economies exhibit growth in both total loans to households and GDP (first quadrant of the coordinate system in Fig. 3). Except for Austria, the amount of debt in those countries had been growing faster than output, which resulted in a gradual

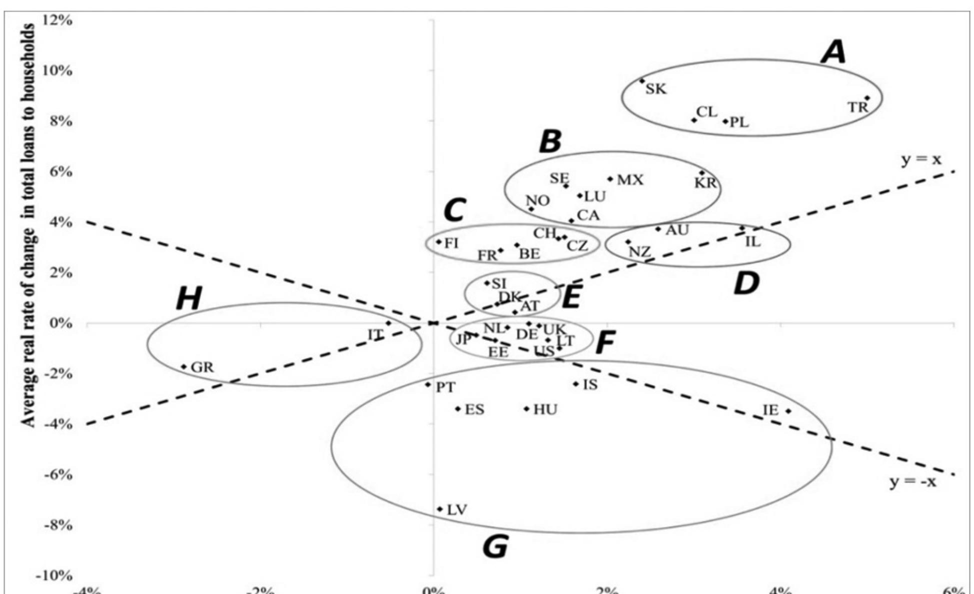

Fig. 3. Clusters of countries according to average rates of change in household debt and GDP in 2008–2017
Source: Author's own elaboration based on OECD [2019b].

increase in the household debt-to-GDP ratio. According to the results of the cluster analysis, the countries where both numerator and denominator of the ratio increased can be categorized into five groups. Cluster A encompasses quickly developing emerging economies that experienced a rapid growth in household debt in the examined period. These outcomes are largely attributable to a low-base effect, as the median values of the pre-crisis household debt-to-income ratio and GDP per capita in this cluster are significantly lower than in all the others. Additionally, these economies were less severely affected by the impact of the global financial crisis, or were even, as in the case of Poland, able to avoid recession.

Clusters B and C comprise countries in which household debt also was growing considerably faster than GDP, leading to a pronounced growth of the ratio. The main differences between these two groups regard the median values of the average rates of growth in each of the examined variables and the initial indebtedness of the household sector. The countries in Cluster B were generally recovering from the 2009 recession much faster than those in Cluster C, which allowed their household sectors to accumulate debt at a higher pace, even though (with the exception of Mexico) they were beginning the analysed period with significantly higher average indebtedness and GDP per capita.

The countries in Clusters D and E exhibited similar rates of growth in both numerator and denominator of the investigated ratio, which allowed them to keep it at relatively stable levels. Similarly, as in the case of Clusters B and C, the key difference between them lies in the average rates of growth in both determinants of the ratio. In general, the countries in Cluster E were hit by the recession much harder and were recovering slower than those in Cluster D, which seemingly discouraged their household sectors from taking on more debt. The composition of each cluster appears, however, to be significantly diversified in terms of the pre-crisis levels of GDP per capita and household debt--to-GDP ratio. In the case of Cluster D they ranged, respectively, from 27.3 thousand USD (PPP) and 43.4% for Israel to 39.6 thousand USD and 101.5% for Australia, while in Cluster E from 27.5 thousand USD and 41.1% for Slovenia to 39.0 thousand USD and 100.9% for Denmark.

The next broad category of economies encompasses countries in which the household sectors managed to deleverage and decrease the stock of debt while their economies were gradually recovering from recession (fourth quadrant of the coordinate system in Fig. 3). According to the results of the conducted analysis these countries can be classified into two clusters: the first characterised by a slowly decreasing amount of debt combined with a modest growth in GDP (Cluster F),

Table. Median values of the selected features of the identified clusters of countries

Cluster	Countries	Household debt-to-GDP in 2007 (%)	GDP per capita in 2007 (thous. USD)	Average annual real rate of growth of household debt (%)	Average annual rate of growth in GDP (%)
A	Chile, Slovakia, Poland, Turkey	19.9	16 831.12	8.5	3.2
B	Canada, Korea, Luxembourg, Mexico, Sweden, Norway	68.0	40 086.39	5.2	1.6
C	Belgium, Czech Republic, Finland, France, Switzerland	48.4	36 871.59	3.1	0.9
D	Australia, New Zealand, Israel	72.5	29 308.17	3.7	2.6
E	Austria, Denmark, Slovenia	51.4	38 978.77	0.7	0.7
F	Estonia, Germany, Japan, Lithuania, Netherlands, United Kingdom, United States	60.5	35 409.52	–0.5	1.1
G	Hungary, Iceland, Ireland, Latvia, Portugal, Spain	83.8	29 148.14	–3.4	0.7
H	Greece, Italy	42.3	31 543.25	–0.9	–1.7

Source: Author's own elaboration based on OECD [2019b].

and the second with a considerably faster decline in debt along with very diversified economic growth (Cluster G). With the exception of post-transition economies of the Baltic states and Hungary, the countries in both clusters had relatively high pre-crisis levels of household indebtedness. The average incomes in 2007 tended to be significantly higher in Cluster F, as it included mostly the advanced economies. The countries in Cluster G had on average lower initial levels of GDP per capita, but at the same time usually larger amounts of household debt relative to output. Additionally, they were usually hit by the impact of the global financial crisis much harder than those in Cluster F.

Finally, the last Cluster (H) encompasses the countries in which both the amount of household debt and output were generally declining in the post-crisis period, i.e. Italy and Greece. Paradoxically, the average rate of decline in GDP in these countries turned out to be greater than the corresponding reduction in indebtedness, which led to an overall increase in the household debt-to-GDP ratio. In the case of both countries, the pre-crisis levels of the ratio were rather low, however, in the case of Greece the severe recession it suffered brought the ratio much closer to the average level in developed economies, despite the struggle many households went through to deleverage.

CONCLUSIONS

The findings of the research generally support the formulated hypothesis and indicate that significant disparities in the development of the household debt-to-GDP ratio across OECD countries since the global financial crisis result from differences in the evolution of its numerator and denominator, which in turn seem to be related to the pre-crisis levels of household sector indebtedness and GDP per capita, as well as the depth of recession that affected the particular economies.

Despite the initial attempts to deleverage, in the majority of the examined countries household debt-to-GDP ratio was gradually increasing in the post-crisis period. In most cases this growth resulted from a faster accumulation of debt relative to the rate of economic growth. Paradoxically, however, it could also have been caused by an overall downward trend in GDP that outpaced the real rate of decline in the amount of debt, as in the case of Greece.

The findings of this study strongly suggest that investigation of the developments in household debt-to-GDP requires focusing not only on the changes in the value of the ratio itself but also on the individual trends revealed by its numerator and denominator. Given the above and the fact that the present study is limited to the OECD countries, future research might, therefore, attempt to explore the above issues in a broader international context.

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ZMIANY W POZIOMIE WSKAŹNIKA ZADŁUŻENIA GOSPODARSTW DOMOWYCH DO PKB W KRAJACH OECD PO WYBUCHU GLOBALNEGO KRYZYSU FINANSOWEGO

STRESZCZENIE

Celem artykułu jest ocena zmian w poziomie wskaźnika zadłużenia gospodarstw domowych do PKB w krajach OECD w okresie 2007–2017 z perspektywy tendencji występujących w jego liczniku i mianowniku oraz identyfikacja grup krajów cechujących się podobnym przebiegiem tych zjawisk po wybuchu globalnego kryzysu finansowego. Zastosowane metody badawcze obejmują analizę porównawczą przeciętnego tempa zmian zadłużenia gospodarstw domowych oraz PKB w próbie oraz analizę skupień z użyciem algorytmu *k*-median, zorientowaną na identyfikację powyższych podobieństw. Uzyskane wyniki wskazują na silne zróżnicowanie kierunków zmian zachodzących w poziomie badanego wskaźnika w analizowanej grupie krajów w badanym okresie, wynikające z odmiennego przebiegu zjawisk kształtujących wielkości ujęte w jego liczniku i mianowniku, determinowanych zarówno przez poziomy zadłużenia sektora gospodarstw domowych i PKB per capita w okresie poprzedzającym wybuch kryzysu, jak i przez głębokość recesji, jaka dotknęła poszczególne gospodarki.

Słowa kluczowe: gospodarstwa domowe, zadłużenie, globalny kryzys finansowy, wzrost gospodarczy

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THE IMPORTANCE OF CULTURAL DIFFERENCES IN THE ERA OF INTERNATIONALISATION OF SERVICE ENTERPRISES

Anna Dąbrowska[1]✉, Alicja Fandrejewska[2]

[1] SGH Warsaw School of Economics, Poland
[2] Warsaw School of Applied Linguistics, Poland

ABSTRACT

Moving an enterprise's activity beyond the borders of its home country, under the conditions of expanding globalisation and European integration, creates a need to analyse the specific cultural conditionings of business activity as well as a need to deal with cultural diversity, because cultural differences affect business operations, including those activities consisting in providing services. The aim of the article is to draw attention to the importance of cultural differences in the era of internationalisation of service enterprises. The presented research findings point mainly to the difficulty arising from the broadly perceived language gap and the barriers resulting from misinterpretation of gestures and body language, and different behaviours, norms and standards in the working environment as well as stereotypes and prejudice. All the above factors influence business activity, building interpersonal business relations at various levels, and marketing activities such as product promotion.

Key words: cultural differences, internationalisation, service enterprises

JEL codes: F2, F44, Z1

INTRODUCTION

The development of the service market in an international dimension should contribute to an increase of competitiveness and innovativeness of enterprises, promotion of balanced and sustainable social and economic progress, the increase of integration of countries as well as wider access of societies in particular countries to the services provided by both domestic and foreign enterprises. The increase in the share of services in GDP clearly indicates the increasing servitisation of economies. In 2017, among the EU Member countries, the highest share of added value created by the service market was recorded in Luxembourg – 86.9%, Cyprus – 84.7% and Malta – 85.1%. Services represent a large share in the added value of the entire economy in countries such as: Greece (79.0%), the United Kingdom (79.2%), France (78.8%), and the Netherlands (78.5%). For the sake of comparison, in the Czech Republic the share was estimated at a level of 60.7%, in Poland 63.9%, and in Latvia 73.8% [GUS 2018].

Enterprises making decisions about entering the markets of other countries encounter different types of barriers, such as: bureaucratic obstacles related to registration and conducting service activity, obstacles in providing cross-border services, obstacles to access the licensing system, etc., barriers in delegating employees, restrictions in advertising services, differences in legal regulations concerning insurance, differences in professional liability or restriction of access to finance [Dąbrowska 2018]. However, in the era of globalisation and European integration, more and

Anna Dąbrowska https://orcid.org/0000-0003-1406-5510; Alicja Fandrejewska https://orcid.org/0000-0001-7946-1878
✉adabro3@sgh.waw.pl

more frequently, researchers pay attention to cultural differences, which can have a significant impact on the functioning of an enterprise in the environment which is associated with a different culture.

As Zenderowski and Koziński rightly observe, it is essential that, apart from the general economic, legal, financial and social conditions of functioning on a foreign and international market, entrepreneurs planning to enter or operate in a foreign market take into account also the general cultural context [Zenderowski and Koziński 2016].

In this article, the problem is addressed both in a theoretical and empirical dimension. The authors refer to the two studies carried out as part of the research project *Liberalisation of market services in the EU as a factor increasing innovativeness and competitiveness of Polish service enterprises* (*Liberalizacja usług rynkowych w UE jako czynnik zwiększający innowacyjność i konkurencyjność polskich przedsiębiorstw usługowych*, December 2015/17/BHS4/02750, funded by the National Science Centre (NCN), Project Manager: Prof. dr hab. A. Dąbrowska), as well as the authors' own research carried out in cooperation with the Research and Knowledge Transfer Centre at the University of Economics in Katowice (Centrum Badań i Transferu Wiedzy Uniwersytetu Ekonomicznego w Katowicach).

The first study was conducted with the application of a survey questionnaire among 400 Polish service enterprises that provide services in other EU countries, mainly: Germany (64% of indications), France (29%), Italy (29%), the Czech Republic (28%), the Netherlands (23%), the United Kingdom (22%) and Spain (21%). The objects of the study were services included in six groups covered by so-called the Services Directive: commercial services; construction services; craft services; specialised and business-related services; tourism, accommodation and catering services; training, educational and information services [Directive 2006/123/EC]. The study was conducted in the second half of 2016 with the application of a survey questionnaire. The authors used a snowball-sampling method in the research.

The purpose of the second study was to assess the importance of the entities with foreign capital in the development of the services sector in Poland and to examine the conditions of their functioning. The study, carried out with the application of a survey questionnaire, covered 153 service enterprises with foreign capital which undertook business activity in the territory of the Republic of Poland. The study was conducted in the second half of 2017 using a face-to-face method to survey managers, business owners or people indicated by them as potential respondents meeting the study criteria. The selection of the sample was a case of purposeful sampling.

CULTURAL DETERMINANTS IN THE ERA OF INTERNATIONALISATION

Internationalisation in the literature on the subject is defined in various ways [Witek-Hejduk 2010, Jędralska et al. 2013]. According to Hollensen [2011], internationalisation is mainly understood as conducting business activity in many countries around the world but frequently limited to one specific region, e.g. Europe. Internationalisation is a tool which allows to increase sales through improving competitiveness and easier access to new resources, ideas, markets and technologies.

Internationalisation of business activity, including services, requires understanding of the culture of a country where the enterprise intends to provide services. The influence of cultural differences on the results achieved by enterprises with foreign capital was presented and discussed, among others, by Gatignon and Anderson, Gomes-Casseres, and Kogut, [Gatignon and Anderson 1988, Kogut and Singh 1988, Gomes-Casseres 1989, Sitko-Lutek 2004]. The perceived cultural barriers may cause a feeling of insecurity in the behaviour of managers and employees, as pointed out by Hammerich and Lewis [2013]. Moreover, the authors emphasise that some values, convictions and assumptions, which have a significant impact on the culture and activity of an organisation, are frequently invisible or difficult to notice. These are often concepts and behaviours that are seen as obvious to people from a particular culture; they are not debatable, and they are not subject to change or negotiation. This may lead to errors in understanding and interpretation, and simultaneously the creation of false ideas and simplifications consistent with people's own cultural models and patterns.

The dissimilar behaviours of individuals coming from different cultural backgrounds are defined as cultural dissonance. It is important to note that in the conditions of progressing internationalisation, the problems become more and more important.

Due to the combination of a headquarters' organisational culture and the culture of a host market, enterprises with foreign capital are particularly vulnerable to cultural dissonance [Sikorski 2002]. That is why communication, verbal and non-verbal behaviour, proper interpretation, understanding, the way of communicating and motivations are so important, because they can be the main source of cultural misunderstandings [Adler and Gundersen 2008].

Analysing the issues of differences and cultural barriers in the context of communication, it is worth citing the typology created by Gesteland [2000]. The author distinguished four opposing groups of cultures: (1) pro-transactional (direct way of communicating, focusing on activities and clear message, verbalising expectations and needs) and pro-partner (the most important aspects are building relations with other people as well as interest in matters going beyond business-related topics); (2) monochronic (time of the project completion, deadlines and punctuality are of crucial importance) and polychronic (considerably more relaxed approach towards time and schedules); (3) non-ceremonial (social status, circumstances and context do not have to be relevant) and ceremonial (social differences are more visible, ceremonialism in interpersonal relations is seen as an expression of respect, more formal way of communicating); (4) expressive (freely expressed feelings, frequently interlocutors speak loudly, interrupt each other and feel uncomfortable when there is silence) and restrained.

In view of the above, individuals from cultures which represent opposing values and traits may have difficulty communicating due to entirely different expectations regarding communication or building relationships. As Budzyński emphasises, when negotiating with a foreign partner, it is necessary to take into account his or her cultural identity and specific ways of conducting business negotiations resulting from that identity [Budzyński 2014]. Conversation on topics not connected with a negotiated transaction may be interpreted as behaviour characterised by a lack of professionalism. In turn, for a representative of a pro-partner culture, concentrating only on matters related to cooperation or agreement will be regarded as reserved and restrained.

It is possible to distinguish three groups of factors related to cultural barriers which have a negative impact on the process of managing and operating an enterprise. The first group is strictly connected with biological and cultural conditions of a given individual. The factors which mainly determine the appearance of a cultural dissonance include perception errors resulting from the tendency to be selective (the selection of convenient and rejection of inconvenient information), the so-called Pygmalion effect (self-fulfilling prophecy) stereotypical thinking and attribution (explaining the reasons for someone's behaviour by applying one's own cultural filter). It is also necessary to mention cultural intelligence, understood as the ability to adapt to different conditions using the skill of reading and interpreting cultural differences and applying the obtained information in practice. Cultural intelligence leads to the effective application of knowledge on culture in a multinational environment, which in effect helps to reduce the problem of barriers despite existing cultural differences [Kurkliński 2016]. An important factor impacting the level of cultural intelligence is international experience that is the result of contacts with individuals from different cultures, which in turn contributes to overcoming cultural barriers [Barkema et al. 1996, Rozkwitalska 2011].

The second group of elements which create intercultural barriers include organisational factors. Barkema et al. [1996] distinguish the following three groups of factors:

- the characteristics of the headquarters of a foreign company, in particular, the level of institutional ethnocentrism, their strategic approach to the role of a subsidiary, limited international experience, applied practices in the so-called soft areas of management, like, e.g. personnel issues, ways to communicate;
- characteristics of a local branch connected with the level of ethnocentrism, xenophilia, auto-stereotypes, lack or limited international experience;
- the size of the cultural gap between the head office and its subsidiaries.

In his work, Kurkliński also refers to the importance of human resources management being adapted to local cultural and market conditions, as well as the motivational and appraisal systems (awards, bonuses, promotions). Imposing the principles and rules functioning in the headquarters, detached from local practices and conditions of employment, can lead to discomfort and dissatisfaction of the staff, which in turn has a negative impact on the functioning of the enterprise and its performance. Another essential aspect related to organisation is fluent and fully communicative use of the language known to all involved parties. Language gaps (lack of knowledge on the meaning of words, idiomatic expressions or colloquial language) cause misunderstandings among the parties and make it difficult to freely present arguments and views. They cause contacts between employees, partners and clients to be limited or hampered [Kurkliński 2016]. This issue will be further discussed in the section presenting the research findings.

The third group of factors is related to national culture. Apart from the cultural distance, there are also other aspects which play a significant role in this context, such as culture-based prejudices, culture shocks as well as social ethnocentrism [Rozkwitalska 2011]. Social ethnocentrism can be defined as "a cognitive filter which has its basis in the values and practices of one's own culture, and acts as the prism through which we perceive, interpret and evaluate cultural practices of people who are treated as foreign or different" [Brewer and Crano 1994]. Misunderstanding of a foreign culture, reluctance to learn more or adapt to the local conditions often cause intercultural conflicts and affect relations with external stakeholders [Rozkwitalska 2011].

CULTURAL DIFFERENCES IN THE OPINION OF ENTERPRISES OPERATING IN THE MARKETS OF COUNTRIES OTHER THAN THE COUNTRY OF ORIGIN

When examining the liberalisation of services and its effects for the development of enterprises, the authors tried to pay attention to whether Polish enterprises entering the markets of EU countries experience the effects of cultural barriers. The survey responses are presented in Table 1.

Among the surveyed service companies operating in the area of other European countries, 66% of respondents do not perceive any cultural barriers. It can be hypothetically assumed that within this group there are respondents who chose this answer due to the fact that they were embarrassed by their own or others' ignorance. The percentage of indications decreases with the size of the enterprise, which is determined by the number of employees. The fewest difficulties were experienced by tourism enterprises providing services related to accommodation and catering (80% of indications choosing the 'not applicable' responses), which may be explained by the specificity of this kind of activity.

Focusing on barriers, the greatest problem is poor knowledge of a foreign language (27% of responses), which affects the quality and possibilities related to communicating with the environment. Most frequently such problems were indicated by large enterprises (45% of responses), in contrast to small enterprises (18% of indications). Taking into consideration the examined types of services, the smallest share of responses concerns tourism, accommodation and catering services (17% of indications), training, education and information services (19% of responses) and commercial services (22% of indications), while the greatest share was related to specialised and business-related services (44% of responses).

Difficulties connected with understanding the speaker (various accents, pronunciation, specialist language) were indicated by 24% of respondents. Most frequently the problem concerned large enterprises (37% of responses as compared to 17% of small enterprises), companies providing specialist and business-related services (41% of indications) and construction services (25% of responses).

In terms of the percentage of responses, the third place was occupied by the cultural barrier related to different behaviours, norms and standards in the workplace (20% of responses). This problem most frequently affects large enterprises (30% of indications, in the case of small companies the share of responses amounted to 12%), enterprises providing specialist and business-related services (32% of responses). More than 20% of indications were recorded also in the companies offering construction and commercial services.

Table 1. Cultural barriers experienced by service enterprises

Characteristics of service enterprises	*N*	Percentage of aswers (%)						
		poor knowledge of a foreign language	difficulty in understanding the interlocutor (different accents, pronunciation, jargon)	incorrect interpretation of gestures and body language	different behaviours, norms and standards in work environment	cultural differences, such as: customs, tradition, religion	stereotypes and prejudice	none of the above
Total	400	27	24	18	20	14	13	66
Type of enterprise								
small (up to 49 employees)	148	18[a]	17[a]	12	13	11	11	77
medium-sized (502 49 employees)	137	21	21	16	20	16	17	69
large (250+ employees)	115	45[a]	37	27	30	16	12	48
Services provided in the EU								
trade services	72	22	22	21	21	18	17	65
construction services	77	31	25	14	22	12	9	62
craft services	58	24	22	17	16	16	16	69
specialised and business-related services	75	44	41	28	32	16	15	48
tourism, accommodation and catering services	70	17	11	9	11	9	10	80
training, educational and information services	48	19	21	17	15	15	15	75

Source: Authors' own work.

Incorrect interpretation of gestures and body language (18% of indications) is the biggest problem experienced by large enterprises (27% of indications compared to 12% of responses in the case of small companies), enterprises providing specialist and business-related services (28% of responses), and the fewest in the case of companies providing tourism, accommodation and catering services (9% of indications).

Cultural differences such as customs, traditions, and religion were pointed out by 14% of respondents. The problem is less frequently indicated by small enterprises (11% of responses); slightly more responses were recorded in the case of medium-sized and large enterprise (16% of responses each). This obstacle is more frequently indicated by commercial enterprises (18% of responses) and craft enterprises as well as companies providing specialist and business-related services (16% of responses each).

Stereotypes and prejudice are a cultural barrier which is indicated by 13% of the survey participants, most frequently from medium-sized enterprises (17% of indications), offering commercial services (17% of responses) and handicrafts (15% of responses).

The obstacles in communication with foreigners were also one of the areas distinguished in the study concerning the internationalisation of enterprises with foreign capital providing services in the Polish market.

For nearly 57% of the respondents taking part in the study, cultural misunderstandings did not constitute an obstacle in the implementation of important tasks in their enterprise (e.g. signing an agreement, establishing cooperation or carrying out new investments). Approximately 14% of survey participants stated that these kinds of problems occurred in their enterprise. The remaining individuals (29.4% of indications) did not give an unambiguous response, which may be explained by reluctance to providing an answer suggesting such problems or lack of knowledge on the subject. Yet, such answers were provided by managerial staff.

The problems related to communication in a foreign language and cultural misunderstandings constituted obstacles for most medium-sized enterprises (21.6% of answers); however, in the case of micro and small enterprises, the highest share of responses were 'it's difficult to say' (in total, 63.6% of answers) and in the case of enterprises belonging to section K (financial and insurance activity) – 27.8% and section N (activity in the field of administration services and supporting activities) – 22.2%.

The analysis of the relationship between the declaration regarding the occurrence of the problems with communication and cultural misunderstandings and the characteristics of the respondents showed a statistically significant relationship only in the case of the number of employees in an enterprise in Poland ($\chi^2 = 16.391$; $df = 6$; $p = 0.012$). However, the strength of this relationship was weak (Cramer's $V = 0.231$).

Among the basic obstacles in communication with foreign branches, management or clients and contractors, the factors most frequently indicated by the respondents included: poor knowledge of a foreign language (42.5% of indications) and the difficulty in understanding of the interlocutors (35.9% of responses). Cultural differences and differences in management styles were pointed to as an obstacle by almost every fourth respondent (23.5% of responses and 24.2% of responses, respectively). Stereotypes and prejudice have hampered cooperation in the case of 17% of respondents, and different behaviours, standards and norms in the workplace were an obstacle for 18% of respondents. The least frequently experienced difficulty in communicating with foreigners was associated with incorrect interpretation of gestures and body language. This obstacle was pointed out by less than 8% of respondents (the figure).

Poor knowledge of a foreign language was the greatest obstacle in communication in the case of micro- (up to 9 employees) and large (more than 250 employees) enterprises (40% of responses and 47% of responses respectively). Among small enterprises (10–49 employees) the most frequently mentioned problems included: poor knowledge of a foreign language (46.2% responses) and difficulty in understanding interlocutors (48.7% of indications), and among medium-sized enterprises (50–249 employees), the responses were rather evenly distributed: 34.3% of indications – poor knowledge of a foreign language, 31.4% responses – difficulty in understanding interlocutors and differences in management styles as well as different behaviours, norms and standards in the workplace (28.6% of indications) – Table 2.

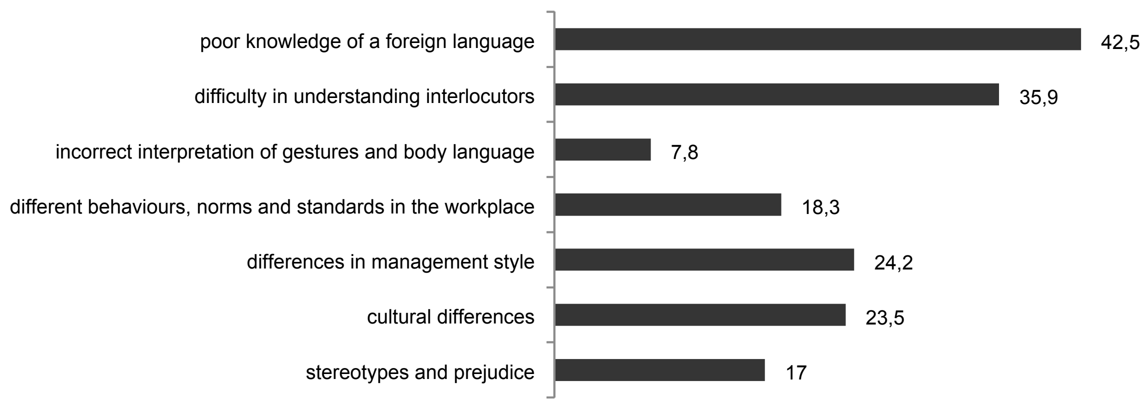

Fig. The obstacles related to communicating with foreigners (% of responses)
Source: Authors' own work.

Table 2. Obstacles to communication with foreigners and the number of employees in Poland (%; N = 153)

Size of enterprise	Poor language skills	Difficulty in understanding interlocutor	Misreading gestures	Different behaviours	Differences in management styles	Cultural differences	Stereotypes
Up to 9	40.0	20.0	0	30.0	30.0	20.0	20.0
10–49	46.2	48.7	15.4	12.8	20.5	20.5	12.8
50–249	34.3	31.4	2.9	28.6	31.4	17.1	14.3
250+	47.0	34.8	7.6	15.2	22.7	30.3	21.2

Source: Authors' own work.

Poor knowledge of a foreign language and difficulty in understanding the interlocutor were the biggest problems in communication among enterprises belonging to section G (wholesale and retail trade, repair of motor vehicles) and section H (transport and storage) (Table 3). In the case of section K (financing and insurance activities), the greatest obstacle was the poor knowledge of a foreign language, a factor indicated by as many as 61% of respondents. In the remaining examined sections, the responses were rather evenly distributed. In enterprises belonging to section N (activities in the field of administration and supporting activities), 35% pointed to poor knowledge of a foreign language, difficulty in understanding of the interlocutor, different behaviours, norms and standards in the workplace; differences in management styles and cultural differences were just as important problems for less than 30% of enterprises.

CONCLUSIONS

International business areas, such as international management, international trade or international marketing, are to a large extent determined by cultural factors [Bartosik-Purgat 2010].

At least two types of national cultures: the culture of the country of origin (capital owner culture, parent company culture, the culture of managerial staff from home country) and host culture (individual culture of native employees, managerial culture of the host country) influence a company's activity [Rutka and Czerska 2008].

The ongoing globalisation and freedom to establish business activity in another country contributes to the development of entrepreneurship in the services market of individual countries, but decisions made by both larger or smaller service companies need to be

Table 3. Obstacles to communication with foreigners and type of activity (%; N = 153)

Section	Poor knowledge of the language	Difficulty in understanding of the speaker	Incorrect reading of body language	Different behaviours	Differences in management styles	Cultural differences	Stereotypes
G	47.8	37.0	13.0	10.9	21.7	15.2	19.6
H	46.7	33.3	6.7	26.7	26.7	33.3	20.0
K	61.1	38.9	11.1	27.8	11.1	16.7	5.6
N	35.3	29.4	5.9	29.4	29.4	29.4	23.5
IPORS	35.2	38.9	3.7	16.7	29.6	29.6	16.7

Source: Authors' own work.

supported with knowledge and skills concerning cultural conditionings.

Despite the fact that a relatively large number of respondents, operating in the Polish market as service enterprises with foreign capital or functioning in the services market of other EU countries, have not experienced culture-related problems hindering the implementation of important tasks, the cultural aspect still constitutes an obstacle to the functioning of these enterprises. The most frequently mentioned obstacles included poor knowledge of a foreign language and difficulty in understanding interlocutors. Insufficient knowledge of the language of an organisation's home country is still a large obstacle for local enterprises. In spite of the high level of foreign language skills of the employees of international organisations in Poland, few of them speak a foreign language fluently and proficiently. This leads to the emergence of misunderstandings and limitations in contacts between colleagues.

In communicating with foreigners, the obstacles included also the differences in management styles, cultural differences as well as different behaviours, norms and standards in the workplace. These issues are most frequently analysed from the point of view of cultural barriers influencing the functioning of an international organisation. Cultural factors – just as with economic, political or legal factors – should be considered in such a way so as to reconcile a global approach of enterprises with the specificity of local enterprises in hosting countries.

Taking into account the presented research findings, we can draw specific conclusions and present recommendations for managers and marketers.

The decision to enter a foreign market should be well-considered. Also, it is necessary for the service enterprise owners and employees to have knowledge of the country where the business intends to provide services. This is very important in communicating with the environment as well as building marketing activities, including promotional initiatives.

In both studies, reference is made to organisational culture-related differences. It appears that language gaps are the greatest problem. Lack of knowledge of the language of a country where service enterprises want to develop their business may cause misunderstandings of the cooperating parties (B2B) and lack of understanding of communicated messages (B2C).

The surveyed enterprises (both businesses which entered the markets of other EU countries as well as those which decided to enter the Polish services market) assigned less importance to stereotypes, prejudice, customs, traditions and religion. However, these features cannot be underestimated, because they may lead to serious misunderstandings in business talks and dealing with clients or creating advertising messages.

As the authors emphasise, in both studies a high percentage of respondents stated that they do not notice cultural differences. However, the researchers support the thesis that, due to the sensitivity of the question suggesting a certain degree of ignorance, the existence of cultural barriers may affect a much larger share of enterprises than the recent study suggests. Therefore, it is recommended to undertake further research on the subject.

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ZNACZENIE RÓŻNIC KULTUROWYCH W DOBIE INTERNACJONALIZACJI PRZEDSIĘBIORSTW USŁUGOWYCH

STRESZCZENIE

Przenoszenie działalności przedsiębiorstwa poza granice kraju macierzystego w warunkach rozszerzającej się globalizacji i integracji europejskiej rodzi potrzebę poznania specyfiki działania w różnych obszarach kulturowych oraz radzenia sobie z różnorodnością kulturową, bowiem wywiera to wpływ na efekty działalności, w tym usługowej. Celem artykułu jest zwrócenie uwagi na znaczenie różnic kulturowych w dobie internacjonalizacji przedsiębiorstw usługowych. Przedstawione wyniki badań wskazują głównie na trudności wynikające z szeroko pojętej luki językowej, ale występują także bariery wynikające z mylnego odczytywania gestów i mowy ciała, odmiennych zachowań, norm i standardów w środowisku pracy, stereotypów i uprzedzeń. Ma to swoje konsekwencje dla prowadzonej działalności gospodarczej, budowania relacji międzyludzkich na różnych poziomach kontaktów czy dla działań marketingowych, w tym promocji.

Słowa kluczowe: różnice kulturowe, internacjonalizacja, przedsiębiorstwa usługowe

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IMPACT OF THE INTERPLAY BETWEEN FORMAL AND INFORMAL INSTITUTIONS IN THE CORPORATE GOVERNANCE AND INDEPENDENCE OF AUDIT FIRMS: A COMPARATIVE STUDY OF CEECs

Małgorzata Godlewska✉

SGH Warsaw School of Economics, Poland

ABSTRACT

The central point of this paper is to present the results of comparative meta-analysis concerning the impact of the interplay between formal and informal institutions in the corporate governance and independence of audit firms of Central and Eastern European Countries (CEECs). The paper focuses on the values of the national Financial Audit Law and national auditors' code of ethics of CEECs, as well as on independence, professional scepticism, non-audit services, audit fees, mandatory audit firm rotation and joint carrying out of statutory financial audit. The main subject of interest concerns two research areas: the character of the relationship between formal and informal institutions, as well as whether the interplay between them is relevant to corporate governance and independence of audit firms of CEECs.

Key words: corporate governance and independence of audit firms, formal institutions, informal institutions, Central and Eastern European countries, capital markets

JEL codes: D02, G34, N2, O16

INTRODUCTION

Proper functioning of capital markets in the European Union requires a sufficient choice of audit firms [Commission Recommendation C(2008) 2274], because audits are one of the key contributors to European financial stability [Green Paper COM/2010/0561 final]. Moreover, an audit may deliver assurance of the financial health of companies [Green Paper COM/2010/0561 final].

Auditors as well as audit firms play a statutory role in the Central and Eastern European Countries (CEECs)[1], as audits are required by national and EU law. Such audits are a statutory safeguard for different participants of capital markets, such as investors, lenders or business counterparties [Green Paper COM/2010/0561 final]. The independence of audit firms is fundamental to public confidence of the audit process and the reliability of auditors' work [Quick 2012]. Equally important is the corporate governance

[1] Central and Eastern European Countries is an OECD term (as a non-EU member excluded from analysis), Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, the Slovak Republic, Slovenia, Estonia, Latvia and Lithuania.

Małgorzata Godlewska https://orcid.org/0000-0001-7413-0674
✉mgodlews@sgh.waw.pl

of audit firms, which may enhance trust and confidence of capital markets towards auditor's work [FRC 2016].

The importance of formal institutions for the corporate governance and independence of audit firms has been highlighted by the European Commission [Green Paper COM/2010/0561 final]. In addition, the importance of informal institutions like auditing firm policies or auditing firm culture for the corporate governance and independence of audit firms has been highlighted by Johnstone et al. [2001].

The purpose of this paper is to present the results of a comparative meta-analysis concerning the impact of the interplay between formal and informal institutions on the corporate governance and independence of audit firms of CEECs and their capital markets. Particular focus was put on the values of the national Financial Audit Law and national auditors' code of ethics, as well as on independence, professional scepticism, non-audit services, audit fees, mandatory audit firm rotation and joint carrying out of a statutory audit. In this paper, informal and formal institutions of CEECs relevant to the corporate governance and independence of audit firms of CEECs and their capital markets are presented. The interplay between formal and informal institutions of audit firms' corporate governance code, using the example of the national auditors' code of ethics and national Financial Audit Acts of CEECs, are compared and discussed. Moreover, whether the national Financial Audit Acts of CEECs consist of regulations that are compatible with the values set up in the national auditors' code of ethics, is examined. Furthermore, the research hypothesis that rules-based corporate governance system (CGS) of CEECs leads to a higher quality of financial audit than relation-based CGS, is investigated .

The conclusion presented in the paper was drawn based on a review of literature and research on national and European financial audit regulations, as well as all national auditors' code of ethics of CEECs. The primary contribution this article makes is to link the literature on the interplay between formal and informal institutions related to audit firms' corporate governance systems and independence in economies in transition like CEECs and their capital markets.

THE CORPORATE GOVERNANCE SYSTEM AND INDEPENDENCE OF AUDIT FIRMS

The corporate governance system of audit firms has become a significant issue in academic as well as in business debates in the last two decades due to auditors' scandals, such as the Arthur Andersen collapse or previous fines and bans received by the Big Four all over the world. Proper corporate governance systems should help audit firms to secure their reputation and reduce the risk of failure [FRC 2016]. The governance of CEE audit firms is defined by legislation (e.g. the EU hard and soft law or national regulations), Audit Firm Governance Code (like in the UK), Code of Ethics for Professional Accountants so-called formal institutions, as well as by informal institutions like values and culture of audit firms or auditors' attitude to risk or trust in audit client's statements. However, audit firms' corporate governance codes are not obligatory for audit firms in CEECs.

Until recently, CEECs did not implement the Audit Firm Corporate Governance Code (as is done in the UK). However, almost all CEECs (except Romania) incorporated into their national institutional framework the Code of Ethics for Professional Accountants of the International Federation of Accountants (IFAC Code of Ethics), which should be obeyed by all auditors and audit firms. The implementation of the Audit Firm Corporate Governance Code has been under heated debate within the EU since 2010. It is important to highlight that auditors play a key role in capital markets and are entrusted by law to conduct statutory financial audits [Green Paper COM/2010/0561 final]. The Audit Firm Corporate Governance Code is intended to benefit investors, audit committee members, audit regulators, partners and employees of audit firms. Similarly, the independence of audit firms is also crucial for capital markets [Green Paper COM/2010/0561 final].

However, at present, in literature on the subject, there is no one common definition of independence. DeAngelo [1981] highlights that the independence of audit firms means their ability to report a discovered breach during the financial audit. The independence of audit firms has an impact on the audit quality, because without this, the auditor will be less likely to report a discovered breach, and the audit quality will decrease [Tepalagul and Lin 2015], which may cause many problems with the financial stability of EU capital markets. The independence of audit firms may be affected by: (a) mandatory rotation of audit firms and partners [Nicolaescu 2013]; (b) financial audit fees [Blay and Geiger 2013, Markelevich and Rosner 2013]; (c) non-audit services [Tepalagul and Lin 2015]; (d) the importance of the audit client [Hardies et al. 2012]; (e) a client's affiliation with the current audit firms [Martinov-Bennie et al. 2011]; or (f) regulatory auditor firms' oversight [Johnstone et al. 2001].

In literature, there is a debate on whether only formal institutions are important for the corporate governance and independence of audit firms or if informal institutions also have a significant impact.

THE IMPACT OF INFORMAL INSTITUTIONS ON THE CORPORATE GOVERNANCE AND INDEPENDENCE OF CEE AUDIT FIRMS

Directive 2014/56/EU on Statutory Audit requires that statutory auditors and audit firms adopt principles of professional ethics, professional scepticism, professional secrecy, independence, integrity, objectivity, professional competence or due care. These principles have been transposed into the CEECs' legal environment through either national codes of ethics, like in Romania (Table 1), or through binding principles of the IFAC Code of Ethics, like in Poland or Hungary. However, only Lithuania adds in the national Financial Audit Act to the IFAC Code of Ethics such important values as social responsibility and the good repute of audit firms. Moreover, despite the convergence of the Code of Ethics between CEECs, we can observe important differences in the corporate governance system of CEE audit firms (Table 2). Moreover, differences in informal institutions, such as cultures, traditions, values or business codes and ethics, may result in the divergence of the corporate governance system among CEE audit firms. Furthermore, the European Commission highlights that audit firms have to strengthen their corporate governance standards in order to reinforce their independence [Green Paper COM/2010/0561 final]. A good example of this reference may be the code of corporate governance for audit firms introduced in 2010 in the UK.

Research by Stulz and Williamson [2003] proved that informal institutions, such as culture, values and ethical norms, are important for corporate governance systems. On the other hand, research by Johnstone et al. [2001] proved that auditing firm culture or auditing firm policies are important for independence of audit firms. Most respondents from CEECs perceive culture as tradition, customs and arts (e.g. Bulgaria, Romania, Latvia and Slovakia) or as arts, literature and lifestyle (e.g. Hungary, the Czech Republic, Estonia or Poland) – Table 1. Surprisingly, only a minority of CEE respondents from Bulgaria, Hungary and Romania also perceive culture as knowledge and science (research) [EC 2007]. Moreover, according to Schwartz and Bardi [1997], CEECs may be divided due to conservatism and hierarchy values (Table 1).

The first group of countries, e.g. Croatia, Estonia, Lithuania, Poland, Slovakia and Slovenia, which may be classified as conservative countries[2]: (a) mostly perceive culture as an art, literature or lifestyle (except Slovakia); (b) do not have a problem with patronage and nepotism (except Croatia); and (c) their business culture is moderately dominated by corruption (except Slovakia, Slovenia and Croatia).

The second group of countries, e.g. Bulgaria and Romania, which may be classified as hierarchical countries: (a) perceive culture as traditions, customs, arts, knowledge and science; (b) say corruption is a part of their business culture; and (c) have a problem with patronage and nepotism.

The third group of countries, e.g. the Czech Republic, Latvia and Hungary, which may be classified both as conservative and as hierarchical countries: (a) perceive culture as art and literature (except Latvia); (b) say corruption is a part of their business (except Latvia); and (c) have a moderate problem with patronage and nepotism (except Latvia).

[2] For Croatia, Latvia, Lithuania and Romania, which are not included in research by Schwartz and Bardi [1997], the author classified these countries according to the characteristics of Lewis' research [2006].

Table 1. Differences of informal institutions of CEECs (classified by values)

Country	Auditors Code of Ethics[a]	Word 'culture'[b]	Corruption as a part of business culture[c]	Patronage and nepotism[d] as a problem	Value types[e]
Bulgaria	IFAC	traditions, customs and arts	76%	58%	hierarchy
Romania	professional ethics, independence, objectivity, confidentiality and professional secrecy	arts, literature, traditions and customs	80%	82%	hierarchy
Latvia	IFAC	traditions, customs and arts	52%	20%	conservatism hierarchy
Hungary	IFAC	arts and literature	76%	46%	conservatism hierarchy
Czech Republic	IFAC	arts and literature	77%	50%	conservatism hierarchy
Croatia	IFAC	no data	75%	53%	conservatism
Slovenia	IFAC	arts and literature	76%	36%	conservatism
Slovakia	IFAC	traditions, customs and arts	81%	42%	conservatism
Lithuania	IFAC plus social responsibility and good repute of audit firms	arts and lifestyle	67%	23%	conservatism
Estonia	IFAC	arts and literature	48%	22%	conservatism
Poland	IFAC	arts and lifestyle	62%	34%	conservatism

[a] Auditor's fundamental principles of IFAC: professional ethics, professional scepticism, independence, integrity, objectivity, professional competence, due care and professional secrecy.

[b] The respondents from the EU member states have to answer the question: What comes to mind when you think about the word 'culture'?

[c] The respondents from the EU member states have to answer the question: Corruption is part of the business culture in your country? The answers show how many respondents totally agree that corruption is a part of the business culture in their countries.

[d] The respondents [companies] from the EU member states have to answer the question: Do you consider patronage and nepotism to be a problem or not for your company when doing business in your country? The answers show for how many respondents patronage and nepotism are a problem.

[e] According to Schwartz and Bardi [1997] Eastern Europe put especially high importance to conservatism [understood as "emphasis on the status quo, propriety, and restraint of actions or inclinations that might disrupt the solidary group or the traditional order"] and hierarchy [understood as "emphasis on the legitimacy of hierarchical allocation of fixed roles and of resources"] values and very low importance to other values. For Croatia, Latvia, Lithuania and Romania, which are not included in research of Schwartz and Bardi [1997], the author classified these countries according to research by Lewis [2006].

Source: Author's own compilation based on conservative and hierarchical values from Schwartz and Bardi [1997] and for Croatia, Latvia, Lithuania and Romania, which are not included in research of Schwartz and Bardi [1997], the author classified these countries according to research by Lewis [2006]; corruption [EC 2017b]; the world culture [EC 2007]; patronage and nepotisms [EC 2017a]; Code of Ethics based on CEE national audit acts.

Statutory auditors and audit firms play a societal role by offering a report "on the truth and fairness of the financial statements" of audited companies [Green Paper COM/2010/0561 final]. The corporate governance code of audit firms should promote quality of financial audits [FRC 2016], because "robust audit is key to re-establishing trust and market confidence" and contributes to investor protection and decreases in the cost of capital from capital markets [Green Paper COM/2010/0561 final]. However, in CEECs, we may observe differences in the organisation of the public oversight body of audit firms, which may influence the corporate governance and independence of CEE audit firms and their capital markets. Each of the CEECs have one professional body mainly responsible for approval and registration of statutory auditors and audit firms or continuing education. The first group of countries, e.g. Croatia, Estonia, Lithuania, Poland, Slovakia and Slovenia, which may be classified as conservative countries: (a) delegated to a national public oversight body the responsibilities for a quality assurance system (except Estonia and Croatia) for public interest entity (PIE) statutory audits and to professional bodies for non-PIE statutory audits; and (b) delegated to a national public oversight body the responsibilities for investigation and the administrative disciplinary system (except Poland and Slovakia) – Table 2.

The second group of countries, e.g. Bulgaria and Romania, which may be classified as hierarchical countries, decided to delegate the responsibilities for a quality assurance system and investigation and the administrative disciplinary system to a national public oversight body. The third group of countries, e.g. the Czech Republic, Latvia and Hungary, which may be classified both as conservative and as hierarchical countries, decided to delegate the responsibilities for a quality assurance system and investigation and the administrative disciplinary system to national public oversight bodies in the case of PIE statutory audits and, in the case of statutory audit for non-PIE, to professional bodies.

In literature on the subject, informal institutions may have a problem-solving or a problem-creating role [Godlewska and Pilewicz 2018]. The question is: which role do informal institutions have according to the corporate governance and independence of CEE audit firms? According to the results of a meta-analysis of the national code of ethics confirmed by the results of empirical research of corporate governance in transition economies (except the Czech Republic) done by

Table 2. Differences in the regulation of corporate governance standards of CEE audit firms (classified by value types)

Country	Value types	National public oversight body	Professional body	Quality assurance system	Investigative and administrative disciplinary system
Bulgaria	hierarchy	CPOSA	ICPA	CPOSA	CPOSA
Romania	hierarchy	ASPAAS	CAFR	ASPAAS	ASPAAS
Latvia	conservatism hierarchy	MoF	LZRA	MoF for PIE/LAZRA for non-PIE	MoF for PIE/LAZRA for non-PIE
Hungary	conservatism hierarchy	KKH	MKVK	KKH for PIE/MKVK for non-PIE	KKH for PIE/MKVK for non-PIE
Czech Republic	conservatism hierarchy	PAOB	KACR	PAOB for PIE, KACR for non-PIE	PAOB/KACR for PIE, KACR for non-PIE
Poland	conservatism	KNA	PIBR	KNA for PIE/PIBR for non-PIE	KNA for PIE/PIBR for non-PIE
Croatia	conservatism	MoF	CAC	MoF	MoF
Slovenia	conservatism	ANR	SIZR	ANR for PIEs/SIZR for non-PIEs	ANR
Slovakia	conservatism	UDVA	SKAU	UDVA for PIE/SKAU for non-PIE	UDVA for PIE/SKAU for non-PIE
Lithuania	conservatism	AVNT	LAR	ANAVT for PIE/LAR for non-PIE	AVANT
Estonia	conservatism	AAOB	EAA	AAOB	AAOB

Source: Author's own compilation based on Schwartz and Bardi [1997], Lewis [2006] and the organization of the public oversight body of audit firms by Accountancy Europe [2018].

experts of EBRD [2017], corporate governance regulations in CEECs are not well implemented, and the institutional environment is not sufficiently supported by informal institutions [Godlewska and Pilewicz 2018]. Informal institutions of CEECs do not support formal institutions in order to enforce full compliance with the IFAC code of ethics. An explanation for the lack of enforcement may be the fact that a majority of CEECs have a problem with patronage and nepotism, and corruption is a part of their business culture. Moreover, Sikka [2004] argue that the values which govern audit firms are the need to make a profit at the expense of the need for wider social obligations.

IMPACT OF FORMAL INSTITUTIONS ON THE CORPORATE GOVERNANCE AND INDEPENDENCE OF CEE AUDIT FIRMS

No one corporate governance system is totally safe against fraud, malpractice or incompetence [Cadbury 1992, Hampel 1998]. However, the independence and corporate governance standards of audit firms may reduce these risks and may facilitate investors' trust in companies' financial reporting [Cohen 1978]. Moreover, according to Blair [1995], financial audits are an integral part of the corporate governance system. However, recurring audit failures done during financial audits undermine confidence in the corporate governance system [Sikka 2004] and in capital markets. Therefore, formal institutions support the independence and corporate governance standards of audit firms, e.g. the Sarbanes-Oxley Act of 2002 in the USA or the Financial Audit Law in the EU of 2014. The Financial Audit Law of CEECs was examined according to the following key areas: professional scepticism of auditors, independence, non-audit services, mandatory audit firm rotation or joint carrying out of a statutory audit.

La Porta et al. [1998] divided countries according to the legal origins of law (formal institutions) into common law countries and civil law countries. They proved that the corporate governance system varies significantly among these countries with different legal origins of law. CEECs as civil law countries with a French (Latvia, Lithuania and Romania) or German (Poland, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Slovakia, Slovenia) origin of law have weaker corporate governance systems than common law countries [La Porta et al. 2004]. However, there are no significant differences in the regulation of Financial Audit Law between CEECs with French and German origins of law.

According to scholars Beeler and Hunton [2001], provision for non-audit services may strengthen the auditor's economic relations with their clients and decrease the independence of audit firms. Despite this, most CEECs decided to allow audit firms to provide non-audit services, like certain tax and valuation services, under the conditions of the Regulation (EU) No 537/2014 (e.g. the Czech Republic, Estonia, Hungary, Slovakia, Latvia or Romania) or only certain tax services under the condition of this Regulation (e.g. Lithuania or Bulgaria). Only Poland and Slovenia did not decide upon any deregulation of prohibition for non-audit services (Table 3). Moreover, only Poland has chosen an additional prohibition for non-audit services according to the "White" list approach. All others CEECs approved the list of prohibitions as per the Regulation (EU) No 537/2014. Furthermore, non-audit services may affect auditor independence [Tepalagul and Lin 2015].

All CEECs' audit regulations required their audit firms and their auditor to be independent from their clients and to fulfil the obligation of professional secrecy (Table 3). However, the Financial Audit Law of CEECs does not have clear regulations according to the situation where part of the client's personnel used to work in the past for the current auditor. Such affiliation may affect the independence of an audit firm [Lennox 2005]. Moreover, all CEECs' financial audit regulations require their audit firms and their auditors to perform the audit with professional scepticism; however, the meaning of professional scepticism is not defined in all regulations. Polish and Slovakian financial audit regulations define professional scepticism as the critical attitude of auditors. For Lithuanian and Czech, it is the questioning mind of an auditor.

In addition, Jennings et al. [2006] proved that rotating audit firms and their partners leads to higher auditor independence perception. Moreover, Heliodoro et al. [2016] argue that there is a significantly positive relation between the final results of a financial audit report and a change in auditor. However, CEECs have chosen different mandatory partner and audit firm rotation patterns, from 5 years (in Poland and Hungary),

Table 3. Differences in the regulation of the Financial Audit Law of CEECs (classified by legal origin of law)

Country	Legal origin of law	Professional scepticism of auditors	Independence	Non-audit services –Derogation of prohibition	Non-audit services – Additional prohibitions	Mandatory audit firm rotation	Joint carrying out of statutory financial audit
Bulgaria	German	professional judgement	yes	CT	LP	7 years	yes
Czech Republic	German	questioning mind	yes	CTV	LP	10 years	yes
Estonia	German	yes	yes	CTV	LP	7 years	no
Hungary	German	yes	yes	CTV	LP	5 years	no
Poland	German	critical attitude	yes	no	W	5 years	no
Slovakia	German	critical attitude	yes	CTV	LP	10 years	yes
Slovenia	German	yes	yes	No	LP	10 years	no
Latvia	French	yes	yes	CTV	LP	10 years	no
Lithuania	French	questioning mind	yes	CT	LP	10 years	yes
Romania	French	questioning attitude	yes	CTV	LP	10 years	yes

Source: Author's own compilation based on legal origin of law from La Porta et al. [2004]; professional skepticism of auditors, independence, mandatory audit firm rotation or joint carrying out of a statutory audit based on meta-analysis of national Financial Audit Law, non-audit services based on Accountancy Europe [2019].

7 years (in Bulgaria and Estonia), to 10 years (in the Czech Republic, Slovakia, Slovenia, Latvia, Lithuania and Romania).

Furthermore, some of CEECs allow joint carrying out of statutory financial audit. Joint audits mean that two or more different audit firms share the financial audit work and jointly sign the financial audit report [Green Paper COM/2010/0561 final]. Joint financial audits are possible in Bulgaria, the Czech Republic and Slovakia.

On the other hand, Heliodoro et al. [2016] highlight that there are other relevant factors that may have impact on the corporate governance and independence of audit firms, such as the financial audit client's growth rate, the financial audit client's corporate governance model or the sector in which the financial audit client operates.

IMPACT OF INTERPLAY BETWEEN FORMAL AND INFORMAL INSTITUTIONS

An audit is a key part of the corporate governance mosaic [Cohen et al. 2004]. However, according to Sikka [2004], audit failures are the product of the values [informal institutions] governing audit firms, such as the need to make a profit instead of wider social obligations.

The author divided CEECs' governance systems, based on characteristics from the OECD report [Jüttig et al. 2007], into two groups (Table 4): (a) the relation-based corporate governance system (CGS) countries such as in Bulgaria, Hungary, Latvia and Romania; (b) the rules-based CGS countries such as in Croatia, the Czech Republic, Estonia, Lithuania, Poland, Slovakia and Slovenia. When the relation-

Table 4. Interplay between the formal and informal institutions of national CGCs of CEECs (classified by values)

Country	Rules- or relation-based CGS	Disclosure on the external audit	Quality of external audit	Financial information disclosure	Institutional environment
Bulgaria	relation-based	moderately strong	fair	strong	weak
Romania	relation-based	moderately strong	fair	strong	fair
Hungary	relation-based	moderately strong	weak (two-tier system)	strong	weak
Latvia	relation-based	moderately strong	fair	strong	moderately strong
Croatia	rules-based	moderately strong	moderately strong	strong	moderately strong
Lithuania	rules-based	strong	moderately strong	strong	moderately strong
Estonia	rules-based	moderately strong	fair	strong	strong
Poland	rules-based	moderately strong	moderately strong	strong	strong
Slovakia	rules-based	fair	fair	fair	fair
Slovenia	rules-based	moderately strong	moderately strong	moderately strong	moderately strong

Source: Rules-based or relation-based CGS: author's division based on characteristics from report OECD [Jüttig et al. 2007]; Disclosure on the External Audit, Quality of External Audit, Financial Information Disclosure, Institutional Environment according to EBRD [2017].

-based CGS dominates, this means that the professional body which supervises audit firms may not be strong enough to effectively regulate audit firms. In such a situation, the corporate governance system of audit firms may be dominated by the bargaining power of their financial audit clients. The rules-based CGS countries have a better institutional environment and higher quality of external financial audit than relation-based CGS countries, which was proved by research done by EBRD experts [2017].

Moreover, Dunn and Mayhew [2004] argue that financial audit clients select their auditors as a part of their disclosure strategy. However, almost all CEECs have moderately strong or strong regulations connected with disclosure on the external financial audit or disclosure of financial information.

CONCLUSIONS

The interplay between formal and informal institutions is of significant importance for the corporate governance and independence of CEE audit firms and their capital markets, because informal institutions may support, replace or undermine formal institutions. This meta-analysis examined the relationships between formal and informal institutions of CEECs using the example of national Financial Audit Law and the values of the national code of auditors' ethics.

The results suggest that a majority of CEECs' informal institutions do not support or enforce national financial audit regulations. An explanation for the lack of enforcement by informal institutions may be the fact that many CEECs have a problem with corporate governance standards due to problems with nepotism and patronage or a positive perception of corruption. Therefore, informal institutions do not have a problem-solving role in the corporate governance and independence standards of CEE audit firms.

Moreover, the regulations of national Financial Audit Law are undermined by weak informal institutions, e.g.: (a) lack of a code of ethics held by the majority of public listed companies (financial audit client's); (b) lack of national corporate governance standards for audit firms; (c) lack of enforcement by professional bodies for values connected with the social responsibility of auditors; or (d) civil law legal cultures with lower corporate governance standard enforcement than common law culture.

Furthermore, some CEECs have rules-based corporate governance systems and others have relation-based systems. However, the rules-based CGS of CEECs like in Poland, Slovenia or Lithuania lead to a higher quality of financial audit and better protection of capital markets than relation-based CGS of CEECs like in Bulgaria, Romania, Hungary or Latvia.

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WPŁYW WZAJEMNYCH POWIĄZAŃ MIĘDZY INSTYTUCJAMI FORMALNYMI I NIEFORMALNYMI NA ŁAD KORPORACYJNY I NIEZALEŻNOŚĆ FIRM AUDYTORSKICH: BADANIE PORÓWNAWCZE KRAJÓW EUROPY ŚRODKOWO-WSCHODNIEJ

STRESZCZENIE

Celem tego artykułu jest przedstawienie wyników metaanalizy dotyczącej wpływu wzajemnych powiązań instytucji formalnymi i nieformalnymi na ład korporacyjny oraz niezależność firm audytorskich z krajów Europy Środkowo-Wschodniej. Artykuł skupia się na analizie narodowych regulacji w zakresie przeprowadzania badań sprawozdań finansowych oraz kodeksach etyki zawodowej biegłych rewidentów w Europie Środkowo-Wschodniej, a także na uregulowaniu takich kwestii, jak: niezależność firmy audytorskiej i audytora, profesjonalny sceptycyzm, usługi dodatkowe, wynagrodzenie za audyt, obowiązkowa rotacja firmy audytorskiej czy wspólne przeprowadzanie badań sprawozdań finansowych przez co najmniej dwie firmy audytorskie. Głównym przedmiotem zainteresowania były następujące obszary badawcze: określenie charakteru relacji między instytucjami formalnymi i nieformalnymi, a także zbadanie, czy wzajemne oddziaływanie między nimi jest istotne z punktu widzenia ładu korporacyjnego i niezależności firm audytorskich w krajach Europy Środkowo-Wschodniej.

Słowa kluczowe: ład korporacyjny i niezależność firm audytorskich, instytucje formalne, instytucje nieformalne, Europa Środkowo-Wschodnia, rynek kapitałowy

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THE IMPACT OF HEALTH PERCEPTION AND HEALTH-RELATED DETERMINANTS ON HEALTHY FOOD CONSUMPTION IN OLDER PEOPLE IN SLOVAKIA

Dagmar Lesakova✉

University of Economics in Bratislava, Slovakia

ABSTRACT

The main objective of the paper is to explore the impact of health perception and health-related determinants on achieving healthy food consumption among the elderly and to indicate how possession and importance of different determinants influence the eating behaviour of the elderly population. In our research 18 specific determinants and their manifestation in healthy food consumption were explored. The purpose of the exploration of health perception is to identify seniors' beliefs about food and health-related aspects. Empirical research was conducted on a sample of 400 elderly participants aged above 65 years and living in their own flats. The relationship between health perceptions, health-related determinants and healthy eating behaviour was confirmed by employing correlation analysis. These findings can be used also in other areas such as food choice motives, where behaviour can be investigated by exploring the contribution of various determinants.

Key words: food consumption, health perception, health-related determinants, seniors

JEL codes: M30

INTRODUCTION

Knowing the behaviour of seniors is an essential starting point in determining how to influence them [Stremersch 2008]. Seniors currently represent 18% of Slovakia's population and projections show that by 2035 they will account for more than a quarter of the whole population. Women account for 52% of seniors aged 65–69 and for 70% of those 85 years or older. Differences in life expectancy between men and women have begun to narrow – a trend that is expected to continue. In 2018 more than five in ten Slovaks aged 65 and older reported having a disability or health problem that limits their everyday activities and the disability rate rises with age. At the same time many seniors consider themselves to be in good health – 40% of those between 65–74 years described their health as very good or good, while among seniors 75 and older only one in four reported very good or good health. These facts indicate the need for careful exploration of the behaviour of seniors in order to promote ageing in an effective way.

In analysing the problems of ageing it is a recognized need to focus more on individual responsibility for healthy life [Kritchevsky 2016]. Recently there can be seen a shift from considering old age to be a problem in itself to considering older people's responsibility for their own quality of life. Successful ageing has been described as decreasing the risk of diseases and maintaining physical and mental functioning and

Dagmar Lesakova https://orcid.org/0000-0001-8496-9887
✉dagmar.lesakova@euba.sk

active engagement in social life. The World Health Organization [2002] identified the key concepts of productive ageing (i.e. the ability to contribute directly and indirectly in older age) and healthy ageing (i.e. the ability to remain physically and mentally fit) as a base of an active ageing policy framework. The increasing recognition to focus on personal responsibility and individual perceptions of the 'healthy life' initiated research in the area of food and nutrition in relation to older people's healthy consumption.

Nutrition is recognized as one of the determinants of successful ageing, defined as the ability to maintain three key behaviours: low risk of disease and disease related disability, high mental and physical function, and active engagement of life [Kraft and Goodell 1993, Moorman and Matulich 1993]. Good and proper nutrition can significantly reduce the likelihood of developing a number of common chronic diseases and slow down their progression.

LITERATURE REVIEW

The issue of health in the process of ageing has been addressed in a number of studies [Divine and Lepisto 2005, Dean et al. 2009] supporting the concept of health as a multidimensional construct, comprising the physical, mental and social well-being and not merely the absence of disease. We adopt this multidimensional perspective on health by considering the impact of several health-related determinants.

As people age their living circumstances may alter. For example, as people retire, their income goes down and their social network may narrow. As health changes for the worse, access to shops may become a problem. Further, loss of a partner due to death of spouse or children leaving home, may change cooking and eating habits. All these factors affect older people's behaviour towards food and their perception of food-related determinants. A strong association exists between food consumption and risk of various diseases, particularly obesity, cardiovascular disease and certain types of cancer. Hence, the need to adopt healthier diets is important in seniors' eating behaviour [Kähkönen et al. 1997].

The ageing process impacts also food and energy intake, which tend to decrease for a number of physiological and psychological reasons including reduced activity (immobility), reduced muscle tissue, lower resting metabolic rate and smaller meals. It is documented that ageing affects the ability to taste and smell [Darian and Tucci 2011]. Seniors are less sensitive to basic tastes and particular smells. Declining ability with age to detect tastes and smells and their intensity has been suggested also to be responsible for the reduced intake of foods. It is known that social factors and the eating environment are significant determinants of food intake. Other factors also contribute to older people's quality of life, such as access to healthy food products, nutritional information and facilities at home, which impacts food consumption in the senior population [Luomala et al. 2015]. By identifying which of these factors are perceived as important, it may be possible to improve older people's healthy food consumption.

An obvious consequence of ageing for many older people is the loss of social networks. With the change of living circumstances seniors are less likely to live with other family members or unrelated individuals and more likely to live alone and thus with high probability of eating alone [Moschis et al. 2011]. There is also evidence that older people living alone are more likely to expect support from the state in the form of home assistance and various social services, than do seniors who live with other family members. Such changes can have an effect on the quality of food consumption.

People tend to exhibit eating behaviour that is relevant to their strongest health-related determinants [Papies et al. 2007]. Those who have the most congruent determinants and health perception, achieve better healthy food consumption [Dean et al. 2009]. Adopting this statement to older people, it could be suggested that those with health-related determinants towards healthy food consumption would exhibit healthier consumption compared to those whose determinants are not relevant to healthy diet or those who lack the determinants to achieve the state of healthy eating. By identifying which of the determinants are relevant and how they influence nutrition, it may be possible to improve older people's food consumption [Keane and Willetts 1994].

METHODOLOGY AND DATA

The objectives of our research are threefold. First, the existence of different segments will be explored within elderly populations for whom health has different distinct meanings (personal well-being vs preventing diseases). Second, the resulting segments will be compared with respect to several food-related determinants. The third objective is the analysis of the role which the possession and importance of food-related determinants play in healthy food consumption.

The sampling frame for the empirical research was elderly people aged 65+ living in their own flats. Non-probability sampling in the form of convenience sampling was employed. A total of 400 questionnaires was distributed in daily clubs for seniors. The questionnaire consisted of questions exploring three areas: perception of health in the senior population, the role of food related determinants and actual level of healthy eating behaviour. To analyse the health perception, we used a modified scheme proposed by Kähkönen et al. [1996] and used 10 items linked to health. The purpose of the health perception scale was to reveal seniors' beliefs about health. Respondents were asked: "When you think about health, how important are the following issues for you?" The degree of importance was rated on a five-point Likert scale (1 is a very unimportant; 5 is a very important). The results of individual health perceptions is presented in Table 1.

In order to simplify the initial items, we conducted factor analysis on the perception of various items. Two factors were extracted and the total variance explained by this solution was 69.16%. Factor loading of greater than 0.40 was the criterion for accepting a statement into a factor. The results of factor analysis determined two segments of seniors with different health perceptions: a segment associating health with personal well-being (HPI1–HPI6) and a segment associating health with preventing diseases (HPI7–HPI10), with α coefficients of 0.85 and 0.81 respectively.

To measure the achieved level of healthy food consumption, we modified a three-item scale from Kearney et al. [2001]. Respondents identified the extent of their agreement with three simple statements regarding their healthy eating behaviour on a five-point Likert scale, where 1 is a strongly disagree and 5 is a strongly agree. The items were: "I make regular effort to healthy food consumption"; "I eat to a healthy amount"; and "My diet is healthy enough". A principal component analysis of the three items measuring the level of healthy food consumption revealed one factor accounting for 64% of the variance in the personal well-being

Table 1. Health perception items

HPI	Health perception items	$\bar{x}$	*SD*	*n*
HPI 1	Cholesterol content in foods	3.61	0.74	400
HPI 2	Fat content in foods	3.80	0.81	400
HPI 3	Salt content in foods	3.61	0.93	400
HPI 4	Sugar content in foods	3.81	0.90	400
HPI 5	Nutritional information	3.66	0.75	400
HPI 6	Control of body weight	3.32	0.89	400
HPI 7	Physical activities, walking	4.04	0.54	400
HPI 8	Level of participation in community life	3.33	0.74	400
HPI 9	Stress avoidance	3.80	0.58	400
HPI 10	Food choice based on taste, smell and food appearance	3.75	0.78	400

Source: Author's own calculation.

segment and 61% in the preventing diseases segment. A composite score was computed for each participant based on the mean value of all three items (Cronbach α was 0.83 and 0.77 respectively) – Table 2.

Key variables in our research are determinants impacting older people's healthy food consumption. The determinants that were assessed relate to availability and access to suitable foodstuffs, facilities at home, living circumstances, cooking skills, changes in people's social networks, etc. By identifying older people's determinants of food consumption, their level of individual possession and perceived importance of each determinant, we can investigate the relationships between food-related determinants and healthy food consumption. A variety of personal determinants (e.g. skills), material determinants (e.g. income), and social determinants (e.g. family and friends) exist, that seniors can use to organize their food consumption.

Health-related determinants can be seen as means that are in the possession of a person at his/her own disposal and that can be used to organize healthy food consumption. As people age, the importance of individual determinants can change, and the level of possession of individual determinant may also change.

People tend to exhibit eating behaviour that is relevant to their strongest health-related determinants [Sparks et al. 2001]. Those who have the determinants that are important to healthy food consumption exhibit the best results of healthy food consumption. Diener and Fujita [1995] argue that healthy eating is likely to depend on focusing on the possession of those determinants that lead to healthy consumption. Alternatively, it could be argued that people with healthier food consumption are better able to manage and develop the determinants with strong contribution towards healthy life [Dean et al. 2008]. Hence, seniors with healthy diet-focused determinants would have a higher level of healthy food consumption compared to seniors whose level of possession of such determinants is low, or who lack the determinants needed to achieve healthy consumption.

A list of 18 food-related determinants potentially relevant for senior's food-consumption in life were identified and included in the survey questionnaire. Respondents were asked two questions relating to each of the 18 determinants, first relating to the respondent's perceived level of possession of the determinant and the second to the perceived importance of the determinant for achieving healthy food consumption. The first question about the level of possession was formulated: "How do you assess your individual possession of (determinant name)?". The question about the importance of the determinant was formulated: "How important in attaining healthy food consumption is (determinant name) for you?". Both the level of possession and the importance of determinants was rated on a five-point scale.

RESULTS AND DISCUSSION

Two segments were identified with different perceptions of health: the first segment consisted of seniors associating health with personal well-being (life is enjoyable) and the second segment associated health with preventing diseases (energy and autonomy). This outcome is also in line with previous research by other authors [Miller and Iris 2000, Robertson 2006]. Analysis of relations between health-related determinants and healthy food consumption was performed separately on these two segments.

Table 2. Level of healthy food consumption

Healthy food consumption items	Personal well-being group		Preventing diseases group	
	$\bar{x}$	*SD*	$\bar{x}$	*SD*
I make regular effort to healthy food consumption	3.59	0.83	3.88	0.78
I eat to a healthy amount	3.54	0.76	3.79	0.70
My diet is healthy enough	3.41	0.68	3.62	0.72

Source: Author's own calculation.

The results indicate that seniors with different health beliefs (personal well-being vs preventing diseases) would place different importance on food-related determinants, and this influences the way they form their healthy eating behaviour. Seniors with the health perception of preventing diseases would place higher importance on health determinants, knowledge and price in healthy food consumption. On the other hand, seniors associating health with personal well-being put more emphasis on health, sensory appeal and access to new products.

The means and standard deviations of the 18 determinants indicating their level of possession and importance for both senior segments (personal well-being and preventing diseases) are shown in Table 3. Respondents in both groups viewed themselves as having a high individual level of possession of storage facilities, kitchen appliances and with access to good transport. Also they expressed the ability to taste and smell and to have access to high quality food products (Table 3). However, the participants indicated having low income.

The determinants regarded as most important to achieving healthy food consumption in the personal well-being group were: appetite for food, ability to taste and smell well, knowledge about food and nutrition, family support and good general health.

In the preventing diseases group, the highest importance in attaining healthy eating was placed on: good health, knowledge about food and nutrition, ability to taste and smell, ability to walk. Access to good food service providers was seen as the least important factor, indicating that older people do not rely in their food consumption on external providers (Table 3).

The findings show that for older people food consumption is not only linked with health matters but also relates to food variety and social networks. In terms of importance, the study showed that not only personal factors such as ability to taste and smell and ability to walk, but also material determinants such as storage facilities and social resources such as family support are also important to enhance healthy consumption. Our research found that older people in both identified segments perceived themselves as having good material equipment to cook and store food, good social support in terms of family help and good personal abilities such as ability to taste and smell.

The findings also showed that people rated the importance of those determinants in which they indicated high level of possession as higher. The individuals who rated the importance and the level of possession of different determinants as high, achieved also better results in healthy food consumption. Seniors with high levels of possession on certain determinants mostly perceived these determinants as being more important and relevant to achieving healthy consumption.

In order to check the relation between a determinant's level of possession and its importance for each participant, a correlation coefficient between each level of determinant and perceived importance to achieving healthy food consumption was computed for all 18 determinants. The mean within subject correlation in personal well-being group was 0.48 where 94% of the correlations were positive and only 6% negative, while in the preventing diseases group the mean was 0.54 with 94% positive correlations. This suggests that most respondents focus on enhancing those determinants which they believe as relevant and important for healthy consumption.

The relation between level of possession and importance for the 18 determinants showed in both senior segments a small negative association between perceived individual level of possession and importance for the determinant income (–0.18 and –0.16 respectively). This suggests that those who perceived themselves as having a low income, perceived income to be more important than those who viewed themselves as having a high income. Although this effect is small, it is still statistically significant suggesting that those who do not have money, see it as more important than those people who have money. For the rest of the 17 determinants, there was a significant positive correlation between perceived level of possession and perceived importance, with highest coefficients for ability to taste and smell (0.49 and 0.46 respectively), dental health (0.40 and 0.43 respectively), cooking skills (0.47 and 0.44 respectively) and good general knowledge about food and nutrition (0.41 and 0.46 respectively).

In order to check the congruence of a determinant's perceived importance with healthy food consumption the Pearson correlation coefficient between a determinant's importance and healthy consumption score

Table 3. Correlations of food-related determinants

Food-related determinants	Personal well-being group				Preventing diseases group			
	level of possession	importance	correlation		level of possession	importance	correlation	
			level and importance	importance and healthy diet			level and importance	importance and healthy diet
	$\bar{x}$	$\bar{x}$	r	r	$\bar{x}$	$\bar{x}$	r	r
Good general health	3.74	4.00	0.23	0.36	3.49	4.12	0.27	0.39
Appetite for food	3.98	3.77	0.43	0.39	3.75	3.62	0.39	0.34
Dental health	3.76	4.01	0.40	0.36	3.54	4.04	0.43	0.38
Knowledge about food and nutrition	3.82	3.80	0.41	0.37	4.03	4.00	0.46	0.42
Cooking skills	3.60	3.53	0.47	0.34	3.79	3.26	0.44	0.38
Ability to taste and smell	4.10	4.02	0.49	0.41	3.94	3.90	0.46	0.39
High quality food products and brands	4.03	3.55	0.38	0.35	3.98	3.68	0.34	0.34
New and different types of food products	3.72	3.18	0.31	0.34	3.88	3.02	0.27	0.29
Food that is easy and quick to prepare	3.44	2.56	0.26	–0.23	3.52	2.39	0.22	-0.20
Food storage facilities (freezer, refrigerator)	4.38	3.89	0.41	0.31	4.32	3.72	0.38	0.30
Kitchen appliances and equipment to make cooking easier	4.08	3.78	0.39	0.32	4.06	3.82	0.36	0.31
Access to food service providers	2.16	2.42	0.31	–0.22	2.66	2.58	0.27	-0.19
Income	2.98	4.08	–0.18	0.37	2.92	4.14	-0.16	0.39
Access to food at low prices	3.59	3.40	0.24	0.20	3.28	3.60	0.22	0.24
Short distance to the food shop	3.43	3.39	0.24	0.23	3.32	3.10	0.27	0.20
Ability to walk / being mobile	3.96	3.85	0.39	0.35	3.59	3.99	0.36	0.39
Family support	3.54	3.80	0.38	0.36	3.80	3.95	0.42	0.39
Access to transport	4.18	3.44	0.29	0.27	4.02	3.64	0.32	0.30

Source: Author's own calculation.

was calculated. The determinant 'knowledge about food and nutrition' produced the highest correlation between importance and healthy food consumption in the preventing diseases segment (0.42). This is not surprising as among the indicators of healthy food consumption was also a statement on eating a healthy diet. To be able to have a healthy food consumption, seniors need to have information about the quality of food products. Thus, for those who saw these determinants as important, a high level of their possession and high perceived importance led to a high score on healthy food consumption. High levels of correlation between importance and healthy food consumption were documented for ability to taste and smell (0.41 and 0.39

respectively), good general health (0.36 and 0.39 respectively) and good dental health (0.36 and 0.38 respectively). Negative correlation was found for two determinants: access to food service providers (–0.22 and –0.19 respectively) and food that is easy and quick to prepare (–0.23 and –0.20 respectively), indicating the opposite impact on healthy food consumption.

Results show that the greater the congruence between a person's perception of the importance of health-related determinants and healthy consumption, the higher the score on healthy food consumption that person experiences. This implies that people who have higher levels of possession of the determinants that are important to healthy consumption, exhibit better results in healthy food consumption. Those who have their highest possession in areas that are less important to healthy food consumption, exhibit a lower score in healthy consumption. This indicates that either seniors consider determinants with a high level of possession as being highly important to achieve healthy food consumption, or they identify healthy consumption with areas where they perceive high possession.

SUMMARY

The results of our research show how food consumption in the senior population represented by two segments with different approaches to health perception interacts with different determinants through their importance for healthy food consumption.

Older people do not associate food consumption with only health issues, but they also include enjoyment of food and social networks [Kraft and Goodell 1993, Papies et al. 2007]. In terms of determinants, our research suggested that not only personal resources such as the ability to walk, ability to taste and smell, and dental health but also material determinants such as storage facilities or kitchen appliances and social determinants such as family support were perceived to be important in achieving healthy food consumption. It was found that seniors who rated the importance of health-related determinants higher, also exhibited healthier food consumption. Those who possessed some of the determinants in plentiful amounts, indicated these determinants also as more important. Moreover, those who rated their determinants as more important, achieved better healthy eating behaviour than seniors who rated them as less important.

In our study, healthy food consumption, as we expected, was dependent on income, health issues and living environment. However, the findings show that other determinants such as family support, transport, food knowledge, and kitchen facilities also impact healthy eating behaviour. In addition, the congruence between levels of possession and the importance of health-related determinants could also add to how seniors consume, indicating that seniors' healthy food consumption depends both on the level of possession of particular determinants and also on how important they perceive these determinants are for their consumption behaviour.

The study investigated relationships between eating behaviour and determinants and their contribution to shaping healthy food consumption. These findings can be used also in other areas such as food choice motives, where behaviour can be investigated by exploring the contribution of various determinants.

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WPŁYW POSTRZEGANIA ZDROWIA I ZWIĄZANYCH ZE ZDROWIEM DETERMINANTÓW NA SPOŻYCIE ZDROWEJ ŻYWNOŚCI U OSÓB STARSZYCH NA SŁOWACJI

STRESZCZENIE

Głównym celem artykułu jest przedstawienie wpływu postrzegania zdrowia oraz determinantów związanych ze zdrowiem na spożywanie zdrowej żywności przez osoby starsze oraz wskazanie, które z wybranych czynników kształtują zachowania żywieniowe populacji osób starszych. Badaniem objęto 18 specyficznych determinant i ich przejawów w zdrowym spożywaniu żywności. Celem badania percepcji zdrowia była identyfikacja przekonań seniorów na temat żywności i aspektów związanych ze zdrowiem. Badania empiryczne przeprowadzono na próbie 400 starszych osób w wieku powyżej 65 lat, zamieszkujących we własnych mieszkaniach. Związek między postrzeganiem zdrowia, uwarunkowaniami związanymi ze zdrowiem a zdrowym odżywianiem potwierdzono za pomocą analizy korelacji. Wyniki te można wykorzystać także w innych obszarach badawczych takich jak motywy wyboru żywności.

Słowa kluczowe: konsumpcja żywności, postrzeganie zdrowia, determinanty związane ze zdrowiem, seniorzy

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BRANDING MISHAVINË CHEESE: A CONTRIBUTION OF THE RURAL ALBANIAN ECONOMY

Etleva Muça (Dashi)[1]✉, Katia Zene[2]

[1] Agricultural University of Tirana, Albania
[2] Coordinator for Slow Food movement in Albania, Albania

ABSTRACT

In Albania, the region of Kelmend is best known and valued for the Mishavinë cheese which is produced there. In this paper we analyse the farmers' experience of origin-based cheese and being part of the Slow Food Presidium of products in Albania. The role of local producers is fundamental not only in continuing tradition but also for the social and economic impact it has on farmers in the area. The survey in this study was conducted with face-to-face interviews with producers of Mishavinë cheese. The type of survey used was a semi-closed questionnaire. A descriptive analysis was conducted to evaluate the main problems facing the local producers and their collaboration among the relevant stakeholders. As Mishavinë is part of Slow Food the Ark of Taste project, it has a great opportunity to bring producers and consumers together with the aim of regenerating this lost tradition.

Key words: Mishavinë cheese, slow food, farmers, VIS Albania
JEL codes: D13, M31, Q01

INTRODUCTION

The livestock sector is one of the most important sectors for the Albanian economy, representing up to half of the output value of agriculture [Haas et al. 2019] and constituting an important source of livelihood for the rural population [Muça (Dashi) et al. 2013]. Cattle production in 2018 reached 467,318 heads, with a slight decrease compared to 499,600 heads in 2014 [INSTAT 2019]. The dominating category is that of dairy cows, which represent 73% of the total number of cattle [INSTAT 2019]. The main regions with concentrated cattle breeding are: Fier with 14%, Elbasan 13%, Tirana and Shkoder with 10%. Gjirokaster is the region with the lowest number of cattle heads: only 4.7% of the total number [MBZRAU 2014]. On the other hand, the number of sheep heads has remained almost the same over the years. In 2018 there were 1,863,837 heads and the main category was represented by milked sheep with 74% [INSTAT 2019].

Most milk is produced by very small semi-specialized producers and from mixed farms, having less than 50 sheep or goats and cattle farms with less than five cows [MBZRAU 2014]. The milk factories are of medium and small size. However, both the production and processing milk factories apply traditional technologies. The milk price is not based on quality parameters, especially in the mountain territory. Albania has a long tradition of local cheese production which is considered to be one of the main food items in Albanian households [Imami et al. 2016].

Etleva Muça (Dashi) https://orcid.org/0000-0002-6524-8467; Katia Zene https://orcid.org/0000-0002-1472-0047
✉evadashi@ubt.ed.al

SLOW FOOD, NEW OPPORTUNITY FOR MISHAVINË CHEESE

Globalization has imposed social and cultural changes on rural communities, from local to national levels, by breaking the boundaries of globalization through increases in speed and consumption [Adıgüzel Özbek and Erikçi 2014]. So, in principle Slow Food[1] is a response against fast food. The Slow Food movement aims to preserve local production and to revitalize Albanian food traditions. It has been present in Albania since 2008, when it was introduced through the Italian NGO, VIS Albania. Founded in Northern Italy in the mid-1980s, it has become an international movement with more than 100,000 members in different countries around the world [Siniscalchi 2013]. This movement has contributed towards a new thinking of food consumption, through consumer orientation to new sustainable lifestyles and slow consumption as a solution to fast food and the globalized economic system [Hall 2012].

Slow food is a new alternative for rural community development [Brunori 2007] and can be considered as a sustainable model which respects the environment, cultural identities and animal welfare, and supports the right of every community to decide for itself what to plant, what to produce, and what to eat [Slow Food International 2017]. Slow Foods are catalogued and added to the Ark of Taste 7 Slow Food Convivias (food communities) with 2 Presidias and 44 products. Ark of Taste products are those selected as agro-food products at risk of extinction and needing to be preserved. The preselected products in Albania are in accordance with Slow Food principles: good, clean and fair (Slow Food Manifesto). So, for the products to follow the ancient production protocol, the environment needs to be respected and employment of the rural population is encouraged.

The production of Mishavinë cheese is encouraged by the mountainous territory which is suitable for breeding animals, whose milk is used mostly for cheese production. Manoli [2011] observes that it is crucial to understand the diversity of production systems in a given territory. In the Kelmend area, there are several small milk processing enterprises and most of them are not legally registered. The region of Kelmend is known and valued most of all for the Mishavinë cheese which is produced in this area. In local tradition, Mishavinë cheese is the first dish offered to guests as a gesture of respect and hospitality. This cheese is strongly linked with the pastoral tradition and its geographical position, as it is produced only in the villages of Selce, Lepushë, Vukel and Vermosh, in the region of Malësi e Madhe (North Albania), in the border areas with Montenegro.

Mishavinë cheese has been present in this area for more than 100 years and it is possible that is was produced even earlier than that [Regional Environmental Center 2016]. According to the local people this cheese was traditionally produced in the territory between the two borders of Albania and Montenegro, and the word *Mishavinë* is a Slavic word. *Misha* means animal leather. It is presumed that in the past this cheese was seasoned within animal leather. However, historically this cross-border area, Albania-Montenegro is of Albanian ethnicity [Durham 1920]. The village of Lepushe also borders Montenegro.

The Medieval-originated Code still survives in these areas and it regulates the community and personal lives of the inhabitants. A Code is based on the conservation of honor: the Kanun Code. Thanks to this Code, many local traditions have been preserved [Dragovaja 1996]. These traditions represent one of the most fascinating aspects of the communities. The people here are used to being isolated, but hospitality is very important to them. The arrival of a guest in these areas is a sacred event. According to Kanun Code, "the home of an Albanian belongs to God and to the guest". The culinary tradition is simple but full of flavour. Natural products, such as meat, cheese, rakia, etc. are served in great quantities to the guest, to show respect and to honour them.

This cheese is considered a fundamental food for getting through the long and cold winter. It can be eaten alone or used as an ingredient in other typical Albanian recipes, such as Byrek, or the Kelmend traditional

[1] Slow Food was founded for the first time in 1987, in Italy. Today this organization counts more than 100,000 members, in about 130 countries around the world.

recipe Kaçimak. Producing Mishavinë cheese is a way to discovering the lost roots of the region, since it is produced in the same way as their predecessors made it in the Kelmend area.

MATERIAL AND METHODS

The region of Kelmend consists of a 384.50 km^2 area and includes eight principal villages: Tamara, Selcë, Lepushë, Vermosh, Broje, Nikç, Vukël and Koshnje and 79.3% of the territory is mountainous. This territory is the area of the Mishavinë cheese production. During April 2019 we conducted 25 face-to-face questionnaires with Mishavinë producers at the Kelmend area for the following reasons:

- The territory is in the North of Albania and the other types of interviews are not relevant.
- We were interested to learn the expectations of the farmers, which is easier to read from face-to-face interviews [Flick 1998].

The sample method was used as the questionnaire was directed only to the Mishavinë cheese producers. Semi-structured questionnaires were then used to collect both qualitative and quantitative data. The questions were divided into closed questions, multiple choices or open-ended questions including: socio-demographic characteristics, farm data on livestock production, market access, farm income, period needed in Mishavinë production, reasons to participate in Slow Food convivium, the future of Mishavinë cheese.

The factors influencing the Mishavinë production impact are summarized using the descriptive statistics method [Ethridge 2004]. This model was the most appropriate to evaluate the data from questionnaires due to the small number of respondents for Mishavinë cheese. Descriptive statistics illustrate differences between individual farms and familial or multi-family farms ranging [Wheeler and Childress 2004] in Kelmend area.

RESULTS

The production process of Mishavinë is the same for all families, except for the type of milk used (sheep, cow or both of them) and some other details during the production process. Each family owns on average 10–30 sheep and 3–4 cows up to 13 [Dimitrova et al. 2014]. The milking process is carried out manually, and the milk is used partially for daily use and the rest for cheese production. Each family processes the milk and produces the cheese in their own kitchen. The families have sheep and cows, which are from local breeds. The data collected from the questionnaires provide an ample overview of farmers' activities related to the whole value chain of Mishavinë cheese. The majority of Mishavinë cheese producers are women, (64%) with an average age of 45 to 60. The next biggest group is aged 35–44, with 32% of farmers. Only 8% of producers are less than 34 years old.

Referring to the demographic data it is essential to increase the number of young producers as it is important for continuity of Mishavinë production and for the preservation of the tradition. Another important element for the product continuity and sustainability is linked with the quantity of Mishavinë production through the years (Fig. 1).

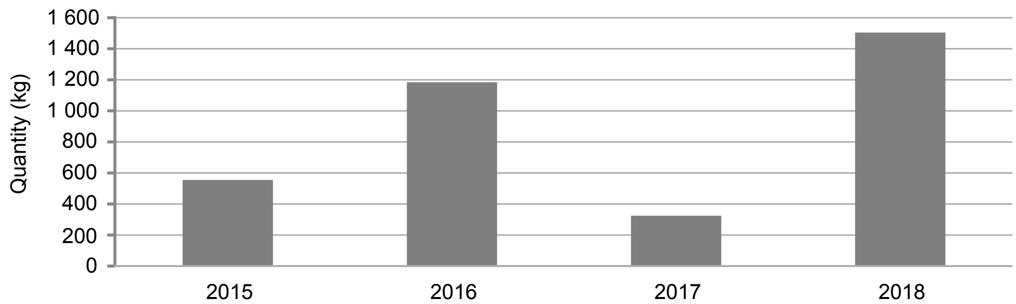

Fig. 1. Mishavinë cheese production
Source: Authors' research.

The data collected from the questionnaires indicates the levels of Mishavinë cheese production. The lowest production level was seen during 2017 due to the following reasons:

1. Product stock from 2016. There were just two years where Mishavinë was reproduced from the farmers and it was difficult to find market distributors.
2. High level of emigration affected Mishavinë producers (opportunity costs).
3. Lack of production knowledge. This tradition is inherited only from the farmers of Lepushe and Vermosh villages.
4. Long period of Misha1vinë cheese processing. Farmers prefer to exploit other alternative resources which are more profitable for them.
5. Price and quantity are two factors which impact the product volatility. The actual market price of Mishavinë is approximately 10 GBP·kg^{-1}, which is low compared to the production costs. Referring to the branded protocol, 1 kg of Mishavinë required 17 l of milk. On the other hand, considering the total number of livestock declared by farmers, we calculated that in the area today up to 3,000 kg per year of Mishavinë can be produced.

The quantity produced was increased during 2018 with 1,497 kg, due to the increase of the demand and the number of producers. However, factors such as knowledge, farm conditions, opportunity costs and the market price have played an important role in Mishavinë distribution.

The Mishavinë market is still limited and the main buyers are three restaurants organized by the Albanian Chiefs' Association.

Figure 2 shows that farmers' age is linked with the income level provided by this product. The estimation was made only for the last year. The farmers aged between 45–60 years old generate the highest income level due to their experience and better farming conditions. The small number of producers and the future market sustainability was important to build the SWOT matrix (the table, p. 45) in order to forecast future opportunities for Mishavinë cheese.

Mishavinë cheese is considered to be a product that will contribute to the welfare of rural farmers of the Kelmend area. The first step in this process is the foundation of a Mishavinë cheese producers association. Operating through a legal association, farmers can have an international brand name for Mishavinë[2]. The creation of an international brand will contribute to better valuation of the product compared with other similar cheeses.

Farmers should also find other forms of product valuation as it is not possible to sell slow food

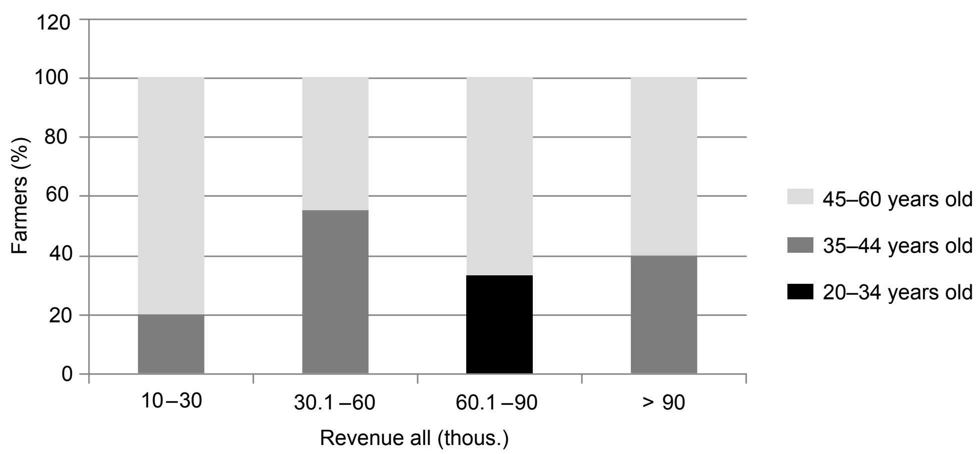

Fig. 2. Revenue from Mishavinë cheese

Source: Author's questionnaires.

[2] Mishavinë cheese is already registered in Albania at the Albanian Directorate of Industrial Property, Ministry of Finance and Economy in Albania.

Table. SWOT analysis for the Mishvina cheese value chain

Strengths	Weaknesses
− National heritage of cheese production − Quality of the product − Specificity − Part of the Ark of Taste and Slow Food products − Demanded from alliance of chefs' association	− Low number of producers − Lack of Mishavinë producers association − Lack of branding − Long period of production − High production costs − Not well known by consumers − Lack of contracts with customers
Opportunities	**Threats**
− Registering the product as Geographical Indications − Tourism development in the zone of Mishavinë production − Mishavinë production in the other villages of Bjeshket e Namuna area − Involvement of the young farmers − Commercialize the product to the retail markets	− Extinction of Mishavinë product − Change of consumer preferences − Massive farmer emigration

Source: Author's estimation.

products at the retail markets. The Slow Food movement recently has proposed the adoption of Presidia into Narrative labelling [Slow Food Foundation for Biodiversity 2019]. This label can be used as a supplement for Mishavinë, by providing additional information regarding animal welfare, cheese processing methods, area of origin and storage conditions.

Another possibility for Mishavinë producers, considering the product characteristics is the registration as Geographical Indications (GI). This kind of registration is crucial to defend the existence of the Mishavinë cheese, as a first step in product sustainability. Another first step needed in this purpose is to precisely identify the breeds and to start activities for registering them as local ones. The cheese produced from autochthonous races, in a specific territory, embodying the traditional techniques and using food security standards can easily be registered as a GI product.

CONCLUSION AND RECOMMENDATIONS

Local restaurants in Shkoder and Tirana buy the majority of the production. The rest is used by the producers themselves in their guesthouses for tourists. The Mishavinë cheese producers need to be more active in the Slow Food network which plays an important role in consumer-producer interaction [Rombach and Bitsch 2015] and contributes to their increase in income.

The producers claim that Mishavinë cheese production is a very long process and that the selling price does not justify the effort and uniqueness of this product. They have high transaction costs in all the steps of the Mishavinë cheese value chain. Considering the new market requirements, Mishavinë producers need to be present in the retail markets throughout the promotional period of the tradition.

Through 'narrative labelling' or GI signs, Mishavinë is going to be valued not only at the local markets but as well to the national or international markets. Albanian policymakers need to identify the main instruments to support the local producers for the GI certification. Local initiatives need to be promoted by local government as instruments in preserving cultural and environmental heritage.

Mishavinë cheese is at potential risk of disappearing due to the continuous migration and emigration from the Kelmend area, in the Alps of Albania. Furthermore, the reduction of the number of animals per family is causing a continuous decrease of the cheese quantity produced, discouraging Mishavinë producers and making the raw material (milk) more expensive. In fact for approximately 1 kg of Mishavinë it is necessary to have 10 l of cow milk and almost 7 l of sheep milk.

A possible path to oppose this tendency is the development of sustainable tourism in the area, focusing on the potential given by a strong traditional gastronomy and the reinforcement of its trade possibilities inside Albania.

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OZNAKOWANIE SERA MISHAVINË: UDZIAŁ GOSPODARKI WIEJSKIEJ ALBANII

STRESZCZENIE

Region Kelmend w Albanii jest najbardziej znany i ceniony za produkowany tam ser Mishavinë. W artykule przeanalizowano doświadczenia rolników dotyczące produkcji i sprzedaży tego sera, a także uczestnictwa w prezydium Slow Food produktów w Albanii. Rola lokalnych producentów ma fundamentalne znaczenie nie tylko w kontynuowaniu tradycji, lecz również w społecznym i gospodarczym wpływie na rolników na tym obszarze. Przedstawiono wyniki badania przeprowadzonego w formie wywiadów bezpośrednich z producentami sera Mishavinë. Narzędziem badawczym był częściowo zamknięty kwestionariusz. Przeprowadzono analizę opisową w celu oceny głównych problemów lokalnych producentów oraz ich współpracy z kontrahentami. Mishavinë jest częścią projektu Slow Food Ark of Taste, stanowi więc doskonałą szansę do zjednoczenia producentów i konsumentów w celu odtworzenia utraconej tradycji.

Słowa kluczowe: ser Mishavinë, slow food, rolnicy, VIS Albania

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DIFFERENTIATION OF HUMAN POTENTIAL QUALITY IN REGIONS OF UKRAINE: DEMOGRAPHIC AND HEALTH ASPECTS

Tetiana Stepura✉

Lviv Polytechnic National University, Ukraine

ABSTRACT

This study describes a method for evaluating the quality of human potential within Ukraine's current conditions, by looking at the demographic and valeologic (healthy living) component. This research was conducted on the basis of Ukraine's regional data. In addition to measuring the level of quality development according to this component, the method aims to classify regions on its basis. Such classification is a justification for regional policies geared at human development and for distribution of resources by region. The study uses a discriminant analysis as well as some methods of taxonomic analysis. As a result of the analysis, Ukrainian regions were divided into four groups. The method applied in this research is universal and can be used to assess and classify regions according to other components of human potential quality, provided that relevant indicators are applied. It can also be approved and implemented in other countries because the statistical database is quite unified in terms of indicators that are included in the analysis.

Key words: human potential quality, demography, valeology, regions of Ukraine, classification, discriminatory analysis

JEL codes: O15, J1, I12

INTRODUCTION

Population growth in European countries is characterized by narrowed demographic reproduction, ageing of native European-born citizens, and an increase of migration processes. Increasing competition for human resources is leading to a transformation in the requirements for quality of those resources. And it is the quality that is an inexhaustible source of capacity enhancement in today's environment and has creative and innovative significance to the economy [Juran and Gryna 1993]. The importance of the quality of human resources has been confirmed in the policy papers of the European Commission [EC 2016]. Moreover, the quality of human capital in the European economy is regarded as one of the most important goals of the Europe 2020 strategy.

On the other hand, modern conditions impose special requirements on the living environment, on the ability of national economies to ensure high social standards and living conditions, on complying with the provisions of decent work, and many other demands that shape human development and its qualitative characteristics. In this regard, an article on Human Development [UNDP 2018] notes that the study of this development should go beyond the assessment of average and disaggregated statistical data that characterizes the quantitative aspect. The content of the results obtained is more important. Such quality is particularly reflected in ensuring that

Tetiana Stepura https://orcid.org/0000-0002-1070-0508
✉Tetiana.M.Stepura@lpnu.ua

the benefits of human development are shared by everyone.

Important in the context of the study are the features of the socio-economic development of Ukraine – a relatively young independent state (since 1991). The economic difficulties that the country is experiencing are related primarily its economic orientation toward raw materials, the lack of stability in the national currency, low labour productivity and low standard of living. Under conditions brought about by liberalization of inter-territorial displacement regimes, migration in all its forms – educational, labour, and permanent – is activated. This leads to demographic loss of human potential, narrowing the base of its reproduction possibilities in the future. At the same time the standard of living in Ukraine is much lower than in the European countries, and difficulties in the health care system are causing a deterioration of the valeological characteristics of the population – physical and mental health. The solution of the above-mentioned problems has been complicated by the conditions ensuing from the military conflict in eastern Ukraine and Russia's annexation of Crimea.

There are several approaches to the theoretical study of human potential: potentialistic – properties of a person or society, which can be used to obtain benefits or income under favourable conditions; dynamic – the ability to self-development and change [Solntseva and Smolian 1999], pragmatic [Kelle 1999, Shaulska 2005], spiritual and intellectual, spiritual and cultural [Zlupko and Radetskyi 1999, Vovkanych and Semiv 2007], synergetic [Semiv 2004], synergistic and energetic [Sadova and Stepura 2017].

However, modern empirical research is more connected not with the assessment of human potential, but with human capital, which embodies an aspect of the use of human potential. There are many such studies that are focused on the assessment of a particular side or component of human capital, as well as on the impact of its use with regard to the efficiency of the national economy as a whole or to a company's economy in specific. Czajkowski [2012], as well as Miciuła and Miciuła [2015] suggest grouping methods of human capital assessment depending on the value (cost) of its creation, its future profitability, coverage by educational processes, etc. Studies by Dobija [1998], Turner [1996] and Abdel-Khalik [2003] have shown that certain qualitative characteristics of human capital affect an enterprise's market value and its ability to generate income.

Evaluations of quantitative aspects are usually related to the calculation of investment in education and years of study. However, certain controversial issues arise when research is focused on the qualitative, rather than quantitative, aspects of human capital. For example, if the duration of studies can be a quantitative measure of human capital, the impact of such studies is likely to vary from country to country. And this variance can be very noticeable (for example, when comparing education in Germany and in an African country). Accordingly, human capital as a factor of economic growth cannot be taken into account as a result of purely quantitative measurement without taking qualitative estimates into account [Cichy and Malaga 2006]. Cichy and Malaga [2006] note that the wage gap can be a marker of the quality of human capital. The authors base their model on the assumption that the only measure of the quality of human capital is the wage rate per unit of human capital. However, it is assumed that evaluations could be complemented by taking into account technological progress and development.

Another study [Balcerzak and Pietrzak 2016] presents a combination of the assessment of the innovativeness of the economic environment and the quality of human resources. A synthetic measure of the quality of human capital is an integral index of macroeconomic efficiency and the labour market; quality of education; and the national system of innovation.

Another cross-section of human resources quality research relates to the spatial dimension: either national or regional. In such a context, there is a question of territories gradation according to certain quality criteria and target setup, i.e. the classification or creation of typologies of regions. This approach is more or less evident in many of the studies above, as well as in any ratings, as the classification itself allows for the identification of trends, activities and financial needs for implementation of management influence. However, there are studies directly devoted to the issue of spatial gradation in terms of human resources or human development quality.

For example, one study [Rimashevskaya et al. 2014] uses an index method to classify the regions of the Russian Federation according to the level of quality in their human and labour potential. The assessment included the following blocks: demographic, health, education, welfare, intellect, psychophysiological state, social and personal components.

Typologies differ from classification by their higher degree of generalization and a deeper content of categories assigned, as well as by some other features. The first typology of human development characteristics dates back to the first global report on human development issued in 1990 [UNDP 1990], where the categories of balanced and harmonious human development and critical imbalance varied. Achievements (progress) and ademptions (deprivations) were used as criteria for creating the typology. Later, each of the Annual Reports has complemented in one way or another the typology categories – sustainable human development, imbalance, unequal level of consumption and human development, poverty, asymmetry of development, and resilient progress.

In this regard the studies carried out by Asian scientists also deserve attention. Comparative analysis of human development indicators in the context of quality of life, and ensuring decent conditions for attaining higher levels, are reflected in the works of ul Haq [1995], a Pakistani scientist, and Amartya [2009], an Indian scientist. Their ideas actually became the methodological basis for estimating the human development index. Improvement in the methodology of regional typologies by the level of human development was carried out by a team of Indian researchers [PCGI 2002]. During the work on the National Human Development Report, scientists developed a methodology that takes into account the level of development according to eight indicators. The regions of India were classified as 'balanced' and 'symmetrical'; the dynamic aspect was characterized by such terms as 'steady', 'significant', and 'marginal'.

AIMS AND METHODS

Human potential quality (HPQ) is an objectively determined and realistically formed set of integrated properties of a single person (as an organism, individual, personality) and of regional communities of people. Such properties are manifested or can be manifested under certain conditions of living environment (life and work), and indicate possible limits of reproduction of the structures (components) of a person and regional communities of people. The HPQ structural composition is a systemic unity of a variety of components: demographic and valeologic, educational and intellectual, professional and qualificational, social and cultural, moral and ethical, as well as ekistical (the study of human settlements.) At the same time, a comprehensive study and typology of the regions of Ukraine on the basis of HPQ should be preceded by a separate assessment of differentiation within each component. Every component is characterized by a system of development indicators. For the demographic and valeological[1] component, such features include the life potential of people, in particular, of working age people, human potential reproduction, as well as health.

Thus, we can specify the purpose of this research: to differentiate the level of HPQ development in regions of Ukraine according to the demographic and valeological component and to classify the regions on this basis. The applied task is accomplished using methods of taxonomic and discriminant analysis. The main objective of the research is to classify (recognize) the objects (regions of Ukraine) according to the hypothetically pre-formed groups based on HPQ (demographic and valeological component). Based on the research purpose, the task of classification is formulated as a breakdown of observation objects (regions of Ukraine) into a predetermined number of groups (or into a number specified in the process of analytical calculations) on the basis of the criterion of distance from the group centres (centroids). The final research

[1] Valeology is a modern science engaged in the study of human health through a comprehensive approach. The objects of valeology include nutrition, human body functioning, physical condition, adaptation to the environment, working capacity, etc.

hypothesis is the classification of Ukrainian regions on the basis of HPQ (demographic and valeological component) formed by means of taxonomic methods and scaling.

Classification and further typologization of the regions of Ukraine according to HPQ is an important step to justify the differentiation of management impacts on the processes of formation and preservation of HPQ, as it is the main present-day resource for the development of national economies. HPQ management is interpreted in a broad context, including social and economic, health and education policies, as well as financial and investment policies. The EU NUTS (Nomenclature of Units of Territorial Statistics) classification of regions is an example of the use of regional typologies to justify management decisions. Assigning a region to one of the groups gives it the right to receive appropriate EU support according to the identified problems.

The main task of the discriminant analysis is to search for classification functions and to build on their basis the groups of objects classified according to a certain feature. In this study, we use the HPQ feature. The analysis results in assigning each object of observation (region of Ukraine) to only one classification group. The discriminatory analysis is aimed at revealing the difference between the classification groups and defining the patterns characterising the objects of a certain group. All calculations made and classification used are based on the Mahalanobis metric.

All input data must be standardized in advance. The standardization is performed according to the formula:

$$z_{ij} = \frac{x_{ij} - \underline{x_j}}{\sigma_j} \tag{1}$$

where:

$\overline{x_j}$ – mean value of a j-th feature in the data set;

σ_j – mean square deviation of a j-th feature in the whole set.

The next step of classification is the calculation of the Euclidean metric. Euclidean distance (metric) between two points x_i and x_e is determined by the following formula:

$$d_{ij} = \sqrt{\sum\nolimits_{i=1}^{n} \left(x_{ij} - x_{ej}\right)^2} \tag{2}$$

where:

x_{ij} – value of an i-th attribute of a j-th object ($i = 1, \ldots, n$);

x_{ej} – benchmark value of an i-th attribute of a j-th object.

It should be noted that a significant disadvantage when classifying an array of objects according to the Euclidean metric is that it does not take into account the relationship between all objects, i.e., the distance between two points is not affected by the position of other points. The Mahalanobis distance takes into account the relations between variables in the model, which determine the multidimensional space. The Mahalanobis distance is determined by the formula:

$$d_{ij}^{M} = \sqrt{\left(X - Y\right)^{T} S^{-1} \left(X - Y\right)} \tag{3}$$

where:

X, Y – attribute vectors;

T – transposition operation;

S – attribute covariance matrix.

A necessary prerequisite for discriminatory analysis is to pre-classify regions by group. For this purpose, the range of values of the calculated Euclidean distance is divided into regular intervals according to the principle: above ($\mu + 2\sigma$) – extremely low quality; between ($\mu + \sigma$) and ($\mu + 2\sigma$) – low; between μ and ($\mu + \sigma$) – below average; between ($\mu - \sigma$) and μ – average; between ($\mu - 2\sigma$) and ($\mu - \sigma$) – high; below ($\mu - 2\sigma$) – extremely high quality, where μ is the mean value of the Euclidean distance and σ is the standard deviation of the Euclidean distance. The quality criterion of classification is the Mahalanobis distance calculated as a result of analytical procedures. Other statistical criteria of the model adequacy are Wilks' statistics, as well as the F-criterion, the probability value of the error of variables removal from the discrimination procedure.

DATA AND VARIABLES

Some indicators were selected and the averages calculated for a number of years (2009–2017), as well as their standardization in order to carry out the analysis. A total of 18 parameters were selected (Table 1).

The model includes an estimated indicator to characterize the possible scope of external migration – migration potential, persons[2]. It is quite difficult to obtain

Table 1. Input values for classification of Ukrainian regions by HPQ level (demographic and valeological component)

Source	Value	Vector
Registration statistics data	− x_4 – average age of the population in regions (years) − x_5 – demographic burden for population aged 15–64 years (persons per 1,000 people aged 15–64 years) by persons under 15 and over 64 years of age	disincentives
Calculation indicators	− x_1 – natural increase/decrease (persons per 1,000 people of present population) − x_2 – migration increase/decrease (persons per 1 million people of present population) − x_7 – fraction of women of fertile age (15–44 years) of the total number of women in the region (%) − x_8 – ratio of marriages to divorces	incentives
	− x_6 – mortality rate of working age persons (5–59 years) per 1,000 people of permanent population of corresponding age − x_{13} – number of first-time registered cases of population diseases per capita − x_{14} – number of HIV-infected people with a first-time established diagnosis per 10,000 people or present population − x_{15} – number of first-time registered cases of malignant diseases, venereal diseases, active tuberculosis per 1,000 people of present population − x_{16} – number of patients with a diagnosed mental and behavioural disorder (for the first time in their life) as a result of psychoactive substances use (substance dependence disorders) per 1,000 people of present population − x_{17} – number of persons with disabilities at the beginning of the year per 1,000 people of present population − x_{18} – number of deaths from self-harm at the age of 0–17 years per 10,000 people of permanent population of corresponding age	disincentives
Sample survey data	− x_9 – average monthly energy value of diet per capita[a] according to household estimates (kcal) − x_{10} – average monthly household food expenses per household (UAH) − x_{11} – average monthly household health care expenses per household (UAH) − x_{12} – self-assessment of the health state by household members, share of people who estimated their health as good (%)	incentives
Estimates	− x_3 – migratory potential, persons	disincentive

[a] All modern concepts of life in valeology are divided into a substrate (the morphology of organisms based on Lamarck, the oldest and, accordingly, the most developed among the other concepts) of energy and information. The information concept was the last to emerge, but it has undergone rapid development with the aid of cybernetics. The least developed is the energy concept, the ideas of which have origins in physics and chemistry and are difficult to implement in other sciences due to differences in methodology. However, all concepts are of equal value. The energy concept of life sustenance is based on extensive (energy intake into organisms) and intensive (efficiency of its use) principles. The energy value of a person's diet reflects an extensive approach, while the intensive approach is manifested in the energy life sustenance of metabolism, activity and labour processes.

Source: Author's research and summarization.

[2] Migration potential is determined by quantitative and qualitative characteristics of the adult population, which is characterized by motivational attitudes and a high level of readiness for territorial movements and lifestyle changes.

quantitative characteristics of migration potential, especially at the regional level. We based our research on the results of a modular sample survey on labour migration, which was conducted in Ukraine three times – in 2008 [Derzhavnyi Komitet Statystyky Ukrainy 2013], 2012 [ILO 2013], and 2017 [Derzhavnyi Komitet Statystyky 2017]. One of the modular survey issues was the study of permanent household members' intentions to move abroad for certain reasons indicated in the survey. Among the reasons that we treat as a basis for a long stay abroad and a high probability of not returning to Ukraine are family reunification, search for work and leaving for work, study, family affairs, desire to change the place of residence.

In the regional dimension, the survey indicators did not provide a high-reliability level, so they were generalized on the basis of five economic zones. The results of surveys and, accordingly, the input data for calculation of migration potential absolute values are summarized in Table 2.

Thus, the estimated migration potential indicator is obtained as a share of the corresponding age group of the region's population. In this case, the membership of regions in economic groups is distributed in the surveys as follows: North (Zhytomyr, Kyiv, Sumy, Chernihiv Regions and City of Kyiv), East (Dnipropetrovsk, Donetsk, Zaporizhia, Luhansk, Kharkiv Regions), South (Mykolaiv, Odesa, Kherson Regions), Centre (Vinnytsia, Kirovohrad, Poltava, Cherkasy Regions) and West (Volyn, Zakarpattia, Ivano-Frankivsk, Lviv, Rivne, Ternopil, Khmelnytskyi, Chernivtsi Regions).

RESULTS AND DISCUSSION

The methodological section provides some approaches to solving the problem of defining a benchmark. In order to take into account the objective conditions for the formation of quality, all the model indicators were divided into stimulants and destimulants. Accordingly, the benchmarks indicate: for stimulant indicators – the highest values achieved in the regions (according to standardized indicators), and for destimulants – the lowest. First of all, the Euclidean coordinate distance of each region from the benchmark was calculated on the basis of existing data array in order to categorize the dependent variable (quality). The next step was to classify the regions as groups in terms of HPQ level by dividing the range of values into uniform intervals (scaling) and assigning the categories 'high', 'medium', 'below average', 'low' quality. The grouping results are presented in Table 3.

Table 2. Data from sample surveys of external labour migration in Ukraine regarding intentions to leave the country for certain reasons (%)

Indicator	North	Centre	South	East	West
2008					
Percentage of people who planned to move abroad for the purpose of employment, study, return to work, family reunification, marriage, desire to change their place of residence, among the total working-age population	5.9	54.3	18	13.4	54.3
2012					
Percentage of people who planned to move abroad for the purpose of employment, search for work, study, family reunification, due to family affairs, among the total amount of population aged 15–70	11.2	43.5	48.6	10.4	72.0
2017					
Percentage of people who planned to move abroad for the purpose of employment, search for work, study, family reunification, due to family affairs, among the total amount of population aged 15–70	16.0	28.9	65.7	40.8	73.2

Source: Derzhavnyi Komitet Statystyky Ukrainy [2009, 2017], ILO [2013].

Table 3. Hypothetical grouping of regions by HPQ level (demographic and valeological component)

Region	Euclidean distance from the benchmark	Regions belonging to groups by HPQ level
Vinnytsia	9.01	average
Volyn	9.24	average
Dnipropetrovsk	9.55	average
Donetsk	11.50	low
Zhytomyr	9.15	average
Zakarpattia	9.80	average
Zaporizhia	10.99	below average
Ivano-Frankivsk	9.58	average
Kyiv	8.84	high
Kirovohrad	9.95	average
Luhansk	13.46	extremely low
Lviv	8.91	high
Mykolaiv	9.56	average
Odesa	8.14	high
Poltava	10.17	below average
Rivne	10.03	below average
Sumy	11.64	low
Ternopil	10.08	below average
Kharkiv	11.02	below average
Kherson	9.74	average
Khmelnytskyi	9.51	average
Cherkasy	9.33	average
Chernivtsi	10.47	below average
Chernihiv	10.14	below average
City of Kyiv	10.70	below average

Source: Author's research.

Stepwise discriminant analysis (Forward stepwise method) was performed using Statistica 12 software. The dependent is the 'quality' category variable, grouped according to the Euclidean distance criterion, and the independent variables are all the other indicators. So the model has 14 variables that are statistically significant. The total *F*-criterion characterizes the contribution of all statistically significant variables to discrimination and is equal to 5.13, which is greater than the table value. So, the resulting model is statistically significant. That is what Wilks' λ statistics show as well. Partial *F*-criteria characterize the contribution of the relevant variable to discrimination. The highest value is found in the 'migratory potential' variable (8.54), as well as in 'average age of the population' variable (4.74).

The resulting discriminant classification groups of Ukrainian regions in terms of demographic and valeological HPQ component are characterized by the following results: The group with average HPQ includes 12 regions. There are three regions characterized by high quality, seven regions characterized by below average quality, three regions characterized by low quality. The Luhansk region was classified as a low quality group as it was the only one in the lowest quality group. The percentage of classification correctness in all groups is 100%.

Summarized final results of grouping regions of Ukraine by their HPQ are shown in Table 4, Figures 1 and 2. The cartographic analysis of discriminating groups allows drawing a conclusion about a somewhat limited but nevertheless existing influence of the geographical factor on HPQ development level of the Ukrainian regions.

Results of the analysis indicate uneven distribution and some concentration of regions in groups of average and below average quality. Positive, the regions with high and average HPQ are characterized by larger population numbers in some cases (Fig. 2). Thus, based on the results of discriminant analysis, the classification of regions was clarified and the regions were divided into six groups. In this regard, it should be noted that the discriminant analysis was conducted repeatedly with a selection of various indicators. Thus, when including part of the demographic indicators and several variables characterizing self-assessment of health, household expenditures on nutrition and health care, as well as the energy value of the diet, a homogeneous group with high HPQ was formed including the Western regions of Ukraine and the City of Kyiv. Addition of

Table 4. Classification of regions according to HPQ level (demographic and valeological component), resulting from a discriminant analysis

Classification groups according to HPQ	Regions
High	Kyiv, Lviv, Odesa
Average	Zakarpattia, Ivano-Frankivsk, Vinnytsia, Zhytomyr, Rivne, Cherkasy, Kirovohrad, Khmelnytskyi, Dnipropetrovsk, Volyn, Mykolaiv, Kherson
Below average	Zaporizhia, Poltava, Ternopil, Kharkiv, Chernihiv, Chernivtsi, City of Kyiv
Low	Luhansk, Donetsk, Sumy

Source: Author's research.

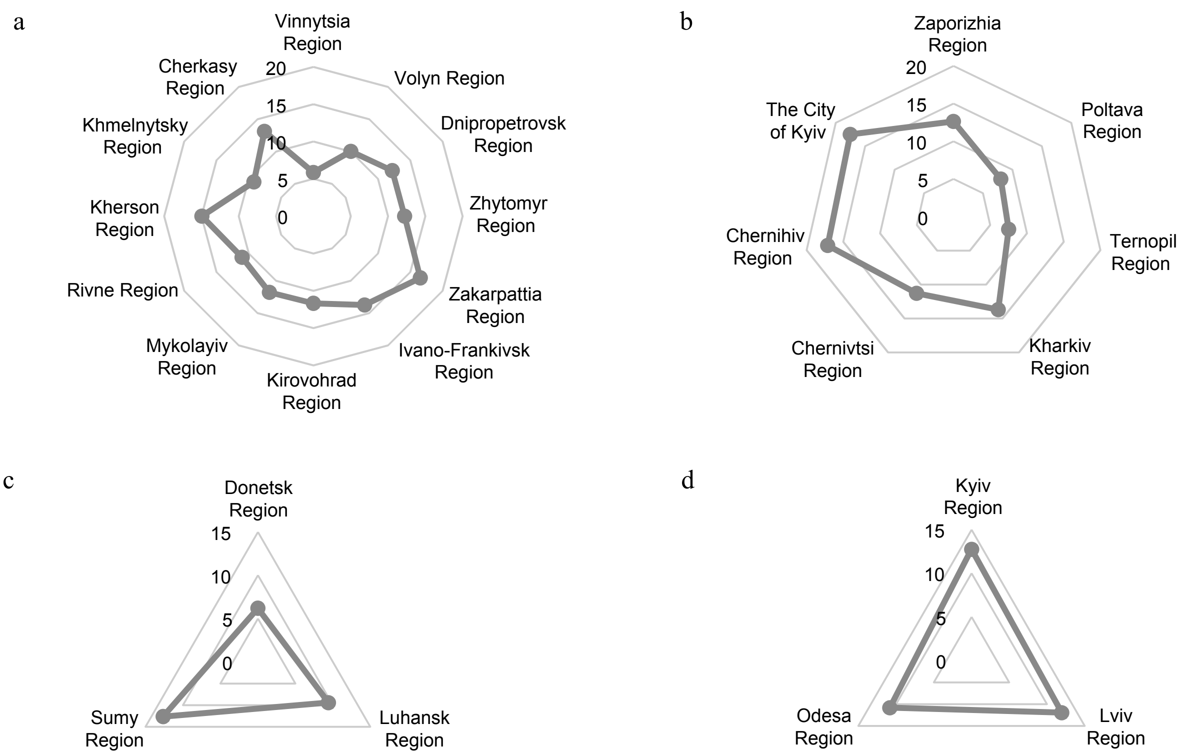

Fig. 1. Discrimination groups and Mahalanobis distances from the centroids of the groups of Ukrainian regions in terms of HPQ level according to the demographic and valeological component: a – average; b – below average; c – low; d – high

Source: Author's research.

variables to the discriminant analysis, characterizing the state of mental health of the population in the Ukrainian regions, has slightly changed the classification, as well as widened the gap between the groups with low quality and others. Addition of variables characterizing diseases of the population (in general, as well as certain diseases, including socially dangerous ones) to the list of indicators has made this gap even wider.

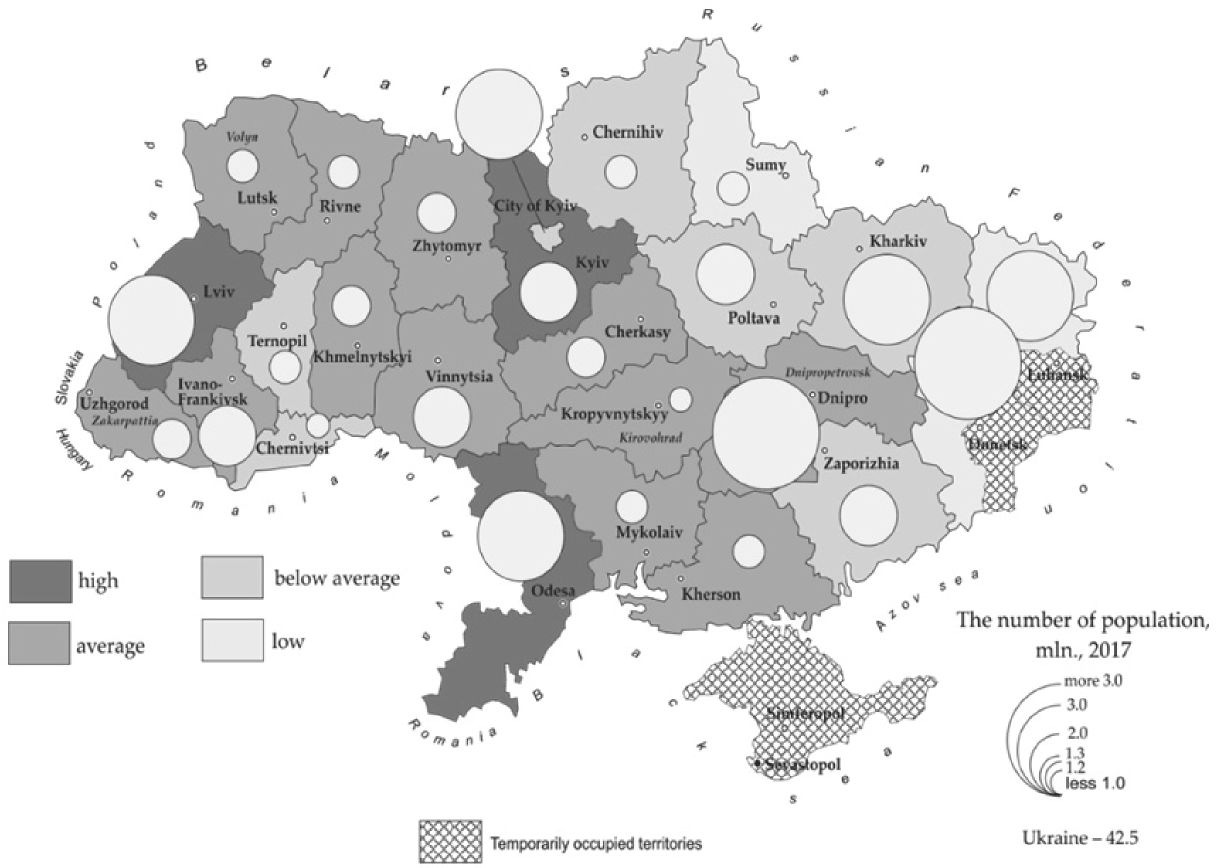

Fig. 2. The level of HPQ development and the population of the regions of Ukraine
Source: Author's research.

It should also be noted that the western region has lost its homogeneity in terms of quality assessment to some extent, as Ternopil and Chernivtsi Region gradually shifted to the lower quality groups, eventually becoming a part of the group with the below average HPQ. The same changes concerned the City of Kyiv, which dropped from the high-quality position to the below average one due to high morbidity rates, HIV infection rates, as well as socially dangerous diseases and malignant formations.

The results of the study are accumulated in the following conclusions. Lviv, Kyiv and especially the Odessa region cannot be called homogeneous regions. However, combining them in one group with a high HPQ is explained by positive indicators of migration growth, which led to a smaller average age of the population, a lower demographic load, a higher fraction of women of fertile age, a higher ratio of marriages to divorces, higher esteem by the population of their health. At the same time, traditionally higher morbidity rates in the Odessa region did not significantly influence its attribution to this group. It is therefore especially relevant to develop an active migration policy for regions (and countries) that are experiencing demographic difficulties.

At the same time, the regions that fall into the lower than middle groups of HPQ are characterized by deeper processes of both natural and migratory depopulation. This influence is especially noticeable in the Sumy region, which was included in the low quality group along with the regions of the anti-terrorist operation. Other tendencies specific to the Sumy region are low esteem of the population by their health, and the lowest in Ukraine expenses of households for food.

CONCLUSIONS

Thus, the research carried out allows making some generalizations. The demographic and valeological HPQ component in the regions of Ukraine is characterized by a fairly wide list of indicators reflecting the reproductive and migratory potential, demographic and reproductive processes, state and trends in the health of the region residents. Quality as a relative category requires specific approaches to assess its level, so the taxonomic and discriminant analysis methods were used in the research. The latter method provided for the categorization of quality value. As a result of the analytical procedures, the classification groups of Ukrainian regions by HPQ level were obtained. It allowed to achieve the goal of the study – to differentiate Ukrainian regions by one of the HPQ components.

The proposed methodology is based on data that can be obtained from any country's statistics agencies (except for the estimated migratory potential, but it may be available in such indicators). Therefore, the methodology is suitable for analysis and justification of management decisions of different government levels on HPQ conservation and development.

Classification of regions by the level of demographic and valeological HPQ component is only the first step in HPQ comprehensive assessment of Ukrainian regions. Further evaluation should include other components (educational and intellectual, professional and qualificational, social and cultural, moral and ethical, as well as ekistical).

Classification is a prerequisite for creating typologies of the regions according to HPQ development indicators. Typologies offer a higher level of region differentiation, as they provide for a wider inclusion of dynamic and cause-effect relations of HPQ development into the model. For this purpose, it is advisable to investigate the factors forming HPQ (e.g. by the method of main components), as well as signals and mechanisms of the HPQ system response to external challenges and development policy implemented by the authorities and international organizations, as well as other stakeholders. It is also preferable to take into account the asymmetries in the development of the regions according to HPQ characteristics.

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ZRÓŻNICOWANIE JAKOŚCI POTENCJAŁU LUDZKIEGO W REGIONACH UKRAINY: ASPEKTY DEMOGRAFICZNE I ZDROWOTNE

STRESZCZENIE

W artykule przedstawiono metodę oceny jakości potencjału ludzkiego we współczesnej Ukrainie poprzez pryzmat komponentów demograficznego i waleologicznego (w tym zdrowego trybu życia). Analizę przeprowadzono na podstawie danych regionalnych. Oprócz pomiaru poziomu rozwoju jakości potencjału ludzkiego metoda ta umożliwia klasyfikację regionów. Taka klasyfikacja stanowi uzasadnienie stosowania polityki regionalnej ukierunkowanej na rozwój człowieka oraz podziału środków między regiony. W badaniu zastosowano analizę dyskryminacyjną, a także wybrane metody analizy taksonomicznej. W wyniku analizy ukraińskie regiony zostały podzielone na cztery grupy. Metoda zastosowana w badaniu jest uniwersalna i może być wykorzystywana do oceny oraz klasyfikacji regionów według innych elementów jakości potencjału ludzkiego pod warunkiem zastosowania odpowiednich wskaźników. Może być również wdrożona w badaniach innych krajów, ponieważ baza danych statystycznych jest dość jednolita pod względem wskaźników wykorzystanych w analizie.

Słowa kluczowe: jakość kapitału ludzkiego, demografia, waleologia, regiony Ukrainy, klasyfikacja, analiza dyskryminacyjna

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ORIGINAL PAPER

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SMALL FARMS IN THE AREA STRUCTURE OF AGRICULTURAL HOLDINGS OF THE EUROPEAN UNION COUNTRIES

Jacek Strojny✉

University of Agriculture in Krakow, Poland

ABSTRACT

In spite of the evolution of the agrarian structure in EU countries (particularly in Western Europe) the problem of small agricultural holdings is still relevant, as this form of farming remains functional. The term 'small farm' has an ambiguous character. Thus, the study is based on relatively the most objective criterion for identification of small holdings – farms covering areas below 5 ha. The study employs the statistical method of vector elimination, which enables separation of subgroups with similar, homogeneous agrarian structures from among the studied set. The typology of the agrarian structure by means of the taxonomic technique demonstrates how diverse EU countries are with regard to their small agricultural holdings: Southern European countries, some Central European countries, and other states lying in the north of Europe. Additionally, the structure of small agricultural holdings is distinct in Denmark and in the Czech Republic.

Key words: small farms, structure of agricultural holdings, EU countries, method of vector elimination

JEL codes: O18, O52, E65, C49, C65

INTRODUCTION

The term 'small farm' is not unequivocal. In Poland, issues related to small farms have continuously marked their presence since the agrarian transformations imposed on rural areas after World War II. In other countries of Central Europe, the problem of small farms basically emerged at the beginning of the 1990s alongside decollectivisation of agriculture and restitution of peasant holdings. Despite the evolution of the agrarian structure, in Western Europe the issue of small farms is still relevant due to the uninterrupted existence of that form of land management [*Structure and dynamics of EU farms...* 2013].

The method of defining small farms which should raise the least controversy seems to be based on agricultural acreage (AA). It seems to be the most transparent aspect of land management and it seems to have the most registry records, but still it may cause controversy, at least when it comes to the necessity to establish the upper farm area limit. It is dynamic due to the changing technical and economic conditions of production and, over time, it can be affected by the agricultural system. For a farm to be qualified as a small farm its AA cannot exceed 5 ha. Upon establishing such a limit, it can be seen that small farms constitute a significant share in the structure of all entities using agricultural land in individual EU states. The category of small farms defined this way in most EU countries falls into two distinct subgroups: farms which in fact are horticultural plots (area below 1 ha) and farms covering areas between 1–5 ha.

Excluding special branches of production, work on a small farm is not, on the whole, the only source of income for its users. There is a relatively high percentage of people employed on farms who combine incomes

Jacek Strojny https://orcid.org/0000-0002-0577-377X
✉rrstrojn@cyf-kr.edu.pl

from a few different sources. From the economic point of view, small farms do not guarantee satisfactory income to their users. In Poland, small farms generally specialise in plant production or combine land cultivation with animal production. Although most land is maintained in relatively good agricultural condition, small farms do not join the ranks of farms where intensive methods of production are applied. Noteworthy is the fact that over half of fallow lands belong to small farms. Small farms shift to ecological methods of production less frequently than larger and economically stronger farms.

In the past, small farms generated numerous social and economic problems for the rural community. Accompanied by economic and organisational changes in the functioning of agriculture, small farms in the whole EU are an increasingly common element of rural landscape which allows people to live in tune with nature, rather than concentrating on mere satisfaction of production commitments. The smallest farms, which either do not produce anything for sale at all or produce only on a minimal scope, tend to be called social farms [Sikorska 2003]. The majority of people living on small farms do not earn their living from agriculture. Some of those farms gain incomes from non-agricultural activities, with non-market and economically unsound entities adopting other economic practices (e.g. subsistence farming).

Although farms which are small and loosely connected with the market prove the weakness of this sector of agriculture, they still play important non-economic roles. In the long run, nowhere in the EU do small farms which are in a poor financial situation stand a good chance to either maintain the foregoing or undertake new profitable agricultural production. Nonetheless, their number does not mean that the problem of small farms can be neglected in agricultural policies *sensu largo*, i.e. both sectoral and territorial policies [Chlebicka et al. 2009]. For that reason estimating the percentage of small farms in the structure of European agriculture is well justified.

The structure of agriculture is evolving in throughout Europe. Rey and Gerbaud [1996] point to three crucial groups of constituents of the industry:

- interdependencies of production factors (capital, land and labour force);
- production goals defining the nature of the relation between agriculture and economy;
- the role of the state in the functioning of agriculture.

The trend of changes in agriculture seems to be shaped by a constant, slow decrease in the number of farms, which results in general changes to the area structure. Change dynamics take many forms, depending on the type of farm. What can be noticed among small farms is an increase in the pace of change dynamics and a gradual disappearance of this form of land management. On the other hand, there is an increase in the percentage of large farms (defined differently in each of the EU states). Nonetheless, the capacity of this growth is limited by the lack of land available for establishing large farms.

The conducted structural analysis is a descriptive study. Its aim is to describe in general terms the area structure of small farms in EU states in the specific period and to find relevant structural analogies. Upon identification of structural similarities, the distinguished clusters were characterised.

PROBLEMS WITH DEFINITION OF SMALL FARMS

Different understanding of the issue of small farms is seen in the subject literature, which provides a wide range of definitions for small farms. Authors use a variety of terms, such as: small-scale farms, peasant holdings, family-run farms, semi-subsistence farms, non-commercial farms, subsistence farms. Researchers also propose different classification standards for small farms, namely: agricultural acreage by the hectare [Zegar 2012], economic size units (ESU) [Michalska 2012], economic size of the holding measured by standard production (SO) [Goraj et al. 2010, Poczta et al. 2012], size of labour force (AWU) in agriculture, nature of market share, number of people employed in production. Inasmuch as much as farms may generally be distinguished as family-run holdings, i.e. relying on work performed by family members, or as enterprises, i.e. relying on hired labour, the subcategory of small farms basically has the feature of family-run holdings.

Referring to the most commonly considered delimitation standards, it may be proposed that small farms have the following characteristics:

- based on the area criterion – agricultural acreage below 5 ha (AA) or, according to some authors, even below 2 ha;
- based on the economic size criterion – standard production between 8,000 and 25,000 PLN; farms with an SO below 8,000 PLN should be classified as very small farms;
- based on the market share criterion – semi-subsistence farms which deliver 50% of their products to the market.

Inasmuch as the premise based on the farm area constitutes a relatively simple classification standard, the other criteria enabling differentiation of farm categories – particularly small farms – are far more complex. Jóźwiak [2006] identifies the smallest farms by their economic power reflected in the gross margin, measured in ESU (ESU = 1,200 EUR). The author proposes that small farms are units with a gross margin below 2 ESU. In the European Union, however, such farms are treated as very small farms.

A less clear-cut identification criterion for small farms has been postulated by Zegar [2007]. The author suggests that small farms are mostly subsistence farms (i.e. farms where over half of production is dedicated for self-supply). Identification of this group of farms does not rely on the farm area, yet in Poland it is a good identifier of small units. Small farms identified in this way have small acreage and derive income from non-agricultural sources. In Poland they occupy 16% of agricultural acreage and employ almost 30% of the labour force in agriculture. Still, for the purposes of comparative studies of different countries, the reasonableness of identifying small farms by the above-mentioned criterion is challenged by dissimilar conditions in other countries. Additionally, the quality of the available statistical data questions the possibility to pivot an international study on that criterion.

The number of agricultural holdings, not only in particular categories (depending on a delimitation base used) but also their overall number, may differ on account of the accepted definition or a source of statistical data. Differences in definitions do not only occur between countries; they are also found within countries, because different national institutions apply different definitions of agricultural holdings for their own individual purposes – and their classifications in particular.

NOTES ON ANALYTICAL APPROACHES TO STRUCTURES IN ECONOMIC STUDIES

The research problem was analysed on the basis of the concept of the economic structure. The notion of the economic structure and its role in economic systems is perceived differently by particular authors. Kirman [1989] concentrates on the schematics of communication and interaction between economic objects. Baranzini and Scazzieri [1986] consider the structure as a network of interactions which underpin the system. Pasinetto [1965, 1981] forms his theory of the economic structure by referring to the concept of objective conditions which determine relations inside the system and its evolution. A prominent place in the literature on economy is occupied by the structural analysis known as Leontief input-mutput model [Leontief 1951], including its extensions suggested by Stone [1956]. Baranzini and Scazzieri [2012] highlight that the structure plays a critical role in evolution of economic systems. The structure, including its changes, is crucial for creation and verification of economic theories. Baranzini et al. [2015] concentrate on the impact of resources on structural change. The authors define the problem of limitation of resources in terms of a bottleneck. The structural approach to the analysis of evolution of regional production systems was employed by Garcia [2006]. Cooper et al. [2007] demonstrate the reasonableness of an approach shift in the regional analysis characterised by definition of regions in the form of overlapping regional structures rather than by identification of regions according to geographical criterion. The work by Basu [1990] is one of only a few examples of the structural approach to the issue of area structure in agriculture and to the impact of interactions within the industry on sector growth.

In the classic approach, structural analysis focuses on the description of a studied phenomenon with regard to the analysed features on the basis of selected statistical indicators (location, changeability, asymmetry). It is common practice to analyse the structure of a particular phenomenon relying on, for instance, concentration indicators [Hirschman 1980].

Westlund and Zackrisson [1986], by indicating the advantages of quantification by means of econometric methods, suggest the possibility to describe evolution of the economic structure arising out of changes in the economic system. The authors remark that it is a problem too rarely undertaken within the context of the theory. Hendry and Richard [1990] add that the quantitative approach cannot stand in conflict with the theory and results of other studies.

MATERIALS AND RESEARCH METHODS

The research is based on Eurostat data. The statistical data are valid for 2013 and apply to the area structure of agricultural holdings in EU member states. The structure was presented by the number of farms in particular area classes (following Eurostat). For the purposes of the taxonomic analysis, the number of farms was converted into percentages in the area classes. Due to the fact that the data involve one period, the evolution of the phenomenon cannot be followed but its state can be examined.

Subgroups of objects showing structural similarity, whereby the structure of each country is an object, were separated by means of a taxonomic statistical technique – the vector elimination method [Chomątowski and Sokołowski 1978, Kukuła 1996, Bogocz et al. 2010]. The method is applied by dividing a specific set into subgroups of items with similar structures, which enables the analysis of structural diversification. Each of the countries is ascribed with an identical structure (in terms of construction) and comparisons are made using the method of 'each object against another'. What determines the similarity of objects is the level of homogeneity of compared structures. In the process of taxonomic group identification, the following indicator of lack of similarity (P_{ij}) was used:

$$P_{ij} = 1 - \sum_{k=1}^{r} \min\left(p_{ik},\ p_{jk}\right) \qquad (1)$$

where:
i, j – object number;
p_{ik} – percentage of k-th item in the structure of object I;
p_{jk} – percentage of k-th item in the structure of object j;

Formula (1) yields the value within the range of < 0, 1>. For identical structures $P_{ij} = 0$; while for structures which are totally different $P_{ij} = 1$.

Separation of taxonomic groups was carried out on the basis of the threshold value of structure diversification $\alpha \in (0, 1)$. The α indicator was established on the basis of empirical data as the arithmetic mean derived from the appropriate structure diversification matrix. Pairs of objects whose structure diversification is below α fell within the same taxonomic group.

SMALL FARMS IN THE AREA STRUCTURE OF EU COUNTRIES

The number and location of small farms in the agriculture of each EU member state is strictly determined by the shape of the area structure. Table 1 presents information for 2013 on the number of agricultural holdings in EU countries with a breakdown into area categories. Transformation of these quantities into relative indicators constitutes a basis for clustering. Grouping enables identification of shared regularities, and makes it possible to separate clusters of countries with a relatively homogeneous area structure. The taxonomic analysis conducted with vector elimination method on the percentages of farms by area categories specified in Table 1 resulted in identification of three groups of EU countries.

The results of differentiation of the EU member states by their area structure of agricultural holdings are presented in Table 2. The most numerous cluster gathers 13 countries (Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, the Netherlands, Ireland, Luxembourg, Germany, Sweden, the Great Britain), mostly from Western and Northern Europe. This cluster is characterised by a relatively small number of small farms and the highest percentages of farms from the largest area classes (Table 2). The second cluster is made up of 10 countries (Croatia, Greece, Spain, Lithuania, Latvia, Poland, Portugal, Slovakia, Slovenia, Italy). It represents countries whose agricultural structure is dominated by average-sized farms and a considerable percentage of small farms. The third cluster includes five countries: Bulgaria, Cyprus, Malta, Romania and Hungary. Characteristically, it features an extremely high percentage (90.1%) of small farms in the area structure. Particularly numerous is the area class of below 2 ha: it accounts for 73.7% of all agricultural holdings in this cluster.

Table 1. Agricultural holdings in EU countries in 2013 according to area categories (number)

Country	Area category									Total
	0 ha	< 2 ha	2–4 ha	5–9 ha	10–19 ha	20–29 ha	30–49 ha	50–99 ha	> 100 ha	
Austria	280	14 580	27 670	24 430	30 290	16 680	14 660	8 730	2 570	139 890
Belgium	300	1 600	3 460	4 980	6 840	4 930	6 810	6 530	2 190	37 640
Bulgaria	9310	183 640	27 810	10 880	6 780	3 210	3 410	2 960	6 160	254 160
Croatia	200	60 700	48 220	24 690	12 610	3 880	3 030	2 610	1 350	157 300
Cyprus	220	26 310	5 260	1 770	900	310	290	210	110	35 370
Czechia	100	2 700	1 880	4 940	4 610	2 360	2 370	2 460	4 630	26 050
Denmark	510	310	870	7 750	6 870	3 950	4 360	5 380	7 880	37 890
Estonia	430	1 770	4 140	3 970	3 340	1 400	1 180	1 150	1 790	19 190
Finland	90	880	1 900	6 160	10 980	8 190	10 940	10 580	4 610	54 320
France	8 500	51 590	56 280	41 090	44 770	31 610	47 440	93 330	97 600	472 210
Germany	2 870	12 010	9 720	44 580	59 020	28 920	42 530	50 220	35 160	285 030
Great Britain	640	3 360	8 350	26 990	28 810	17 810	23 420	32 470	40 980	182 820
Greece	5 680	358 970	179 470	86 520	45 560	15 080	11 120	5 430	1 450	709 270
Hungary	33 670	334 760	42 550	25 550	20 160	8 350	7 490	6 590	7 640	486 760
Ireland	10	2 530	7 810	16 850	33 420	24 190	30 230	19 740	4 800	139 580
Italy	520	277 910	313 930	172 900	114 850	44 690	39 870	30 180	15 100	1 009 960
Latvia	1 030	17 630	16 150	16 090	15 790	5 320	4 140	2 700	2 890	81 750
Lithuania	70	24 250	67 100	38 440	20 070	6 520	5 560	5 100	4 680	171 800
Luxembourg	0	180	140	190	170	120	210	600	450	2 060
Malta	330	7 600	1 110	250	40	10	0	0	0	9 340
Netherlands	1 690	6 930	9 860	9 400	10 060	6 890	10 980	9 280	2 390	67 480
Poland	6 990	326 140	444 220	308 200	208 990	62 040	40 440	20 570	10 950	1 428 550
Portugal	840	121 860	68 450	31 310	18 360	6 750	6 150	4 660	6 040	264 420
Romania	58 190	2 589 920	691 260	193 870	49 650	10 260	8 470	7 260	13 080	3 621 950
Slovakia	1 500	5 910	6 450	2 860	2 220	770	730	790	2 310	23 550
Slovenia	100	18 360	24 810	17 260	8 190	2 050	1 070	420	110	72 380
Spain	4 560	253 410	232 440	140 780	110 800	51 550	53 550	49 960	51 820	948 870
Sweden	90	710	6 410	15 770	13 610	6 650	7 220	8 160	8 030	66 640

Source: Author's study based on Eurostat 2018 data.

Table 2. Taxonomic groups according to area structure of agricultural holdings in EU countries

Area category	Taxonomic group obtained by the vector elimination method						Total ($N = 28$)	
	Cluster 1 ($N = 13$)		Cluster 2 ($N = 10$)		Cluster 3 ($N = 5$)			
	$\bar{x}$ (%)	$V(x)$ (%)	$\bar{x}$ (%)	$V(x)$ (%)	$\bar{x}$ (%)	$V(x)$ (%)	$\bar{x}$ (%)	$V(x)$ (%)
0 ha	0.8	103.9	1.0	190.3	3.3	73.8	1.3	136.2
< 2 ha	5.8	72.0	29.9	38.6	73.7	6.5	26.5	98.2
2–4 ha	9.2	67.0	28.9	19.0	13.1	30.6	17.0	62.9
5–9 ha	15.4	30.1	17.1	26.4	4.5	24.6	14.1	43.6
10–19 ha	17.4	25.9	11.1	34.6	2.2	63.1	12.5	54.7
20–29 ha	10.5	30.8	3.8	37.4	0.9	78.8	6.4	73.1
30–49 ha	13.3	35.0	3.1	45.6	0.8	84.9	7.4	87.2
50–99 ha	15.2	40.9	2.4	59.4	0.7	89.2	8.0	99.8
> 100 ha	12.3	61.8	2.7	109.4	0.9	110.3	6.9	109.1

Cluster 1 – Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, the Netherlands, Ireland, Luxembourg, Germany, Sweden, Great Britain; Cluster 2 – Croatia, Greece, Spain, Latvia, Lithuania, Poland, Portugal, Slovakia, Slovenia, Italy; Cluster 3 – Bulgaria, Cyprus, Malta, Romania, Hungary.

Source: Author's study based on Eurostat 2018 data.

The diversity of criteria used as a basis for identification of small farms directly leads to the lack of homogeneity in identification results and, consequently, different quantification. A plethora of authors, including Ascione et al. [2012] as well as Alexandri and Luca [2012], point to the farm area and the economic size unit as the most common identification criteria for small farms.

This study relies on agricultural acreage as the classification criterion. It has been assumed that small farms involve entities whose agricultural acreage does not exceed 5 ha. The information compiled in Table 1 (number of farms in area classes), besides presenting the features of the general agricultural structure, displays the rank of small farms. Based on the area criterion, this information presents the number of small farms against other area categories in individual member states. Depending on the accepted delimitation criterion, small farms constituted the majority group in the total number of agricultural holdings in 2013, i.e. 66.2%. Altogether, in all EU member states there were 7.152 M small farms, against the total number of farms at 10.806 M. The highest number of agricultural holdings in the EU was recorded in Romania (3.621 M) and Poland (1.428 M), making 33.5% and 13.2% of the total number of agricultural holdings in the EU, respectively. There were also a lot of small farms in Italy (9.3%), Spain (8.8%) and Greece (6.6%) compared to the total number of agricultural holdings in EU countries.

The high absolute number of farms, to some extent, corresponds with the area of each country; however, it is difficult to establish the unambiguous nature of interdependencies between EU states. Its complex nature is showcased even more by the area structures of agricultural holdings when considering the percentage of small farms. On average, small farms (up to 5 ha) account for 44.8% of all farms in EU countries. However, the standard deviation of that indicator is at the level of 30.8%. Based on the statistical criterion (mean average ± standard deviation), four groups of EU countries may be separated, according to the percentage of small farms in their area structure (quantitative criterion):

1. Countries where small farms account for up to 11% of all farms: Denmark (4.5%), Finland (5.3%), the Great Britain (6.8%), Ireland (7.4%), Germany (8.6%), Sweden (10.8%).
2. Countries where the number of small farms is within the range of 14–43%: Belgium (14.2%), Luxembourg (15.5%), the Czech Republic (18.0%), France (24.6%), the Netherlands (27.4%), Austria (30.4%), Estonia (33.0%) and Latvia (42.6%).
3. Countries where the ratio of small farms is between 51 and 73%: Spain (51.7%), Lithuania (53.2%), Poland (54.4%), Italy (58.7%), Slovakia (58.9%), Slovenia (59.8%), Croatia (69.4%) and Portugal (72.3%).
4. Countries where small farms constitute over 76% of all farms: Greece (76.7%), Hungary (84.4%), Bulgaria (86.9%), Cyprus (89.9%), Romania (92.2%) and Malta (96.8%).

The first of the specified sub-sets includes mostly countries from Northern Europe and is characterised by a marginal percentage of small farms. On the other end of the spectrum, the (fourth) group with the highest percentage of small farms in the agrarian structure is composed of countries from Southern and Central Europe. Generally, on the basis of the above-mentioned differentiation, it can be concluded that Western EU member states situated in the north of the continent, and the Baltic states, feature a below-average percentage of small farms. On the other hand, the new member states (from Central Europe) and the member states lying in Southern Europe have an above-average percentage of small farms in the EU.

Table 1 presents a detailed agrarian structure of the member states. Overall insight into the role of small farms in the area structure of EU countries has been gained thanks to the grouping conducted with the method of vector elimination, the results of which are shown in Table 3. The agrarian structure taxonomy presented therein is based on the juxtaposition of small farm class percentages with the cumulated percentage of other area classes. Such an analysis results in identification of three clusters with the following features:

1. The first cluster gathers countries with domination of agricultural holdings of over 5 ha in area (the mean average for the cluster equals 82.2%, against the mean average for all the countries at 55.2%). It comprises: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, the Netherlands, Ireland, Luxembourg, Latvia, Germany, Sweden and the Great Britain. The ratio of classes below 5 ha decreases together with the farm area.
2. The second cluster is represented by countries dominated by small farms (below 5 ha), which on average account for 61.7% against the average for the whole population at 44.8%. This cluster includes: Croatia, Greece, Spain, Lithuania, Poland, Portugal, Slovakia, Slovenia and Italy.

Table 3. Small holdings in the structure of agricultural holdings in EU countries

Area category	Taxonomic group obtained by the vector elimination method						Total (N = 28)	
	1 (N = 14)		2 (N = 9)		3 (N = 5)			
	$\bar{x}$ (%)	$V(x)$ (%)	$\bar{x}$ (%)	$V(x)$ (%)	$\bar{x}$ (%)	$V(x)$ (%)	$\bar{x}$ (%)	$V(x)$ (%)
0 ha	0.9	0.8	1.0	2.0	3.3	2.4	1.3	1.8
< 2 ha	6.9	5.8	30.8	11.8	73.7	4.8	26.5	26.0
2–4 ha	10.0	6.6	29.9	4.7	13.1	4.0	17.0	10.7
> 5 ha	82.2	12.0	38.3	9.0	10.0	4.8	55.2	30.8

1 – Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, the Netherlands, Ireland, Luxembourg, Latvia, Germany, Sweden, Great Britain; 2 – Croatia, Greece, Spain, Lithuania, Poland, Portugal, Slovakia, Slovenia, Italy; 3 – Bulgaria, Cyprus, Malta, Romania, Hungary.

Source: Author's study based on Eurostat 2018 data.

3. The third cluster is made up of countries where the ratio of small farms is 90%. Here there are: Bulgaria, Cyprus, Malta, Romania and Hungary. Diversification in this cluster is negligible.

The distinguished sub-groups are relatively homogeneous – their internal diversification expressed with the coefficient of variation is low.

The vector elimination method also allowed for identification of regularities in the structure of small farms in particular countries (excluding other area classes). Such a study was conducted on the sub-set of small farms separated from the agrarian structure. The results of the typology of the structure of small farms are presented in Table 4. Thus, the following types of small farms can be distinguished in EU countries:

1. In the countries, such as: Austria, Belgium, Croatia, France, Spain, the Netherlands, Luxembourg, Latvia, Germany, Poland, Slovakia, Slovenia and Italy, the ratio of ‘up to 2 ha’ and ‘2–4 ha’ area classes is almost evenly distributed and totals over 96%.
2. The second seven-item cluster is dominated by an ‘up to 2 ha’ area class (average at 77.0%). The group includes: Bulgaria, Cyprus, Greece, Malta, Portugal, Romania and Hungary.
3. Taxonomic group of six countries, i.e.: Estonia, Finland, Ireland, Lithuania, Sweden and the Great Britain, is distinguished by the prevalence of small farms of over 2 ha (average at 72.8%).
4. The typological group comprising only the Czech Republic features 57.7% of ‘up to 2 ha’ farms and 40.2% of farms of over 2 ha in area.
5. A specific structure exists in Denmark: it is distinguished by 30.2% of small farms marked in Eurostat classification as ‘0 ha’ area class.

Except Denmark (group 5), in individual clusters the ratio of the class defined by Eurostat as ‘0 ha’ oscillates between 2 and 4%. Diversification of all of the identified sub-groups of small farms is marginal, which proves homogeneity of the clusters identified.

SUMMARY

On the basis of the data for farm area structure in EU states, three diversified groups of EU states were distinguished. The groupings show a significant difference in the area structures of Northern Europe (large farms) and Southern and Central Europe (dominance of average-sized farms and a considerable percentage of small farms). The role of small farms in the structure of agricultural holdings in EU states was clarified. Three homogenous clusters of countries were identified: countries where farms of over 5 ha dominate (on average 82.2%); countries with a high ratio of small farms (on average 61.7%); and countries with the prevalence of small farms (on average 90.0%).

Table 4. Structure of small agricultural holdings in EU countries

Area category	Taxonomic group obtained by the vector elimination method										Total (N = 28)	
	1 (N = 13)		2 (N = 7)		3 (N = 6)		4 (N = 1)		5 (N = 1)			
	$\bar{x}$ (%)	$V(x)$ (%)	$\bar{x}$ (%)	$V(x)$ (%)	$\bar{x}$ (%)	$V(x)$ (%)	$\bar{x}$ (%)	$V(x)$ (%)	$\bar{x}$ (%)	$V(x)$ (%)	$\bar{x}$ (%)	$V(x)$ (%)
0 ha	3.9	4.4	2.9	2.8	2.8	2.8	2.1	–	30.2	–	4.3	6.2
< 2 ha	44.8	7.9	77.0	8.6	24.4	7.4	57.7	–	18.3	–	48.0	20.9
2–4 ha	51.3	8.0	20.2	10.3	72.8	8.9	40.2	–	51.5	–	47.7	20.3

1 – Austria, Belgium, Croatia, France, Spain, the Netherlands, Luxembourg, Latvia, Germany, Poland, Slovakia, Slovenia, Italy; 2 – Bulgaria, Cyprus, Greece, Malta, Portugal, Romania, Hungary; 3 – Estonia, Finland, Ireland, Lithuania, Sweden, Great Britain; 4 – the Czech Republic; 5 – Denmark.

Source: Author’s study based on Eurostat 2018 data.

The typology of the structure of small farms in EU countries resulted in identification of five subgroups, two of which were represented by single objects: Denmark and the Czech Republic. The differentiation of the three most numerous clusters was based on differences in the percentages of 'up to 2 ha' and '2–4 ha' area classes.

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DROBNE GOSPODARSTWA ROLNE W STRUKTURZE OBSZAROWEJ GOSPODARSTW KRAJÓW UNII EUROPEJSKIEJ

STRESZCZENIE

Mimo ewolucji struktury agrarnej w krajach Europy (szczególnie zachodniej) problematyka drobnych gospodarstw pozostaje aktualna w związku z funkcjonowaniem tej formy gospodarowania. Określenie „drobne gospodarstwo rolne" nie jest jednoznaczne. Z tego względu badanie oparto na relatywnie najbardziej obiektywnym kryterium wyodrębniania gospodarstw drobnych – według powierzchni (poniżej 5 ha). Badanie wykorzystuje technikę statystyczną nazywaną metodą eliminacji wektorów. Umożliwia ona wyodrębnienie spośród rozważanej zbiorowości podgrup o podobnych strukturach obszarowych. Typologia struktury obszarowej techniką taksonomiczną ukazuje zróżnicowanie krajów UE ze względu na specyfikę gospodarstw drobnych: krajów Europy Południowej, wybranych krajów Europy Środkowej oraz pozostałych państw (leżących na północy kontynentu). Dodatkowo odrębny charakter ma struktura gospodarstw drobnych w Danii i Czechach.

Słowa kluczowe: drobne gospodarstwa rolne, struktura gospodarstw rolnych, kraje UE, metoda eliminacji wektorów

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HEALTH CARE FINANCING IN THE EUROPEAN UNION COUNTRIES – STRUCTURE AND CHANGES

Michał Wielechowski✉, Łukasz Grzęda

Warsaw University of Life Sciences – SGGW, Poland

ABSTRACT

The aim of the paper was to present health care systems and assess the recent trend in health care expenditure in the European Union countries. The data source was the World Bank and European Statistical Office (Eurostat). The adopted research period covered the years 2000–2016, due to data availability. The methodology of the study was based on an analysis of data indicator series related to health care expenditure, which evaluate the national health care system performance. The research results were presented using primarily Japanese candlestick charting. The study showed that health care expenditure represented an ever-increasing burden for all the EU economies, both in absolute values and in relation to GDP. However, substantial differentiations in the amount and structure of health care expenditure were observed at the country level, having roots in the level of a country's economic development and diverse post-war economic and political evolution. The analysis of health care expenditure structure confirmed that all three types of health care systems (Beveridge, Bismarck and mixed one) were observed in the EU, but the last one had a marginal importance. The form of system did not determine its effectiveness. On average, more than three-fourths of health care expenses were financed by general government expenditure. Out-of-pocket spending varied widely among the analysed EU member states.

Key words: health care system, health expenditure, general government expenditure, out-of-pocket expenditure, Japanese candlestick charting

JEL codes: H51, I18, I10, I13, E62

INTRODUCTION

Health is a special economic good that has significant value for man, resulting from both its direct and indirect impact on his level of satisfaction, and thus on the value of his utility function [McGuire et al. 1988]. It is vital for all countries to appropriately invest in their health care sector. Evidence shows that investing in health significantly benefits the economy [Rahman et al. 2018]. Health should be treated as an integral part of sustainable development and economic growth which ensures nation economic security and betters human life [Sen 1999, Karim 2016, Rahman et al. 2018]. The idea of health as a form of human capital has a long history and became popular in economic literature in the 1960s [Schultz 1961, Mushkin 1962].

Various models of health care financing can be seen in the world. Countries finance their health care through a combination of taxes, social insurance contributions, private insurance programs and out-of-pocket payments [van Doorslaer et al. 1999]. Health care system classifications have been broadly described in the literature [Burau and Blank 2006, Freeman and Frisina 2010, Wendt 2014]. The way health care systems are created, managed and financed is pivotal and affects people's lives [WHO 2000]. In the European Union

Michał Wielechowski https://orcid.org/0000-0002-1335-8971; Łukasz Grzęda https://orcid.org/0000-0002-2681-3208
✉michal_wielechowski@sggw.pl

three different health care systems are observed according to service financing, delivery, and economic policies, namely [Gaeta et al. 2017]:
- Beveridge model – financially granted by public taxes and directly operated by the state;
- Bismarck model – financially granted through employer and employee compulsory social security contributions;
- mixed system – being a hybrid of Beveridge and Bismarck models in which private funding from voluntary insurance schemes or upfront payments is significant.

Due to the complexity and specificity of health care, the effectiveness of the system is heterogeneously understood and depends on many different factors [Smith et al. 2009, Joumard et al. 2010, Lighter 2011].

Health care systems in the EU have experienced major changes in recent decades [Wendt 2014]. Substantial differences between Western and Eastern EU member states are a reflection of a diverse economic and political evolution after World War II [Tambor 2015]. The effectiveness of the systems varies.

Health spending measures the final consumption of health care goods and services, as defined in the System of Health Accounts [OECD et al. 2017]. Total government spending, as a share of GDP, can be different according to the country's priorities, which depend on capacity to pay and fiscal constraints [Zaman et al. 2017]. Health government expenditure is an important indicator of a government's commitment to the health of its citizens, and is important for the sustainability of national health programs [Lu et al. 2010]. In most countries, both developed and developing, the level of health care expenses is increasing over time [Wolfe 2008], largely due to their allotment of a higher proportion of national government financing. What is even more important, the growth in health expenditure is outpacing inflation [Grima et al. 2018]. In developed economies, countries charge patients for some part of health services, most commonly for prescription drugs [Gemmill et al. 2008].

The aim of the paper was to briefly present health care systems and assess the recent trends in health care expenditures in EU countries. Our contribution was that using Japanese candlestick charting, we analysed data indicators related to health expenditure, which evaluate national health care system performance in all EU member states from 2000 to 2016. The research should be considered as comparative and treated as a challenge for future research. The sections in the paper are structured as follows: The next section describes the data and research methods used. The following section presents empirical findings and discusses them. The final section draws conclusions of the study.

MATERIAL AND METHODS

The methodology of the study is based on an analysis of data indicator series related to health care expenditure in all 28 EU countries. The following indicators are used: current health expenditure to GDP ratio, current health expenditure per capita, structure of health care system, general government health expenditure, private health expenditure, and out-of-pocket health care expenditure. The above-mentioned indicators form the basis of the evaluation of national health care system performance. Indicators related to health expenditure reflect performance of health care systems. The data come from the World Bank and European Statistical Office (Eurostat). Due to data availability, the adopted research period covers the years 2000–2016. The research results are presented using primarily Japanese candlestick charting (Fig. 1), and secondarily by selected statistical and graphic methods.

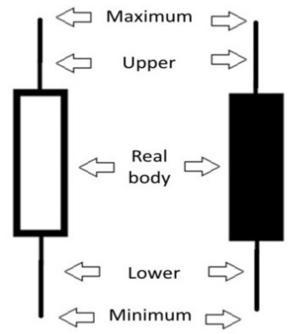


Fig. 1. Composition of Japanese candlestick
Source: Authors' own elaboration based on Gdakowicz [2011].

Candlestick charting has a long history [Nison 1991] and is a type of technical analysis charting. Knowledge about the open, closed, high and low values for the time period to be described is needed for candlestick chart construction. The analysed time interval can be freely modified. Candlestick is composed of the real body which represents the area between the opening and closing periods (Fig. 1). The white real body means that the closing period represent a higher value than the opening one. The black body reflects the opposite situation, i.e. the closing value is lower than the open value [Gdakowicz 2014]. The use of Japanese candlestick charting helps in providing clarity when comparing the analysed countries and across time.

RESULTS AND DISCUSSION

The study showed that health expenditure represented an increasing burden for the EU economies in relation to GDP from 2000 to 2016 (Fig. 2). On average, the analysed health care indicator increased 25% (from about 8% up to 10% of GDP) in the EU in the analysed period and almost equalled the average global relative health spending. While the largest level of health expenses were observed in Western EU countries (among others, more than 11% of GDP in France and Germany in 2016), the lowest expenditure on health in relation to GDP was noted in Central Eastern EU member states (less than 7% of GDP in Romania, Latvia, Poland, Lithuania, and Estonia in the entire analysed period). The explanation for that observation is that the substantial difference in the relative level of health spending between Western and Eastern EU countries has roots in diverse post-war economic and political evolutions [Tambor 2015]. The only exception was Luxembourg, where the proportion of health expenses to GDP was stable but relatively low (about 6%).

The largest increases among the EU countries in the 2000–2016 period were recorded in the United Kingdom (70%), Sweden and the Netherlands (close to 50%). The only EU country that has experienced a decline (about 7%) in health expenditure in relation to GDP in the analysed period was Croatia. Our results are in common with Wolfe [2008].

For a better understanding of the different dynamics, health expenditure in relation to GDP ratio should be considered in hand with health spending per capita. While higher income EU member states tend to allocate more of their income to health care, some countries representing relatively high spending on health per capita could have relatively low health expenditure to GDP, and vice versa [OECD 2018].

Figure 3 shows that the amount of health spending per capita is strictly connected to the level of national income per capita. On average in EU countries, financing of health per capita in PPP 2011 USD increased by 46% from 2000 to 2016, but less than two-thirds of this increase was the product of rising GDP. In comparison to the world average, the EU member states spent about three times more on health care per capita. At the country level, relatively the largest increases were noticeable in post-communist countries, primarily in Bulgaria (178%), Slovakia Republic (148%), Lithuania (143%) and Romania (139%). It is worth mentioning that due to the economic crisis, Greek spending on health decreased by 46% from 2008 to 2015. In many other EU member states, as a consequence of the above-mentioned economic downturn,

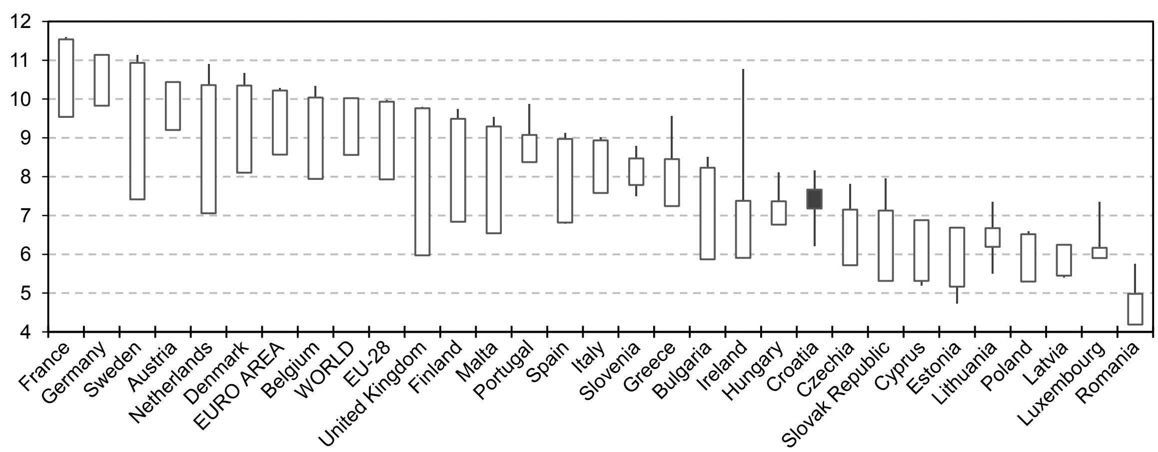


Fig. 2. Changes of current health expenditure in European Union countries, 2000–2016 (% of GDP)
Source: Authors' own elaboration and calculation based on World Bank data.

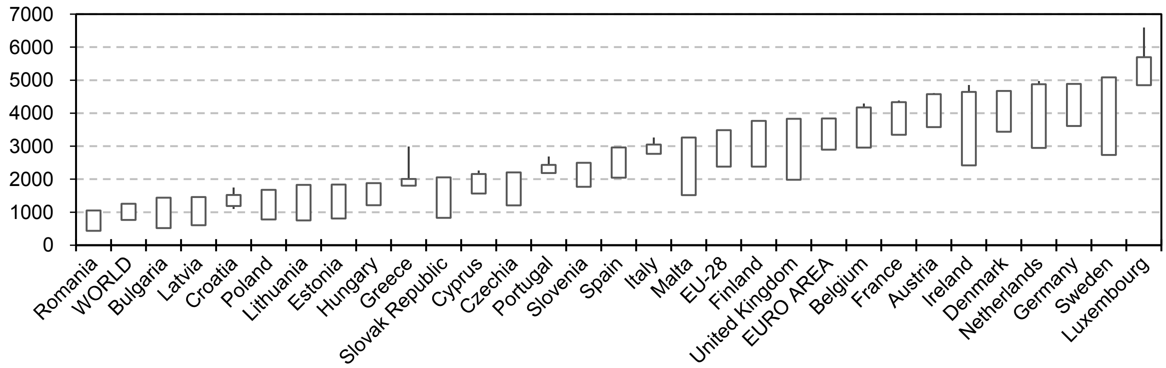


Fig. 3. Changes of current health expenditure per capita (Purchasing Power Parity in constant 2011 USD) in European Union countries in 2000–2016

Source: authors' own elaboration and calculation based on World Bank data.

health spending per capita has become more aligned to economic growth [Morgan and Astolfi 2014].

Despite the growing EU integration and convergence of health care systems [Leiter and Theurl 2012] there are differences in the way health care is financed in the EU countries. Three types of health care systems, i.e. Beveridge, Bismarck and Mixed, were observed in the EU (Table 1). The Beveridge model, also referred to as National Health System (NHS), established in the United Kingdom (UK) in 1942 [Gaeta et al. 2017], apart from the UK was present in all Southern and Scandinavian EU member states. The Bismarck model, based on compulsory social security contributions by employers and employees, was the most popular health care system in the EU. It was present in the EU funders states and was adopted by post-communist EU countries, including Poland. The mixed system, in which private funding from voluntary insurance schemes or upfront payments is crucial, was the least popular. Although Busse et al. [2007] Gaeta et al. [2017] classified adoption of the mixed system by four the EU member states, the role of voluntary insurance in these countries was marginal.

Table 2 presents 2018 ranking of health care system effectiveness in EU countries according to consumer opinion (*Euro Health Consumer Index 2018*), developed by Health Consumer Powerhouse in 2019. It should be noted that the selection of a given form of health care system is not the most important factor, because it does not directly determine the effectiveness of the system. The report on Euro Health Consumer Index points to the superiority of the Bismarck model over the Beveridge system, where the Netherlands is the undisputed leader among EU member states. Nevertheless, the results show that in the case of Nordic countries (Denmark, Finland and Sweden) the Beveridge system works smoothly, while in post-communist EU countries (e.g. Romania, Hungary, Poland) the Bismarck model is not effective.

Figure 4 presents the structure picture of health care system financing in the EU countries in 2016 and confirms significant differences in the composition of their financial sources. In the case of Denmark, Sweden, the United Kingdom and Italy the health care system was more than 75% funded by government

Table 1. Typology of health care systems in the European Union countries

Beveridge system (National Health System – NHS)	Bismarck model (Social Health Insurance System – SHIS)	Mixed model (Private Health Insurance System – PHIS)
Cyprus, Denmark, Finland, Ireland, Italy, Latvia, Malta, Portugal, Spain, Sweden, the United Kingdom	Belgium, Estonia, France, Germany, Lithuania, Luxembourg, the Netherlands, Poland, the Czech Republic, Romania, Slovakia, Slovenia, Hungary	Austria, Bulgaria, Greece, Croatia

Source: Authors' own elaboration based on Gaeta et al. [2017].

Table 2. Typology of health care systems in the European Union countries

Country	Rank	Score	Country	Rank	Score	Country	Rank	Score
Netherlands	1	883	Czechia	11	731	Malta	21	631
Denmark	2	855	Estonia	12	729	Lithuania	22	622
Belgium	3	849	The UK	13	728	Greece	23	615
Finland	4	839	Slovakia	14	722	Latvia	24	605
Luxembourg	5	809	Spain	15	698	Bulgaria	25	591
Sweden	6	800	Italy	16	687	Poland	26	585
Austria	7	799	Slovenia	17	678	Hungary	27	565
France	8	796	Ireland	18	669	Romania	28	549
Germany	9	785	Croatia	19	644	–	–	-
Portugal	10	754	Cyprus	20	635	–	–	–

Source: Authors' own elaboration based on Gaeta et al. [2017].

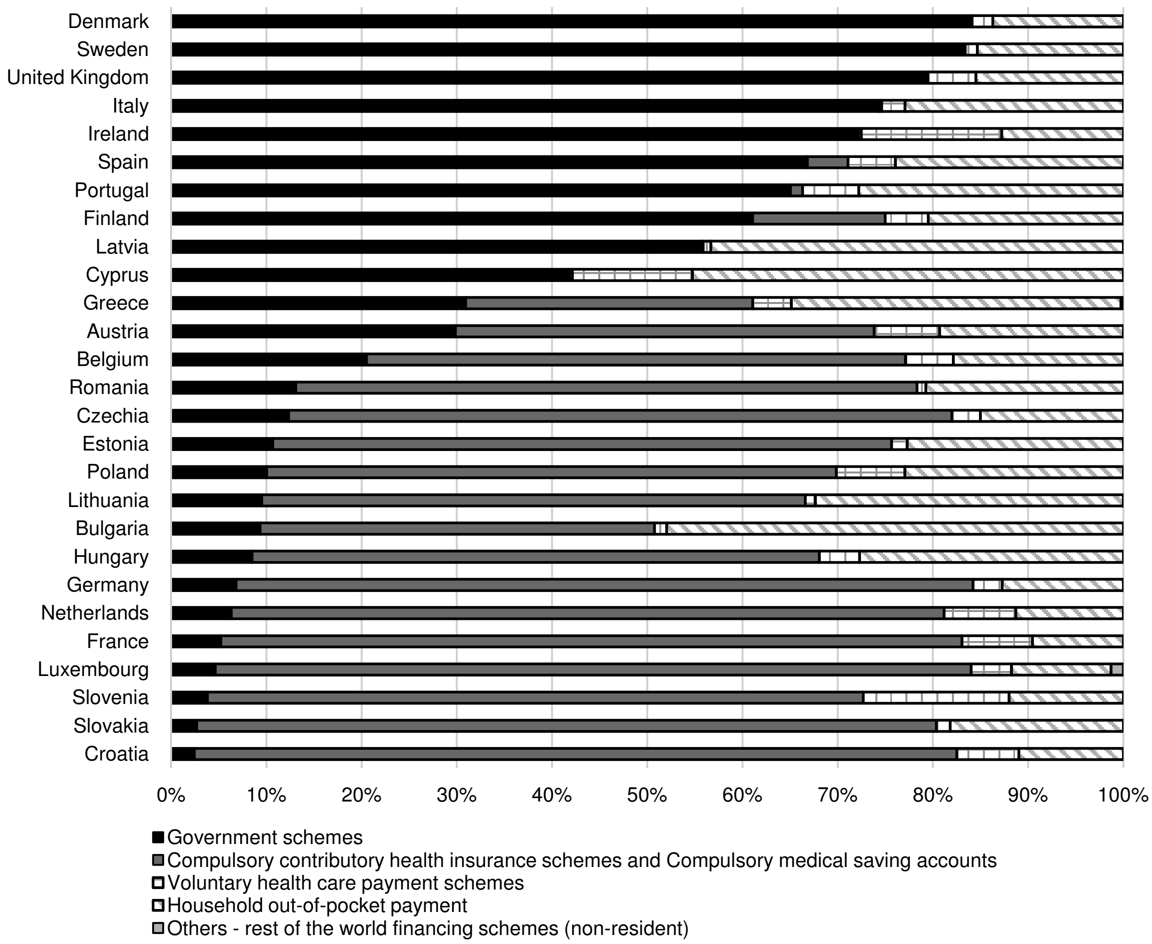


Fig. 4. Structure of health care expenditure in the European Union countries in 2016
Source: Authors' own elaboration based on Eurostat data.

schemes which were based on taxes. There was no funding from compulsory contributory health insurance schemes or compulsory medical saving accounts in the above-mentioned countries.

The health care system was funded in a totally different way in post-communist countries and the Inner Six, i.e. mostly on compulsory social security contributions by employers and employees. In Slovenia, Slovakia and Croatia, government funding did not exceed 4% of total health spending. Household out-of-pocket payments as a component of total expenditure on health varied widely among the EU countries in 2016, from very low levels in France, Cyprus and Latvia up to 48% in Bulgaria. The most marginal part of health care system financing were the voluntary payment schemes, which represented more than 10% in only three EU member states, namely Slovenia, Ireland and Cyprus.

Figure 5 shows that on average, budgetary funding of the health care system increased slightly (3.5%) from 2000 to 2016, while the world average growth equalled 30% in the same period. Government expenses represented the major financial pillar of health care systems in the EU member states, in other words budgetary resources funded almost 80% of total health care. At the country level, the study confirmed that changes of general government engagement in financing health care in the EU countries from 2000 to 2016 were visible but presented different trends.

While a decrease in government health expenditure (as a percentage of total health spending) was observed for 16 countries, 12 countries experienced a growth in government spending. The largest increase of budgetary engagement in health care was recorded in the Netherlands (22%), while in the case of Bulgaria, Malta, and the Slovak Republic financing of health care from government funds decreased more than 10% in the analysed period.

Figure 6 confirms that the amount of private health expenditure was negatively correlated with government spending on health and constituted the second most important health care system funding in the EU countries over the period 2000–2016. The largest share of private health spending in relation to total health expenditure in the EU was observed in Cyprus (almost 60%). In comparison, the share of private health expenditure in the 10–20% range was observed in several of the EU countries in the analysed period. The 12% decrease in private health expenditure in the EU should be considered small compared to the average global decrease of 40%. The largest decrease (more than 20%) in private expenditure was observed in the Netherlands, Germany, Belgium and France. By comparison, the highest growth of private health spending

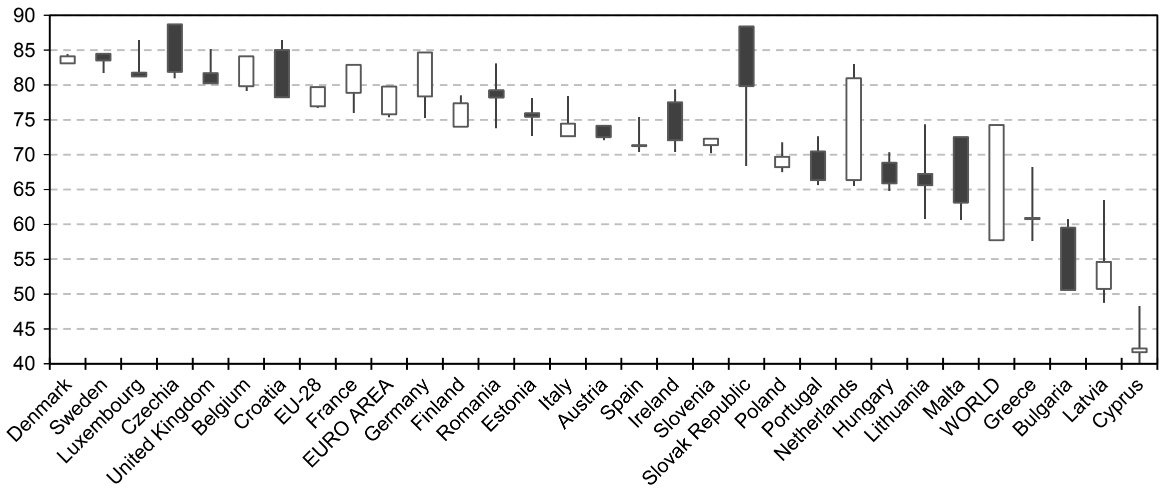


Fig. 5. Changes of general government health expenditure in the European Union countries, 2000–2016 (% of current health expenditure)

Source: Authors' own elaboration and calculation based on World Bank data.

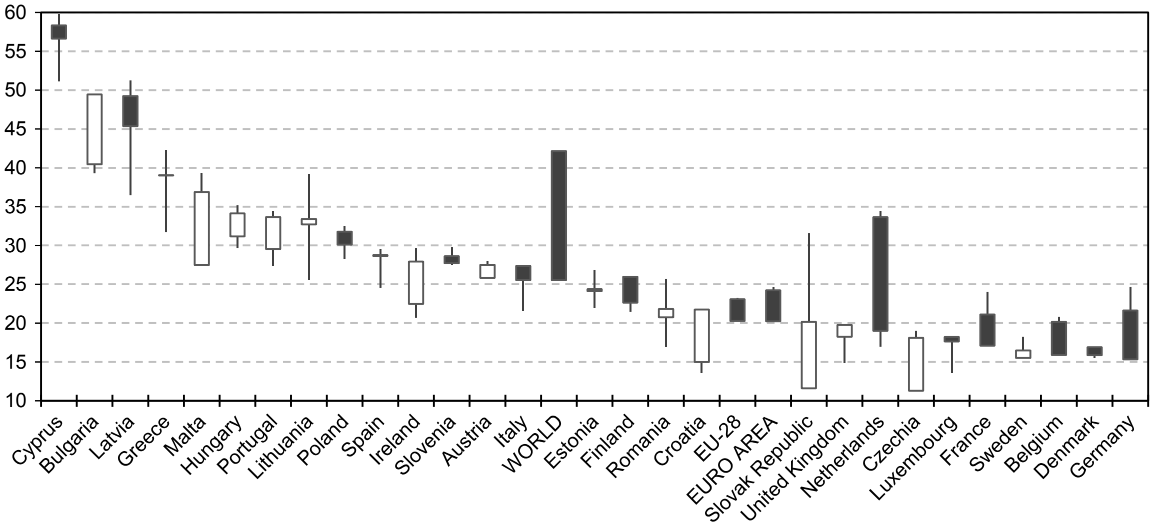
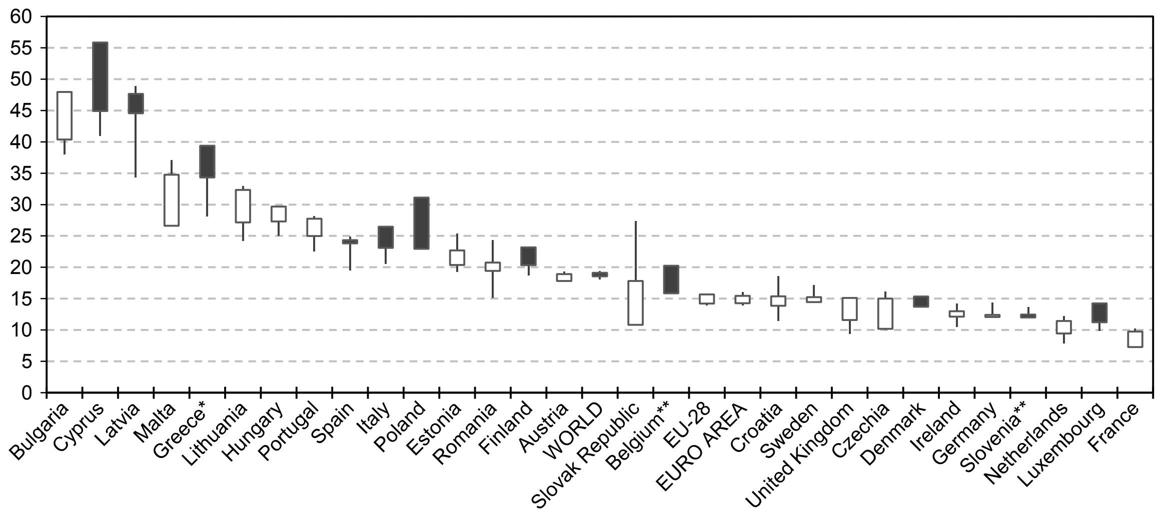


Fig. 6. Changes of private health expenditure in the European Union countries in 2000–2016 (% of current health expenditure)

Source: Authors' own elaboration and calculation based on World Bank data.

in comparison to total health expenditure was observed in the Slovak Republic, the Czech Republic and Croatia, 74%, 60% and 45%, respectively.

Some form of cost sharing from individuals via copayments, coinsurance, and deductibles were required in all EU countries. However, the amount (percent of current health expenditure) of out-of-pocket payments for health services in the EU member states varied widely and did not follow a consistent trend in the analysed period (Fig. 7). Increasing cost sharing was observed in 16 countries (e.g. the Slovak Republic, the Czech Republic, France, Malta,



*data for Greece are available from 2008; **data for Belgium and Slovenia are available from 2003

Fig. 7. Changes in out-of-pocket health care expenditure in the European Union countries in 2000–2016 (% of current health expenditure)

Source: Authors' own elaboration and calculation based on World Bank data.

the UK, and the Netherlands), while a decrease was visible in 12 EU member states (e.g. Poland, Belgium, Luxembourg, Cyprus, Greece, and Italy). The amount of the EU average out-of-pocket expenditure was 25% lower than the world average. It is worth mentioning that out-of-pocket expenses are limited to direct expenditure for services not included in the benefits package and to cost-sharing requirements. Although the World Bank [Busse et al. 2007] states that contrary to low- and medium-income countries, informal payments rarely present a problem in high-income economies, the problem of out-of-pocket informal spending is worth considering in the EU, especially in Eastern and Southern EU countries. In Greece, Souliotis et al. [2016] estimates that under-the-table payments hover at about one-third of public hospital admissions and visits to private practitioners and dentists.

CONCLUSIONS

The paper confirmed substantial changes of health care systems in the analysed period in EU countries. The study showed that health expenditure represented an increasing burden for all the EU economies, both in absolute values and in relation to GDP, on average 46% and 25% respectively. Substantial differentiations in the amount and structure of health expenditure among analysed countries were observed at the country level, having roots in the level of a country's economic development and diverse post-war economic and political evolution. The analysis of health expenditure structure confirmed the existence of Beveridge, Bismarck and mixed models but the importance of the last one should be considered marginal. On average, 79% of health expenses were financed by general government expenditure in 2016 in the EU.

The research confirmed that budget funds were the basic financial pillar of health care systems in EU countries. The study showed the reduced involvement of private health expenditure by about 12%. The largest decrease in private expenditure was observed in the Netherlands, Germany and Belgium, respectively. The EU average out-of-pocket expenditure was 25% lower than the world average. Out-of-pocket spending varied widely among the EU member states. The most increased cost-sharing was observed in the Slovak Republic and the Czech Republic, while the most decreasing trend was visible in Poland and Belgium. In the paper we showed that Japanese candlestick charting improves clarity in the research of indicators related to health expenditure. Explaining the drivers and mechanisms of health expenses in the EU member states is a challenge for future research.

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FINANSOWANIE OPIEKI ZDROWOTNEJ W KRAJACH UNII EUROPEJSKIEJ – STRUKTURA I ZMIANY

STRESZCZENIE

Celem artykułu było przedstawienie systemów opieki zdrowotnej i ocena zmian w wydatkach na opiekę zdrowotną w krajach Unii Europejskiej. Dane pochodziły z baz danych Banku Światowego i Europejskiego Urzędu Statystycznego (Eurostat). Ze względu na dostępność danych przyjęty okres badawczy obejmował lata 2000–2016. Metodologia badania została oparta na analizie wskaźników związanych z wydatkami na ochronę zdrowia, stanowiących podstawę oceny krajowego systemu opieki zdrowotnej. Wyniki badań przedstawiono za pomocą metody świec japońskich. Badanie wykazało, że wydatki na opiekę zdrowotną są coraz większym obciążeniem dla wszystkich gospodarek unijnych, zarówno w wartościach bezwzględnych, jak i w stosunku do PKB. Zaobserwowano jednak znaczne zróżnicowanie w wielkości oraz strukturze wydatków na opiekę zdrowotną między analizowanymi krajami, spowodowane poziomem rozwoju gospodarczego oraz zróżnicowaną powojenną ewolucją gospodarczą i polityczną. Analiza struktury wydatków na opiekę zdrowotną potwierdziła, że wszystkie trzy rodzaje systemów opieki zdrowotnej (Beveridga, Bismarcka i mieszany) były obserwowane w UE, jednakże ostatni z nich miał marginalne znaczenie. Rodzaj systemu opieki zdrowotnej nie determinował jednak jego skuteczności. Przeciętnie ponad trzy czwarte wydatków na opiekę zdrowotną zostało sfinansowanych z wydatków sektora instytucji rządowych i samorządowych. Wydatki typu *out-of pocket* różniły się znacznie między państwami członkowskimi UE.

Słowa kluczowe: system opieki zdrowotnej, wydatki na opiekę zdrowotną, wydatki sektora instytucji rządowych i samorządowych, wydatki typu *out-of pocket*, metoda świec japońskich

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CHANGES IN THE SCALE AND STRUCTURE OF FARM PRODUCTION IN METROPOLITAN AREAS IN POLAND

Tomasz Wojewodzic✉, Wojciech Sroka, Aleksandra Płonka

University of Agriculture in Krakow, Poland

ABSTRACT

The aim of this analyses was to assess the changes in the organisation and scale of plant production of commercial farms located within varying distances from the core of metropolitan areas. The analysis covered a total of 1,854 commercial farms from Pomorskie, Wielkopolskie, Mazowieckie, Lubelskie, Dolnośląskie and Małopolskie voivodeships that participated in the FADN system over an uninterrupted period between 2004 and 2016. In the study population, entities engaged in production in various functional zones of metropolitan areas (MA) were identified. The study found that in the commercial farms operating in the inner zone of MAs, field cropping and horticulture are gaining importance while livestock production is subject to marginalisation.

Key words: metropolitan area, location theories, agricultural farm, plant production, Poland

JEL codes: Q10

INTRODUCTION

Modern-day analyses of the distribution of agricultural production around urban centres in European cities do not show clear trends. Social, economic and environmental factors overlap with the location factor, making the process of inference much more difficult. The attempts to develop a coherent theory and to zone agricultural production in relation to large urban centres must take into account, in addition to the factor of distance and derivatives of transport costs, the quality and fitness of a given area for agricultural production, the size and economic impact of the urban centre, distance from other economic centres and the level of infrastructural development of the area under study, including, in particular, the functionality of the existing transportation networks [Wojewodzic 2017].

Land, due to its specific qualities (i.e. it cannot be multiplied, is rare, has fixed location, is indestructible), attracts the interest of many economic entities [Szymańska 2015]. It is a fundamental means of production, necessary in each area of human activity. Used for food production, it plays a double role in agriculture, being both the place and means of production. In the age of globalisation, advanced industry and its infrastructure, land as a means of production becomes a desirable good, for which demand is systematically growing [Deng et al. 2015]. Land is increasingly used to locate human and industrial settlements, transportation routes and recreation centres [Górska and Michna 2010]. One of the main negative effects of the development of society and urbanisation is loss of arable land [Liu et al. 2014].

Therefore, the resources of agricultural land[1], which shrink as a result of being converted to non-

Tomasz Wojewodzic https://orcid.org/0000-0002-0817-4190; Wojciech Sroka https://orcid.org/0000-0002-4255-3741;
Aleksandra Płonka https://orcid.org/0000-0001-5319-592X
✉rrtwojew@cyf-kr.edu.pl

agricultural purposes, should be rationally used by situating agricultural production in an appropriate way. The taking over of land by other sectors, as well as the ineffective use of agricultural land in Poland in the early 1990s, led to a significant reduction in the size of agricultural area, reducing the production capacity of national agriculture [Szymańska 2015]. Effective management of land (and the use of other means of production) is becoming more difficult, as it is determined by a range of factors, both micro- and macro-economic, including environmental issues (connected, among other things, with the quality of soil and climatic conditions), financial issues (which take into account the distance from sales market translated into transportation costs) and social issues (connected with expectations of local residents as to the provision of a clean environment, neutralisation of odours or elimination of the noise accompanying agricultural production).

The rationale of gainful activities dictates that every entity, including agricultural farms, should take into account the location of its activity, as well as identify and establish the criteria for choosing the location [Lange 1959]. The relation between the costs of production, price, the level of profit and the location of production as well as the socio-economic effects of a certain location of production are the subjects of widespread interest in economics. Many studies attempt to explain the mechanism of locating activity – production – in specific geographic areas and, simultaneously, to provide an answer to the essential question of rational management: how and using what criteria should we choose the most economically efficient location? [Boroń 1962]. The above issues have provided the basis for attempts to address the problem of linking agricultural activity with location, and to find out whether there are changes in these linkages and if so, in what direction.

MATERIAL AND METHODS

The aim of the research was to identify and assess the changes in the organisation and scale of plant production of commercial farms located within varying distances from the core of metropolitan areas (MA). Metropolitan area is not defined in a consistent way in either the literature or the Polish system of law, which gives some variability in the interpretation of this term [Sroka et al. 2018]. For the purpose of meeting the aims of the project, the paper uses the definition of MA presented in the National Spatial Management Concept 2030[2] [MRR 2011], according to which a metropolitan area is the area of a large city (with over 300 thousand inhabitants) along with its functionally connected direct environment.

This study covers commercial farms located within six voivodeships, i.e.: Pomorskie, Wielkopolskie, Mazowieckie, Lubelskie, Dolnośląskie and Małopolskie. These regions were selected to reflect the huge diversity of the environmental and economic conditions in Poland. Based on planning documents (i.e. plans or studies of spatial management), in each of the selected voivodeships three locational study zones were distinguished: 'inner zone of MA' (i.e. municipalities directly bordering the core), 'outer zone of MA' (the remaining municipalities within MA that do not directly border the core) and the part of a voivodeship outside of a metropolitan area referred to as 'outside of MA' [Sroka et al. 2018].

The source material was numerical data obtained from the database of the Polish FADN (Farm Accountancy Data Network). Of the 3,508 farms that participated in the FADN system for an uninterrupted period between 2004 and 2016, entities carrying on agricultural activity in the voivodeships selected for the study were identified, i.e.: 1,854 commercial farms, 46 of which functioned in inner zones of MA, and 143 in

[1] The literature stresses the negative impact of the dynamic pace of the cessation of using land for agricultural purposes on Poland's food security. Wilkin [2011] stresses that this pace is twice as fast as the average for the OECD countries. More on the reduction of agricultural land in Szymańska [2015].

[2] The National Spatial Management Concept 2030 is the most important national strategic document concerning national spatial management. It was created in compliance with the provisions of the Law of 27 March 2003 on spatial planning and management.

outer zones. For the identified groups of farms, a comparative analysis was conducted, taking into account changes in the cultivation area, structure of the value of production and production type (dominant direction of production).

The discussion presented in this paper uses the terminology of the FADN system. According to the Community typology for agricultural holdings, there are, depending on the amount of detail required, 8 general types, 21 principal types and 61 particular types of farming. Due to the relatively small number of farms located in the metropolitan areas covered by the analysis, part of the discussion was limited to changes in the general type of farming. The adoption of a higher level of data aggregation was also connected with the methodological changes made in 2010. As the criterion of the assessment of a farm's economic size and assessment of the type of farming, standard gross margin (SGM) was replaced by standard output (SO). Thus, the type of farming is determined by the contribution of the standard output of the different groups of a farm's activity to the total value of SO. Based on that, in accordance with the Community typology for agricultural holdings, the following general types of farming were distinguished: field cropping, horticulture and permanent crops. The analyses were extended to include the so-called mixed type, which refers to farms focused, to a similar extent, on both mixed cropping and livestock.

The dynamic analysis of production value took into account changes in the time value of money, adjusting the nominal values by yearly price indices of consumer goods and services adopted based on the announcements of Statistics Poland [GUS n.d.].

THEORIES OF AGRICULTURAL PRODUCTION LOCATION

Spatial economics gives a lot of attention to the factors determining decision-making by economic entities functioning in a given area. This allows studies of metropolitan areas to draw on the achievements of location theory and tent theory, the dynamic development of which was initiated in the early 19th century by representatives of classical economy, such as Smith [(1776), 1954] or the continuator of his thought, Ricardo [(1817) 1957], as well as the creator of the first theory of spatial location, von Thünen [1826], the precursor of the theory of the optimal location of an enterprise, Weber [1909], and Lösch [1954], who is considered to be the father of spatial management. They pointed out that economic activity can generate various costs and bring various benefits depending on where it is carried out. They often used agriculture and agricultural markets to conduct their observations.

However, in terms of the subject addressed in this paper, more significant are various location (geographical) rents, first explored by von Thünen [1826]. In the model he developed, the central place was occupied by a city, which constituted the only agricultural market for the products produced in its environment. The area within reach of the city's impact was by definition homogeneous in terms of the quality of land and transportation conditions, and the produced agricultural products could be transported directly to the city. Assuming that the costs of transportation are proportional to the distance and there is free competition between sellers, four concentric zones (rings) around the urban centre were identified. Thünen [1826] pointed out that intensive production of vegetables and milk should be located in the first ring, which directly borders the city, followed by forestry production (firewood), cereal and potato production in the next rings, and fodder plant production and livestock farming in the fourth ring. In his works, he showed that the owners of land and labour (the so-called fixed factors of production) located outside of the centre must incur the costs of transport and communication by themselves in order to survive on the market. This put them at a disadvantage in relation to those carrying on their activity in the centre. Thünen also noted that the spatial variation in the remuneration of capital and technological knowledge (the so-called variable factors of production) would lead to relocation of the activity from places generating lower income to places where the income could be higher [Kasper 2014].

Thünen's observations were developed by other scholars such as: Jonasson [1925] and Sinclair [1967], who addressed the subject of creating rational feeding zones around ever more dynamically growing large cities. Swedish geographer Jonasson, taking into account transportation costs, indicated the validity of locating activity characterised by higher intensity near the city. According to his findings, horticulture should be located in immediate proximity to the centre, while in the next rings: milk production, less intensive plant production and livestock farming, and forestry furthest from the centre.

The 19th and 20th centuries saw expansion of large cities, which, seeking space for quickly developing industry and increasing population, absorbed the neighbouring agricultural areas and covered them with a dense network of technical infrastructure, which led scholars to change their approach to the theory of location. Developing the theory of central market, Sinclair [1967] formulated the so-called theory of reversed Thünen's rings, according to which production performance and production per unit of area grow with the distance from the urban centre. Changes in the distribution of agricultural production are mainly explained by the impact of urbanisation on the prices of agricultural land. According to this theory, urban agriculture and temporarily used land are located nearest the urban centre (large city), while the next rings are occupied by cereal and milk production, fruit cultivation and horticulture.

RESULTS AND DISCUSSION

The scale and structure of plant production is significantly impacted by environmental and climatic conditions. An increasingly important role in the selection of arable crops and production technology is played by economic and social factors, including, among other things, the amount of land, labour and capital, location relative to the markets, level of prices, legal regulations impacting the level of prices and costs, and possibility of benefiting from institutional rents, including production-related payments. The exact location of a farm has a significant impact on the level of income earned by the farmer and economic viability of his/her production.

The impacts of the above-listed factors shaping the structure of agricultural production overlap. The analyses showed that irrespective of a farm's location relative to the core of the metropolitan area, there was a clear increase in the average size of agricultural area, which indicates that the analysed groups of farms tend to increase their production capacity. A factor that significantly limits the development potential of commercial farms is the supply of land. The willingness to sell land is mainly reported by small-size farms resigning from agricultural production [Wojewodzic 2017]. Higher capacity of labour markets within metropolitan areas facilitates the abandonment of processes of agricultural production by farm owners. However, with a highly stable situation in terms of land management, i.e. an almost complete lack of transactions of land purchase and sale, especially in the southern part of Poland, one can surmise that it is usually the smallest and most remote plots that are subject to the abandonment of cultivation [Musiał and Płonka 2012].

In the analysed selection of commercial farms, it was found that an increase in the average size of agricultural land was higher in the 'outer zone of MA' (by 40.3%) than in the 'inner zone of MA' (by 8.6%). One cause may be the fact that in close proximity to cities and transportation routes, the land of agricultural farms that are closed down is captured for non-agricultural uses (residential and infrastructural), which is mainly determined by land prices. In the outer zones of metropolitan areas, there is less pressure towards changing the use of land, as the possibilities for using land that has been freed up for non-agricultural purposes are more limited, and so this land is usually taken over by agricultural farms. Outside of metropolitan areas, agriculture often constitutes the main sphere of economic activity. There is a relatively low demand for labour in non-agricultural sectors in these areas, which leads to a smaller number of farmers resigning from agricultural activity [Satoła et al. 2018]. Also, the average size of the analysed commercial farms was smaller than it was near cities (Table 1).

In the analysed period between 2004 and 2016, there were visible changes in the structure of sowings. All of the analysed groups of farms recorded a noticeable increase in the area covered by cultivation of cereals, but it was slower than the increase in the agricultural area, which resulted in a decline of this group of plants in the structure of sowings. At the same time, it was observed that the share of cereals

Table 1. Selected parameters of plant production in the analysed agricultural farms in 2004 and 2016

Specification		MA inner zone	MA outer zone	Outside of MA
Average area in a farm (ha)				
Total agricultural area	2004	38.4	29.8	27.0
	2016	41.7	41.8	32.9
Cereals	2004	26.9	19.4	17.3
	2016	27.2	24.7	18.6
Vegetables and flowers	2004	1.8	0.7	0.6
	2016	1.3	0.4	0.4
Permanent crops	2004	0.2	0.2	0.4
	2016	0.2	0.2	0.8
Legume crops	2004	2.1	5.3	4.9
	2016	1.4	8.5	6.6
Agricultural area excluded from production[a]	2004	0.1	0.1	0.2
	2016	0.3	0.7	0.4
Share of farms increasing (%)				
Agricultural area		56.5	71.3	59.6
Abandoned land		4.3	11.9	7.0
Fallow land		17.4	11.9	9.2
The area of the cultivation of vegetables and flowers		10.9	6.3	8.2
The area of permanent crops		4.3	4.2	8.5

[a] Sum of the area of abandoned land (SE072) and fallow land (SE073).

Source: authors' own survey on the basis of data of FADN.

in the structure of agricultural area decreased with the growing distance of farms from the centre of metropolitan areas. The simultaneous increase in the area of farms and decrease in the share of cereals in sowings suggest that intensification in the processes of production take place.

The average area of flower and vegetable cultivation in commercial farms classified to an inner zone of MA was almost three times bigger than in the case of entities located outside of metropolitan areas. However, both the area of crops and their share in the structure of sowings decreased significantly in all of the analysed groups of farms. In farms located outside of metropolitan areas, the area of permanent crops doubled, and the area of legume crops saw a significant increase. While in agricultural farms located in an inner zone of MA the share of legume crops in agricultural area was 3.4% in 2016 and showed a declining trend, in the other two study areas it exceeded 20% and slowly increased.

Changes in the size of farms specialising in plant production, as well as changes in their organisation, impact changes in the value of production generated by farms. All of the analysed groups of commercial farms recorded an increase in the value of production between 2004 and 2016. The biggest increase in total output was observed in farms located in external zones of metropolitan areas. However, it was to a large extent due to an increase in the area of exploited land. Plant cultivation clearly dominated in the structure of total output in the farms located in municipalities directly bordering the core of MA. In entities operating outside of metropolitan areas, the value of livestock production in 2016 was similar to that of plant production, with the value of plant production increasing faster (Table 2). The observed changes in the value of production show that livestock production is pushed from inner metropolitan areas to the areas further away from the central city, where the production can be carried out without protests from city residents.

The production structure of the commercial farms participating in the FADN system is indicated in a synthetic way by the 'type of farming', which reflects the level and direction of specialisation. The analysed population of farms specialising in crops was very diverse in terms of structure (Table 3). In the inner zone of metropolitan areas, there was a clear dominance of farms specialising in field cropping such as cereals, oil plants or legumes, among other things. In the outer zone of MA, just as outside of metropolitan areas, so-called mixed farms without a clear dominance of any type of activities constituted the biggest group. Particularly interesting from the perspective of these studies were changes in the structure of the analysed farms. The inner zone of MA saw further increase in the number of farms specialising in field cropping, and the number of farms engaged in horticulture also grew. This is a result of the following polarisation of production activity. Some people, who also have off-farm jobs, simplify crop rotation by increasing the share of plants requiring less labour. The other group intensifies the use of land. For instance, by developing horticulture, they strive to achieve higher productivity (and profitability) from unit area. This is particularly important in situations where it is impossible to increase the area of a farm.

An interesting subject of observation is the directions of the changes of farms in the different groups under study. Farms specialising in field cropping

Table 2. Value of agricultural production in the farms analysed (in fixed prices from 2016) in the period 2004–2016

Specification	Years	MA inner zone	MA outer zone	Outside of MA
		On average in PLN 1 000 / 1 ha of AA		
Plant production	2004–2006	4.5	3.0	3.3
	2014–2016	5.8	3.1	3.8
Production in total	2004–2006	5.8	6.6	7.0
	2014–2016	6.4	6.9	7.7

Source: Authors' own survey on the basis of data of FADN.

Table 3. Share of selected farming types in the different zones in 2004 and 2016

Specification (farming types)	Years	MA inner zone	MA outer zone	Outside of MA
		%		
Field cropping	2004	47.8	21.0	19.6
	2016	67.4	28.7	28.5
Horticulture	2004	4.3	0.0	2.9
	2016	8.7	0.7	3.9
Permanent crops	2004	2.2	1.4	3.6
	2016	0.0	2.1	4.6
Mixed	2004	32.6	42.7	43.6
	2016	17.4	33.6	32.1

Source: Authors' own survey on the basis of data of FADN.

Table 4. Changes in the farming type of the analysed farms between 2004 and 2016

Specification (farming type)	Metropolitan areas			Outside of metropolitan areas		
	2004	type changing	preferred directions in type of changes[a]	2004	type changing	preferred directions of type changes (TF8)[a]
	number of farms			number of farms		
Field cropping	52	7	dairy cows horticulture mixed	327	81	mixed permanent crops horticulture
Horticulture	2	0	–	49	8	field cropping mixed
Permanent crops	3	1	horticulture	60	9	field cropping horticulture dairy cows
Mixed	76	36	field cropping dairy cows granivores	726	364	field cropping dairy cows other grazing livestock

[a] Three most selected directions of changes arranged by prevalence.

Source: Authors' own survey on the basis of data of FADN.

changed production type relatively seldom (Table 4). In the metropolitan area, only 5.8% changed their profile to milk production, followed by horticulture and mixed production. Meanwhile, 12.8% of farms engaged in field cropping outside of metropolitan areas decided to convert the existing activity to mixed production, seeking opportunities in diversification of crops and kept groups of animals.

Analysis of the direction of changes in the other types of farms showed that these changes were very similar, which means that the location of farms relative to the core of the metropolitan area is less significant. The most common directions of change were an increase in the importance of field cropping, increase in milk production and diversification of activities (mixed types).

CONCLUSIONS

Also today, we can see variation in the scale and structure of production around regional centres of development. The analyses conducted in this paper confirm the phenomena known from economic theory. In the population of commercial farms operating in the inner zone of MA, there is a visible extension of agricultural production. The share of cereals in the structure of sowings remains at a high level, while both the number of herds and the scale of livestock production have become reduced, which is evidenced by a smaller share of livestock production in the total value of production. The outer zone of metropolitan areas recorded a relatively fast increase in the area of farms, which facilitated an increase in the area of cereal and fodder plant cultivation. The group of farms located outside of metropolitan areas was characterised by a relatively high share of permanent crops and increasing importance of livestock production. The changes observed in the structure of agricultural production show that livestock production is pushed from inner metropolitan areas to zones further away from the core of a metropolitan area.

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ZMIANY W SKALI I STRUKTURZE PRODUKCJI TOWAROWYCH GOSPODARSTWACH ROLNYCH NA OBSZARACH METROPOLITALNYCH POLSKI

STRESZCZENIE

Celem podjętych analiz była ocena zmian w zakresie organizacji i skali produkcji roślinnej gospodarstw towarowych zlokalizowanych w różnej odległości od rdzeni obszarów metropolitalnych. Analizą objęto łącznie 1854 gospodarstwa towarowe z województw pomorskiego, wielkopolskiego, mazowieckiego, lubelskiego, dolnośląskiego i małopolskiego, które nieprzerwanie prowadziły rachunkowość rolną w ramach systemu FADN w latach 2004–2016. W badanej populacji wyodrębniono podmioty prowadzące produkcję w różnych strefach funkcjonalnych obszarów metropolitalnych (OM). Przeprowadzone badania wykazały, że w populacji gospodarstw towarowych prowadzących swą działalność w wewnętrznej strefie OM następuje wzrost znaczenia upraw polowych oraz produkcji ogrodniczej a marginalizacji podlega produkcja zwierzęca.

Słowa kluczowe: obszar metropolitalny, teorie lokalizacji, gospodarstwo rolne, produkcja roślinna, Polska

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SUSTAINABLE CONSUMPTION IN CONSUMER BEHAVIOUR OF YOUNG POLISH SINGLES

Tomasz Zalega✉

University of Warsaw, Poland

ABSTRACT

This article is a research exercise and refers to the consequences of singlehood in the context of environmental consumer behaviour. It essentially seeks to provide some insight into sustainable consumption in consumer behaviour of young singles in Poland, based on the results of the author's own research. Following that research, the focus was on verifying whether young people living alone correctly understand sustainable consumption and to what extent they therefore implement its assumptions in their consumer behaviour. In addition, the relationship between lifestyle and environmental consumer behaviour of young singles was analysed, as was their knowledge of eco-labels placed on products. The basis for conclusions is provided by the research material collected in the survey conducted in a sample of 826 young singles.

Key words: single, young people, sustainable consumption, lifestyle, Poland

JEL codes: D120, D190

INTRODUCTION

Young singles form an important part of today's societies. They are specific market participants since – unlike family households – they feel their needs, perceive the world, understand the messages addressed to them differently, have different systems of values and exhibit different behaviours.

Progressive singlisation (making singles) of societies is no longer surprising. Patterns that were still sharply criticised, rejected, disapproved of until recently are now an expression of positively evaluated freedom. The sense of self-efficacy, the pursuit of emancipation and individualism make it necessary to search for alternative life paths in the name of the axiological and normative order considered to be right. Singlehood is becoming increasingly common. It is a sign of independence rather than a cause for shame, it offers the opportunity to build diverse relationships and acquaintances as opposed to a sole focus on the family [Ruszkiewicz 2008]. There is, therefore, a chance of choice contrasting with the old, uniform pattern. Changes in mentality, distance from the institution of family, cult of independence and the building of one's own social and professional position make up the socio-cultural landscape of the 21st century.

Contemporary expectations of society towards young people are in contradiction with the natural model requiring marriages and procreation. In the era of rampant consumerism, career, economic stabilisation and the comprehensive education that are the keys to success occupy prominent positions. Ideological and cultural changes manifesting independence require more and more commitment at the professional level. The reasons for the growing number of singles include progressive individualisation of society and weakened social control [Ruszkiewicz 2008]. The modification of purchasing patterns ensuing from these changes is

Tomasz Zalega https://orcid.org/0000-0002-7488-1184
✉tomasz.zalega@wp.pl

characteristic of young singles. Therefore, by taking active roles in the purchasing process, they are susceptible to new consumer trends including sustainable consumption. This consumer trend implies a new structure, new forms and methods of consumption but also the emergence of new needs and motives for their satisfaction.

The study consists of two parts: theoretical and empirical. The first part explains the notion of single, building upon a critical analysis of literature. In order to fully characterise people living alone, the most frequently mentioned definitional criteria used in the Polish and world literature are presented. The empirical section focuses on the research conceptualisation and a description of the research sample and its characteristics. Subsequently, based on the conducted research, an attempt is made to identify consumer behaviours of young Polish singles that can be classified as sustainable consumption. Finally, major conclusions end this study.

SINGLES AS A SOCIAL CATEGORY – THE CONCEPT AND SELECTED CATEGORIES

The etiology of the term ‘single’ could be explained in many ways depending on a specific context adopted by a representative of a given scientific discipline. It will be rationalised in a different manner by a sociologist, psychologist, economist or teacher. Given that literature indicates the difficulty in establishing unambiguous criteria defining this form of marital and family life as well as permanent characteristics of the category of people living alone, the definitions of singles are nominal and functional [Paprzycka 2008]. The group of people living alone is not homogeneous. Singles can be unmarried, widowed or divorced.

The first attempts to define it scientifically were made in the 1930s in the American literature [Hillis 1936]. The classic American definition of ‘single’ assumes that it is a person who is not married or in an informal heterosexual or homosexual relationship [Stein 1981]. In English, ‘single’ usually refers to all unmarried people, that is spinsters, bachelors, the divorced, widows and widowers [Stein 1976]. In addition, singlehood is defined as a specific lifestyle covering diet, way of spending free time and, above all, the worldview [Bauereiss and Bayer 1995]. German literature most commonly defines a single as a person who lives without a lasting, deep relationship in a single-person household, regardless of the voluntary or enforced nature of such a lifestyle [Deml 2009]. In Poland, in turn, given that the word ‘single’ has been imported, it has acquired cultural connotations and refers only to some people living alone. Living alone is not only considered as an alternative form of married and family life but as a thought-out and ultimate life project for a growing group of women and men. This subcategory is formed by inhabitants of large cities who are educated and earn wages guaranteeing economic independence and who are at an age enabling intense, both professional and social, activity and who most often (however, this is not a *sine qua non* condition) live in single-person households [Zalega 2019].

Polish literature contains numerous classifications of singles. Gajda [1987] distinguishes three groups: voluntary singles (old bachelors, spinsters, clerics), singles for reasons beyond their control (widows, widowers) and people who live alone again (divorced, abandoned, forsaken). According to Czernecka [2011], five groups of singles can be listed in Polish society, especially in large urban agglomerations: uncompromising, happy, accustomed, romantics and wounded. In the Anglo-Saxon literature, Austrom and Hanel [1985], following their research, proposed a basic division of singles into those satisfied with their status and enjoying life and those dissatisfied and looking for reasons for their status in personal deficits or situational disadvantages.

The diversity of singles makes researchers redefine them for their purposes in scientific research, referring to different variables (e.g.: age, marital status, economic independence). However, social sciences lack a uniform conceptual framework for singlehood. The adoption of legal, economic and lifestyle-related criteria describing the category of singles should be considered necessary, yet, as previously demonstrated, insufficient. In the paper, young singles are understood as adults aged from 18 to 34, living alone by choice (in a single-person household or a separate flat), having no parental responsibilities, being economically independent, most often having higher or secondary education, a large group of friends and acquaintances, and strongly focused on themselves. In addition, this study assumes that singles cannot remain in informal living apart together (LAT) or distant relationships and their possible romantic relationships cannot be lasting[1]. This definition thus excludes those who are in a permanent heterosexual or homosexual relationship and narrows the group of singles, allowing research uniformity.

THE CONCEPT AND ESSENCE OF SUSTAINABLE CONSUMPTION

The source materials suggest that the first working definition of sustainable consumption was coined in Norway in 1994 during the so-called Oslo Roundtable on Sustainable Production and Consumption organised by the Royal Norwegian Ministry of the Environment. According to the participants in that symposium, sustainable consumption can be defined as "the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations" [Royal Norwegian Ministry of Environment 1994, 1995]. It may thus be said that sustainable consumption is defined as a holistic approach that is aimed at minimising the environmental impact of social consumption and production systems and that involves individuals deliberately seeking to minimise adverse effects of consumption of consumer and investment goods and services through rationalisation and utilisation of production factors (resources) and reduction of generated post-production and post-consumption waste [Zalega 2018].

The definition of sustainable consumption formulated in Oslo was sharply criticised by many academic researchers and some politicians. The quoted definition does not explain clearly what should be understood by the "needs of future generations". Furthermore, no attempt was made to explain the essence of this statement at the UN Conference on Environment and Development held in Rio de Janeiro in 1992. In the second half of the 1990s, taking into account the shortcomings of the Oslo definition, many researchers dealing with broadly understood sustainable development began to suggest that sustainable consumption should be construed as the degree to which individual actions regarding choosing, acquiring, using and disposing of or prosuming goods support the creation or maintenance of exogenous conditions that enable all people to meet all their current and anticipated needs [Di Giulio et al. 2012, Di Giulio et al. 2014].

According to Spangenberg [2014], the concept of sustainable consumption encompasses all free consumer choices made within the available environmental space[2] which spans between the boundary of social sustainability and the boundary of environmental sustainability.

According to Moisander and Pesonen [2002], sustainable consumption is such where its form and volume define a set of consumers' environmental values and attitudes that lead to green awareness (or broader social awareness) and an environmentally (and socially) responsible process of making market decisions.

In practice, a distinction is made between the so-called weak and strong sustainable consumption [Seyfang 2011]. Weak sustainable consumption, also known as mainstream sustainable consumption, chiefly involves a reorientation of consumption towards its rationality and efficiency (especially the use of scarce resources) at various levels, in particular environmental, yet with a general increase in consumption. Furthermore, it is assumed that sustainable consumption will be achieved through improved energy efficiency of equipment and other technological solutions. On the other hand, strong sustainable consumption is based on the postulate of consumption reduction in general, requiring consumers to give up consumption at the current level for the benefit of future generations [Seyfang 2011]. Moreover, strong sustainable consumption assumes that in order for this to be achieved, significant changes must also occur in the levels and

[1] This definition of a 'young single' was presented to people participating in the survey before filling in the questionnaire.

[2] The environmental space was proposed by Opschoor in 2001 and then developed by Spangenberg. It defines the scope of consumer opportunities of market participants, with the upper limit imposed by the reproductive capacity of the environment and the lower limit imposed by the minimum quantity of resources needed for the proper functioning in a given society. More in Spangenberg [2002].

patterns of consumption. The concept of quality of life, good life, human non-economic activity is also of key importance [Lorek and Spangenberg 2014, Spangenberg 2014]. In the literature, the dominant view is that instruments and conditions for weak sustainable consumption can be developed in the longer term, yet strong sustainable consumption is merely a postulate [Tukker et al. 2010, Lorek and Fuchs 2013].

RESEARCH CONCEPTUALISATION

The tool used to conduct the research was the author's original questionnaire comprising 35 closed-ended questions regarding consumer behaviour of young Polish singles. The survey was carried out from 1 May to 30 July 2018. The difficulty lay in appropriate definition of the study subject because the category of 'young single' is not clearly specified in the literature. Scholarly publications refer to various age ranges for the group of young people living alone, for example 25–34 years [Tymicki 2001], 25–35 years [Żurek 2003], 26–38 years [Tulli 1978], 18–35 years [Shostak 1987, Hradil 1995, Kuklińska 2012], 18–34 years [Rosenmayr and Kolland 1997, Wrzesień 2003], 25–40 years [Lubelska 2006]. In this article, those between 18 and 34 years of age are considered to be the population of young singles. The upper age limit, that is 34 years, is regarded as the end of youth in 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 only persons aged 18–34, representatives of Generations Y and Z[3], who lived alone by choice and took independent purchase decisions in the market. The paper assumes that the subject of research covers all young singles, not only those who are sustainable. In order to select the sample, the selective quota sampling procedure was used. The characteristics (quotas) covered by the research were: gender and age[4]. It should be noted here that the key methodological problems in the study of sustainable behaviour of young singles result from non-random sampling and the chosen research technique: an online questionnaire. During data processing, information from respondents was eliminated if the questionnaires were incomplete or incorrect (15 instances). From among 841 initial questionnaires, 826 were considered eligible, representing 98.21% of the total sample. Further, they were coded, and the data set thus created was processed by a statistical package. For the statistical analysis of the data the statistical package SPSS version 23 was used.

Young singles 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 innovative 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

[3] Consumers representing Generation Y (people born between 1978 and 1994) and Generation Z (those born after 1994) primarily communicate through social media such as Facebook or Twitter, and their purchase decisions are determined by their peers' opinions posted on online forums. What is characteristic of this group is impulse buying and a large share of online transactions. Generation Y consumers excel at modern technologies and feel good in virtual communities. They expect diverse products, competitive prices, new experiences and pleasure, and products and services tailored to their individual needs and preferences. Generation Z, on the other hand, is the youngest group of consumers in the market, with such characteristics as: connected, computerised, always clicking, community-oriented, and content-centric. Compared to Generation Y, they use new technologies even more. More in: Cohen [2009] and Williams and Page [2011].

[4] Due to the nature of the chosen research technique, it was impossible to define the composition of the sample before measurement. In order to determine the representativeness of the sample, the information from the report *E-commerce in Poland 2018* was used [Gemius Polska 2018]. As the distribution of the sample approximately corresponds to the structure of the studied population, it was assumed that the sample could be considered representative in terms of gender.

dynamic changes in consumption and ever faster development of mobile technologies and applications.

The key objective of the research was to provide some insight into sustainable consumption in consumer behaviour of the surveyed young singles in Poland. The study focused on verifying whether young people living alone correctly understand sustainable consumption and to what extent they therefore implement its assumptions in their consumer behaviour. In addition, the relationship between lifestyle and environmental consumer behaviour of young singles was analysed, as was their knowledge of eco-labels placed on products. With this in mind, four research hypotheses were formulated:

- H1: Most young singles understand sustainable consumption as its weak form.
- H2: Sustainable consumer behaviour of young singles occurs with varying frequencies and is often undertaken for financial reasons.
- H3: The lifestyle of young singles is little correlated with environmental behaviour as part of sustainable consumption.
- H4: People living alone pay little attention to labels referring to ecology, the environment and fair trade.

SELECTION AND CHARACTERISTICS OF THE RESEARCH SAMPLE

Studying consumer behaviours is an extremely intricate process. This is due to the complexity of consumption and consumer purchasing behaviours in the field of consumer decision-making. Such research encompasses an important step to explain the phenomenon examined, namely adoption of specific indicators. This is essential because an indicator is used to define a certain characteristic of an object or phenomenon which is in such a relation with another

Table 1. The structure of respondents

Items	Number of respondents (N = 826)	Percentage share
Age		
18–23	320	38.7
24–29	245	29.7
30–34	261	31.6
Gender		
female	456	55.2
male	370	44.8
Education		
secondary	253	30.6
bachelor/engineer	337	40.8
master/doctor of philosophy	236	28.6
Monthly per capita income (PLN)		
less than 2 000.00	105	12.7
2 001.00–3 000.00	300	36.3
3 001.00–4 000.00	233	28.2
more than 4 000.00	188	22.8
Place of residence		
country	40	4.9
city of up to 20 000 inhabitants	55	6.6
city of 20 000–100 000 inhabitants	74	9.0
city of 101 000–200 000 inhabitants	100	12.1
city of 201 000–500 000 inhabitants	153	18.5
city of more than 500 000 inhabitants	404	48.9

Source: Author's research.

characteristic that indicates the occurrence of the latter when it occurs itself. An indicator is a measurable, i.e. empirically available, variable. When consumer behaviours are investigated, indicators explaining the complexity of this phenomenon include demographic (gender, age, place of residence) and socio-economic indicators (education, disposable income).

Eight hundred and twenty six people who regarded themselves as single took part in the survey, including 456 women and 370 men. All participants declared that they lived alone and were not in informal relationships such as LAT or distant relationships and all their romantic relationships were impermanent. Nearly half of respondents lived in cities of more than 500,000 inhabitants. Every third participant had completed secondary education, more than 2/5 of respondents held a bachelor's or engineering degree, and every third held a masters or doctor of philosophy degree. The average age of respondents was around 26 years. They were mostly students who combined studies with work. As regards monthly disposable income per capita, the largest group earned from 2,001.00 to 3,000.00 PLN. Every third respondent assessed their current financial situation as good, and every fifth as very good. It should be noted here that people born at the end of the 1980s and in the 1990s are well prepared to start living independently, are focused on achieving financial success and prestige, concentrate on the development of a professional career rather than family life. It is also important that representatives of the Y and Z Generations decide to get married on average between 25 and 30 years of age. In addition, the burden of anticipated financial costs is often the reason for delaying decisions about marriage or giving up the idea whatsoever.

IMPLEMENTATION OF SUSTAINABLE CONSUMPTION IN CONSUMER BEHAVIOUR OF THE YOUNG SINGLES SURVEYED

The research examined the attitudes of young singles consumers towards sustainable consumption. It essentially checked whether older people understand the concept and idea of sustainable consumption and whether their possible competences translate into practical behaviour. To this end, respondents were asked about their understanding of the term 'sustainable consumption' (Table 2).

In light of the survey results, it can be stated that over half of young singles understand sustainable consumption as its weak form. This answer was more often indicated by women (59.7%), mostly those aged 30–34 (53.1%), young singles with higher education (58.1%) and a monthly per capita income of above PLN 4,000.00 (55.4%), most frequently living in large urban agglomerations. In turn, every fourth young single surveyed understands sustainable consumption as its strong form. This answer was more often chosen by women (27.1%) than men (25.9%), by singles with secondary (27.3%) and bachelor's education (26.9%), a monthly income not exceeding PLN 4,000.00 per capita (26.8%), living in cities of 101,000–200,000 inhabitants. In light of the survey, it appeared that every fifth young single

Table 2. Sustainable consumption as understood by the young singles surveyed

Items	Number of respondents (N = 826)	Share (%)
Sustainable consumption means rational and efficient use of scarce resources at various levels, in particular environmental, yet with a general increase in consumption	444	53.8
Sustainable consumption means consumption involving its reduction in general, requiring consumers to give up consumption at the current level for the benefit of future generations	219	26.5
Sustainable consumption means making, as far as possible, sociologically and environmentally responsible consumer choices based on information on products and services, including practices used by their providers, production process and recycling possibilities	163	19.7

Source: Author's research.

misunderstands sustainable consumption, identifying it with conscious consumption also known as ethical consumption or responsible consumption in Anglo-Saxon countries. This answer was mainly indicated by men (20.1%) and the youngest respondents (21.2%), those earning a monthly disposable income of PLN 2,001.00–3,000.00 per capita, secondary education graduates (20.9%), and mostly those living in cities of up to 20,000 inhabitants (21.1%) and in rural areas (20.4%). It should be made clear that the terms sustainable consumption and conscious (ethical) consumption carry different systems of meanings. While sustainable consumption involves environmental discourse, conscious consumption refers to individualistic and moral discourses [Zalega 2018]. However, the relatively poor knowledge of the term 'sustainable consumption' and its identification with conscious consumption does not negatively affect respondents' attitudes towards key assumptions and principles of sustainable consumption.

Another issue was whether young singles consumers follow the assumptions of sustainable consumption in their consumer behaviour (Table 3). The survey shows that young singles implement the idea of fully sustainable consumption to a small extent. Only every fifth single acts fully in line with its postulates when making consumer decisions. On the other hand, 2/5 of respondents answered in the negative. Every tenth young single found it difficult to say whether their consumer behaviour was consistent with the assumptions of sustainable consumption. This share of indecisive respondents can be explained by their misunderstanding of sustainable consumption.

Another point was to examine to what extent sustainable behaviours of young consumers are linked with their lifestyle and environmental attitudes. In order to investigate the issues related to the lifestyle of young singles, five statements were used. The reliability of the scale (reproducibility of the measurement results) was analysed by employing a technique of measuring its homogeneity, estimating internal compatibility on the basis of the determined Cronbach's α coefficients (Table 4). The analysis of the main components of

Table 3. Subjective perceptions of the singles surveyed on whether they put sustainable consumption into practice

Statements	Number of respondents ($N = 826$)	Share (%)
My consumption is fully sustainable	162	19.6
My consumption is slightly sustainable	258	31.2
I cannot say whether my consumption is sustainable	83	10.1
My consumption is not sustainable	323	39.1

Source: Author's research.

Table 4. Main components of the lifestyle of young singles

Statements	Partial loads
I lead a healthy lifestyle	0.833
I take care of my shape	0.896
I try to be physically active	0.899
I am satisfied with my lifestyle	0.796
I try to establish and maintain contacts with closest relatives, friends and acquaintances	0.711
Cronbach's α	0.827

Source: Author's research.

partial loads of five variables concentrated around one factor allowed for estimating Cronbach's α coefficient at 0.827, which proves high reliability of the scale.

Young singles' environmental behaviour as part of sustainable consumption was measured by means of 21 statements (Table 5). Before making any decision, in particular before buying products, young singles respondents who display consumer behaviours in line with sustainable development assess whether their purchase is actually necessary or whether it is solely intended to raise their own material status. Over 77% of them declare that they buy carefully – just as much as they need at a given moment, which reduces the risk of wastage. In the decision-making process, almost 66% of them gather product information confirmed by other consumers. Such behaviours should probably be assessed positively since they reduce the risk of buying a wrong product that is not in line with expectations. Less than half of young singles say that they are more likely to buy an eco-friendly product that has eco-labelling. Nonetheless, research into fair trade [Radziukiewicz 2015] clearly confirms that this outcome should be regarded as a wish to present oneself as a more modern and responsible consumer whose consumer decisions are consistent with sustainable consumption rather than actual behaviour.

Table 5. Environmental behaviour of the young singles surveyed as part of sustainable consumption (% of answers)

No	Statements	Whenever possible	From time to time	Never
1	I buy carefully, only as much as needed at the moment	43.2	34.5	22.3
2	Before I buy a product, I gather product information confirmed by other consumers	19.3	46.0	34.7
3	Before I buy a product, I always check its expiry date	70.2	22.3	7.5
4	Before I buy a product, I check if it is biodegradable (recyclable)	8.9	54.8	36.3
5	I use reusable bags	61.3	29.8	8.9
6	I choose products in green, minimised packaging	14.8	41.6	43.6
7	I avoid purchasing disposable items (plates, cups, cutlery, plastic bags)	32.6	28.0	39.4
8	I regularly sort waste	60.3	31.0	11.7
9	I use water sparingly	59.1	32.3	8.6
8	I throw out used batteries into special containers	50.4	36.3	13.3
11	I replace light bulbs with energy-saving ones	58.3	32.1	9.6
12	I limit gas consumption	54.6	35.0	10.4
13	I buy energy-efficient equipment	31.2	49.0	19.8
14	I use electricity sparingly	67.3	24.7	8.0
15	I collect waste separately	21.3	37.8	40.9
16	I return glass bottles to collection points	17.6	23.2	59.2
17	I buy drinks in recyclable packaging	20.3	29.3	50.4
18	I pay attention to eco-labels	23.2	34.9	41.9
19	I reduce car use for public transport or bicycle	37.3	22.9	39.8
20	I do not leave electronic devices in the standby mode for longer	29.1	24.4	46.5
21	I sort drugs and throw out expired drugs into special containers	17.2	21.6	61.2

Source: Author's research.

It was noted that respondents displayed ambivalent attitudes towards the principles of sustainable consumption. For example, on the one hand, they declare that they save energy (92.0%), and on the other, they often leave electronic devices in the standby mode for longer (46.5%); on the one hand, they sort waste, wishing to protect the environment (91.3%), and on the other, they hardly ever sort drugs and throw out expired drugs into special containers (38.8%).

Sustainable consumer behaviour of young singles is determined by demographic and social characteristics. In the light of the obtained results, the key statistically significant determinants of environmental behaviours include age (χ^2 = 29.83 at the significance level of 0.001), education (χ^2 = 24.74 at the significance level of 0.001) and monthly disposable income (χ^2 = 19.32 at the significance level of 0.003).

The next stage of the research was an attempt to define the strength of relationship between environmental behaviour of young singles and their lifestyle. Table 6 shows the calculated correlation coefficients. Linear, statistically significant, relatively weak correlations were found between young singles' lifestyle and consumer behaviour that can be classified as sustainable

Table 6. Coefficients of correlations between variables regarding environmental behaviour of young singles and their lifestyle

Statements	Lifestyle of young singles
I buy carefully, only as much as needed at the moment	0.269
Before I buy a product, I gather product information confirmed by other consumers	0.197
Before I buy a product, I always check its expiry date	0.313
Before I buy a product, I check if it is biodegradable (recyclable)	0.142
I use reusable bags	0.411
I choose products in green, minimised packaging	0.398
I avoid purchasing disposable items (plates, cups, cutlery, plastic bags)	0.118
I regularly sort waste	0.397
I use water sparingly	0.265
I throw out used batteries into special containers	0.189
I replace light bulbs with energy-saving ones	0.253
I limit gas consumption	0.321
I buy energy-efficient equipment	0.267
I use electricity sparingly	0.324
I collect waste separately	0.272
I return glass bottles to collection points	0.136
I buy drinks in recyclable packaging	0.104
I pay attention to eco-labels	0.248
I reduce car use for public transport or bicycle	0.159
I do not leave electronic devices in the standby mode for longer	0.101
I sort drugs and throw out expired drugs into special containers	0.116

All values are significant at the level $p \leq 0.05$.

Source: Author's research.

consumption. The survey reveals that lifestyle influences everyday environmental behaviour of singles to various degrees. An average-strength relationship occurs between lifestyle and using reusable bags, regular waste sorting, checking the expiry date of the product before buying it, choosing products in green packaging, and saving gas and electricity. A weak relationship can be observed between lifestyle and careful shopping, economical use of water, replacement of light bulbs with energy-saving ones, selective waste collection, and paying attention to eco-labels. In other cases, the correlation coefficients showed a very weak relationship.

An eco-label on the product increased the confidence in the product in the case of more than half of the young singles surveyed. Even if not known to them, an eco-label on product packaging affects their sense of security and increases their confidence, indicates that the product has been checked and assessed, hence it may be perceived more positively than a product that does not have a label. More than 2/5 of young singles respondents claimed that when they saw various symbols and certificates placed on products, especially food, even if they did not have enough knowledge about their meaning, the mere presence of any label – including eco-labels – evoked their positive feelings.

In the context of the survey, it can be concluded that only one in three singles pays attention to labels referring to ecology, the environment and fair trade[5]. Every fifth respondent admitted that they did not pay any attention to eco-labels on packaging while shopping. Among ten labels that can be found on different products (Recycling, Eko, Organic farming, Ozone-friendly, Blue Angel, Energy star, FSC, Daisy, Fairtrade and MSC), respondents mostly recognise the following logos: Recycling (59.3%), Organic farming (43.1%), Energy star (39.6%), Eko (27.4%) and Fairtrade (25.2%). The least recognisable certificates are: FSC (4.9%), or Forest Stewardship Council, guaranteeing responsible management of forest resources, and MSC (3.7%), or Marine Stewardship Council, confirming that a given fish product comes from sustainable fisheries.

Women aged 24–29 with higher education, earning a monthly per capita income of above PLN 4,000.00, living in a city of more than 500,000 inhabitants, pay more attention to eco-labels than their male counterparts. In contrast, eco-certificates on various types of packaging are least often recognised by singles aged 18–23, mostly male graduates of secondary schools, from the PLN 2,001.00–3,000.00 income group, living in a city of up to 20,000 inhabitants.

To conclude, it can be unequivocally stated that all the research hypotheses adopted in the paper have been positively verified.

Taking into account the presented survey results, some limitations resulting from a small research sample should be borne in mind. Thus, the conclusions should not be treated as representative of the population of young Polish singles. They only provide some insight into actual consumer behaviours of young people as part of sustainable consumption. Despite the indicated limitations, the obtained results allowed for partially filling the gap ensuing from the lack of primary research on sustainable behaviour of young Polish singles.

This publication should contribute to a broader discussion and exchange of views on sustainable consumption, thereby encouraging other Polish scholars and researchers from various scientific and research centres to carry out extensive research in this area.

CONCLUSIONS

The majority of young singles reported the discussed environmental behaviours that are consistent with the sustainable consumption idea, albeit to varying degrees and with varying frequencies. These are most often household-related activities including waste sorting, economical consumption of water, electricity and gas, and the use of reusable bags. Consumer behaviour that can be classified as sustainable consumption is influenced by the lifestyle of young singles, yet the impact of this variable is small.

[5] The labels were chosen on the basis of their significance and the frequency of occurrence on the packaging of products available in the market.

The increased scope of young singles' behaviours and actions for environmental protection should be assessed positively. At the same time, it is worth noting that these behaviours often result from economic rather than environmental motives.

Subjective perception of sustainable consumption by respondents is significantly differentiated – strongly correlated factors are: gender, education, place of residence and perceived financial situation. The survey shows that the proportion of singles who declared that they acted in line with the idea of sustainable consumption was much higher among women than men as well as among university graduates and those earning a monthly per capita income of more than PLN 4,000.00, mostly inhabitants of cities of more than 500,000 inhabitants.

The results of the survey have confirmed that young consumers have poor knowledge of labels referring to ecology, the environment and fair trade, showing that the sample surveyed is characterised by low awareness of eco-labelling, that is the idea of placing green labels on products that are least harmful to the environment.

The results indicate the need to intensify the education of young people that has been provided in Poland for years, education that should foster the development of their more sustainable environmental attitudes and consumer behaviours consistent with such attitudes. This is because environmental attitudes manifest themselves as a positive affect towards ecology, knowledge and beliefs (an element of the so-called environmental awareness) and as declared and actual environmental behaviour.

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STRESZCZENIE

Artykuł ma charakter badawczy i dotyczy uchwycenia konsekwencji zjawiska singlizacji społeczeństwa w kontekście proekologicznych zachowań konsumenckich. Jego podstawowym celem jest uchwycenie zrównoważonej konsumpcji w tych zachowaniach młodych singli żyjących w Polsce. Na podstawie badań własnych skoncentrowano się na sprawdzeniu, czy młode osoby żyjące w pojedynkę prawidłowo pojmują zrównoważoną konsumpcję, i w związku z tym, w jakim stopniu realizują jej założenia w swoim życiu. Przeanalizowano także zależność między stylem życia a proekologicznym postępowaniem młodych singli-konsumentów oraz zbadano ich znajomość znaków ekologicznych umieszczanych na produktach. Podstawę wnioskowania stanowi materiał badawczy pozyskany dzięki przeprowadzonym przez autora badaniom na próbie 826 młodych osób żyjących w pojedynkę.

Słowa kluczowe: singiel, osoby młode, zrównoważona konsumpcja, styl życia, Polska

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SOCIO-ECONOMIC FEATURES OF RURAL HOUSEHOLDS IN CENTRAL POMERANIA AND THEIR PROFITABILITY – PILOT STUDY RESULTS

Danuta Zawadzka✉, Agnieszka Strzelecka

Koszalin University of Technology, Poland

ABSTRACT

The aim of the research is to identify the socio-economic features of rural households affecting the probability of obtaining a higher average monthly net income per person based on 100 entities in Central Pomerania, on the basis of pilot studies (direct questionnaire technique) using a logistic regression model. The dependent variable was the probability that the surveyed rural household would receive an average monthly net income per person above the median level for the studied sample. The selection of independent variables was made on the basis of literature studies. The results of the analyses confirmed that the following characteristics had a statistically significant impact on the tested probability: age, education of the head of the household and professional activity of household members. These parameters increase the probability of obtaining a higher average monthly net income per person in rural households of Central Pomerania.

Key words: income, rural household, logistic regression, Central Pomerania, Poland

JEL codes: D1, D10, D14, D31

INTRODUCTION

The amount of income in rural and urban households is varied. It depends on external (market) factors independent of these entities, as well as from the development phase cycle these households are in and their characteristics. A rural household is a farm run and maintained by people living in rural areas. In Poland, the rural residents constitute about 40% [GUS 2019a] of the population. The average disposable income per person in households in Poland in 2018 amounted to 1,693.46 PLN [GUS 2019b]. Among rural households, we distinguish those whose main source of income is farm income. The results of research presented in the literature prove that these entities are characterized by the lowest (next to pensioners) level of average monthly income per person [Gasińska 2016, Grzelak 2016, Urban 2016]. In 2017, the average disposable income per person in households from rural areas amounted to 1,359.22 PLN and was 22.4% lower than the average value set for urban households [GUS 2018]. Thus, a question arises about the socio-economic features of rural households that favour a higher income.

The aim of the research is to identify the socio-economic characteristics of rural households affecting the probability of obtaining a higher average monthly net income per person on the example of entities in Central Pomerania, based on completed pilot studies.

Danuta Zawadzka https://orcid.org/0000-0001-9353-5941; Agnieszka Strzelecka https://orcid.org/0000-0003-4803-0092
✉danuta.zawadzka@tu.koszalin.pl

THEORETICAL FOUNDATIONS

The income situation of households varies depending on where they are situated. Income increases proportionally to the increase in size of the place of residence. This is due to the specificity of the labour market, under which the highest-paid jobs are in the largest cities [Kozera et al. 2014]. Income from hired work and self-employment is higher in the urban labor market as compared to incomes that can be obtained in rural areas [Chmielewska 2013, Łącka 2017]. The possibilities of increasing the profitability of agricultural production are limited, so rural households can obtain additional resources for development primarily through the employment of their members outside agriculture. However, the rural population, due to worse education than city dwellers and less developed infrastructure of rural areas, encounters considerable difficulties in obtaining non-agricultural jobs. In addition, this population is characterized by a significant diversification of professional status, resulting primarily from relationships between rural residents and individual farming [Kołodziejczak 2008].

Production activity in agriculture is not sufficient to provide a decent income to all inhabitants of rural areas, and especially to owners of small farms. In rural areas, there is a surplus of labour force in agriculture and a lack of jobs for the landless population. In recent years, thanks to the increase or change in qualifications, workplace change, economic migration to other parts of the country or abroad, or seasonal earnings, there is a noticeable process of growing employment of rural residents outside their own farm [Leśniak-Moczuk 2008]. There is a shift away from running family farms, moving from multi-generational to two-generation families and changing the forms and motivations for economic activity of the population.

The modernization of rural areas has influenced the lifestyle of their inhabitants. There has been a decline in the importance of agriculture in the rural economy [Kozera et al. 2014]. Łącka [2017] proved that the increase in disposable income per person in rural households made it possible to increase expenditures for satisfying higher-order needs. Thus, expenses for leisure and cultural goods and services, and the use of hotels and restaurants, increased as well. Expenditure for these purposes was lower than in the case of urban households, but their increase indicates a boost in the well-being of inhabitants of rural areas and a decrease in the distance that separated them from residents of urban households in this respect. Differences in incomes between rural and urban households also result from a larger number of people making up the households in the country than the city. This affects the level of income per person. Income inequalities are conditioned by many factors. Among them, we distinguish internal (individual) and external. The former are associated with the characteristics of the individual, their gender, age, education, professional affiliation, health status. External factors include, among other things, place of residence, membership in a socio-economic group and state policy in the field of levelling income inequalities with budget transfers [Łącka 2017].

RESEARCH MATERIALS AND METHODOLOGY

The study covered rural households in the Central Pomerania area. The source of empirical data was the results of a pilot study conducted in May 2019 on a group of 120 rural households (direct questionnaire technique). One hundred correctly filled questionnaires were obtained (83.33% response rate). Respondents were asked to provide information for 2018. In selected questions, the time range of the study covered the years 2004–2018. The research was carried out as part of the project entitled *Financial aspects of the functioning of Central Pomerania's households*. Empirical verification of factors affecting the income of surveyed rural households in the region of Central Pomerania was carried out using a logistic regression model. As the dependent variable, the probability of the average monthly net income per person exceeding the level of 1,500 PLN was assumed. This is the upper range boundary where the median income determined for the surveyed group of rural households is situated, which in 2018 amounted to 1,416.83 PLN. The dependent variable takes two possible values: 0 – lack of a given feature (55 indications), 1 – possession of a given feature (45 indications).

The selection of independent variables to build a logistic regression model was made on the basis of literature studies. Six independent variables related to

Table 1. Hypothetical influence of independent variables adopted in the model of socio-economic factors determining the probability of obtaining higher than average monthly net income per person in the examined rural households of Central Pomerania

	Variables included in the analysis	Predicted variable impact
Y	A dummy variable, defining whether the household in 2018 was characterized by an average net income per capita exceeding 1,500 PLN. If yes, the variable takes the value = 1, otherwise it takes the value = 0	
x_1	A dummy variable that determines whether a household receives income from its agricultural holding. If yes, the variable takes the value = 1, otherwise it takes the value = 0	–
x_2	A dummy variable that determines whether a household has more than one type of income source. If yes, the variable takes the value = 1, otherwise it takes the value = 0	+
x_3	Variable defining the age of the head of the household (years)	+
x_4	Variable defining the education of the head of the household	+
x_5	Variable defining the share of household members who perform paid work in the total number of household members (%)	+
x_6	Variable defining the share of dependent children in the total number of household members (%)	–

1 – at most elementary, 2 – elementary and finished vocational course, 3 – basic vocational, 4 – incomplete secondary, 5 – secondary, 6 – post-secondary, 7 – higher

Source: Authors' own study.

household socio-economic features were adopted to assess the probability under study. Table 1 presents the characteristics and hypothetical impact of the distinguished factors on the probability of obtaining a higher than average monthly net income per person in the examined rural households of Central Pomerania.

Among the independent variables, a variable was adopted determining whether the household receives income from its agricultural holding (x_1). The results of research presented in the literature prove that households of farmers in Poland are characterized by the lowest level of average monthly income per person. In addition, agricultural income is characterized by seasonality and variability in time, so it is possible to assume uncertainty as to its amount, which is influenced by many factors[1]. Therefore, the negative impact of the analysed variable on the probability was assumed. The study also included a variable determining whether the household has more than one type of income source (x_2). This may include, among other things: income earned from hired work, income from a farm, income from activities (other than agricultural), income from pensions or income from property, and any other source of income alternative to the basic source of farm household. The positive influence of the discussed factor on the probability of obtaining a higher income per person in the household was assumed.

The next adopted variable is the age of the household head (x_3). Based on results of research presented in the literature [Wałęga 2012], a positive impact of this factor on the dependent variable was assumed. Variables also include the education of the household head (x_4). It was assumed that a higher level of education has a positive impact on the possibility of obtaining a higher level of net income per person by surveyed rural households [Tuyen 2015]. Subsequently, the variable characterizing the professional activity of household members, expressed as the share of household members who perform paid work in the total number of household members (x_5) was taken into account. Due to the construction of this variable, its higher value indicates higher professional activity of

[1] More on the factors determining the amount of income from an agricultural holding [Sadeghi et al. 2001, Safa 2005, Kalabisová and Křístková 2007, Beckman and Schimmelpfennig 2015, Boháčiková et al. 2017, Balarabe et al. 2018].

household members, which has a positive impact on the total income of the household in a given period and on a higher level of income per person. Among the variables referring to the size and composition of the household, the share of dependent children in the total number of household members (x_6) was also taken into account. The higher the number of dependent children, the lower the income per person in the household. Therefore, a negative influence of this variable on the examined phenomenon was assumed.

In order to find the best combination of factors significantly affecting the probability of obtaining a higher average monthly net income per person in the examined rural households of Central Pomerania, the method of backwards elimination was applied. Evaluation of the degree of fit of the logistic regression model to the empirical data was carried out using the statistics of Cox–Snell R^2, Nagelkerke's R^2 and count R^2. Verification of the significance of individual model parameters was made using z^2 Wald test. To assess the goodness of fit of the obtained model, the area under curve value (*AUC*) was used. The quality of the logistic regression model was also evaluated using the receiver operating characteristic curves (ROC).

CHARACTERISTICS OF THE STUDIED POPULATION

For the majority of rural households surveyed (55%), the basic source of income was income earned from paid work (Table 2). In turn, 19% of the analysed entities indicated self-conducted non-agricultural business activity as the most important source of income in the household. The surplus obtained from the farm was the main source of subsistence for 14% of the surveyed units. The obtained results also show that 28% of entities included in the study were characterized in 2018 by an average monthly net income per person in a household not exceeding 1,000 PLN (of which 3% of units achieved income lower than 500 PLN per person). For 30% of surveyed rural households, the amount in the income category in question was higher than 2,000 PLN.

Descriptive statistics of variables accepted into the model, on the basis of which further characteristics of the analysed entities were made, are presented in Table 3.

Running a farm and earning income from it was declared by 23% of households included in the survey. It was also found that 58% of entities obtained income

Table 2. Structure of surveyed rural households of Central Pomerania according to the obtained income

Specification	Share of households (%)
The main source of income	
paid work	55
conducting non-agricultural business activity	19
income from the farm	14
retirement pension	11
pension	1
social benefits or other sources	0
The average monthly net income per person in a household	
below 500 PLN	3
501–1 000 PLN	25
1 001–1 500 PLN	27
1 501–2 000 PLN	15
over 2 000 PLN	30

Source: Authors' own study.

Table 3. Descriptive statistics of independent variables adopted for the model

Continuous variable	Average		Median		Minimum		Maximum		Standard deviation
x_3	47.58		47.00		22.00		84.00		13.61
x_5	52.60		50.00		0.00		100.00		27.32
x_6	31.05		33.33		0.00		75.00		22.59
		Number of farms in which the head of the household had the following education							
Discrete variable	Average	at most elementary	elementary and finished vocational course	basic vocational	incomplete secondary	secondary	post-secondary	higher	
x_4	5.33	8	2	35	4	25	7	19	
Dichotomous variable	Average			Occurrences 1			Occurrences 2		
x_1	0.23			23			77		
x_2	0.58			58			42		

Source: Authors' own study.

from more than one type of source. The average age of the household head was 47.58 years. The largest group among the entities in question were those whose household head had basic vocational education (35%). 19% of respondents declared having a higher education by the head of the household. The average value of the share of employed persons in the total number of household members was 52.60%, while the average share of children dependent on households was 31.05%.

RESULTS AND DISCUSSION

Based on the adopted research assumptions, all of the independent variables were considered in the initial model of the probability of obtaining a higher average monthly net income per person in the surveyed rural households of Central Pomerania. Table 4 presents the results of these estimations.

Using the backwards elimination method, based on the Akaike information criterion (*AIC*), predictors were eliminated from the initial model one by one and the evaluation of change in the values of the criteria adopted for the assessment of the model quality was made. In the end, three independent variables were eliminated: obtaining income from an agricultural holding (x_1), having more than one type of income (x_2) and the share of dependent children (x_6). The impact of the eliminated variables on the tested probability was not statistically significant. In each stage, an improvement in the accepted measure of fit was observed (reduction of the *AIC* value). Three predictors remained in the final model (Table 5).

The estimated final model of the probability of obtaining higher average net income per person in surveyed agricultural households in Central Pomerania has the following form:

$$\text{prob}(Y = 1) = \Lambda(0.047x_3 + 0.287x_4 + 0.037x_5 - 5.959)$$

where $\Lambda(x) = \frac{e^x}{1+e^x}$ – distribution function of logistic distribution.

The significance of the model was assessed based on the likelihood ratio test. The model is significant at the 1% significance level (the LR-statistics value is 20.78, the critical value of this statistic for three degrees of freedom is 11.34). 70% of cases were correctly classified on the basis of the model (count

Table 4. Results of the estimation of model parameters – initial model

Specification	Variable parameter	Standard error	z^2 Wald test	Significance level	Odds ratio
x_1 (income from agricultural household)	–0.530	0.564	0.884	0.347	0.588
x_2 (more than one source of income)	0.018	0.505	0.001	0.971	1.019
x_3 (age of the household head)	**0.055**	**0.024**	**5.145**	**0.023**	**1.056**
x_4 (education of the household head)	**0.302**	**0.151**	**4.022**	**0.045**	**1.353**
x_5 (share of household members who perform paid work in the total number of household members)	**0.041**	**0.012**	**11.015**	**0.001**	**1.041**
x_6 (share of dependent children in the total number of household members)	0.007	0.012	0.324	0.569	1.007
Intercept	–6.696	2.239	8.945	0.003	0.001

AIC = 129.65; Cox–Snell R^2 = 0.1973; Nagelker's R^2 = 0.2639; count R^2 = 0.72; *AUC* = 0.743; *LR* = 21.98 (*df* = 6, *p* = 0.001).
Variables statistically significant at the significance level of 5% are marked in bold.

Source: Authors' own study.

Table 5. Results of the estimation of model parameters – final model

Specification	Variable parameter	Standard error	z^2 Wald test	Significance level	Odds ratio
x_3 (age of the household head)	0.047	0.022	4.804	0.028	1.048
x_4 (education of the household head)	0.287	0.146	3.853	0.050	1.332
x_5 (share of household members who perform paid work in the total number of household members)	0.037	0.010	12.519	< 0.001	1.038
Intercept	–5.959	1.840	10.482	0.001	0.003

AIC = 124.85; Cox–Snell R^2 = 0.1876; Nagelkerke's R^2 = 0.2510; count R^2 = 0.70; *AUC* = 0.738; *LR* = 20.78 (*df* = 3, *p* = 0.0001).

Source: Authors' own study.

R^2 = 0.70). The quality assessment of the constructed model was based on the Cox–Snell R^2 coefficient (0.2507), Nagelkerke's R^2 (0.2813) and using the ROC curve, which is shown in the figure (p. 107).

The area under ROC curve is 0.738. Because a field larger than 0.5 was obtained, this indicates a good quality of the constructed model. The study showed that three independent variables had a statistically significant positive influence on the tested probability: age (x_3) and education (x_4) of the head of the household, as well as a variable related to the professional activity of household members (x_5). The results of estimation of the final model parameters showed that in the surveyed population, with increasing age of the household head (x_3, *ceteris paribus*), the chance of reaching an average monthly net income per person exceeding the level of 1,500 PLN increases by 4.8%. It was also found that along with the level of education of the household head (x_4, *ceteris paribus*), the probability of obtaining a higher level of the income category in question increases as well. Each higher education level of the household head (transition to the next educational level) contributes to the increase of the chance (by 33.2%) to obtain an average monthly net income

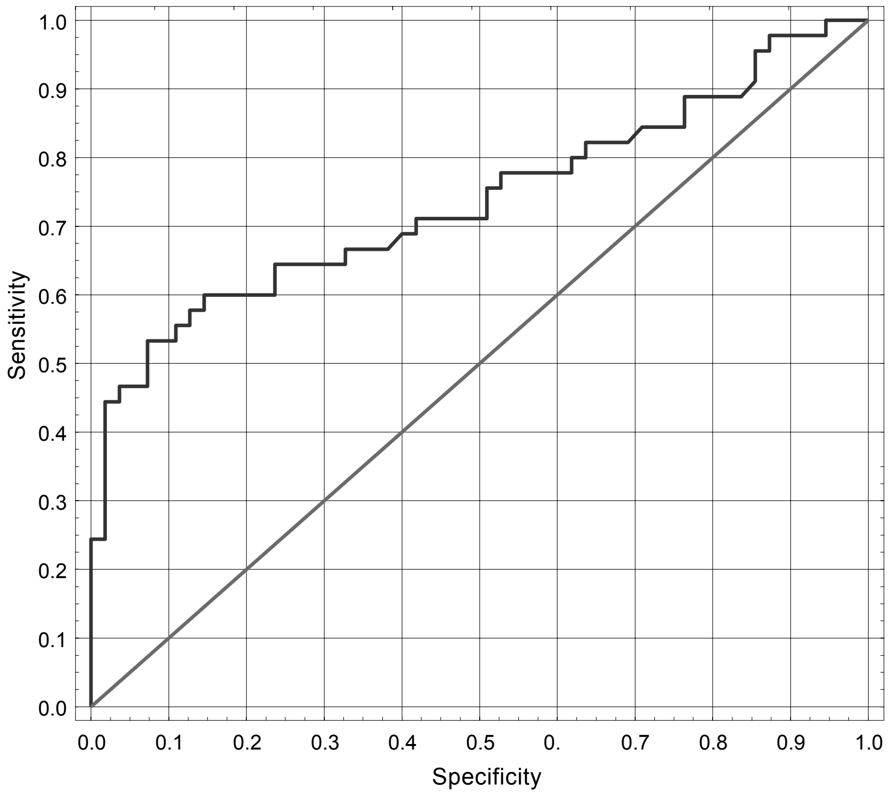

Fig. Receiver operating characteristic curve for the model of probability of obtaining average net monthly income higher than 1,500 PLN per capita in surveyed agricultural households in Central Pomerania

Source: Authors' own study.

per person exceeding 1,500 PLN. The parameters of the constructed model also indicate that a theoretical increase by a unit of the share of household members who perform paid work in the total number of household members (x_5, *ceteris paribus*) will increase the chance of obtaining income exceeding the set level by 3.8%. The direction of influence of these variables on the probability tested is consistent with the assumptions adopted in the model (see Table 1).

SUMMARY

Rural households are characterized by a lower average net income per person than households from urban areas. The aim of the research was to determine the socio-economic features of households in rural areas conducive to increasing the probability of obtaining a higher income per capita from the value of the median for the selected group of entities from Central Pomerania area – on the basis of pilot studies (direct questionnaire technique) using a logistic regression model. The analysis included six diagnostic variables characterizing the socio-economic features of rural households from the Central Pomerania area in 2018 (the selection of independent variables was made on the basis of literature studies).

In the course of research, it was established that among the identified features which could influence the level of income, statistical significance was demonstrated by three variables: age, education of the head of the household and professional activity of members of the household. These parameters increase the probability of obtaining a higher average monthly net income per person in the surveyed rural households of Central Pomerania. The first two features refer to the knowledge, skills and competences acquired as a result of formal education and professional experience. The impact of estimated parameters on variables indicates that the market values these features in the form of higher remuneration. The last of these parameters determines the number of professionally active people in a rural household. It affects the increase of income, and hence its higher value per one person. The obtained results confirm the need to strive for a rural development policy which would be aimed at employment support of as many people living in the Polish countryside as possible.

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CECHY SPOŁECZNO-EKONOMICZNE WIEJSKICH GOSPODARSTW DOMOWYCH POMORZA ŚRODKOWEGO A ICH DOCHODOWOŚĆ – WYNIKI BADANIA PILOTAŻOWEGO

STRESZCZENIE

Celem badań jest identyfikacja cech społeczno-ekonomicznych wiejskich gospodarstw domowych, wpływających na prawdopodobieństwo uzyskania wyższego przeciętnego miesięcznego dochodu netto per capita na przykładzie 100 podmiotów na terenie Pomorza Środkowego, na podstawie wyników przeprowadzonego badania pilotażowe (technika ankiety bezpośredniej) z zastosowaniem modelu regresji logistycznej. Za zmienną objaśnianą przyjęto prawdopodobieństwo osiągnięcia przez badane wiejskie gospodarstwo domowe przeciętnego miesięcznego dochodu netto per capita przekraczającego poziom mediany dla badanej próby. Doboru zmiennych niezależnych (objaśniających) dokonano na podstawie przeprowadzonych studiów literaturowych. Wyniki analiz potwierdziły, iż statystycznie istotny wpływ na badane prawdopodobieństwo miały następujące cechy: wiek, wykształcenie głowy gospodarstwa domowego oraz aktywność zawodowa członków gospodarstwa domowego. Parametry te zwiększają prawdopodobieństwo uzyskania wyższego przeciętnego miesięcznego dochodu netto per capita w wiejskich gospodarstwach domowych Pomorza Środkowego.

Słowa kluczowe: dochód, wiejskie gospodarstwo domowe, regresja logistyczna, Pomorze Środkowe, Polska

CONTENTS
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