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ORIGINAL PAPER

THE NATIONAL IDENTITY OF THE YOUTH OF MŁAWA AND ASSESSMENT OF POLAND'S PARTICIPATION IN EUROPEAN INTEGRATION

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JEL Classification: F02, R20.

Key words: national identity, nation, youth, European Union.

Abstract

The aim of the study was to verify the national identity of young people from the last years of secondary schools and to learn about their assessment of Poland's functioning in the European Union. One hundred and fifty five persons attending the third grade of a general secondary school and the third and fourth grade of vocational secondary school located in the city of Mława were qualified for the study. The survey was conducted via a paper and online questionnaire. The results showed that all respondents associate the most strongly with the Polish identity, whereas European identity complements their national identification. Young people are also positively inclined towards the European Union. The vast majority of respondents believed that Poland would not have been able to achieve its current economic development without the support of the EU.

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TOŻSAMOŚĆ NARODOWA MŁAWSKIEJ MŁODZIEŻY ORAZ OCENA UCZESTNICTWA POLSKI W INTEGRACJI EUROPEJSKIEJ

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Kody JEL: F02, R20.

Słowa kluczowe: tożsamość narodowa, naród, młodzież, Unia Europejska.

Abstrakt

Celem badania było zweryfikowanie tożsamości narodowej młodzieży ostatnich roczników szkół ponadpodstawowych oraz poznanie ich oceny funkcjonowania Polski w Unii Europejskiej. Do badania zakwalifikowano 155 osób uczęszczających do klas trzecich liceum ogólnokształcącego oraz klas trzecich i czwartych technikum zawodowego. Szkoły znajdują się w Mławie. Badanie przeprowadzono za pośrednictwem papierowego oraz internetowego kwestionariusza ankiety. Z przeprowadzonych badań wynika, że wszyscy respondenci mocno identyfikują się z tożsamością polską, podczas gdy tożsamość europejską traktują jako uzupełnienie ich tożsamości narodowej. Młodzi ludzie są również pozytywnie nastawieni do Unii Europejskiej. Zdecydowana większość respondentów uważa, że bez wsparcia UE Polska nie byłaby w stanie osiągnąć dotychczasowego poziomu rozwoju gospodarczego.

Introduction

The European Union is a multilevel and multifaceted undertaking. It applies to economic, political and legal as well as socio-cultural aspects. The influence of a country's participation in the European Union on various areas of society's life is a widely studied issue (Koseła *et al.*, 2002, p. 8). Among the member states, there are societies that are more or less enthusiastic about participation in European integration. The long-standing statistics of the Public Opinion Research Center show that the Polish attitude to membership in the European Union has changed in favor of the community since 2004, which grew from 60% of support in January 2004 to 90% in October 2021. Moreover, according to a report of the European Parliament, young Poles declared the highest, 82%, attachment to the EU against an average of 62% (*Desk research. European…*, 2021, p. 12).

So how does the EU influence the identification issues of the inhabitants of the member states? Researchers of this phenomenon raise, among others, the question of the relationship between attachment to the Union and its influence on national identity, is there a possibility of these phenomena coexisting, does attachment to the Union mean a significant weakening of national identity and does it create a threat to either identification? (Shabad & Słomczyński, 2012, p. 31). Both national and European identities are collective identities, which are groups classified on the basis of common elements which at the same time connect its members and separate the group from others (Paleczny, 2008, p. 8). The concepts of identity are considered in the context of sharing identity with others as is the case of sharing an identity with members of a specific nation. Considerations may also concern the identity crisis resulting from groundbreaking events that change the perception of an individual or groups to a given phenomenon. There is also the context of numerous categories and factors that influence the multitude of identities (Krauz-Mozer, 2017, p. 13). National identity, including being Polish, is distinguished from other identities of individuals by its exceptional durability (Kisiel *et al.*, 2016, p. 368). It can be assumed that over the years it was shaped by socio-historical processes, which made the nation the main element of their identification for Poles (Wysocki, 2017, p. 58).

The aim of the research was to establish the national identity of youth in the face of a progressing globalization processes and their assessment of the European Union from the Polish perspective. The study included 155 students from the third classes of general secondary schools and the third and fourth classes of vocational technical schools in Mława. It was conducted among students with the use of paper and online questionnaires.

Characteristics of the studied group

One hundred and five women (67.74%) and 50 men (32.26%) participated in the study. The city was the place of residence for 61 respondents (39.35%), including 36 women and 25 men. The inhabitants of rural areas constituted the majority, the total number of which was 94 people (60.65%), including 69 women and 25 men. It is no coincidence that the question was structured in a way in which the respondents could only answer "town" or "village". Due to the size of the town of Mława, schools operating in its area are attended by local people or people commuting from neighboring areas, most often villages. Therefore, a description of the size of a given village or town where the respondent comes from would be unnecessary.

Students of a general secondary school constituted the vast majority of the respondents and accounted for 115 of them (74.19%), including 82 women and 33 men. The remaining respondents were students of vocational technical secondary schools, constituting 25.81%, which included 23 women and 17 men (Fig. 1).

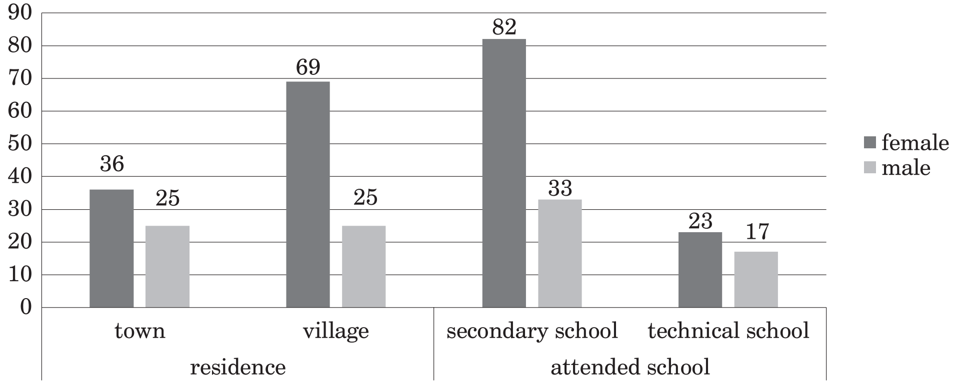

Fig. 1. Respondents broken down by gender, place of residence and type of school attended
Source: study based on own research.

National identity of the respondents

Determining their identity did not cause any problems for young people, because in the question concerning which identity the person associates with, the answer "I don't know" was not chosen by any of the respondents. Almost half of the respondents (43.87%) considered themselves exclusively Polish. The comparison of the results with the results of the CBOS survey conducted in March 2019 allows us to draw similar numerical conclusions (*Komunikat z badań: Aktualne problemy…*, 2019). However, the CBOS survey shows a regular decline in the number of people identifying themselves only as Poles in favor of an increase in the number of respondents identifying themselves as Poles and European. The results of our own research have indicated, however, that in the group of young people, the most frequently indicated identification is solely Polish, then Polish, and only then European (36.77%), followed by simultaneous Polish and European identification (18.71%) (Fig. 2). The above results are relatively high compared to the results for answers in which the word "European" appears as the first or only part. Only one respondent (0.64%) felt more European than Polish, and none of the respondents considered themselves to be solely European.

Identity is made up of many different factors. For this reason, the respondents were asked about the influence and importance of the factors selected by the author on their national identification. The responses proposed in the questionnaire included the place of residence, mother tongue, blood ties, religion, and history; as well as national colors and symbols. The respondents assessed the validity of a given factor, having a choice of answers constructed using the Likert scale, from "definitely yes", through "rather yes", to a neutral answer "I don't know", to "rather no", and then "definitely not".

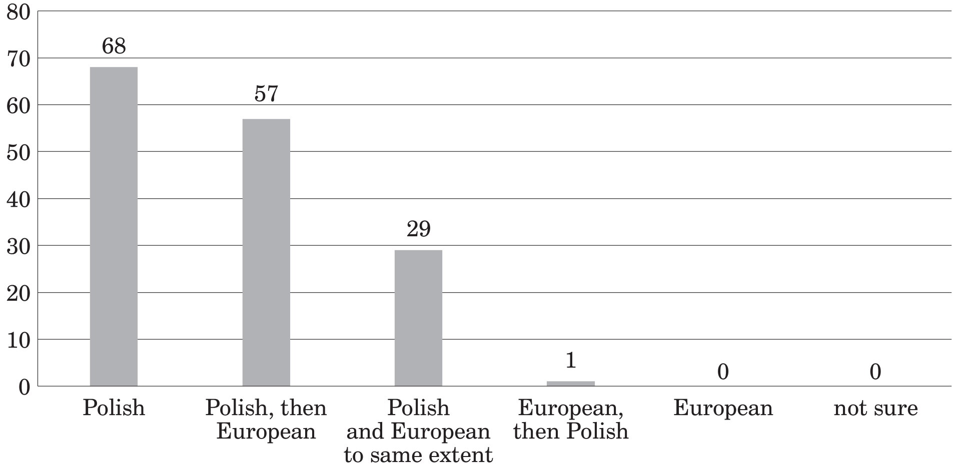

Fig. 2. Declarations of the respondents' identity
Source: study based on own research.

The factor that plays the most important role in shaping the identity of young people is the mother tongue, which was indicated by 98.71% of the respondents. A similar number of affirmative responses was obtained by the place of residence, considered significant by 96.13% of the respondents. The legitimacy of blood and history ties as an element of their identity was declared by 85% of respondents. National colors are definitely important for 51.61% of the respondents and rather important for 30.32%. Religion has the most diverse structure of the declared answers. It is a factor in which the percentage of responses containing the elements "yes" and "no" is almost identical and amounts to 42.38% ("definitely yes" 16.77% and "rather yes" 25.16%) and 41.29% ("definitely not" 22.58% and "rather not" 18.71%). It was also a determinant characterized by the highest, almost 17% uncertainty, of the respondents.

Patriotism of the respondents

To the question "Do you consider yourself a patriot?" More than 58% of the respondents answered it in the affirmative, and only 5.16% in the negative. However, a significant part of the respondents had a problem with the answer to this question (Fig. 3).

The respondents, when asked about their perceptions of patriotism and defining the factors enabling them to express love for the motherland, the most important factor related to the response proposals was considered to be respect. Therefore, what was important for them was respect for national symbols (59.35%), for the history of the nation (46.45%) and for Polish culture, traditions

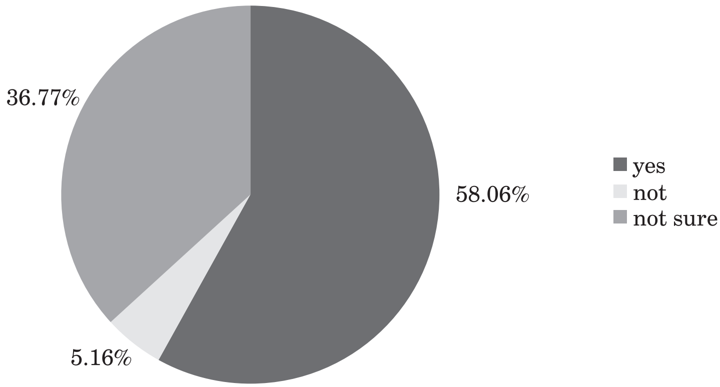

Fig. 3. Identification of the patriotism of the respondents
Source: study based on own research.

and customs (42.58%). Thirty nine point thirty five percent of respondents agreed with the active form of expressing patriotism by voting in elections and participating in the life of the state. The history of Poland has shown that for many years the readiness to fight for the homeland was something necessary for the survival of the nation and was one of the highest forms of expressing love for the homeland. Thirty six point thirteen percent of respondents still agreed with this statement. The manifestations of patriotism chosen by respondents relatively rarely included paying taxes, with only 5.81% of respondents identifying with this attitude or the purchase of local products (1.94%). Therefore, economic patriotism seems to be alien to young people. A rare expression of patriotism for the respondents also included wearing patriotic clothes (1.29%).

Emigration plans

Taking into account the age of the respondents and the period of life they are in, related to graduating from post-primary school, and then taking up higher education or work, they were asked to share their reflection on their future place of residence and possible migration directions, as well as the reasons for choosing such a place of residence. For this purpose, a space was left in the questionnaire for an independent statement and the reason for the above-mentioned attitudes in the open-ended question (Fig. 4).

Eighty eight people, who constituted 56.77% of the respondents, intended to stay in their home country, 42 of them claimed that the factor determining their staying in their home country and their lack of migration plans (as indicated by their responses) were the presence of close family and friends. In the context of the family, the willingness to set up one's own household in Poland in the future was also mentioned. Twenty respondents mentioned their attachment

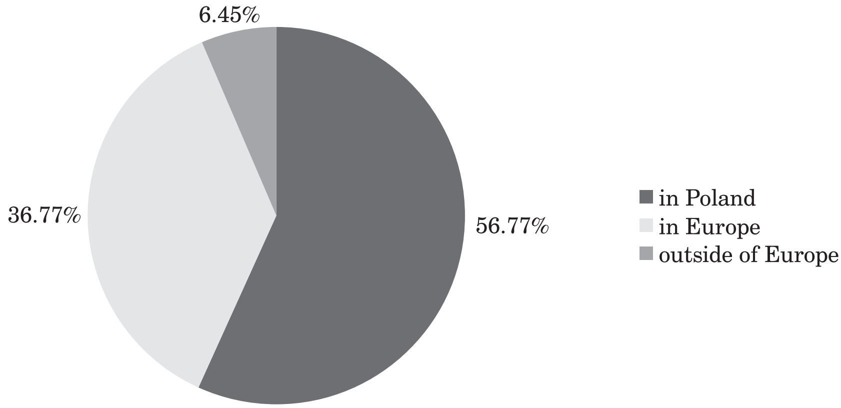

Fig. 4. Preferred future place of residence of the respondents
Source: study based on own research.

to the country, its culture and customs. Only 9 people did not plan to leave the country due to the future start of higher education or work, since they intended to "start studies in Gdańsk" and "join the army". They also felt that staying in Poland would provide them with a well-paid and permanent job. One of the respondents decided to further develop within the country, because, quote: "the profession I want to do (history teacher) requires cooperation with the inhabitants of Poland".

There is also a group among the respondents who did not have plans to leave for a simple reason, which is that Poland is a country where they feel good, they love their homeland and they cannot imagine living in another place. Two respondents indicated the language barrier as a reason for staying in the country, since they believed that it would be easier for them to function without the need to constantly communicate in a foreign language. One of the respondents shared her opinion on staying in the country due to the possible future situation of the country: "I believe that over time, our country will finally have people who will lead our country to prosperity with dignity".

The intention to emigrate was declared by 43.22% of the surveyed students, divided into two directions of departure. Europe was indicated by 37.77% of respondents, while the remaining 6.45% targeted non-European countries. When asked why they intended to leave the country, more than half of the group mentioned better development opportunities and higher earnings in their statements. One of the respondents shared a specific example of a country and development in the profession of a forensics technician, in which, as she claimed, she can only be fulfilled by working in the United States, due to the high level of advancement of this country in a given field compared to others. Another respondent indicated Iceland as the fulfillment of her housing dreams, due to the politics and socio-economic situation of the country. Respondents were encouraged to leave by the perceived disturbing state of the Polish political scene, the unresponsive government, the prospect of high and constantly rising inflation, as well as the vision of greater societal tolerance and the lack of hatred in other countries. The lack of respect for women's rights was also mentioned, so female representatives did not feel safe staying in Poland. The respondents were also driven by the desire to travel around the world, and learn about new cultures and languages.

Identity and emigration

Being abroad is associated with being a member of a national minority. For some migrants, this can be a situation where their identity is put to the test. Functioning in a multicultural society, or in one that is homogeneous, though completely different culturally, raises the question: what attitudes should be adopted? Should you conserve your native culture and be completely removed from the customs functioning there, immerse yourself in the new culture completely, or perhaps you should draw from both your native and acquired customs? According to 65.16% of respondents, Polish and foreign customs should be combined, while 26.45% believed that only the Polish cultural heritage should be retained. Adapting to the culture of the place of residence was recommended by 6.45% of the respondents (Fig. 5). Three respondents commented on this issue as follows – living abroad one should:

– "not be interested in Poland";

– behave "depending on the views of the world";

– "remember one's origin, follow Polish customs and respect the traditions and views of the inhabitants of the country you are in".

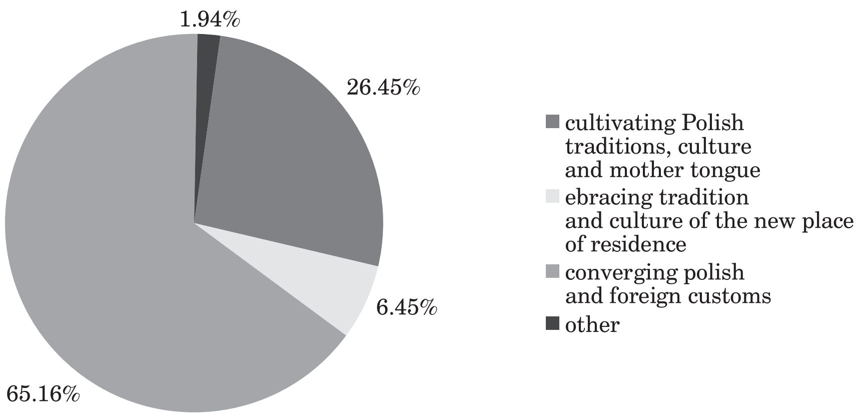

Fig. 5. Attitudes to be adopted in relation to life abroad
Source: study based on own research.

Perception of Poland's membership in the EU

Poles are one of the nations that are very enthusiastic about their country's participation in European integration. This was found in surveys commissioned both by the European Union and national opinion polling centers. EU Eurobarometer surveys conducted in the spring of 2021 showed that currently 81% of Poles feel that they are citizens of the European Union, and 79% are optimistic about its future. Moreover, Polish society trusts European institutions more than state institutions by 52% and 49% of Poles trust the activities of the European Parliament and the European Commission. In the case of the currently functioning government and parliament, support was 28% and 26%, respectively (*Standard Eurobarometer 95…*, 2021). This conclusion can also be made on the basis of research conducted by the Public Opinion Research Center in 2020 on social trust. Almost 75% of respondents trusted the European Union, 46% trusted the government, and 33% the Sejm and the Senate (*Komunikat z badań: Zaufanie społeczne*, 2020). Therefore, young respondents were asked about their opinion on Poland's membership in the European Union in order to obtain their opinions and identify the existing trends. A significant portion of them, almost 90%, assessed Poland's participation in the EU positively, while the remaining 10.32% believed that the country loses in its membership to the EU (Fig. 6).

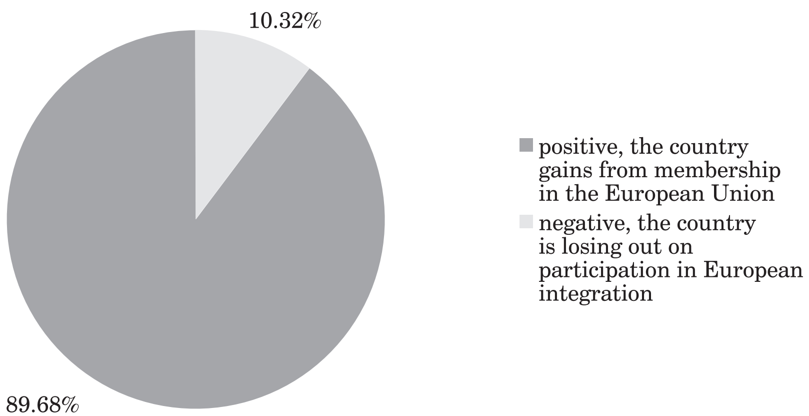

Fig. 6. Assessment of Poland's participation in the European Union
Source: study based on own research.

The public debate often raises the question of how the country would develop had it not been for its membership in the European Union. Sixty one point sixteen percent of respondents predicted that the country would not be able to achieve the level of economic development that is experienced today. A low percentage of those polled, only 2.58%, believed that Poland would have developed at the same level or better than today. On the other hand, almost ⅓ of respondents felt this question was difficult.

For some citizens, accession to the EU was associated with concerns about the intensification or weakening of certain phenomena: a fear of losing what is known, a fear of what is strange, unknown, most often related to the cultural and social arena. When asked about the changes that took place at the level of occurrence of selected phenomena, 77.42% of respondents believed that patriotism and attachment of Poles to tradition remained at the level before joining the EU. Over 61.29% of respondents also considered the religiosity of their compatriots to be unchanged over the years, although 33.55% noticed a decrease in its level, and the remaining 5.16% of respondents saw an increase. More than half believed that Polish society has become more tolerant, 27.74% did not notice the change, and 21.29% believed that the current society is less tolerant than before. The European community increased civic awareness in Poland according to 45.81% of respondents, while 45.81% did not notice either the intensity or reduction of the level of this phenomenon. According to almost half of the respondents, countrymen appreciated freedom and independence after joining the EU. About ⅓ of the respondents noticed the liberalization of the views of society, although 55.48% of the respondents did not notice any change in this phenomenon.

Advantages and disadvantages of participating in the EU

The respondents were asked to indicate the most important benefits, which they have noticed in connection with the functioning of Poland in the European Union. Out of all the proposed answers, almost 80% of the youth surveyed appreciated the freedom of movement within the European Union the most. Over ⅔ of respondents also appreciated the benefits of EU funding. Almost half of them also highly appreciated the possibility of easily finding a job abroad. A bit lower were the EU actions targeted at young people. Only ⅕ of the respondents also took into account ensuring security in connection with participation in the community of states, as well as the diversity and mixing of cultures in Europe. Less than 10% appreciated agriculture and its development, climate action as well as the unification of national and EU law. Additionally, one of the respondents shared his own proposed response about “general control of national authorities”. Only one respondent saw no benefits of participating in the EU.

In order to present the broadest possible opinion concerning participation in the European Union, questions were also asked about the perceived disadvantages that young people have in connection to this subject. Although previously respondents appreciated the ease of crossing borders within the EU, almost half of the respondents indicated the presence of immigrants in the country as the greatest disadvantage, and 30.32% regretted the emigration of their compatriots.

One of the respondents commented on the issue of migration to the country: "the influx of immigrants – it depends from which country and whether it is legal to cross the border". Moreover, 40% of the respondents perceived the low importance of Poland in the international arena. According to some respondents (27.74%), EU authorities have too much influence on the activities of state institutions, and to a similar extent they are not satisfied with the presence of foreign products in Polish markets, replacing products from local, domestic suppliers. Less than 20% of respondents complained about issues such as the obligation to pay EU contributions (18.06%), the increasing globalization processes (8.39%), deteriorating living conditions (7.74%) or liberalization of views (5.81%). Only 14.84% of the respondents were not able to indicate a single disadvantage of participating in the EU. One of the respondents considered it unfair to "impose (by the EU) climate neutrality on Poland".

The opinion of the respondents concerning Poland's relations with the EU was also important in the research. Their opinion on the future level of Poland's cooperation with the European Union in specific areas of activity is as follows. A relatively low percentage of respondents were in favor of maintaining separateness, therefore most of the answers focused on the issues of deepening or maintaining the current level of cooperation. Almost 80% of respondents believed that the country should deepen cooperation in the field of environmental and climate protection, human rights as well as foreign and trade policy. The respondents also expressed the need to increase the partnership in the case of security and defense policy. The most diverse structure of responses was characterized by the issue of culture and customs, which are the most controversial in the public debate. Forty five point eight one percent of respondents believed that they should remain at the current level, 23.87% were in favor of deepening cooperation, 25.81% were in favor of limiting it, and the remaining respondents did not have an opinion on the topic. More than half of the respondents approved of further integration of Polish agriculture with the EU policy, 36.13% were in favor of keeping the current state of affairs. A similar relationship of responses occurred in the case of migration policy and humanitarian aid.

Youth and parliamentary elections

In order to examine the civic involvement of respondents, questions were also asked about their intentions to use the democratic privilege of voting in elections. The obtained result is at a promising level, as 149 respondents (96.13%) declared their intention to actively participate in elections. When asked about the importance of the elections to the European Parliament, almost 60% considered them as important as the national elections, and 32.90% of respondents considered them to be less important. Only 5.16% preferred the EU elections over national elections, and 2.58% considered them to be completely irrelevant (Fig. 7).

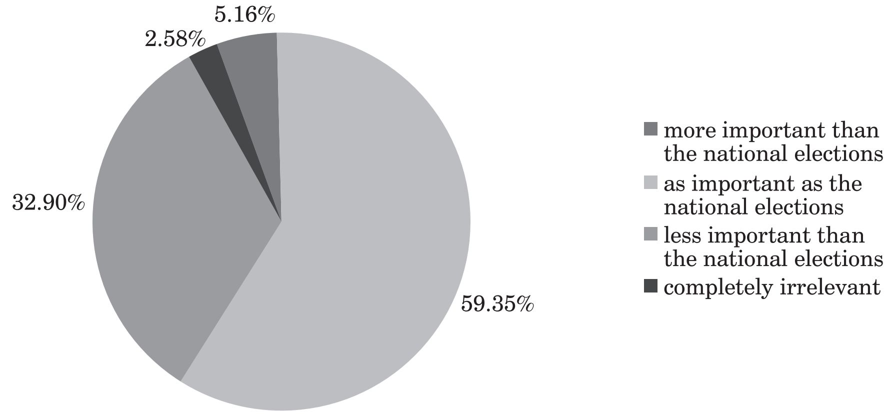

Fig. 7. The importance of elections to the European Parliament
Source: study based on own research.

Conclusions

The survey conducted among 155 students of secondary schools in Mława allowed for the formulation of various conclusions regarding both their identity and its components, as well as opinions on the present and future shape of Poland's functioning in the European Union, the most important of which were:

1. The youth had certain declarations regarding their national identity, and none of the respondents had any problems with determining belonging to a given identity. All respondents strongly identified with Polish identity. For a large part, it was the only choice, others indicated it in various configurations, along with a European identity.

2. Patriotic issues, although the majority of respondents declared themselves patriots, caused considerable difficulties to the rest, as nearly 37% were unable to define their position on this issue. While identifying the factors determining their patriotic tendencies, the respondents most frequently indicated those related to respect; such as respect for national symbols, the history of the nation and respect for Polish culture, traditions and customs.

3. More than half of the youth did not have plans to emigrate and intended to stay in their home country. What most often influenced their decision was the reluctance to leave the family. Those who intended to leave the country more often indicated European countries as the destination of their trip than those outside Europe. They indicated better development opportunities and higher earnings as the main reasons for such a decision. A significant proportion of the respondents (65.16%) were in favor of adapting and combining Polish and foreign customs while living abroad.

4. Almost 90% of young people positively assessed the issue of Poland's participation in the European Union. According to 65%, Poland would not have

been able to achieve the currently experienced economic development without the EU support, and nearly 30% of respondents found this question difficult. Perhaps they were not able to imagine Poland outside the EU, since their generation remembers Poland only as a member of the EU community from birth.

5. Of all the benefits that the EU provides, young people most appreciated the freedom of movement within the EU. This undoubtedly affected the numerous migration declarations of the respondents. Thus, the presence of immigrants and the emigration of compatriots were the most frequently indicated shortcomings in connection with the country's presence in the EU.

6. When assessing Poland's cooperation with the European Union in particular areas, young people were more inclined to advocate deepening or maintaining the current level of cooperation than maintaining their individuality. This concerned, among others, environmental and climate protection, human rights, foreign policy, trade and security. The issue with the most diverse distribution of responses turned out to be culture and customs.

7. Almost all respondents showed a willingness to actively participate in elections after gaining electoral rights. When asked about the importance of the elections to the European Parliament, 60% agreed that they were as important as national elections. However, what is disturbing, ⅓ of the surveyed youth placed them lower in the hierarchy of importance.

Translated by Andrzej Rzeszutek
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ORIGINAL PAPER

ECONOMIC ASPECTS OF THE QUALITY OF LIFE

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Key words: life quality, GDP aggregates per capita, mean income, severe material deprivation rate, EU countries.

Abstract

The aim of the research was to identify and assess the economic aspects of the quality of life in the EU. The research covered all Member States in terms of the selected quality-of-life indicators, which include GDP per capita expressed in purchasing power standards (PPS), average income in euro and severe material deprivation (SMD) expressed as a percentage. Three research methods were used to conduct the research: analysis and criticism of the literature on the national and international scale, analysis of secondary data obtained from the Eurostat database, as well as a statistical method using descriptive statistics, including the use of the dynamics index to estimate the level and direction of changes in the analyzed quality of life measures.

As a result of the conducted research and with the use of the method of aggregating countries in terms of economic indicators describing the quality of life, it was found that rich countries characterized by high socio-economic development featured the highest level of quality of life. They include mainly Luxembourg, and due to the high level of average income and, at the same time, low SMD, Ireland, Austria, and Denmark. The lowest quality of life, but with the highest dynamics of average income, was characteristic of countries such as Bulgaria, Romania, Greece, and Hungary, where GDP was at a low or very low level. It should be added that in these countries, at the same time, some of the lower rates of deprivation dynamics were identified, which was a positive phenomenon. Poland had the lowest SMD dynamics.

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EKONOMICZNE ASPEKTY JAKOŚCI ŻYCIA

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Słowa kluczowe: jakość życia, agregaty PKB per capita, średni dochód, stopa głębokiej deprywacji materialnej, kraje UE.

Abstrakt

Celem badań była identyfikacja i ocena ekonomicznych aspektów jakości życia w UE. Badaniem objęto wszystkie państwa członkowskie w zakresie wybranych ekonomicznych wskaźników jakości życia, tj. PKB per capita wyrażony w standardzie siły nabywczej, średni dochód w euro oraz poważną deprywację materialną wyrażoną w procentach. Do przeprowadzenia badań wykorzystano trzy metody badawcze: analizę i krytykę literatury w skali krajowej i międzynarodowej, analizę danych wtórnych pozyskanych z bazy Eurostatu oraz metodę statystyczną z wykorzystaniem statystyki opisowej, w tym z wykorzystaniem wskaźnika dynamiki, oszacowaniem poziomu i kierunku zmian analizowanych mierników jakości życia.

W wyniku przeprowadzonych badań oraz z wykorzystaniem metody agregacji krajów pod kątem wskaźników opisujących jakość życia stwierdzono, że kraje bogate, charakteryzujące się wysokim rozwojem społeczno-gospodarczym, cechowały się najwyższym poziomem jakości życia. Należą do nich głównie Luksemburg, a ze względu na wysoki poziom przeciętnych dochodów i jednocześnie niski poziom poważnej deprywacji materialnej: Irlandia, Austria i Dania. Najniższą jakością życia, ale z najwyższą dynamiką przeciętnych dochodów, charakteryzowały się takie kraje, jak: Bułgaria, Rumunia, Grecja i Węgry, w których PKB kształtował się na niskim lub bardzo niskim poziomie. Należy dodać, że w tych krajach jednocześnie zidentyfikowano część niższych wskaźników dynamiki deprywacji, co było zjawiskiem pozytywnym. Polska i Łotwa miały najniższą dynamikę wskaźnika poważnej deprywacji materialnej.

Introduction

The quality of life and work has its source in the humanistic definition of quality. It is believed that it raises the level of culture in society (Chrobocińska *et al.*, 2021, p. 14). Quality of Life (hereafter referred to as QOL) is defined by the World Health Organization as “an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns”. Therefore, it is a complex and multifaced notion, as it involves subjective reception of what makes life better, and scholars generally agree that this concept is vague and ethereal

(Barofsky, 2012, p. 625, 626) and there is no single method which would define QOL without certain limitations (Barofsky, 2012, p. 630). Chrobocińska *et al.* (2021, p. 10) state that the quality of life consists of many elements, both the quality of goods, services, products, information, the quality of the environment, as well as the quality of relationships formed with other people. One of the synthetic measures of the quality of life is the commonly used indicator of socio--economic development, the so-called HDI (Human Development Index), which consists of components such as: life expectancy, average number of years of education received by residents aged 25 and older, expected number of years of education for children starting the education process, as well as national income per capita in USD, calculated according to the purchasing power parity of a given currency. It therefore contains indicators of both a social and economic nature. From the perspective of the issues discussed in the paper, those of an economic nature, both quantitative and qualitative, are particularly interesting (Assa, 2021, p. 1).

Assuming that the feeling of happiness is essential in a person's perception of their own QOL, it is worth to note that happiness was proven to increase with the increase in the GDP per capita (Dipietro & Anoruo, 2006, p. 708). Empirical research conducted by Tavor *et al.* (2018, p. 2133). shows that the GDP per capita as expressed in Purchasing Power Standards significantly contributes to the high level of happiness. Moreover, its effect is stronger especially in developing countries. It's worth noting that the level of happiness is not affected by the level of the Gini coefficient in general. The Gini coefficient is a measure of wealth distribution in a given population on a scale from 0 to 1 using the Lorentz curve, where 0 means perfectly equal distribution within the population, while 1 means the ownership of all wealth by one person in the population (Farris, 2017, p. 851-853). However, when countries are divided into either a low or high level of the Gini coefficient countries, then high inequality negatively affects the happiness level in developing countries, while low Gini coefficient values have negative effects on the level of happiness only in developed countries (Tavor *et al.*, 2018, p. 2133). It is important to note these conclusions when measuring the level of QOL in the European Union countries, because the EU is composed both of developed and developing countries, and the level of the Gini coefficient is relatively low there. In such circumstances, the GDP per capita in PPS is an appropriate indicator of the QOL in the EU member states.

Due to the limitations in the QOL measurement related to GDP per capita, this study analyzes the quality of life described not only by this indicator (GDP per capita as expressed in Purchasing Power Standards), but also by other economic measures, such as average income or material deprivation. The downside of limiting the measure of QOL to the GDP per capita is that the GDP per capita is solely a division of the country's production value per person. A human needs a certain level of income and access to material goods to transform them into being wealthy, to achieve goals, meet expectations and standards, and cater to concerns. Income and access to material goods constitute material living conditions. The lack of these goods means material deprivation. A materially deprived person has no capacity to "to ensure normal living conditions for the current stage of development of society" (Cambir & Vasile, 2015, p. 936). Setting measurable objectives as a means to analyze and increase the QOL in the EU member states is in the EU institutions' focus since the 2000s when the so-called Laeken indicators were created, which are the EU indicators for social inclusion and set the common framework for analysis of poverty in the EU member states. In 2009, the Leaken indicators were complemented with two material deprivation indicators, which were to capture the differences in material conditions across all EU countries. These material conditions are described by 9 items, which include the ability to:

– to cover unexpected expenses;
– to take a one week holiday away from home;
– to pay regular bills and debt on time;
– to buy a full meal 3-4 times a week;
– to keep the right temperature at home;
– afford a washing machine;
– afford a TV;
– afford a cellphone;
– afford a car.

The approach to measuring deprivation according to the above indicator is similar or the same as, for example, in the approach practiced by the Main Statistical Office (*Jakość życia*..., 2017, p. 6).

The EU deprivation rate is the percentage of people living in households who lack at least three of the above. Another indicator, the material deprivation intensity, describes the average shortage of the above things per each deprived citizen. Subsequently, the Europe 2020 Strategy contained further development of the above indicators to capture the risk of poverty, severe material deprivation, and quasi-joblessness (Guio *et al*., 2016, p. 2, 3). Taking into account theoretical considerations, the aim of the research was to identify and assess economic aspects of the quality of life in the European Union countries.

Research methodology

The aim of the research was to identify and assess the economic quality of life (EQOL) in the member states of the European Union. One auxiliary question was used for its implementation: In which EU countries are the quality of life in terms of economic aspects at the highest level?

Several research methods were used to achieve the goals presented. The first was the analysis and criticism of domestic and foreign literature in the field of the discussed issues. On its basis, the EQOL in the European Union was defined and determined, and possible ways and methods of its research and measurement were indicated.

The second of the research methods used was the analysis of secondary data obtained from the Eurostat database, concerning selected material living conditions, which are economic measures of the quality of life. The choice of empirical material for the research was made based on the available methodology developed by Eurostat in the field of quality of life, which divides it into nine areas: material living conditions, main type of activity/work, health, education, free time and social relations, economic and physical security, state and basic rights/active citizenship, quality of the environment in the place of residence and subjective well-being. From the perspective of the aim of the study, the first of these areas was analyzed, i.e., material living conditions, which can be aggregated into three general groups related to income, consumption, and other material conditions. Within the scope of the presented research goal, and in the face of the volume limitations of the study, one measure from each of the groups was selected for the analysis. They include, respectively: gross domestic product (GDP) measured in purchasing power standards (PPS), hereinafter referred to as GDP or GDP per capita, average income (in euro) and the severe material deprivation rate (SMD), defined as the percentage of the population affected by this phenomenon. The choice of the last indicator was dictated by the fact that it allowed for a more direct measurement of the standard of living of the population than the previous income indicators (Panek & Zwierzchowski, 2016, p. 180-199). The selection of these three measures was dictated by two reasons. First, all these data were based on quantitative values (the so-called objective approach to the quality of life) and not qualitative ones (subjective approach), which usually provide data related to the level of human satisfaction with the degree of satisfaction of their needs, i.e., lack of money for food or an indicator of poor sanitary conditions (Karmowska & Marciniak, 2016, p. 290). Secondly, the measures selected for the analysis were relatively the most general and "global" in nature in relation to the others (e.g., in relation to the detailed indicator, which is the share of expenditure on food and non-alcoholic beverages in total expenditure, or the extent of extreme or multidimensional poverty (*Jakość życia…*, 2017, p. 4).

The third and last method used in the conducted research was the statistical method in the field of descriptive statistics (standard deviation and arithmetic mean), which was used to group countries into levels (high, medium, low, very low) according to individual EQOL measures and HDI from 2019. The methodology with which the level of indicators was determined and defined is presented in Table 1. The statistical tool in the form of Statistica version 13.3 was used to develop the analysis of the research material and synthetic presentation of the results. In terms of statistical methods, the analysis of dynamics was also used to present changes in individual measures (Mastalerz-Kodzis, 2016, p. 27).

Table 1

Criteria for grouping countries according to the economic dimension of the quality of life

Level	The basis of grouping	Meter level
I	$d_i \geq \bar{d} + S_d$	high
II	$\bar{d} < d_i \leq \bar{d} + S_d$	medium
III	$\bar{d} - S_d < d_i \leq \bar{d}$	low
IV	$d_i < \bar{d} - S_d$	very low

Source: own elaboration based on Wysocki & Lira (2005).

The research covered the years 2010-2019. For each of the analyzed indicators, the dynamics were calculated to show their changes in individual EU countries. The base year for these calculations was 2010 (100%). Data from 2013 and 2016 are provided for illustrative purposes.

The limitations related to the conducted research resulted from the certainty that the volume of the article was limited, and it was not possible to comprehensively present the situation regarding the quality of life in the EU countries. For this reason, economic measures of a general nature were selected to represent the issue in question.

In the future, however, it is certainly worth exploring the issues raised and, for example, comparing the economic aspects of the quality of life from 2020 or 2021 with previous years. It is interesting if and what changes, not only economic, in the quality of life were caused by the SARS CoV-2 virus pandemic. For now, there are no complete data for 2020 and 2021 to carry out this type of analysis.

Research results – economic quality of life in the EU Member States

The quality of life can be considered from many perspectives using many different types of measures, both quantitative and qualitative. One of the synthetic quantitative measures is HDI. It includes, on the one hand, life expectancy or years of education for children/people older than 25 years, and on the other hand, GDP per capita calculated in PPS. Understood in this way, the HDI in 2019 was defined as very high (values higher than 0.8) in all surveyed countries. Such an interpretation of the results, however, took into account the HDI classification methodology provided by the United Nations Development Program – UNDP (Van Puyenbroeck & Rogge, 2020, p. 1). On the other hand, when prioritizing HDI according to the approach described in the methodological part of the study, the differentiation in the level of the measure in individual countries was much greater. The highest HDI level in 2019 was recorded in Ireland (0.955), and a high level of this indicator was identified in five more countries where it ranged between the values of 0.947 – Germany, and 0.938 – Finland. In terms of HDI, the lowest value was identified in Bulgaria (0.816). In addition to this, three more countries are classified as very low in terms of HDI. They include Romania, Croatia and Hungary (*Human Development Report*…, 2020, p. 343). It is worth adding that, according to the UNDP methodology, all of the surveyed countries could be classified as having a very high HDI index. The results in the field of HDI have been confirmed by the research carried out in the field of EQOL, which will be discussed later in the paper. Due to the fact that all components of HDI, except GDP per capita, are not strictly related to EQOL, HDI will not be the main topic of considerations later in this paper. The indicators of typically economic specificity included in the study include GDP per capita expressed in percentage values, average income expressed in euro or SMD, calculated as the percentage of the population of a given country affected by the phenomenon of material deprivation.

Further along in the text, detailed analyses of the second and third above-mentioned measures have been made, which are presented according to the decreasing values for the data from 2019. The presented analyses also include considerations regarding the first indicator, i.e. GDP per capita, but without presenting a summary statement (Tab. 2), due to the volume limitations of the article and the fact that these data in many countries were in line with the average income.

The first measure describing the EQOL was the average income in individual Member States. At this point, one should notice an analogy and convergence of the indicator of the average income value in EU countries with GDP per capita, which is confirmed by three situations. The first one concerns Luxembourg and Ireland, where the average income in 2019 was classified as the highest, with income equal to EUR 42,818 and EUR 29,684 respectively (Tab. 2). The GDP per capita indicator was similar in these countries, which was identified in Luxembourg at the level of 260.0% and in Ireland at 193.0%. The reference point was 100% as the EU average. The second situation confirming the analogy between average income and GDP per capita was related to countries such as Denmark and Austria. They recorded an average income of EUR 34,332 and EUR 28,568, respectively, while classifying them to the average level in terms of GDP of 130.0% and 126.4%, which meant a better situation than the EU average (Eurostat data [nama_10_pc], 24.04.2021).

The third and last phenomenon demonstrating the analogies between the average income and GDP per capita resulted from the situation of Bulgaria, which in the case of both measures was classified at a very low level. Average income EQOL was also very poor in Romania and Hungary, respectively EUR 4,419 and EUR 6,568, although in terms of GDP per capita, these countries were classified as low and ranked 23rd and 20th.

Table 2

Average income in EU countries (in euro)

Country	2010	2013	2016	2019	Level of the indicator in 2019	Dynamics (2010 year =100%)
Luxembourg	36,410	38,442	37,642	42,818	high	117.6
Denmark	26,915	30,082	32,141	34,332		127.6
Ireland	23,965	23,392	25,586	29,684		123.9
Austria	23,576	24,366	26,054	28,568		121.2
Finland	23,528	25,901	26,379	28,061	medium	119.3
Netherlands	22,692	23,125	25,366	27,352		120.5
Sweden	20,070	27,094	27,347	26,356		131.3
Belgium	21,353	23,279	24,264	26,275		123.1
France	23,421	24,713	25,278	26,210		111.9
Germany	21,470	22,471	24,020	26,105		121.6
Italy	18,221	17,932	18,286	19,528		107.2
Cyprus	18,929	19,426	16,943	19,302		102.0
Spain	16,922	15,635	15,842	17,287	low	102.2
Malta	11,794	13,438	15,505	17,246		146.2
Slovenia	12,653	12,706	13,193	15,236		120.4
Estonia	6,782	7,846	10,102	12,780		188.4
Portugal	10,540	9,899	10,562	11,786		111.8
Czechia	7,981	8,695	8,808	11,068		138.7
Latvia	5,466	5,732	7,526	9,749		178.4
Greece	13,974	9,303	8,673	9,382		67.1
Lithuania	4,975	5,648	7,033	9,264		186.2
Slovakia	6,785	7,266	7,391	8,523		125.6
Croatia	6,622	5,817	6,337	8,089		122.2
Poland	5,116	5,976	6,659	8,022		156.8
Hungary	4,631	5,027	5,396	6,568	very low	141.8
Bulgaria	3,498	3,509	3,857	5,551		158.7
Romania	2,371	2,324	2,746	4,419		186.4

Source: own elaboration based on Eurostat data [ilc_di03] (25.04.2021).

When considering the changes in the average income, the situation was the best in Estonia, Romania, Lithuania, and Latvia, where the dynamics index was higher than in other EU countries. The largest positive changes in the average income during the period under study were identified in Estonia at 188.4% and was slightly smaller in Romania at 186.4%. It was a positive phenomenon, which may indicate a gradually improving EQOL related to the average income of the population living in these countries. Interestingly, in the countries with the highest middle income, such as Luxembourg or Finland, and the middle-income ones, such as France or Germany, relatively lower dynamics of growth of the average income was observed.

It is also worth adding that among all EU countries, only in the case of Greece was there a decrease in average income. In the analyzed period, the EOQL measured with average income decreased by as much as 32.9%. Undoubtedly, this situation was influenced by an increase in employment, which only in the services sector amounted to approx. 14% in 2016 and compared to 2012 it was an increase of 14.7%, with a simultaneous decrease in production in the same period by 38.6%. Undoubtedly, such a state was also related to the crisis of the Greek economy in the analyzed period 2010-2019 (Decyk, 2020, p. 61, 63).

The generally inverted proportion of the average income level in relation to its dynamics was undoubtedly caused by the financial crisis and the global economic recession which started in 2008. The national economies of Romania, Estonia, Lithuania, and Bulgaria are characterized by a much lower socio-economic potential and were much more affected by the economic recession. As a result, the economies of these countries "entered the following years" (2009 and later) with a very low level of socio-economic development. For this reason, the average income in the analyzed period was, on the one hand, at a low or very low level, and on the other hand, in 2016-2019, these countries showed particularly high (the highest in the EU) dynamics in its scope.

In the case of strong European countries, such as Luxembourg, Germany, France or even Italy, the crisis did not cause a breakdown in average income, and therefore the dynamics of its increase in the analyzed period was less noticeable than in the poorer countries. For this reason, among the countries mentioned, there was a much lower growth rate of the analyzed measure. For example, Luxembourg was at the level of 117.6%, Germany was at 121.6%, and for example Italy was only at 107.2%.

The analysis of the average income level index should be extended to include the interpretation of two other indicators from the income categories, namely the Gini index and the population at risk of poverty. Analyzing the first of them, from the perspective of all European countries and throughout the analyzed period, the worst situation was in Bulgaria. In this country, the Gini index was at the level of 8.10 in 2019. This means that in this country the greatest disparities in the distribution of the population's income were identified. The situation was antagonistic in the Czech Republic, which throughout the analyzed period showed the most favorable values of the Gini index, and in 2019 its level was almost 2.5 times better (242%) than in Bulgaria and amounted to 3.34 (in 2019 Slovakia also achieved this result). Based on these data, it should be stated that in the Czech Republic and Slovakia, the lowest level of income inequalities were identified in the entire EU (Eurostat data EU-SILC survey [ilc_di11], 1.02.2022).

In terms of the percentage of the population at risk of poverty, understood as 60% of the national median sustainable disposable income, the situation in the analyzed period in the EU was stable, oscillating between 16.5% (2010) and 17.3% (2015 and 2016), which is a change of only 0.95. In 2019, in 13 countries, this indicator was below the value of the entire EU (17.0%), e.g. in Finland, Slovakia, Slovenia and Hungary. At the same time, the situation of poverty among the population was the most favorable in the Czech Republic. In the entire analyzed period, only in 2019, it slightly exceeded 10% (10.1%), in the remaining years it ranged from 8.6% (2013) to 9.8% (2011). In the remaining 14 countries, poverty was higher than the EU level, e.g. in Latvia, Estonia, Spain, Lithuania or Italy. On the other hand, Bulgaria (22.6%) and Romania (23.8%) had some of the highest percentages of the population at risk of poverty in 2019. The analysis of the Gini indicators and the population at risk of poverty confirmed the 2019 data and is included in Table 2. It concerns the average income in EU countries such as Romania and Bulgaria (Eurostat data EU-SILC and ECHP surveys [ilc_li02], 2.02.2022).

The second analyzed economic indicator, which may prove the quality of life, was the so-called material deprivation presented in percentages. It expresses a situation where families cannot afford four out of nine items, including: paying rent and utility bills, adequately heating the house, unexpected expenses, eating meat, fish or their protein equivalent every other day, one week's vacation away from home. use of a car, washing machine, TV, or telephone (*Skrajne ubóstwo*…, 2017, p. 2). It follows that the positive level of this negative indicator is the one that is as close as possible to zero. The higher its value, the worse the EQOL in each country. The situation is similar with the dynamics of the discussed measure. It is assumed that the lower the SMD dynamics index, the better. The lower value of this measure indicates an improvement in the conditions and EQOL in each country.

In general, material deprivation in most EU Member States developed positively, because of which the EQOL was satisfactory. This was evidenced by the low or very low level of the analyzed indicator, which occurred in as many as 17 countries of the Community (Tab. 3). The remaining 10 countries were characterized by moderate to high levels of material deprivation. The best situation in 2019 was in Luxembourg (1.3%). It is also worth noting that in Sweden in 2016 this rate was only 0.8% and was the lowest for the entire period under study among all EU countries. These countries, like Finland and the Netherlands, were characterized by a high or average level of GDP per capita, and these countries were classified in this respect in the top ten of all EU countries.

The lowest quality of life in the context of material deprivation occurred in the countries of south-eastern Europe, which are characterized by the poorest socio-economic situation and the poorest quality of life resulting from GDP per capita, i.e., in Bulgaria, Greece and Romania, where there are high levels of SMD. In addition, these are new countries in the EU, and this was also correlated with the level of the deprivation rate (Klimczak *et al.*, 2017, p. 17). In the cited countries, the highest percentage of households were not able to provide basic living conditions to people staying in them. In 2019, the worst situation was in Bulgaria, where approximately one in five households (20.9%) indicated a poor

Table 3

Material deprivation in EU countries (in % of a given country's population)

Country	2010	2013	2016	2019	Level of the indicator in 2019	Dynamics (2010 year =100%)
Bulgaria	45.7	43.0	31.9	20.9	high	45.7
Greece	11.6	20.3	22.4	16.2		139.7
Romania	30.5	29.8	23.8	14.5		47.5
Lithuania	19.9	16.0	13.5	9.4	medium	47.2
Cyprus	11.2	16.1	13.6	9.1		81.3
Hungary	21.6	27.8	16.2	8.7		40.3
Slovakia	11.4	10.2	8.2	7.9		69.3
Latvia	27.6	24.0	12.8	7.8		28.3
Italy	7.4	12.3	12.1	7.4		100.0
Croatia	14.3	14.7	12.5	7.2		50.3
Portugal	9.0	10.9	8.4	5.6	low	62.2
Ireland	5.7	9.9	6.7	5.4		94.7
Spain	4.9	6.2	5.8	4.7		95.9
France	5.8	4.9	4.4	4.7		81.0
Belgium	5.9	5.1	5.5	4.4		74.6
Malta	6.5	10.2	4.4	3.6		55.4
Poland	14.2	11.9	6.7	3.6		25.4
Estonia	9.0	7.6	4.7	3.3		36.7
Czechia	6.2	6.6	4.8	2.7		43.5
Austria	4.3	4.2	3.0	2.6		60.5
Germany	4.5	5.4	3.7	2.6		57.8
Denmark	2.7	3.6	2.6	2.6		96.3
Slovenia	5.9	6.7	5.4	2.6		44.1
Netherland	2.2	2.5	2.6	2.5		113.6
Finland	2.8	2.5	2.2	2.4		85.7
Sweden	1.9	1.9	0.8	1.8		94.7
Luxembourg	0.5	1.8	1.6	1.3	very low	186.4

Source: own elaboration based on Eurostat data [ilc_mddd11] (25.04.2021).

quality of life due to SMD. In Romania, 14.5% of such situations were identified. The only positive symptom in the EQOL in these countries was the fact that the dynamics of the interpreted indicator decreased significantly. In the analyzed period, it amounted to 45.7% for Bulgaria, and 47.5% in Romania, which proves a significant improvement in the EQOL and lower material deprivation.

Greece was in the worst situation, where the level of the measure was considered high at 16.2%, and in addition its dynamics tended to increase until 2016. Since then, the value of the indicator has been decreasing, but in 2019 compared to 2010 (11.6%), it is still higher by 4.6 percentage points at 16.2%.

The increase in the rate of growth occurred only in two countries, in Luxembourg and the Netherlands. This would be an alarming phenomenon were it not for the fact that these were countries with very low or low material deprivation rates, respectively 1.3% and 2.5%. The increase in SMD to the level of 1.3% and 2.5%, respectively, did not cause a significant decrease in the EQOL in these countries. In addition, as shown in the previous analysis, these countries are leaders in classifications regarding either average income or GDP per capita, so the EQOL in these parts of the EU is not threatened by a sharp drop in *ceteris paribus*.

The situations in two EU countries are noteworthy. Even though the economic crisis was also visible in their case, they managed to significantly improve their SMD performance. Examples include Latvia and Poland. In Latvia, the deprivation index decreased by more than 14.8 points, which was equivalent to the dynamics of changes at the level of 28.3% and made Latvia the second largest European economy in this respect. Poland came first, with the highest decrease in SMD (by 74.6% from 14.2% in 2010 to 3.6% in 2019). It should be noted and added that this phenomenon is permanent, and since 2016 it has been gradually decreasing by 11-20% year on year. This situation was most influenced by the deprivation component of the possibility of financing a weekly trip once a year. The percentage of people who could not meet this need decreased in 2016 compared to 2008 in Poland by over 22 percentage points (Sergeyuk, 2018, p. 19). A similar trend was observed in the case of extreme poverty in Poland, which also decreased, although less than assumed in the realistic scenario. In 2016, compared to 2015, it decreased by 25%, while a decrease of approx. 30% was assumed. The financial instrument in the form of an allowance for 500+ families was to provide support both in the case of poverty and SMD. In fact, both indicators decreased, but it should be noted that material deprivation showed a lower dynamic of decline in 2015-2016 compared to the previous years (*Skrajne ubóstwo…*, 2017, p. 4, 5).

Comparing the research results to those conducted by Raczkowska (2016, p. 518) from earlier years (2006–2014), it should be noted that there were some analogies. For example, the countries with the highest SMD index included Bulgaria, Romania, and additionally the situation from 2006 in Latvia and Poland. The research of the mentioned author showed that material deprivation dropped significantly in Bulgaria by 24 percentage points, similarly (as in the authors' own research, by 24.8 percentage points), as well as in Latvia and Lithuania.

Conclusions

The aim of the research was to identify and assess the quality of life in the Member States of the European Union, and as mentioned in the methodological part, 3 economic indicators that determine it were analyzed. The methodology used in the work allowed for the identification and assessment of the quality of life of countries in terms of the analyzed economic indicators. Based on the collected empirical material and the analyses carried out within the methodological assumptions (dynamics index), the assumed goal was achieved, and several important conclusions were obtained. Firstly, it should be noted that the highest EQOL in the analyzed period was recorded in Luxembourg (all indicators at the appropriate level), followed by Ireland, Austria, and Denmark, which achieved a high quality of life in terms of average income and a low deprivation rate (Tab. 4). All these countries were among the top five EU countries in terms of GDP per capita. Additionally, in the case of Ireland and Denmark, the results in terms of quality of life considered in the economic context confirmed the HDI values, which were at the highest level.

Table 4

Comparison of different levels of indicators in the UE countries

HDI value		Countries
High	0.938-0.955	IE, DE, SE, NL, DK, FI
Medium	0.900-0.931	BE, AT, SI, LU, ES, FR, CZ
Low	0.860-0.895	MT, EE, IT, EL, CY, LT, PL, LV, PT, SK
Very low	0.816-0.854	HU, HR, RO, BG
Average income in euro		Countries
High	28,568-42,818	LU, DK, IE, AT
Medium	17,287-28,061	FI, NL, SE, BE, FR, DE, IT, CY, ES
Low	80,22-17,246	MT, SI, EE, PT, CZ, LV, EL, LT, SK, HR, PL
Very low	4,419-6,568	HU, BG, RO
SMD in % of population		Countries
High	14.5-20.9	BG, EL, RO
Medium	7.2-9.4	LT, CY, HU, SK, LV, IT, HR
Low	1.8-5.6	PT, IE, ES, FR, BE, PL, MT, EE, CZ, SI, DE, AT, DK, NL, FI, SE
Very low	0.0-1.3	LU

Source: own elaboration.

Secondly, the countries with the lowest EQOL according to the research included Bulgaria and Romania, where the worst quality of life was identified in the context of the analyzed indicators, as well as Greece (high SMD) and Hungary (very low average income measure). The analysis of the Gini index and the poverty of the population, carried out complementary to the average income index, confirmed the lowest values of average income in the EU in Bulgaria and Romania. At the same time, it was noticed that these countries had one of the highest indicators of the dynamics of average income. This phenomenon can be explained by the fact that these countries have been presenting a very low economic potential for many years in relation to other EU countries, and the economic crisis of 2008 exacerbated these disproportions even more. At the same time, it has caused the EQOL indicators to look more favorable every year since then. Although their average income is one of the lowest in the EU, its dynamics in the analyzed period was particularly high. The deprivation rate also improved from 2010-2019 as it decreased, except for Greece, which, apart from the global crisis, is also experiencing internal economic problems. Despite the aforementioned high dynamics in terms of the quality of life in economic terms, in countries such as Bulgaria, Romania and Hungary, the HDI level was described as very low. In the case of these countries, the economic indicators analyzed in the studies were additionally confirmed by the conclusions drawn from the interpretation of the HDI index.

The last conclusion worth mentioning that enables the assessment of the quality of life in EU countries is the one concerning the quality of life in Poland, especially in the context of SMD. This country saw the highest decrease in the SMD dynamics in the analyzed period among all countries. This situation was undoubtedly influenced by greater possibilities of financing individual aspects related to deprivation, including in particular financing a weekly trip once a year, but also the possibility of covering unexpected, larger expenses, heating the apartment according to the needs, as well as maintaining an appropriate diet.

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ORIGINAL PAPER

IMPACT OF THE COVID-19 PANDEMIC ON THE PHARMACY MARKET IN POLAND

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JEL Classification: A10, C5, E30, I15.

Key words: COVID-19, drug sales, pharmacies, market shock.

Abstract

The outbreak of the COVID-19 pandemic has increased demand for medicines and hygienic personal care products. The increase in demand for medicinal products should increase the turnover of pharmacies. It was therefore hypothesised that the outbreak of the COVID-19 pandemic caused shocks to the pharmacy market in Poland. The aim was to identify and determine the nature of the shocks to the pharmacy market in Poland and compare them to the period before the pandemic. The subject of the study was the value of sales in open pharmacies in Poland in the years 2010–2021. To identify shocks and verify the hypothesis, an automatic TRAMO-SEATS procedure was used. The results obtained unequivocally confirmed the hypothesis, with the changes being more visible when analysing the value of total sales in open pharmacies expressed in current prices rather than in constant prices. The shocks were the result of increased demand for medicines and hygienic personal care products resulting from panic in the face of an unprecedented threat such as SARS-CoV-2.

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WPŁYW PANDEMII COVID-19 NA RYNEK APTECZNY W POLSCE

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Kody JEL: A10, C5, E30, I15.

Słowa kluczowe: COVID-19, sprzedaż leków, apteki, szok rynkowy.

Abstrakt

Wybuch pandemii wywołanej przez wirusa SARS-CoV-2 spowodował zwiększenie zapotrzebowania na leki oraz higieniczne środki ochrony osobistej. Wzrost zapotrzebowania na produkty lecznicze powinien wpłynąć na zwiększenie obrotów aptek. Postawiono więc hipotezę, że wystąpienie pandemii COVID-19 wywołało szoki na rynku aptecznym w Polsce. Za cel przyjęto zidentyfikowanie oraz określenie charakteru szoków na rynku aptecznym w Polsce oraz porównanie ich z okresem przed pandemią. Przedmiotem badania była wartość sprzedaży w aptekach otwartych w Polsce w latach 2010–2021. Do identyfikacji szoków i weryfikacji postawionej hipotezy wykorzystano automatyczną procedurę TRAMO-SEATS. Otrzymane wyniki pozwoliły na jednoznaczne potwierdzenie postawionej hipotezy, przy czym zmiany były lepiej widoczne w przypadku analizowania wartości sprzedaży całkowitej w aptekach otwartych wyrażonej w cenach bieżących niż w cenach stałych. Szoki były efektem zwiększonego popytu na leki oraz higieniczne środki ochrony osobistej, wynikającego z paniki w obliczu niespotykanego dotąd zagrożenia, jakim jest SARS-CoV-2.

Introduction

The outbreak of the SARS-CoV-2 coronavirus in early 2020 prompted a number of countermeasures to limit the spread of the virus. In almost all countries, restrictions on catering, hotel, and retail activities were introduced first by closing these establishments completely or partially. The in-person activity of universities, schools and kindergartens was limited, and remote education via Internet educational platforms was introduced. Cinemas, theatres, and other cultural institutions were closed. Restrictions were introduced on movement, and passenger limits in public and private transport. This caused employees to have problems with getting to their workplaces and manufacturing companies to have problems with labour shortages. As evidenced by a study by Coibion, Gorodnichenko and Weber (Coibion *et al.*, 2020, p. 1-50), due to the restrictions of the COVID-19 pandemic, there has been a reduction in employment, a decrease in consumer spending, and an increase in the poverty rate of the population, among other things. Many companies have reduced employment, and production. Remote working was introduced to reduce the spread of the virus and to limit the number of cases (Shibayama *et al.*, 2021, p. 70-93).

Business models in almost every industry changed, most notably: customer structure, distribution channels, customer relationships, revenue structure, key resources, areas of operation, partners, and cost structure (Szarucki *et al.*, 2021, p. 95-114). The change in the operating model also concerned the key (due to the provision of medicines and hygiene products used to protect against viral infection) retail outlets for that period, i.e. pharmacies. Many countries noted the need for pharmacies to adapt to the new operating conditions. As noted by Liu, Luo, Tang, Hu, Polidoro, Sun and Gong (Liu *et al.*, 2020, p. 299-304), due to the coronavirus pandemic, countries should establish new and strengthen current pharmacy services. In particular, pharmacists should be able to identify and meet the unique needs of pharmacy services that arise during a pandemic. A national emergency drug formulary should be created and pharmacists should monitor and address potential drug shortages associated with a pandemic. Targeting remote pharmacy activities to prevent the transmission of the coronavirus was also noted. Hussain, Dawoud and Babar also highlighted the implementation of drive-thru or online pharmacy services and their role in improving public health during a crisis (Hussain *et al.*, 2021, p. 1920-1924).

As highlighted above, the problem of monitoring shortages of medicines was particularly highlighted for pharmacies. This suggests that there was an increased demand for medicines and hygienic personal care products that could not be met. The increased demand caused by the panic, manifested as the hoarding of medicines and food (Gardocka-Jałowiec *et al.*, 2020, p. 176), should therefore translate into increased sales in pharmacies, including the occurrence of market shocks. It can therefore be hypothesized that "the occurrence of the COVID-19 pandemic caused shocks to the pharmacy market in Poland". Pharmaceutical market shocks, manifested by sudden increases or decreases in sales resulting in short-term or permanent changes in the level of sales, have occurred in the retail pharmaceutical market in Poland before. The factors influencing these shocks were changes in legislation and the occurrence of influenza epidemics (Olejarz-Wahba & Rutkowska-Ziarko, 2015, p. 471-479). Therefore, the aim of this study is to identify and determine the nature of shocks in the pharmacy market in Poland during the COVID-19 pandemic and to compare them to shocks occurring before the pandemic.

Research methodology and data

A market shock, understood as an outlier, is an observation that deviates so much from the other observations in the sample that it raises suspicion that this observation was generated by a different mechanism than the rest of the sample (Hawkins, 1980, p. 1-12). Market shocks can be positive, negative, one-time, temporary, or permanent, and can affect the price, level of supply, or level of demand (Blinder & Rudd, 2013, p. 1-81). The identification of these anomalies, which are sudden changes in the phenomenon under study of a dynamic nature

(Balke, 1993, p. 81-92). poses many problems in the modelling process (Chang *et al.*, 1988, p. 193-204) and often depends on the data quality.

Methods for identifying outlier observations are diverse and come from different departments of statistical research methodology: discriminant methods, taxonomic methods, density function estimation, and data visualisation and signal processing (Trzęsiok, 2016, p. 95-105). In the case of time series, the most commonly used methods to identify outliers are: the method of Chen and Liu, dedicated to ARIMA models; a method using the distance criterion based on Mahalanobis distances (Healy, 1068, p. 157-161), and methods based on the generation of statistical automatic learning methods such as SVMs (Support Vector Machines).

This paper hypothesizes that the COVID-19 pandemic caused shocks in the pharmaceutical retail market in Poland. In order to verify the hypothesis, it was decided to use an automatic method based on ARIMA models which can identify outliers (shocks) and determine their nature – the TRAMO-SEATS procedure. The Demetra+ software was used for the calculations. The TRAMO-SEATS procedure and software are recommended by Eurostat for time series analysis within the ESS (European Statistical System) in order to improve the overall quality of European statistics and ensure comparability of national data. The TRAMO-SEATS procedure was developed by A. Maravell and V. Gomez in 1996 and can identify four types of non-normal observations in time series (Muirhead, 1986, p. 39-47; Fox, 1972, p. 350-363; Chen & Liu, 1993, p. 284-297; *Handbook on Seasonal Adjustment*, 2018):

– AO – additive outliers – a one-time, significant deviation from the expected value of the studied phenomenon, which does not affect the values in subsequent periods;

– LS – level shift – a permanent change in the level of a variable;

– TC – temporary change in the level of a variable and return to the initial level, usually according to the exponential or linear function;

– IO – innovation outliers – innovative impulses caused, for example, by the application of a new production technology, causing a change in the whole data generating process, including a change in the form of the trend.

The hypothesis was verified on the basis of data obtained from monthly reports of the PEX PharmaSequence company (formerly PharmaExpert). The data covered the value of total sales in open pharmacies in Poland, and was analysed as the value of sales in current prices and in constant prices. The use of fixed prices in the analysis is aimed at ensuring the comparability of physical changes in different periods and determining the size of changes in terms of value. The monthly data came from 2010–2021 and covered the time before the COVID-19 pandemic, the beginning of the pandemic and the occurrence of the first, second and third waves of coronavirus infections in Poland.

In accordance with the current law, the term pharmacy (otherwise known as open pharmacy) is considered any pharmacy open to the public or a pharmacy point. A pharmacy open to the public and a pharmacy point are public health care facilities in which pharmaceutical services are provided, consisting of (Baka, 2011, p. 4-10) dispensing medicinal products and medical devices, preparing prescription and pharmacy drugs, and providing information about medicinal products and medical devices.

The value of total sales in open pharmacies in Poland is the sales value of the range of products available in general pharmacies and pharmacy points in Poland, which is strictly defined by pharmaceutical law and includes medicinal products prescribed by doctors and manual selling.

The pharmacies' primary product line is prescription drugs, called Rx drugs, Rp drugs, or ethical drugs. The terms prescription drugs, Rx drugs, Rp drugs, and ethical drugs are used interchangeably. Ethical drugs are sold for 100 percent (full payment) or partial payment. In the case of partial payment, we are referring to reimbursement sales (Fig. 1).

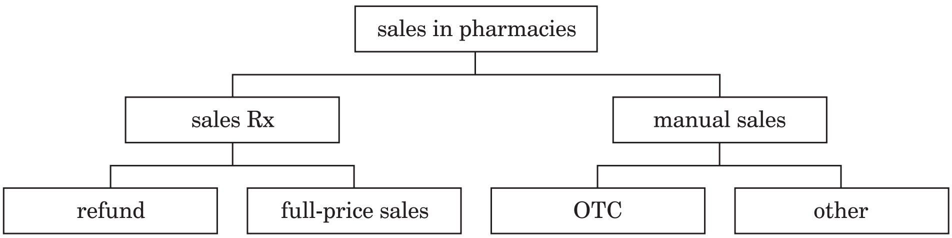

Fig. 1. Type structure of sales in pharmacies in Poland

Source: own study.

Manual selling is the sale of OTC (over the counter) medicines sold without a prescription (Odlanicka-Poczobutt, 2012, p. 249) for 100% of the price, as well as the sale of medical devices, medicinal products intended only for export, foodstuffs for special nutritional purposes, dietary supplements, cosmetics excluding cosmetics intended for perfume or beauty, hygiene products, items for the care of infants and the sick, foodstuffs containing in their composition pharmacopoeial natural ingredients of plant origin, and disinfectants used in medicine. These articles may be sold in pharmacies, provided that their storage and sale will not interfere with the primary activity of the pharmacies (Slawatyniec, 2013, p. 150, 151).

Results

The value of total sales in open pharmacies in Poland fluctuated between 2010 and 2021 (Fig. 2). Analysing the value of sales in current prices, one can see a steady increase in these sales with clear fluctuations suggesting the occurrence of seasonality and market shocks. The values of total sales expressed in constant prices, recalculated to prices from the beginning of the analysed period (January 2010) are characterised by a constant downward trend with equally visible fluctuations suggesting the occurrence of seasonality and shocks. Market shocks observed in both cases are particularly visible at the turn of 2012, the beginning of 2020 and the turn of 2021.

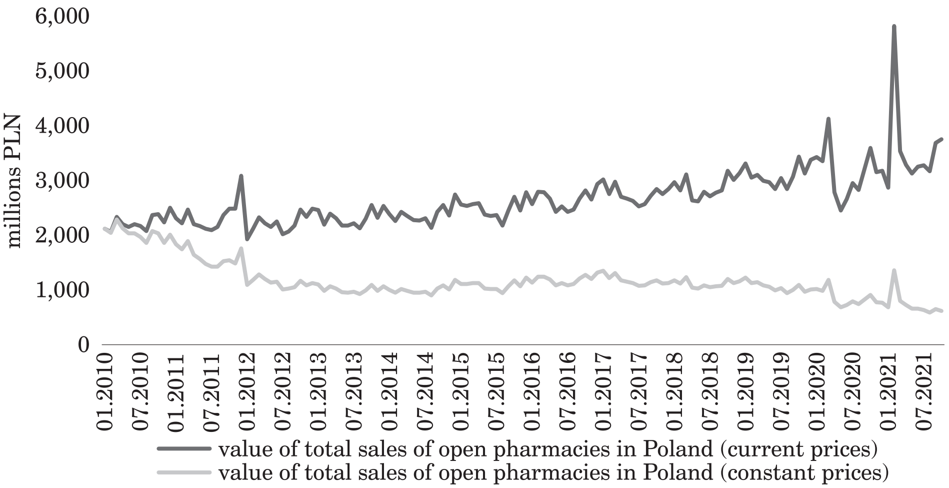

Fig. 2. Value of monthly total sales in open pharmacies in Poland in 2010–2021 in constant and current prices

Source: own study based on PEX PharmaSequence data.

Using the TRAMO-SEATS procedure, 12 outlier observations of the value of total sales in current prices and 3 outlier observations of the value of analysed sales expressed in constant prices were identified (Tab. 1). Among these observations, 5 (for sales expressed in current prices) cover the period of the COVID-19 pandemic.

The outlier observations identified for the period before the coronavirus pandemic were:

– an increase in the trend level in December 2011 as a result of a significant increase in sales of reimbursed drugs due to the implementation of new pharmaceutical law on January 1, 2012, which imposed penalties on doctors for issuing prescriptions with errors, including granting reimbursement discounts to ineligible individuals, i.e. those without health insurance. This resulted in increased purchases of medicines for stock;

– a decline in the level of the trend in January 2012 (for current prices), which was also an effect of new laws coming into force and doctors protesting about these changes. Doctors were afraid of high penalties for issuing incorrect prescriptions or prescriptions deemed unjustified and did not sign agreements with the National Health Fund to issue prescriptions for reimbursed drugs on a mass scale;

– the decrease in the level of the trend in July 2012 (for constant prices) is a result of the announcement on 28 June 2012 of a new set of reimbursed drugs along with official prices and margins;

– the sudden, one-off increase in February 2016 (for current prices) was not accompanied by changes in legislation. However, this was a period of increased flu and cold cases;

– the sudden, one-time increase in January 2017 (for current prices) may also have been due to a period of increased flu and cold illnesses;

– the temporary decrease in sales in April 2018 and March 2019 (for current prices) were not accompanied by significant regulatory changes.

Table 1

Outliers of total sales in open pharmacies in Poland identified by the Tramo-SEATS procedure

Total sales in current prices		Total sales in constant prices	
Outlier	parameter (*p*-value)	outlier	parameter (*p*-value)
TC (12.2011)	0.1534 (<0.000)	LS (01.2012)	-0.4067 (<0.000)
TC (01.2012)	-0.3662 (<0.000)	LS (04.2020)	-0.3334 (<0.000)
LS (07.2012)	-0.0905 (<0.000)	AO (02.2021)	0.6665 (<0.000)
AO (02.2016)	0.0731 (<0.000)	–	–
AO (01.2017)	0.0836 (<0.000)	–	–
TC (04.2018)	-0.1034 (<0.000)	–	–
TC (03.2019)	-0.0647 (<0.000)	–	–
LS (03.2020)	0.1509 (<0.000)	–	–
LS (04.2020)	-0.3826 (<0.000)	–	–
LS (07.2020)	0.1342 (<0.000)	–	–
TC (12.2020)	-0.1685 (<0.000)	–	–
AO (02.2021)	0.6311 (<0.000)	–	–

Source: own study based on PEX PharmaSequence data using Demetra+.

The first case of coronavirus infection in Poland was confirmed on 4 March 2020. Two weeks later, the first restrictions were introduced, including the suspension of in-person classes in schools and the introduction of remote education and restrictions on movement. Fear of the virus led to increased interest in medicines and personal protective equipment (masks), which translated into an increase in total sales in open pharmacies in Poland (at current prices) identified as a change in the trend level (growth). This increase amounted to approx. 23.26% in comparison with the previous month, shaping the sales of pharmaceutical products and open pharmacies in Poland at the level of PLN 4,127 billion. Strong interest in products from the pharmacy offer, with simultaneous shortages of supply and introduced restrictions on movement resulted in a decline in total sales in April 2020 in current prices (down by approx. 32.52%) and in constant prices (down by approx. 33.64%), identified as a decrease in the trend level. In contrast, in July 2020 there was an increase in total sales (by approximately 11%) in open pharmacies identified as a change in trend level (increase) most likely triggered by increased purchases of pharmacy cosmetics during the summer. At the end of 2020, a reduction in the level of total sales (trend) (at constant and current prices) was identified, triggered by the occurrence of large drug shortages in pharmacies and a reduction in movement during the holiday period. Sales in December 2020 were approx. 6.84% lower than in December 2019 and amounted to 3,178 billion. In contrast, the sudden increase in sales in February 2021 was the result of increased sales of medicines due to the occurrence of the next wave of the COVID-19 pandemic. This was the largest increase recorded in the entire period under review and was 102.99% for current prices and about 99.41% for fixed prices. The value of sales of all pharmaceutical products in February 2021 amounted to PLN 5,820 billion.

Conclusion

Changes in legislation and the increased number of cases of influenza and the common cold caused shocks in the pharmacy market in Poland prior to the COVID-19 pandemic. During the COVID-19 pandemic, shocks in the value of total sales of pharmaceutical products in general pharmacies in Poland concerned only situations related to the pandemic itself. There were no shocks related to changes in legislation. These sudden changes were more pronounced for total sales expressed in current prices than in constant prices. Shocks were also much greater in the pandemic period than in the pre-pandemic COVID-19 period, and reached up to 100% (increase on the previous month) showing how the public panicked at the emergence of an unprecedented threat, i.e. the SARS-CoV-2 coronavirus. The panic was reflected in greater purchases of medicines and the accumulation of medicines in households. These shocks would probably have been much greater had it not been for the supply constraints associated with the lack of supply of medicines and hygienic personal care products from China and other countries.

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ORIGINAL PAPER

HOUSING SITUATION OF STUDENTS DURING THE COVID-19 PANDEMIC – A CASE STUDY FROM POLAND AND PORTUGAL

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JEL Classification: D14, E21, G51.

Key words: housing conditions, living conditions, shopping behaviour, pandemic, COVID-19.

Abstract

The occurrence of the first illnesses of the inhabitants of Poland and Portugal caused decision-makers to introduce many changes in the functioning of economic units in various areas. This document aims to answer the questions of whether the changes related to the occurrence of COVID-19 had a significant impact on the housing situation of students by answering two questions: (1) How has the pandemic affected the change in the form of residence? (2) What changes in the provisions of the contract do students expect after returning to the full-time form? The empirical study was conducted based on data obtained from a survey. The research was conducted in May and June 2021 on a sample of 599 students at the University of Warmia and Mazury in Olsztyn and the School of Technology and Management of Porto Polytechnic in Portugal. The analysis related to the

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determination of statistically significant interdependencies of socio-demographic characteristics of respondents with their attitudes, and a multidimensional method of comparative analysis was used, known as correspondence analysis. As a method of recording data in the analysis of correspondence, the Burt matrix was used. The result of the statistical analysis was the identification of structural relationships between variables and objects (respondents). The results showed different behaviours related to housing conditions in Poland and Portugal. Polish students, due to the epidemiological situation, were mostly forced to change their place of residence, which was usually associated with returning to their family home. This trend was not observed for students in Portugal (median response: Housing had not been affected in any way by the pandemic).

SYTUACJA MIESZKANIOWA STUDENTÓW PODCZAS PANDEMII COVID-19 – STUDIUM PRZYPADKU POLSKI I PORTUGALII

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Kody JEL: D14, E21, G51.

Słowa kluczowe: warunki mieszkaniowe, warunki życia, zachowania zakupowe, pandemia, COVID-19.

Abstrakt

Pierwsze zachorowania mieszkańców każdego kraju spowodowało wprowadzenie przez decydentów wielu zmian w różnych obszarach funkcjonowania jednostek gospodarczych. Celem pracy było rozstrzygnięcie, czy zmiany związane z wystąpieniem COVID-19 mają istotny wpływ na sytuację mieszkaniową studentów na podstawie ich odpowiedzi na dwa pytania: (1) Jak pandemia wpłynęła na zmianę formy zamieszkania? (2) Jakich zmian w zapisach umowy oczekują studenci po powrocie do formy stacjonarnej? Badanie empiryczne przeprowadzono na podstawie danych uzyskanych z ankiety. Badania przeprowadzono w maju i czerwcu 2021 roku na próbie 599 studentów Uniwersytetu Warmińsko-Mazurskiego w Olsztynie oraz School of Technology and Management of Porto Polytechnic in Portugal. Do analizy związanej z określeniem statystycznie istotnych współzależności cech społeczno-demograficznych respondentów z ich postawami wykorzystano wielowymiarową metodę analizy porównawczej – analizę korespondencyjną. Jako metodę zapisu danych w analizie korespondencji zastosowano macierz Burta. Wynikiem analizy statystycznej była identyfikacja zależności strukturalnych między zmiennymi a obiektami (respondentami). Wyniki pokazały różne zachowania związane z warunkami mieszkaniowymi w Polsce i Portugalii. Polscy studenci, ze względu na sytuację epidemiologiczną, byli w większości zmuszeni do zmiany miejsca zamieszkania, co zwykle wiązało się z powrotem do rodzinnego domu. Tendencji tej nie zaobserwowano w przypadku studentów w Portugalii (mediana odpowiedzi: pandemia w żaden sposób nie wpłynęła na mieszkalnictwo).

Introduction

The emergence of a new reality caused by the coronavirus caused several changes, both at the individual level and in society in general. Initially, all government activities were aimed at improving and preparing the health service. Nevertheless, it was expected that the need for isolation, changing the work system to an online model, and government restrictions aimed at the lowest possible spread of COVID-19, would greatly affect changes in the living conditions of every citizen (Słaby, 2011, p. 127; Borys, 2008, p. 130; Panek, 2015, p. 56; Kisiel & Woźnialis, 2021, p. 23; Budowski *et al.*, 2016, p. 1048; Grzywińska-Rąpca, 2021, p. 950; Tran *et al.*, 2020, p. 2; Epifanio *et al.*, 2021, p. 2).

Both in Poland and Portugal, the key date of the beginning of changes as a result of the first COVID-19 cases was the beginning of March 2020. At that time, most state and educational institutions, as well as some enterprises were forced to work remotely. The Portuguese school considered for this study is located in the first city affected by the pandemic in Portugal. In fact, in this city, schools went into lockdown one week previous to the remaining cities in Portugal. After some time, policymakers started to prepare and carried out intensive activities aimed at minimizing economic damage while taking measures to reduce the number of coronavirus cases.

Students are a specific but essential part of the residential real estate market. Taking up higher education often involves a change of place of residence. This is not only the case for people from small and medium-sized towns and rural environments. After all, educational migrations (McGill, 2013, p. 170; Grabowska, 2013, p. 115; Rokita-Poskart, 2017, p. 88; Kuźniar & Cyran, 2020, p. 42) can be transnational, transforming the demographic structure of both the receiving and sending areas. One of the consequences of such a process may be a “brain drain” (Docquier, 2012, p. 681), pushing young people out of areas with lower socio-economic potential to centres that are, according to F. Perroux’s concept, poles of growth (Dyjach, 2013, p. 51). In addition, students can undoubtedly be included in the group of “young adults” (Arnett, 2000, p. 472) who are taking the first steps towards becoming independent.

One of the manifestations of this process is the independence of residence. In the case of students, moving to cities that are academic centers involves the choice of form and method of residence. This choice is dictated primarily by the possibility of satisfying social and living needs, the level of social infrastructure in the area and the price of real estate (Źróbek-Różańska 2018, p. 110). Retrospectively, the original place of accommodation for students were student dormitories (Zasina, 2018, p. 72). Living in a dormitory was associated with a relatively low rental price, favourable location and cohabitation with a peer group. Both in Poland and Portugal, along with the development of higher education and the increase in the number of students, interest in renting apartments on the secondary market grew (Nykiel, 2012, p. 99; Barbosa, 2018, p. 23;

Janusz, 2016, p. 375). The number of units for rent was a response to the reported demand, constituting an important part of the market in cities where higher education institutions are located. The most desirable were usually resources located in the immediate vicinity of the university. In general, the development of the rental housing market is a positive phenomenon, because according to M. Cesarski (2013, p. 125) it boosts the economy based on the "multiplier effect".

Along with the economic development and the growing standard of living of citizens, the interest in renting an apartment during higher education grew. This was supported by a higher standard of the resource and the possibility of choosing roommates, or having an exclusive apartment. This state of affairs is confirmed by the data contained in the report "Students on the real estate market" from 2020, where 52% of respondents declared renting an apartment during their studies. Naturally, one of the possibilities of independence was to buy an apartment, but this was the domain of a small portion of the students. According to the findings of the above-mentioned report, about 7% of students declared that they owned their own real estate. On the other hand, 14% of Polish students lived in the dormitory. From the Portuguese side, even not being possible to identify similar research, it is possible to realize from several web publications, that only 10% of the students can get a place in a dormitory (Barbosa, 2018, p. 26; Lusa, 2018).

In the literature, the housing situation of students was the subject of studies in the context of their impact on urban space; hence, among others concepts, the idea of studentification appeared (Smith, 2005, p. 79; 2002, p. 15; Nakazawa, 2017). It has been proven that the formation of districts in which there is an increasing number of students living causes a re-evaluation of real estate transaction prices in these locations (Revington *et al.*, 2018, p. 191; Revington & August, 2020, p. 860). Thomsen and Eikemo (2010) surveyed Norwegian students on satisfaction with occupied properties. In the case of a large number of apartments for rent, satisfaction with a particular resource can be a determinant of its long-term settlement. The results of the study have also indicated that the form of lease/ownership, i.e. cohabitation of several people or independent living, is equally important. McBride (2017, p. 194) and Romero (2017, p. 158) have described how the student real estate market will change, primarily as a result of distance education. After the pandemic period, Sotomayor *et al.* (2022, p. 18) pointed out problems related to finding suitable prices and locations of student properties in large urban centers.

The pandemic and the related restrictions in the form of the need for remote learning, among others, have forced numerous changes in the real estate market. They have an impact on both tenants and owners of premises. For the former, it was a time of making strategic decisions related to the way of living, while for the latter it was necessary to renegotiate lease agreements and probable losses caused by the lack of interest in the resource in the event of a persistent pandemic.

Methodological assumptions

The empirical study aimed to determine the impact of the epidemiological situation on changes in students' housing conditions. The study was conducted using the survey method, and the use of this form of measurement was determined by the possibility of its implementation during lectures, while yet ensuring the anonymity of students completing the questionnaire. The research instrument was a standardized survey questionnaire.

The research was conducted in May and June 2021 on a sample of 599 students of the University of Warmia and Mazury in Olsztyn and the School of Technology and Management (Porto Polytechnic) in Portugal. It was estimated that for this period, the great basic macroeconomic indicators would indicate that the crisis caused by the COVID-19 epidemic may be the cause of many adverse changes in various areas of life. It can therefore be assumed that the date of the study is an appropriate term for analyses allowing the diagnosis of student behaviour regarding changes in the housing market and changes in shopping behaviour. The aim of this study was to identify the housing changes and purchasing behaviours, during COVID-19, of respondents participating in the survey.

Based on the data set obtained from the survey, the frequency of occurrence of specific response variants and the socio-demographic structure of respondents were determined, which is presented in the next chapter. For the analysis related to the determination of statistically significant interdependencies of socio-demographic characteristics of respondents with their attitudes, a multidimensional method of comparative analysis was used, which was a correspondence analysis. According to Stanimir (2005, p. 35), the analysis of correspondence in the literature is also referred to as the analysis of correspondence or the analysis of connections. As part of the correspondence analysis procedure, the expected numbers are determined in order to check the independence of the characteristics. In the case when the expected abundances are significantly different from the observed ones, we are describing the dependence of features. If the empirical value of the statistic χ^2 is less than or equal to the critical value χ^2_α there is no basis for rejecting the null hypothesis, and it must be stated that the features are independent. When the value χ^2 is greater than the critical value χ^2_α grounds for rejecting the null hypothesis exist, and it must be stated that there is a dependence of features. At the same time, the analysis aims to lose as little information as possible about the relationships between the points set for the rows and columns. These points indicate the relationship between the characteristics of the respondents and the analyzed variables. (Stanimir, 2005, p. 47; Andersen, 1994, p. 180; Andersen *et al.*, 2020, p. 450).

Correspondence analysis is a method that belongs to the multidimensional group. It examines the coexistence of two or more features describing the objects. When considering more than one feature, multivariate analysis is used through the Burt matrix, a complex marker matrix, a multivariate emergency analysis or a combined fail array (Greenacre, 2007, p. 298). This study used the Burt matrix, which, according to Stanimir (2005, p. 51), is the most commonly used method of data recording in correspondence analysis. The main goal of the correspondence analysis was to find structural relationships between variables and objects (respondents).

Characteristics of respondents

The group of respondents was homogeneous in terms of age. It consisted of adults who were not yet 24 years old. Among the Polish respondents, the majority were women (72%) (Fig. 1).

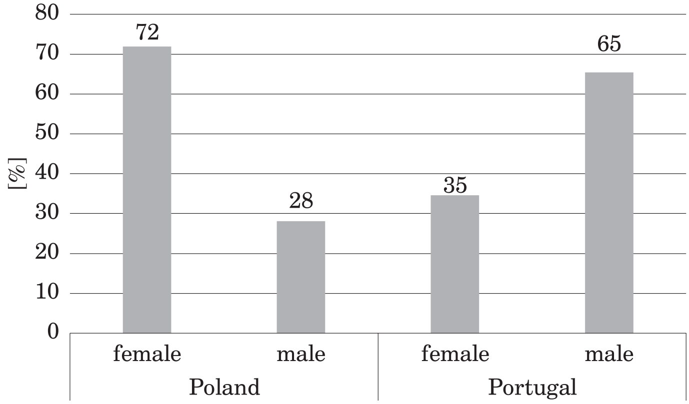

Fig. 1. Structure of respondents
Source: own study based on the results of the survey.

Among Portuguese students, the most popular form of residence before the pandemic was the family home. This might be explained since the institution where the survey was applied is located in a small city distanced 60 km from Porto (which is the second-largest city in Portugal). The group that indicated this option of response accounted for 27.30% of Portuguese students (Tab. 1).

A survey of students from Poland and Portugal shows that the COVID-19 pandemic, despite various housing inconveniences, did not increase housing fees. Such answers were given by a group of 28.60% of respondents from Portugal and as many as 46.79% of students from Poland. The figure resulting from the Polish students, may be due to the fact that almost 41% of students in Poland (from the group participating in the study) returned to their family home and housing fees were distributed among all family members. There was no difference in the answers to the question related to housing expectations after returning

Table 1

Summary of the frequency of responses regarding the form of residence and students' expectations regarding housing conditions after returning to the form of stationary learning

Specification	Portugal	%	Poland	%
Form of residence before the pandemic	family home (with parents)	27.30	apartment in a rented room in a student house/apartment	19.87
Impact of the COVID-19 pandemic on the housing situation	had no influence (I am living in the same place)	32.30	return to the family home (leaving the student house/rented apartment/room)	40.44
Impact of the COVID-19 pandemic on housing fees	same as before the pandemic	28.60	same as before the pandemic	46.79
Expectations of housing conditions after returning to the form of stationary learning	identical or similar to pre-pandemic conditions	20.70	identical or similar to pre-pandemic conditions	45.56
Expected provisions in lease agreements for flats of houses/flats as a result of the COVID-19 pandemic	refund of part of the monthly fee for the apartment (in the case of an incomplete month related to sudden events)	7.50	shorter notice period	14.74

Source: own study based on the results of the survey.

to full-time learning. Both students from Poland and Portugal indicated that they expect conditions identical or similar to those in which they lived before the pandemic.

The subject of the analysis of the obtained data as a result of the survey was to identify the relationships between the characteristics of the respondent (gender and nationality) and the opinions of respondents in the scope of the proposed options for answering the question: how the pandemic affected the form of residence. Verification of the claim that there is a difference between the change in the form of residence and the gender and nationality of the respondent requires the formulation and consideration of the following hypotheses:

H0: the opinion on the impact of the pandemic on the form of residence does not depend on the gender and nationality of the respondent, and

H1: the opinion on the impact of the pandemic on the form of residence depends on the gender and nationality of the respondent.

In order to validate that the necessary statistics for the verification of hypotheses have been determined χ^2, the critical area, the level of significance and the critical value were evaluated. The obtained values allowed the rejection of the null hypothesis in favour of the alternative hypothesis. Therefore a two-dimensional perception map was obtained showing the relationship between the features adopted for analysis. The occurrence of the COVID-19 pandemic and the change of the form of teaching to remote (both in Poland and Portugal) caused a change in the students' place of residence. The conducted analysis of correspondence related to the determination of the χ^2 value (total $\chi^2=173.578$; d$f=9$; $p=0.000$) and the critical value together with singular values and the percentage of inertia allowed to present the relationship in a two-dimensional space. The first dimension allows the reproduction of 98.32% of total inertia (inertia), and the second 1.08% (Fig. 2).

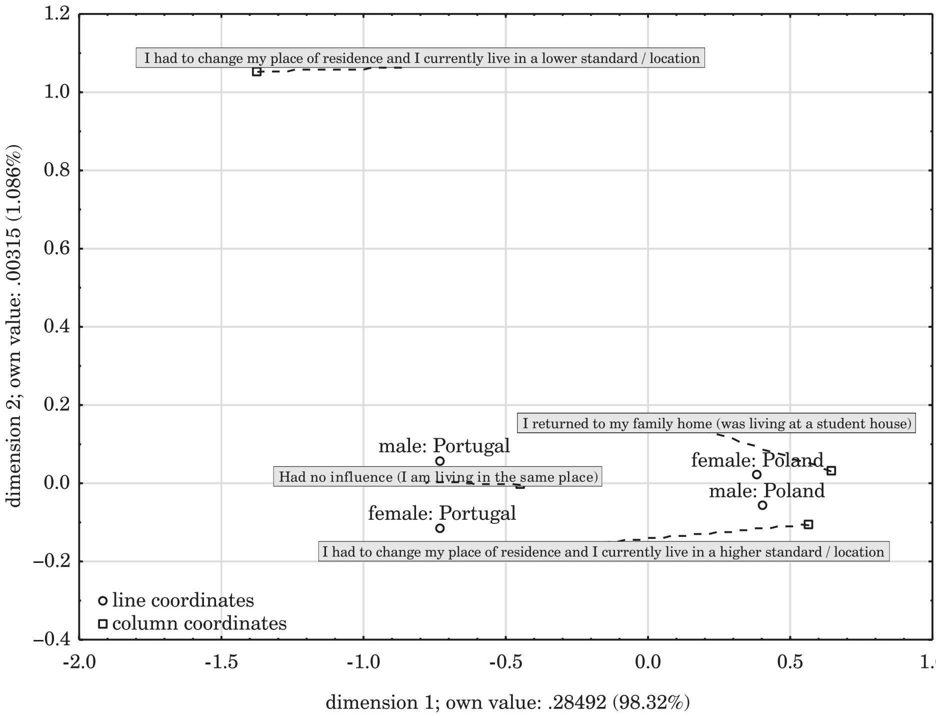

Fig. 2. Presentation of respondents' dependencies on the impact of the pandemic on housing conditions depending on gender and nationality
Source: own study.

The points representing the coordinates of rows and columns indicate a correlation between the variant of respondents' opinions on the impact of the pandemic on housing conditions with regard to gender and nationality. A typical response representing students from Portugal (both male and female) was: "the pandemic did not affect the change of residence". In the case of Polish students, the typical answers from students living in a dormitory were: "I returned to the family home"; while for students renting a dwelling, the typical answer was: "changing the place of residence in order to increase the standard".

The subject of another analysis was to demonstrate the interdependence between the determination of the impact of the pandemic and the amount of housing fees, by gender and nationality of respondents. The conducted analysis of correspondence was related to the determination of value χ^2 (total χ^2=237,259; df=18; p=0.000) and critical value. This data, together with singular values and the percentage of inertia, allowed the presentation of relationships in two-dimensional space. The first dimension allows the reproduction of 94.82% of total inertia (inertia), and the second 5.12% (Fig. 3).

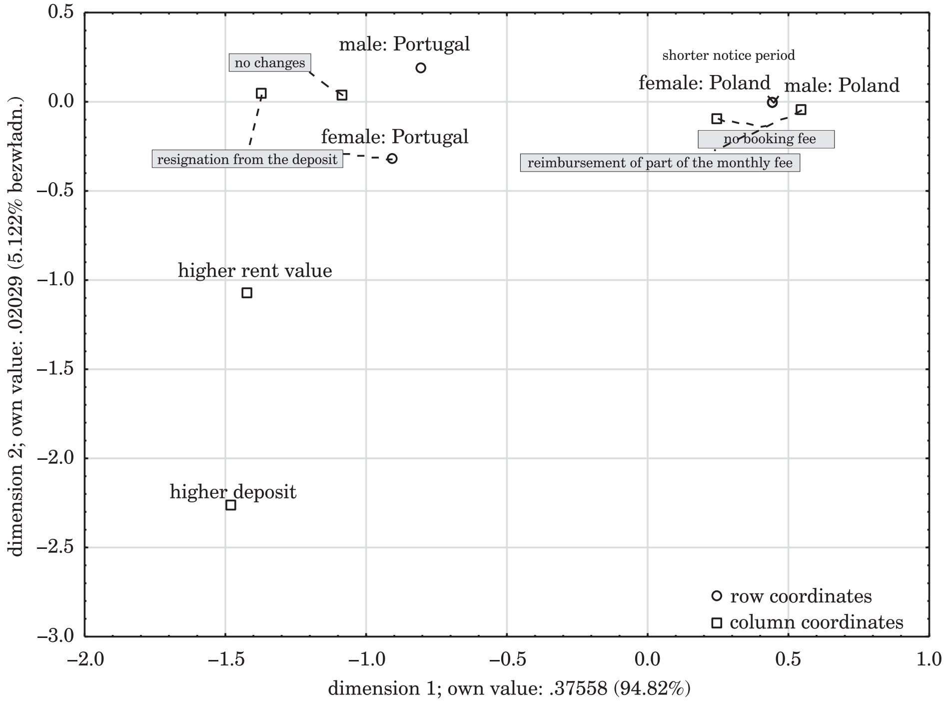

Fig. 3. Presentation of the dependence of the impact of the pandemic on the amount of housing fees, taking into account the gender and nationality of respondents
Source: own study.

In the group of students participating in the study, two relationships are visible (Fig. 3). The faction represented by students living in Portugal expects the rental agreement to include provisions related to the lack of a deposit. A group of respondents represented by students living in Poland showed expectations of reimbursement of part of the fees.

Conclusions

The occurrence of the COVID-19 pandemic has caused numerous, most often unfavorable, changes in many areas of life. Conducting a study on the assessment of changes in the housing conditions of students in Poland and Portugal during the pandemic was aimed at showing differences in the changes in their situation. The results of the analysis of the responses representing students in the two selected countries (Poland and Portugal) have shown similar behavior related to housing conditions. Both Polish and Portuguese students have shown similar expectations regarding housing conditions after returning to full-time education (median answer: they expect housing conditions identical or similar after returning to university in a stationary form) and did not notice the impact of the COVID-19 pandemic on housing fees. Polish students, due to the epidemiological situation, were mostly forced to change their place of residence, which was usually associated with returning to their family home. This trend was not observed for students in Portugal (median response: Housing has not been affected in any way by the pandemic).

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ORIGINAL PAPER

THE RELATIONSHIP BETWEEN STATE BUDGET REVENUES FROM CORPORATE INCOME TAX AND THE AMOUNT OF PRIVATE INVESTMENT BY SMALL, MEDIUM AND LARGE ENTERPRISES

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JEL Classification: P43, H20, H7, O16.

Key words: corporate income tax, private investment, tax neutrality, tax revenue, correlation.

Abstract

Investing is inherent in the budgetary decisions of legal entities regardless of their size. Macroeconomic, financial and institutional factors affect the environment of investment activity. The article considers one of the elements of the macro environment of enterprises which is the relationship between state budget revenues from corporate income tax and investment outlays of small, medium and large enterprises in the private sector of the national economy. The aim of the study is to identify the relationship between state budget revenues from corporate income tax and the amount of outlays in the private sector of the national economy among enterprises with more than nine employees in Poland in the years 2010-2020 on the basis of data from the Central Statistical Office and reports approved by the Council of Ministers on the implementation of the state budget in the period from 2010 to 2020 contained on the website of the Ministry of Finance. The Pearson correlation analysis method was used to verify the research hypothesis. Based on the obtained value of Pearson's correlation coefficient, it was found that there is a very strong stochastic positive relationship between state budget income from corporate income tax and investment expenditures in the private sector of the national economy among small, medium and large enterprises.

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ZWIĄZEK MIĘDZY DOCHODAMI BUDŻETOWYMI PAŃSTWA Z TYTUŁU PODATKU DOCHODOWEGO OD OSÓB PRAWNYCH A WYSOKOŚCIĄ INWESTYCJI PRYWATNYCH MAŁYCH, ŚREDNICH I DUŻYCH PRZEDSIĘBIORSTW

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Kody JEL: P43, H20, H7, O16.

Słowa kluczowe: podatek dochodowy od osób prawnych, inwestycje prywatne, neutralność podatkowa, dochody podatkowe, korelacja.

Abstrakt

Inwestowanie jest nieodłącznym elementem decyzji budżetowych podmiotów prawnych, niezależnie od ich wielkości. Czynniki makroekonomiczne, finansowe i instytucjonalne wpływają na otoczenie działalności inwestycyjnej. W artykule rozważono jeden z elementów makrootoczenia przedsiębiorstw, jakim jest związek między dochodami budżetowymi państwa z tytułu podatku dochodowego od osób prawnych a nakładami inwestycyjnymi małych, średnich i dużych przedsiębiorstw w sektorze prywatnym gospodarki narodowej. Celem badania jest identyfikacja zależności między dochodami budżetowymi państwa z tytułu podatku dochodowego od osób prawnych a wysokością nakładów w sektorze prywatnym gospodarki narodowej wśród przedsiębiorstw zatrudniających powyżej dziewięciu pracowników, w Polsce w latach 2010-2020, na podstawie danych Głównego Urzędu Statystycznego oraz zatwierdzonych przez Radę Ministrów sprawozdań z wykonania budżetu państwa od 2010 do 2020 roku, zawartych na stronie Ministerstwa Finansów. Do weryfikacji postawionej hipotezy badawczej wykorzystano metodę analizy korelacji Pearsona. Na podstawie uzyskanej wartości współczynnika korelacji Pearsona stwierdzono, że między dochodami budżetowymi państwa z tytułu podatku dochodowego od osób prawnych a nakładami inwestycyjnymi w sektorze prywatnym gospodarki narodowej wśród małych, średnich i dużych przedsiębiorstw występuje bardzo silna stochastyczna zależność dodatnia.

Introduction

In planning tax policy, government authorities should pay particular attention to the type and strength of its relationship with private investment, since in the future the relationship between the two may determine the level of government tax revenues. The functioning of an enterprise in market economy conditions is determined by various factors, which may have a stimulating or destructive impact on it. In general, the macroeconomic environment is a factor that determines the functioning of an enterprise, a particular element of which is the tax burden. These burdens constitute a significant limitation in the company's operations (both current and future), as they reduce the resources remaining at its disposal. Among them, the most important is income tax.

The assessment of the impact of taxes on the level of private investment of enterprises in the macroeconomic scale is very complex, so for the purpose of this study the consideration was limited to corporate income tax. It was hypothesized that there is a stochastic relationship between state budget revenues from corporate income tax and the level of investment expenditures in the private sector of the national economy of small, medium and large enterprises. The Pearson correlation analysis method was used to verify the research hypothesis. The study examined the relationship between state budget revenues from corporate income tax and the amount of investment outlays in the private sector of the national economy among enterprises employing more than nine employees in Poland in 2010-2020.

This article deals with the fundamental aspect of the policy environment of Polish enterprises, which has so far been neglected by domestic researchers. The results and conclusions contained in the article are the basis for further research on the macro environment of enterprises and its relationship with the amount of investment expenditures of small, medium and large enterprises in the private sector of the national economy.

Taxation and the financial result of a company

For businesses, taxes are a tool that regulates the level of monetary resources. The enterprise can adopt different attitudes towards the tax, which will result in differential effects for both the public authority and the enterprises themselves (Dębniak, 2016, p. 87-95). According to public finance literature, the optimal rate of income taxation should be zero because it distorts the inter-temporal allocation of resources in the economy between the present and the future, which negatively affects economic growth (Kate & Milionis, 2019, p. 758-805). As demonstrated by R.J. Barro and followed by P. Aghion, U. Akcigit, J. Cage, and W. Kerr, the overall impact of taxation on corporate performance depends on the design and efficiency of taxation (Aghion *et al.*, 2016, p. 24-51). P. Egger, K. Erhardt and C. Keuschnigg presented a model depicting the interrelation between the size of the company and the response to different forms of taxation. According to the results of their research, small firms are credit constrained, which makes investments sensitive to cash flow and amount of collateral. As a result, higher tax rates reduce internal funds and lower investment levels (Egger *et al.*, 2014, p. 512-538). As a result of the reduction in the income tax burden, the ability to finance business activities through the accumulation of earned profits increases. The conducted scientific research proved that small business entities are burdened with higher corporate income tax due to limited opportunities to apply tax optimization (Adamczyk, 2012, p. 31-39).

Tax neutrality principle versus investment tax preferences

Corporate taxation is subordinated to the monetary and fiscal function. The share of income taxes in the tax revenues of the state budget is dominant, so the public authority should pay special attention to the proper construction of the tax system so that it effectively performs its functions (Sosnowski, 2016, p. 14-52). Among the tax principles formulated by A. Smith, the principle of neutrality of taxation is particularly relevant to the topic under consideration (Smith, 1954, p. 200-584). According to this principle, taxation should not affect the market choices of economic agents, because they make decisions on the basis of comparison of revenues and costs. If taxation affects the value of one of the above mentioned items, this situation may lead to distortion of market choice. The postulate of tax neutrality states that taxes should not unduly interfere with market mechanisms. A manifestation of tax neutrality in this area would be a situation in which equal benefits would be obtainable by different market entities regardless of their legal form or other factors indicated by the legislator (such as place of business) (Hiort af Ornäs Leijon, 2015, p. 4-21). Tax preferences may stimulate the development of such investments, which without the functioning of a given investment incentive would not be undertaken by a given entity at a given time. Tax instruments should not determine situations in which less profitable investments would be made instead of those that would have been made if the preferential regulations had not been introduced (Devereux & Mooij, 2011, p. 7-29).

Tax policy making and the relationship between corporate taxation and investment are of interest to scholars who have produced a body of empirical research on the relationship between corporate taxation and investment. Most of the research is based on a pioneering article by R.E. Hall and D.W. Jorgensen (Hall & Jorgensen, 1967, p. 391-414). The subject of their research was a measure of tax-adjusted cost of capital. Research by J.G. Cummins, K.A. Hassett, and R.G. Hubbard focused on the short-run responses of firm-level investment to tax reforms (Cummins *et al.*, 1996, p. 1-69). Their study was extended to include the results that for the first time did not rely on a theoretical model of optimal firm investment (Djankov *et al.*, 2010, p. 31-64). Empirical evidence of the strong effect of tax preferences on capital output ratio was presented in a sectoral panel study of fourteen OECD countries (Bond & Xing, 2015, p. 15-31).

Tax preferences as an encouragement to make investments

A significant part of tax preferences related to the Polish corporate income tax is directed at increasing the level of investment. Taking into account the income tax burden on enterprises, attention should be paid to the importance of instruments incorporated into the structure of the Polish corporate income tax system. An example of such instruments are basic pro-investment mechanisms functioning in the framework of CIT aimed at increasing material investments in an enterprise. Support is granted in the form of exemption from CIT in connection with the realization of new investments. The percentage of preference depends on the size of the enterprise and its location. In addition, the possibility of deducting the tax burden can be used by entrepreneurs for up to a dozen years (Ministry of Development and Technology, 2022). The size of the investment activities undertaken may also be linked to the availability of subjectively cheap sources of financing in the company. One of the most significant elements affecting the size of a company's bottom line is income tax, as it can shape the size of the bottom line in many ways. Tax rates, the construction of the tax base, applied depreciation solutions, the deduction of losses from previous accounting periods, as well as solutions for taxing leasing affect the profitability of the investment and the assessment of its profitability (Corporate Income Tax Act, 1992). Research conducted by A. Adamczyk (2019, p. 9-22) confirmed that tax preferences introduced into the Polish tax system consisting in the application of a reduced income tax rate for small taxpayers may affect optimization activities. The application of optimization did not cause a decrease in the dynamics of net profits but influenced its improvement. On the other hand, if the level of investment of economic entities in the country is high, the state authorities are not interested in applying tax preferences that would encourage decisions aimed at raising this level within the instruments of fiscal and monetary policy (Uchamn, 2014, p. 45-56).

Investment decisions are made under alternative assumptions about variables that include the interest rate, inflation rate, and financing methods (debt or equity). The decision diagrams also consider depreciation rules for different types of capital investments provided by tax laws. In terms of private business investment, the statutory corporate tax rate has been found to be the most empirically relevant measure of taxation (Gemmell *et al.*, 2018, p. 372-399). Economist M. Kalecki conducted an exhaustive analysis of the driving forces behind investment activity. According to M. Kalecki's thesis, investments depend more on expected profitability and less on interest rates. In the model of the Polish economist, investment decisions were determined by the amount of expected profit, i.e. the resultant of total demand and total capital stock (Klimiuk, 2020, p. 7-36). The thesis that profits are the main determinant of investment was also voiced by J. Pen (1972, p. 120-205). The statement proclaiming that profit is the goal and creates the main incentive for investment, and furthermore serves to finance a significant part of investment, was also confirmed by J. Tinbergen's research (Klimiuk, 2020, p. 7-36).

Methodological assumptions of the study

The Pearson correlation analysis method was used to verify the existence of a relationship between state budget revenues from corporate income tax and the amount of investment expenditures of small, medium and large enterprises in the private sector of the national economy. Micro-enterprises were not included in the study in order to exclude entrepreneurs taxed with personal income tax. The division of enterprises according to their size was made in accordance with the recommendations of the European Union Commission of 6 May 2003 on the definition of micro, small and medium-sized enterprises (Official Journal of the European Union, L 124/39).

Pearson's linear correlation coefficient is the most often used measure of relationship when both characteristics in a study are quantitative and the relation between them is linear. Two variables were used in the study. The variable *X* denotes the amount of government revenue from corporate income tax, and the variable *Y* denotes investment expenditures in the private sector of the national economy among enterprises with more than nine employees.

The formula for the *r*-Pearson correlation coefficient has the following form:

$$r_{xy} = \frac{\sum(X_i - \bar{X}) \cdot (Y_i - \bar{Y})}{\sqrt{\sum(X_i - \bar{X})^2 \cdot \sum(Y_i - \bar{Y})^2}} \tag{1}$$

where:

r_{xy} – *r*-Pearson correlation coefficient between variables *x* and *y,*
$X_i Y_i$ – *i*-th values of variables under study,
$\bar{X}, \bar{Y}$ – averages of population *X* and *Y*.

The correlation was evaluated along with the coefficient interpretation based on the Table 1.

Table 1

Correlation coefficient values and their interpretations

Correlation coefficient values	Interpretation
0.00 – 0.19	no linear relationship
0.20 – 0.39	weak linear relationship
0.40 – 0.59	moderate dependence
0.60 – 0.79	strong dependence
0.80 – 1.00	a very strong relationship

Source: own elaboration based on Swinscow & Campbell (2002).

The data used for the purpose of the study was sourced from the Central Statistical Office and the Council of Ministers approved reports on the implementation of the state budget from 2010 to 2020 featured on the website of the Ministry of Finance. To achieve the intended objectives, linear correlation was tested at a significance level of $p<0.5$. The following hypothesis set-up was therefore verified H0: $r(x, y)\neq 0$ and H1: $r(x, y)=0$. The verification of the null hypothesis will indicate whether there is a relationship between the variables under study.

Obtained results

Pearson correlation analysis of X and Y variables was performed in Statistica program. As a result of the analysis, the correlation coefficient $r(x, y)=0.8592$ at the significance level $p<0.5$. The attained result is statistically significant because the obtained value falls within the critical area determined on the basis of the table of critical values of Pearson correlation coefficient. Based on the Pearson correlation coefficient value, it can be concluded that there is a very strong stochastic positive relationship between the variables X and Y. Figure 1 shows a graphical interpretation of the correlation.

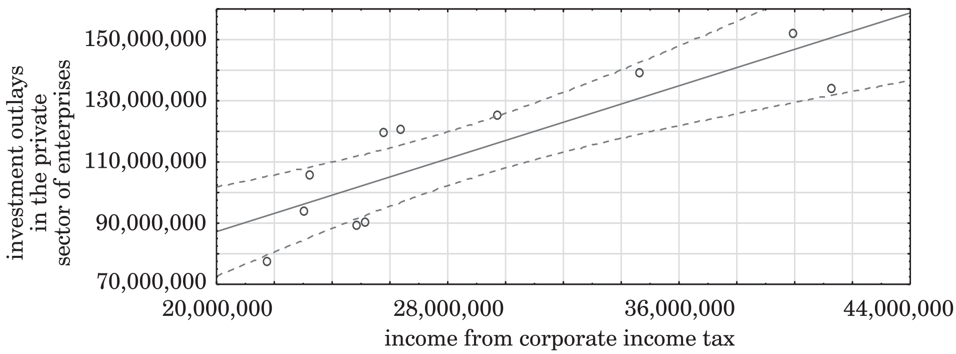

Fig. 1. Scatter plot of investment expenditures in the private sector of the national economy among enterprises with more than nine employees against corporate tax revenue
Source: developed in the Statistica program.

The generated scatter plot shows the mutual relationship between the studied variables and confirms the presence of a positive relationship. In a statistically significant way, the value of the correlation coefficient is different from 0, which confirms the hypothesis.

Private investment in Poland

Analyzing the data on investment outlays in the private sector of small, medium and large enterprises in Poland, it should be noted that the dynamics of private investment fluctuated in the years under study. However, its uninterrupted growth from 2011 to 2019 is noticeable.

Table 2

Dynamics of private investment in Poland in 2010-2020 (previous year =100)

Years	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Investment outlays	93.89	115.89	100.98	103.85	112.57	113.12	100.91	104.15	110.80	109.50	88.18

Source: based on data from Statistics Poland.

In 2020, there was a significant decline in the value of dynamics in private investment in Poland. When analyzing the dynamics of private investment in Poland in 2010-2020, it should be mentioned that in 2020 the COVID-19 pandemic broke out, which undoubtedly affected the decrease in the extent of private investment. The global COVID-19 pandemic is described as one of the most important and dangerous economic and social events of recent decades (Czech *et al.*, 2020, p. 12-44).

National economies are complex systems whose construction is determined by a variety of factors that have been the subject of research scientists' studies for many eras. The accepted measure of economic growth of countries is gross domestic product (GDP) (Akcigit, 2017, p. 1736-1747). One of the most fundamental factors in economic progress is private investment. When studying the issues related to private investment in Poland, it is necessary to verify the share of private (business) investment in GDP.

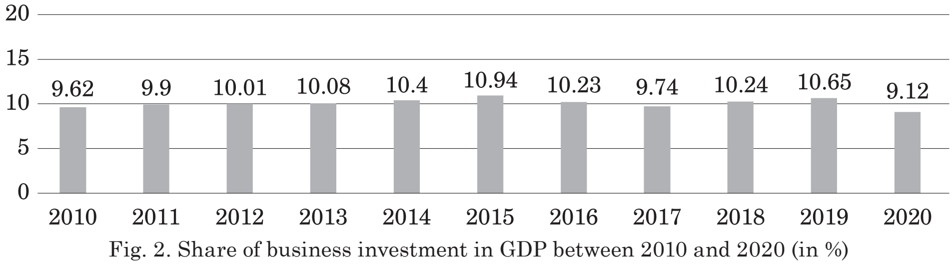

Fig. 2. Share of business investment in GDP between 2010 and 2020 (in %)
Source: based on data from Eurostat (2010-2020).

Based on the data presented in graph 2, it can be concluded that the share of private investment in GDP is small. In the surveyed period the value of the share fluctuated slightly. Attention should be paid to the lack of a significant increase in this value in 2010-2020. Based on the data presented in the chart, it ought to be concluded that private investment of enterprises in Poland should be of interest to state bodies, because, as shown, the ratio of fixed asset outlays to GDP is at a consistently relatively low level.

Conclusions

On the grounds of literature analysis, the drawn conclusion is that taxes are an important tool for regulating the level of financial resources in enterprises. Taxation, on the other hand, has a significant impact on the financial result of an enterprise because investment decisions are made based on it. Tax preferences provide an incentive to make investments. A significant part of tax preferences related to corporate income tax is directed at stimulating the growth of investment expenditures in the private sector of the national economy. In Poland, within the framework of CIT, the functioning basic pro-investment mechanisms testify to the interest of government authorities in the low share of business investment in GDP (as shown in Table 2).

The impact of the amount of investment on economic growth is important especially in the short term. The greatest motivation for the investors from the private sector of the national economy to undertake material investments is simple economic calculation. Limited financial resources available to investors pressure them to undertake specific actions. For the state, taxes are the most important economic instrument through which the basic functions of public finance are realized. Tax revenues are the most important source of financing state activities. The amount of tax revenues also indicates the strength of the state, its independence and predisposition to free action and development (Lubaś, 2019, p. 50). A similar informational value can be attributed to the GDP indicator, which is the modern measure of the size of the national economy. Its growth is identified with the prediction of dynamic economic and social development, while a decline as a harbinger of crisis. Private investment is considered the most important factor of economic progress, therefore it is the subject of interest of government authorities, that want to stimulate its growth by introducing tax preferences. The amount of tax revenue and outlays on private investment are important for the state because of the important functions they perform.

The aim of the study was to identify the relationship between state budget revenues from corporate income tax and the amount of outlays in the private sector of the national economy among enterprises with more than nine employees in Poland in 2010-2020. The correlation analysis carried out showed the existence of mutual dependence between the studied variables. Due to not taking into account the factor distinguishing enterprises, which would be their division by size, the analysis of the relationship did not allow to confirm the research of P. Egger, K. Erhardt and C. Keuschnigg (2014, p. 512-538), which concluded that higher tax rates reduce internal funds and lower the level of private investment of small businesses. It was hypothesized that there is a stochastic relationship between state budget revenues from corporate income tax and the amount of investment in the private sector of the national economy of small, medium and large enterprises. Pearson correlation analysis for variables *X* (state budget income from corporate income tax) and *Y* (the amount of investment outlays in the private sector of the national economy of small, medium-sized and large enterprises) performed in the fourth part confirmed the existence of a very strong positive stochastic relationship between the variables under study. A change in the value of one variable generates an identical change in the value of the other one. Showing the occurrence of a given dependence is a confirmation of the statement contained in the introduction of the article. State authority should pay special attention to the type and strength of the relationship between tax policy and investment outlays of enterprises operating in the private sector of the national economy.

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ORIGINAL PAPER

CHALLENGES IN ECONOMIC EDUCATION IN POLAND

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Abstract

This article presents the results of research on the knowledge and awareness of young adults related to making the first autonomous financial decisions, both in the short and long term. The survey was carried out during the project financed by the National Bank of Poland (NBP) for activities related to economic education. The project was carried out for 6 months (October 2021 –

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March 2022), and the surveyed sample included 458 young adults who were beneficiaries of the project and lived in the Warmia-Masuria Province in Poland. The aim of the article was to verify the knowledge and skills acquired during the project implementation based on the "after" self-assessment questionnaire together with a retrospective "before" assessment, being the basic tool for project evaluation. The results indicate the advisability of undertaking actions in the field of economic education in the face of the still unsatisfactory economic awareness observed especially among young people.

WYZWANIA EDUKACJI EKONOMICZNEJ W POLSCE

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Kody JEL: A20, A21, I22.

Słowa kluczowe: edukacja ekonomiczna, projekt edukacyjny, młodzi dorośli, finanse osobiste.

Abstrakt

W artykule zaprezentowano wyniki badań nad wiedzą i świadomością młodych dorosłych, które były związane z podejmowaniem pierwszych autonomicznych decyzji finansowych, zarówno w krótkiej, jak i w długiej perspektywie. Badanie przeprowadzono podczas realizacji projektu finansowanego ze środków Narodowego Banku Polskiego (NBP) na działalność związaną z edukacją ekonomiczną. Projekt był realizowany przez sześć miesięcy (10.2021-03.2022). Próbę stanowiło 458 osób młodych dorosłych będących beneficjentami projektu, zamieszkujących województwo warmińsko-mazurskie w Polsce. Celem artykułu była weryfikacja wiedzy i umiejętności zdobytych w trakcie realizacji projektu, na podstawie kwestionariusza samooceny „po" wraz z retrospektywną oceną „przed", podstawowego narzędzia ewaluacji projektów. Wyniki wskazują na zasadność działań z zakresu edukacji ekonomicznej wobec stale niesatysfakcjonującej świadomości ekonomicznej, zwłaszcza młodych ludzi.

Introduction

Making rational economic decisions, including the financial ones, is a typical feature of the societies of knowledge-based economies. The largest deficits in this area are due to insufficient financial education and its implementation (Webley & Nyhus, 2006). Financially aware consumers use financial products designed for their needs more responsibly, understanding the importance of savings and the threats of impulsive purchase (*The importance of financial education*, 2006). The components of financial awareness provided in literature include knowledge, skills, attitudes and behaviors (Mundy, 2011). Polish surveys indicate unsatisfactory results regarding conscious management of the household budget and using external financing with methods of repayment unclear to those interested. Such choices are prevailing in groups relatively most often at risk of poverty and social exclusion with an unsatisfactory amount of disposable income (see, inter alia, Potocki & Opolski, 2016; Maison *et al.*, 2018). Moreover, according to G20 leaders, financial illiteracy is a problem especially for the group defined as young adults, who are exposed to long-term adverse effects of decisions made as a result of insufficient financial awareness (Lejman-Gąska & Ogórek, 2019). Data from the Register of Debtors shows that the first serious financial decisions ended in problems for over 0.5 million people aged 18-34. These problems did not only concern long-term liabilities, but also delays or disregard of current, systematic payments, e.g. for mobile devices (*Życie finansowe młodych Polaków*, 2017; Maison & Furman, 2017). B. Świecka (2018) has proved that initiatives undertaken and a few financial education programs implemented in Poland were not yet systematized and universal, and those that exist remained ineffective due to their sporadic and marginal nature. At the same time, the share of banking entities undertaking educational activities increases every year (Kowzan, 2013; Cichowicz, 2016). Bearing the above in mind, it seems necessary to diagnose the need for undertaking continuous and consistent actions to increase the financial awareness of young adults.

Characteristics of the study and research sample

Given the above, the concept of an economic education program for last-year high school students was developed, which included workshops devoted to making conscious financial decisions. This project was accomplished in collaboration with the National Bank of Poland, whose activities involve economic education. Ultimately, the program called “Young adult – a conscious participant of the financial market” was approved and financed by the National Bank of Poland and was implemented from October 2021 till March 2022 in the Warmia-Masuria Province. The authors of this article, from the Faculty of Economic Sciences of the University of Warmia and Mazury in Olsztyn, were among the authors of the concept, and then the project’s implementers. Ultimately, the project was attended by 458 final beneficiaries who participated in a total of 23 meetings in the form of games and workshops.

The uniqueness of the project consisted in the multi-faceted approach to various problems as it merged insufficient financial awareness of young adults with the main reason for their long-term indebtedness, i.e. the desire to become independent and buy a flat. The Polish housing situation is one of the most unfavorable among the EU Member States (*Housing Statistics*, 2019).

The ratio of the number of households to the number of flats indicates a constantly present deficit of flats (Cesarski, 2013; 2016). Therefore – according to the data aggregated by the European Commission – Polish flats are relatively small and overcrowded. The housing problem (of various origins) affects mainly two social groups: young adults entering the labor market after graduating from education and seniors. According to Eurostat data from 2019, nearly 45% of young adults live with their parents. The reasons for this state of affairs include, i.a., the ratio of the average monthly salary (approx. 4.3 thousand PLN gross in the Warmia-Masuria Province in 2020, compared to a little over 5 thousand PLN gross in Olsztyn and an average of 5.2 thousand PLN gross in Poland) to the price of one m^2 of usable space (according to the NBP data for the fourth quarter of 2020, the average price per m^2 of usable floor space in Olsztyn on the primary and secondary market was approx. 6.4 thousand PLN and 5.7 thousand PLN, respectively), which becomes a significant obstacle to becoming independent. A study carried out in 2010 by the University of Łódź for the Notus Credit House confirmed this relationship, indicating that more than half (54%) of young married couples live with their parents or rent a flat. According to the research of M. Janusz (2021), a similar percentage was recorded in the Warmia-Masuria Province. The willingness to collect funds for the purchase of a flat was also one of the main determinants of migration trips, mainly abroad (Janusz, 2017; Organiściak-Krzykowska & Machnis-Walasek, 2017). Therefore, making strategic, long-term financial decisions related to becoming independent was one of the fundamental challenges faced by people ending education in the compulsory education model. Therefore, the aim of the project was also to provide reliable information about the housing situation of the young generation, while at the same time indicating the availability of financial instruments dedicated to young adults. The last issue that was important in this context was the awareness of the specificity of the residential real estate market. This is mainly related to consumer decisions, which are sometimes made on the basis of an analysis of the business cycle or as a result of external pressure (e.g. economic bubbles). Behavioral economics tries to explain consumer decisions. The final specific goal of the project was, therefore, to provide in-depth knowledge of consumer behaviors in the real estate market based on an interpretation outside the mainstream economy (Wiśniewski & Brzezicka, 2014).

Results and discussion

As a consequence, three thematic blocks were offered to the participants. The first one concerned the confirmation of the state of the limited resources (including financial ones) in the context of the unlimited needs. This problem can also be transferred to the field of economic activity, i.e., not only natural persons but also business entities. In this case, the beneficiaries were offered to participate in a simulation game that allowed them to make transactions on the international market at a floating exchange rate. As Tkaczyk (2012) notes, it is worth using games in education as they reward effort through the pleasure of discovering a new reality; allow for making mistakes (there are no penalties for making mistakes in the game) and build commitment by stating a goal, player autonomy and a sense of mastery. Moreover Balcerak (2001) indicates that the simulation game represents a dynamic model of a real or hypothetical system, having the following elements: a response simulator; a scenario with descriptions of roles, rules and goals; and finally actors (game participants) playing the roles. Successive states of the simulated model depend on participants' decisions, and these – in turn – on the information about the previous state (i.e., about the initial state at the beginning of the game). The positive impact of this form of education has already been emphasized in the second half of the 20th century. For example, Walaszek (1976) has noticed that a game is understood as a simulation of an economic and social environment in which players' task is to make managing and administrative decisions at successive time intervals. Decisions already made trigger changes in the environmental conditions, which in turn determine further decisions. The process of changing the environment *per se* is driven by the interaction of decisions made by players with certain features inherent in the simulated environment. Hence, the players exert only an indirect impact on the overall process.

To assess this form of classes and the level of current knowledge, a self-assessment test was performed "after" the classes with a retrospective assessment of the "before" state, being one of the basic evaluation techniques dedicated to soft skills projects (Kowalewska, 2015). The results of this analysis were optimistic. As the classes concerned, i.a., exchange rate differences, after their accomplishment, the respondents were asked about the awareness of the difference between the buying rate and the selling rate, which may be of fundamental importance when incurring long-term liabilities in a foreign currency. As shown in Figure 1 and 2, the classes significantly contributed to the increase in respondents' knowledge in this area.

While before the classes, the respondents indicated moderate recognition of this issue, participation in the classes clearly deepened this knowledge. After the classes, the distribution of answers (Fig. 1) was only dichotomous and was almost 2/3 to 1/3, with the greater part of respondents indicating an excellent understanding of this difference, and approx. 30% replying "I understand well". ‚Before the classes, as many as 36.7% of the respondents indicated a poor understanding of this issue, and 26.7% were not able to provide an unambiguous answer to this question (Fig. 2). There were also nearly 1/3 of all answers that indicated the correct understanding of this problem. There is no doubt, however, that the distribution of answers indicated the achievement of the assumed goal.

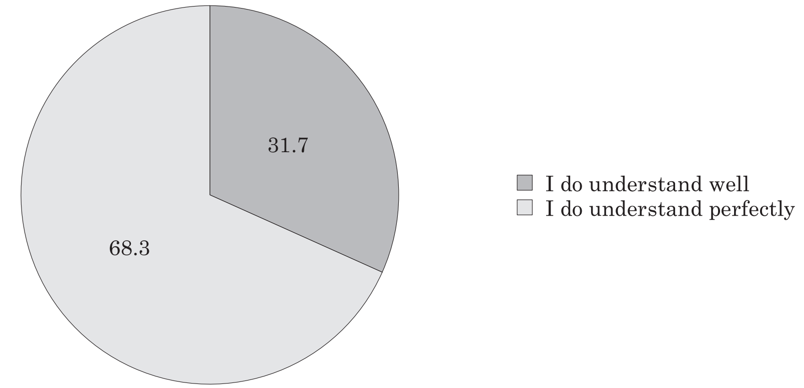

Fig. 1. Distribution of answers to the question about understanding the difference between the buying rate and the selling rate after the classes [%]
Source: own study.

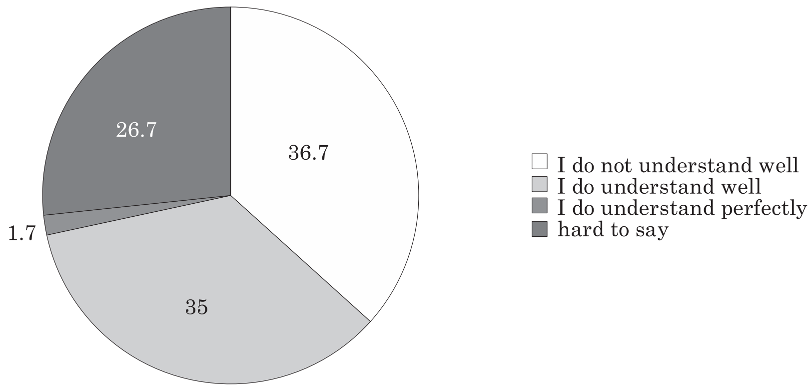

Fig. 2. Distribution of answers to the question about understanding the difference between the buying rate and the selling rate before the classes [%]
Source: own study.

In turn, the second round of classes was devoted to investing financial surpluses and self-assessment of the propensity to take risks. In this case, the classes were also based on an educational game, which entailed investing financial resources in a specific socio-economic reality. The ultimate financial outcome depended on the strategy adopted. In the first place, it made it possible to identify various attitudes towards risk that could, at worst, eliminate from further participation. The respondents confirmed that they had acquired knowledge in this field. Before the classes, 18.3% of the surveyed did not associate individual inclinations to make decisions on the financial market with the ultimate settlements on the market (Fig. 3). In turn, over 15% of the respondents were unable to define the level of their knowledge on this subject. Most often, however, the respondents indicated their poor understanding of this issue.

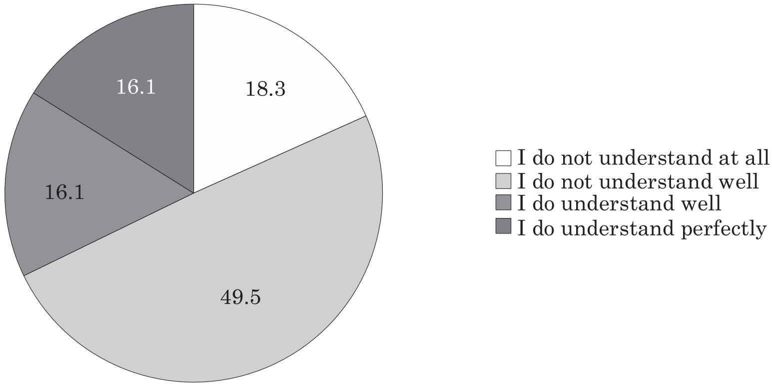

Fig. 3. Distribution of answers regarding the recognition and understanding of various attitudes towards risk before the classes [%]
Source: own study.

Only 16% of participants declared their appropriate knowledge in this area. The situation has substantially changed after the classes. As in the case of Figure 1, the distribution of answers was almost dichotomous, and over 60% of the respondents identified their knowledge as good, while 35.5% clearly improved their knowledge (Fig. 4). Once again, these answers allowed speculating about to the achievement of the planned goals of the project.

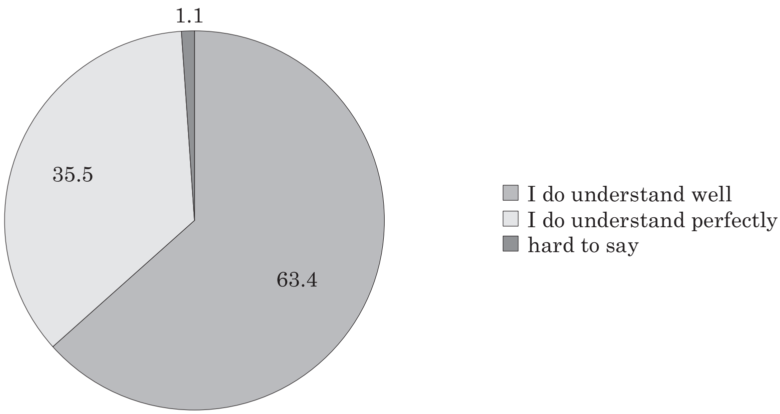

Fig. 4. Distribution of answers regarding the recognition and understanding of various attitudes towards risk after the classes [%]
Source: own study.

The classes on investing financial surplus were also intended to make young people, who often expect high rates of return on investment, aware that capital markets usually do not guarantee high returns with little risk. For this reason, the simulation game focused on drawing their attention to the uncertainty and unpredictability of this form of multiplying wealth. Additionally, this message was reinforced with case studies that looked at both investors and specific listed companies. As a result, the respondents again declared a significant increase in their knowledge in this matter, as evidenced by the results presented in the figures below (Fig. 5, 6).

As mentioned earlier, the scope of the financial issues encompassed by the project, which is the source of data for this article, also included issues related to long-term incurring liabilities. One of the reasons behind such actions was the desire to become independent and one of the symptoms was an attempt to live independently. In the current socio-economic situation, the possibility of buying a flat from one's own resources, without using a mortgage loan, was feasible

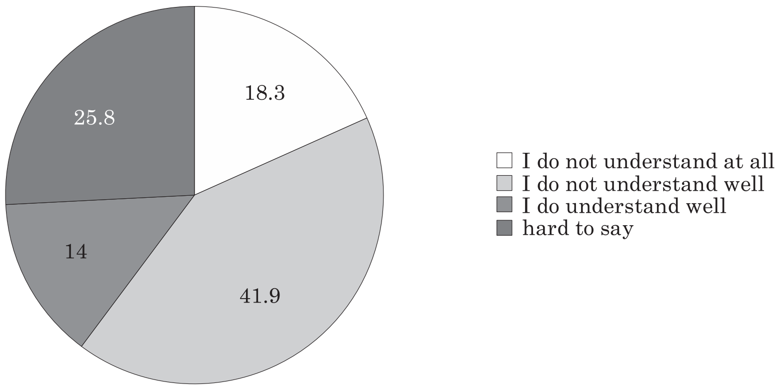

Fig. 5. Distribution of answers regarding the understanding of the limited predictability of investments before the workshop [%]

Source: own study.

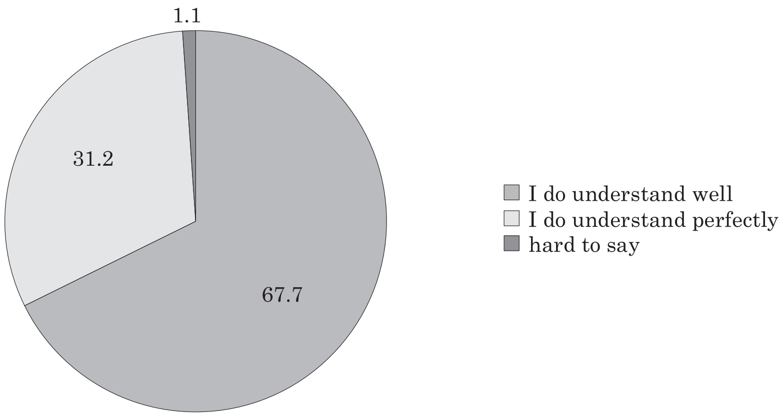

Fig. 6. Distribution of answers regarding the understanding of limited investment predictability after the workshop [%]

Source: own study.

only to a fraction of the population. In view of the difficulties with financing the purchase, it seemed important to provide reliable information related to alternative forms of getting own flat, i.e., forms that were not limited to buying it. The Polish housing policy envisages (however, still unsatisfactory in terms of its scale) other forms of housing, with social housing at the forefront.

For this reason, emphasis was put during project implementation on the differences between private resources (often impossible to acquire) and social resources (including those remaining in the resources of social housing associations). As shown below (Fig. 7), the knowledge of this subject was negligible before the workshop. Every fifth respondent was not aware of the existence of such resources at all, and nearly 2/3 of all respondents had a poor understanding of the proposed topic.

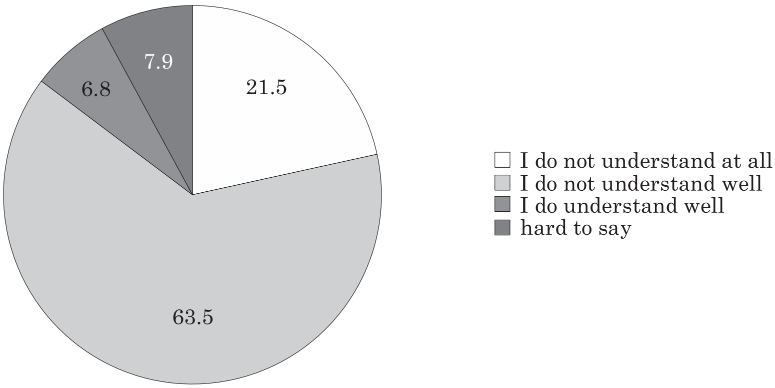

Fig. 7. Distribution of answers to the question about understanding the difference between private and social resources before the classes
Source: own study.

Of course, the workshop itself concerned the housing policy implemented in Poland; hence, the issue of multiple ways of satisfying housing needs was one of the undertaken subjects. Therefore, the declarations of the respondents after the completed workshop were definitely different (Fig. 8). The distribution of answers was once again almost dichotomous and included answers “I understand well” and “I perfectly understand” expressed by 44% and almost 54% of the respondents, respectively. In this case, the established project’s goal can also be deemed accomplished.

The last area undertaken in the project was to identify non-economic determinants of the decisions made, in a way standing in opposition to *homo oeconomicus*, i.e. a reasonable and rational person. The issues of behaviorism and attempts of explaining everyday behavior were unknown to the respondents. This was evidenced by answers provided by them after the workshop with

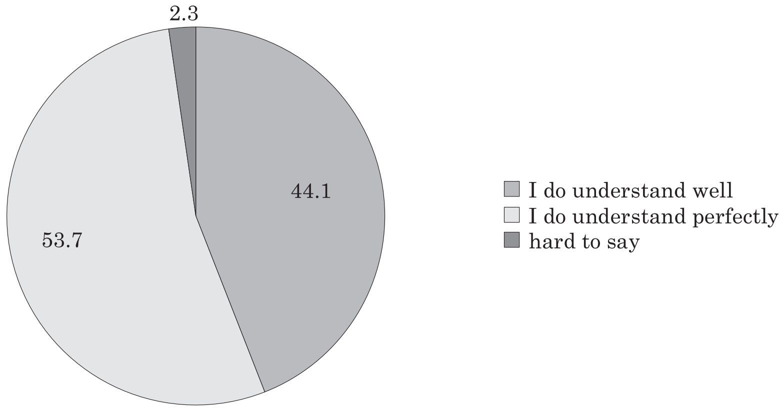

Fig. 8. Distribution of answers to the question about understanding the difference between private and social resources after completing the classes
Source: own study.

a retrospective assessment made before. Before the classes, the differences between behavioral economics and mainstream economics were not understood at all by approximately 68% of the respondents, while poor recognition of the issue was declared by 32% of the surveyed (Fig. 9). In the opinion of the participants, this condition clearly improved after the workshop. Consequently, 57% of the respondents perfectly understood the discussed differences, and 43% indicated a satisfactory distinction between these concepts (Fig. 10).

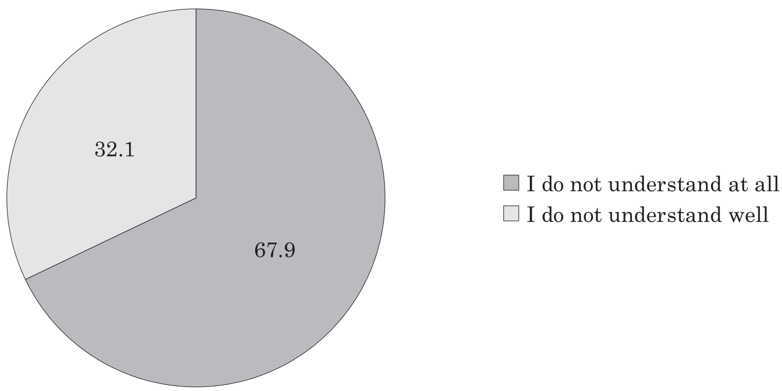

Fig. 9. Distribution of answers regarding the difference between behavioral and mainstream economics before the workshop [%]
Source: own study.

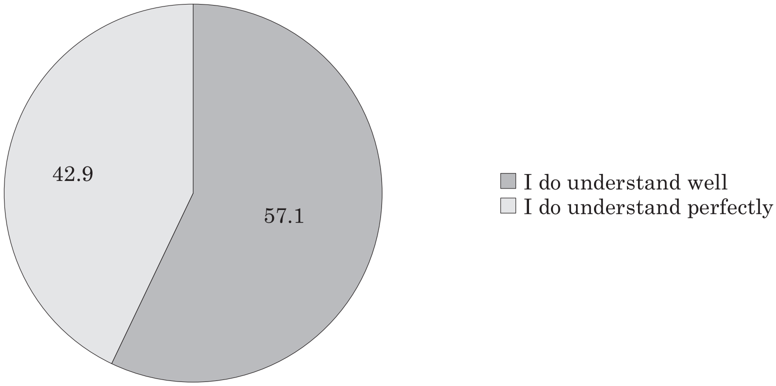

Fig. 10. Distribution of answers regarding the difference between behavioral and mainstream economics after the workshop [%]
Source: own study.

Conclusions and final remarks

The presented results allow concluding that the educational actions undertaken in the framework of the project contributed to the increase of financial awareness of young adults and to their knowledge in this field. In each case, the acquisition of new knowledge was noted through self-assessment following the conducted games and workshops. For this reason, the success of actions related to the improvement of financial awareness will depend on their universality and cyclic character. The achieved results allow for a positive assessment of activities aimed at a long-term contact with people from the group of young adults. However, the survey also has certain limitation, namely: measuring effects based on self-assessment poses some risk of simplifying judgments. The respondents may then succumb to specific pressure and provide answers in line with the organizers' expectations. However, it does not change the fact that the self-assessment of the participants is one of the most common and popular methods of project evaluation.

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ORIGINAL PAPER

PROFITABILITY OF SUGAR BEET CROP IN CAMPAIGN 2019/2020

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Key words: sugar beet, sugar beets crop, cost and profitability of sugar beet production.

Abstract

The work presents a complex analysis and cost accounting of beet sugar cultivation in the 2019/2020 campaign for individual farms of the Lublin region. About 119 farms were analyzed. On the basis of this analysis, the criteria for the model farm were defined, which were adapted for the calculation of sugar beet production costs.

The economic results obtained by the producers are mainly affected by indirect costs accounting for 60.48% of the revenue from the total production. Within this group of costs, the major components are sowing service, harvest and soil liming operations reaching 39.26%.

Sugar beet production in the analyzed campaign was profitable, with the profitability index 1.21 and unit production cost of 15.07 PLN/dt. Sugar beet growing is considered to be one out of profit-making activities, in agricultural production, yet it is characterized by the high production cost that gobbled up 82.48% of total revenue in the analyzed campaign of 2019/20.

DOCHODOWOŚĆ PRODUKCJI BURAKÓW CUKROWYCH W KAMPANII 2019/2020

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Słowa kluczowe: burak cukrowy, uprawa buraków cukrowych, koszty, opłacalność, dochodowość produkcji.

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Abstrakt

W pracy przedstawiono kompleksową analizę i kalkulację kosztów uprawy buraków cukrowych w kampanii 2019/2020 dla gospodarstw indywidualnych regionu lubelskiego. Przeanalizowano 119 gospodarstw. Na podstawie tej analizy określono kryteria dla gospodarstwa modelowego, które przyjęto do kalkulacji kosztów produkcji buraków cukrowych. Większość danych zawartych w pracy to własne obserwacje autora lub uzyskane bezpośrednio od plantatorów.

Na wynik finansowy uzyskiwany przez plantatorów w głównym stopniu mają wpływ koszty pośrednie pochłaniające 60,74% przychodu z produkcji. Wśród tej grupy kosztów największy udział mają koszty usług zasiewu, zbioru buraków cukrowych i wapnowania gleby wynoszące 18,80%. Koszty bezpośrednie natomiast w tej kampanii stanowiły 39,26% osiągniętego przychodu.

W rozważanej kampanii produkcja buraków cukrowych była opłacalna, ponieważ wartość wskaźnika opłacalności produkcji wyniosła 1,21, a wartość kosztu jednostkowej produkcji wyniosła 15,07 zł/dt. Uprawa buraków cukrowych jest jedną z dochodowych działalności w produkcji rolnej, ale charakteryzuje się wysokimi kosztami produkcji wynoszącymi 82,48% całkowitych przychodów z produkcji w analizowanej kampanii 2019/2020.

Introduction

The development of the sugar industry based on sugar beet sugar crop requires sustainable cultivation for the needs of sugar producers (Burell *et al.*, 2014; Bogetoft *et al.*, 2007). Ensuring that their values are essential for the produced white sugar on the world market. In Europe, sugar beet is the main raw material for sugar production. In the world, sugar beets are also used for energy purposes.

The EU sugar sector is currently one of the most deregulated in the world and stands out as an international competitive sugar production for sugar factories and sugar yields per hectare of configuration to the highest in the world (Gawryszczak, 2020a). The sugar industry in the EU was able to achieve such a significant increase in productivity only thanks to advanced innovations and significant investments. For example, over the past 28 years, the sugar industry's performance (measured by sugar production per factory) has grown by 4.7% annually, which is noteworthy growth rate compared to other agricultural industries. The beet sugar sector comes first in terms of sustainable environmental protection. Diabetes covered by a higher level for sugar beet than for other crops, including sugar cane, to obtain very efficient in terms of arable land area (Chudoba, 2004). The situation is different, for example, for the cultivation of wheat, which is economically competitive with sugar beet.

The world cropping area for wheat exceeds that of any other crop, and high grain yields in intensive wheat cropping systems are essential for global food security (Voss-Fels *et al.*, 2019, p. 706). In addition, sugar beet cultivation, thanks to the large amount of ingredients, contributes to the significant assimilation of carbon dioxide, which is responsible for reducing air and the effect of global warming. Important efficiency is also the effect of carbon binding in the soil by leaving beet leaves in the soil with the currently used root harvesting technology (Chudoba, 2004; Gawryszczak, 2020a, p. 3).

Such technology contributes to the protection of soil and climate. For this purpose, restrictions in the use of plant protection products were also implemented and the Integrated Pest Management (IPM) system was introduced.

Since January 1, 2014, Poland and other European Union countries have been obligated to apply the principles of IPM. Integrated pest management (IPM), a worldwide agricultural strategy, contains methods to control or manage agricultural pests and diseases in a more efficient way, and consequently, to obtain better quality raw materials for food production. The engagement and practice of farmer (Sawińska *et al.*, 2020; Świątek *et al.*, 2022, p. 283).

The sugar campaign 2019/2020 in Poland began on August 30, 2019 at the Gostyń sugar factory, owned by Pfeifer & Langen Polska S.A. The end took place on January 14, 2020, and was carried out by the sugar factory in Cerekiew, belonging to Südzucker Polska S.A. In this campaign in Poland, all four producers worked 17 sugar factories, and the average duration of the campaign almost 109 days, which is the result less than last year by 8 days and less than 19 years ago. In the 2019/2020 campaign it amounted to 2,065,250.71 tons (Chudoba, 2004). On average, yields in this campaign amounted to 58.52 tons per hectare. This result is smaller com-pared to recent years, when the yields reached the result of up to 68 tons per hectare. Sugar producers have signed contracts for the cultivation and supply of sugar beet with 30,643 growers, from whom they purchased 13,834,291.23 tons of beet. Despite the smaller purchase of sugar beet, in 2019 the cultivation area was slightly higher than a year ago and amounted to 240,793.88 ha. Particularly noteworthy is the growing average plantation area from year to year, which this year amounted to 8.44 ha, in the previous year it was 7.75 ha in the campaign (Gawryszczak, 2020b, p. 14).

In Krajowa Spółka Cukrowa S.A. (KSC) the sugar campaign 2019/2020 began on September 10, 2019 at Sugar Factory Werbkowice. The campaign lasted the longest at the Kluczewo Sugar Factory (110 profitability of sugar beet crop in campaign of 2019/2020 including transport costs days). The average campaign time was 99 days. Seven KSC S.A Branches participated in the next 18 campaigns: Sugar Factory Dobrzelin, Sugar Factory Kluczewo, Sugar Factory Krasnystaw, Sugar Factory Kruszwica, Sugar Factory Malbork, Sugar Factory Nakło and Sugar Factory Werbkowice. The average sugar beet yield at KSC was 57 t/ha, the highest average yield was obtained at Malbork Sugar Plant – 74 t/ha. The average polarization (sugar content of beets) was 16.7% (Gawryszczak, 2020b, p. 14).

During this campaign, KSC S.A. purchased almost 5.8 million tons of sugar beet and produced over 860 thousand tons of sugar. In 2019, sugar beets, contracted by KSC S.A. were cultivated on the area of over 100 thousand ha, by 15,000 growers (Gawryszczak, 2020b, p. 12). In October 2019 KSC S.A. has opened a sugar terminal in the Sea Port of Gdansk. Thanks to this investment, KSC increases the possibilities of gaining new sales markets. Due to the decrease in sugar consumption in the European Union, markets outside the Community are of great importance. During the campaign in 2019, 60,000 were sent from the Terminal tons of sugar, among others to the Middle East and Africa. KSC S.A. plans to ship sugar via a terminal of 300,000 tons per year (Gawryszczak, 2020b, p. 13).

In 2019, the general weather conditions were unfavourable, and in spring there were pests in the form of gray shark, which were most common in beet cultivation in the east of the country. Although the beginning of the season promised to be good, because early spring enabled the field work to start quickly. In the first half of March there was warming, which allowed to start sowing. The sowing period was characterized by very low rainfall. In many cases, it was only the May rains that allowed seeds to germinate. In some parts of the country there was heavy rainfall causing periodic flooding and flooding. At the end of June, the first water shortages in soil occurred, which intensified depending on and region in July and August, significantly reducing crop yields. Higher rainfall occurred in August, but it was stormy and at high temperatures soil water reserves did not increase (Gawryszczak, 2020b, p. 14). During the buying campaign, the weather conditions favoured the harvest of dry beet roots and the warm autumn favoured the acquisition, cleaning, loading and transport of sugar beets were not hindered.

In the modern world, calculating the benefits of cultivating various plants, including sugar beet, is done by many researchers (Augustyńska-Grzymek, 2017; Jansen & Stibbe, 2007; Jarmołowicz & Kuźmar, 2017; Maung & Gustafson, 2011). Researchers, apart from the classic methods of agricultural economics, are also trying to apply new methods based on the case theory with the use of computer analysis (Xiao *et al.*, 2021).

The cost calculation of sugar beet production presented is complex with a special concern to grower`s labour input and farm overhead expense. It often happens that similar calculations exclude other costs of factors of production, e.g. the interest on capital, while the present cost calculation includes that. The calculation was made for the 2019/2020 sugar campaign, the first after the sugar quota elimination. This calculation, just like other presented by the author, provides a detailed analysis of sugar beet production costs and its profitability for individual farms in the Lublin region (Gawryszczak, 2020b, p. 14; Krzysiak, 2006, p. 363; 2010, p. 128; 2020, p. 49). Currently, about 3,485 growers deliver sugar beets to the KSC S.A. branch – Krasnystaw Sugar Factory.

As can be seen from the above description, the main purpose of the work is to show the value of income and costs incurred during sugar beet cultivation. However, the presented research and analyses are aimed at understanding the changing production conditions or profitability of sugar beet cultivation by growers. Moreover, the partial goal of the presented work was to show the producers' reactions to market changes on the way to the implementation of sustainable sugar beet cultivation without incurring unnecessary expenditure.

Methodological assumptions for calculating sugar beet cultivation costs

The analysis of cost estimates was based on chosen individual sugar beet farms owning special machinery and reporting contracting out services occasionally. Around 119 farms were examined and finally, a model farm was chosen for further analysis as the one reflecting above mentioned criterias. Most data found in the paper are the present author`s observations or obtained directly from sugar beet contract holders or from Krasnystaw Sugar Factory, a branch of KSC S.A. The premise was to assume real costs instead of estimated costs wherever possible.

Each category of costs and revenue calculation was defined according to a scheme below (Burell *et al.*, 2014):

– production value,
– direct costs,
– direct surplus,
– indirect costs,
– income,
– total costs,
– production costs 1 dt.

Owner/operator labour costs

The cost of owner/operator labour was estimated according to a wage parity rate per hour. A parity rate was calculated on the basis of average annual net earnings in the national economy (after GUS (Central Statistical Office)) assuming that nominal working time of a full-time employee in individual farming is 2,200 hours annually, the rate assumed for the year 2019 – 18.58 PLN (Augustyńska--Grzymek, 2017; Lorencowicz & Cupiał, 2013).

Tractor and farm machinery labour costs

The tractor labour cost was estimated on the basis of calculation of exploitation costs of farm machinery according to the literature (Litwinow, 2020; Lizbetin & Stopkova, 2021) and the data supplied by the Agricultural Advisory Centre in Końskowola. It is a complex calculation including the costs of depreciation, fuel, oil and lubricants, repairs, housing, insurance, technical inspection and interest payments. The 48.5 kW tractor operation time was assumed to be 400 h per year (300 mth/year) and thus the cost of hourly work rate of tractor is 94.29 PLN.

The costs of particular agricultural practices include total cost of tractor operation with implements. A number of hours spent performing particular farm operations was determined based on the literature data available (Augustyńska-Grzymek, 2017; Jarmołowicz & Kuźmar, 2017; Litwinow, 2020; Lorencowicz & Cupiał, 2013), and the present author`s experience.

It was assumed that a model farm owns the used farm machinery (in 50%) – plough, disc and spike-tooth harrow, sprayer, agricultural trailer and new equipment – farm tractor, soil tillage unit and fertilizer spreader.

The other assumptions

Characteristics of data for calculating costs of sugar beet cultivation:

– sugar beet farming area – 2-10 ha,

– medium intensive cultivation on soils of good wheat complex and very good rye complex, pH – 6-6.5,

– sugar beet tops left in the field serve as fertilizers,

– the farm owns most of farm machinery for agricultural production,

– sugar beet selling price for sugar producer – 114.49 PLN/tonne (for 16% standard polarization),

– price of wet beet pulp (1,900 PLN/dt) was that applicable in the Krasnystaw Sugar Factory in 2019/2020 campaign,

– price of plant protection products and fertilizers applicable in the 2019/2020 campaign,

– sugar beet cultivation in the farm without manure use,

– the farm contracts services – liming, sugar beet sowing and harvest.

The calculation also estimates the quantity and value of by-products obtained in sugar beet growing (pulp) as well as some other factors involved in the production process. These are partial costs like, using a car, mobile, consumption of electricity and water (included into overhead costs). The calculation accepted that raw material will be transported from the plantation by the sugar producer (from field to factory).

Cost calculation

The analysis of sugar beet production considering all the assumptions aforementioned is presented in Table 1.

Table 1

Calculation costs of 1 ha sugar beet production in 2019/2020 season

Content	U. m.	Unit price	Quantity	Value PLN	Share in percent [%]
1	2	3	4	5	6
Production – sugar beet roots	dt	11.45	500	5,725.00	–
Refund of lump sum tax VAT	%	7.00	5,725.00	400.75	–
By-product – beet pulp	dt	2.05	250.00	512.50	–
Area direct payment	ha	973.16	1.00	973.16	–
Sugar payment per 1 ha form 2015	ha	1,524.16	1.00	1,524.16	–
Total revenue from production				9,135.57	–
DIRECT COSTS					
Seeds					
Cultivar – Jampol Rh, Cr (KHBc)	Jdn.	577.80	1.25	722.25	9.58
Plant protection products					
Herbicides					
Pyramin Turbo 520 S.C.	l	82.00	5.00	410.00	5.44
Betanal maxxPro 209 OD	l	141.00	2.50	352.50	4.68
Targa Super 0.5 EC	l	95.00	1.50	142.50	1.89
Fungicidal products					
Optan 183 SE	l	210.00	0.70	147.00	1.95
Duet Ultra 497 S.C.	l	107.00	1.00	107.00	1.42
Total plant protection products expenses				1,052.00	13.96
Fertilizer needs					
N-ammonium nitrate	dt	121.00	3.53	427.13	5.67
P – 46% granular triple superphosphate	dt	156.00	1.96	305.76	4.06
K – 60% potassium salt	dt	153.00	2.83	432.99	5.75
Cao – dolomitic lime (every 4th year)	dt	1.84	40.00	18.36	0.24
Total fertilizer expenses				1,184.24	15.72
Total direct costs				2,958.49	39.26
Direct surplus				6,177.08	–
INDIRECT COSTS					
Complex service cost (transportation from field)	dt	0.30	500.00	150.00	1.99
Production levy	dt	0.00	500.00	0.00	0.00
Services					
Seed sowing		329.00	1.50	493.50	6.55
Beet root harvest (Holmer harvester)		850.00	1.00	850.00	11.28
Liming operation (every 4th year)		293.24	1.00	73.31	0.97
Total services costs				1,416.81	18.80

cont. Table 1

1	2	3	4	5	6
Cultivation and protection					
Disking operation	hour	104.20	2.00	208.40	2.77
Harrowing (2 × 0.7 h)	hour	98.87	1.40	138.42	1.84
Deep plowing	hour	152.29	2.50	380.73	5.05
PK fertilizers application (2 × 0.7 h)	hour	107.39	1.40	150.35	2.00
Pre-sowing tillage (soil tillage unit 2 × 0.7 h)	hour	119.09	1.40	166.73	2.21
N top dressing (2 × 0.7 h)	hour	107.39	1.40	150.35	2.00
Sprays (5 × 0.5 h)	hour	112.02	2.50	280.05	3.72
Collection of beetroots from harvester	hour	113.51	2.00	227.02	3.01
Total cultivation and protection costs				1,702.03	22.59
Farm overhead expenses					
Property tax				135.00	1.79
Liability insurance				15.00	0.20
Building structure depreciation				102.53	1.36
Other overheads				163.56	2.17
Total overhead costs				416.09	5.52
Owner/operator labour cost	hour	18.58	40.00	891.84	11.84
Total indirect costs				4,576.77	60.74
Agricultural income				1,600.31	–

Source: own study.

Profitability of sugar beet production

Production profitability was determined on the basis of the production profitability index defined below:

$$W = P : K,$$

where:

W – profitability index,
P – value of production PLN,
K – production cost PLN.

The index value greater than 1 indicates profitability of production, whereas less than one – unprofitable. An index calculated in this way can also determine the profit percentage generated from the production. The values of production profitability index and unit production cost are shown in Table 2.

The profitability index is greater than one so the sugar beet production in the 2018/2019 campaign was profitable, yet at a low profit level.

Table 2

Values of production profitability index and unit production cost

Type of production	Profitability index (*W*)*	Unit production cost (1 dt in PLN)
Sugar beet	1.21	15.07

* The values calculated include the values of by-product beet pulp and area payment (SAP + greening + redistribution) and sugar payment.
Source: own study.

Results

The Figure 1 shows indirect costs in sugar beet production.

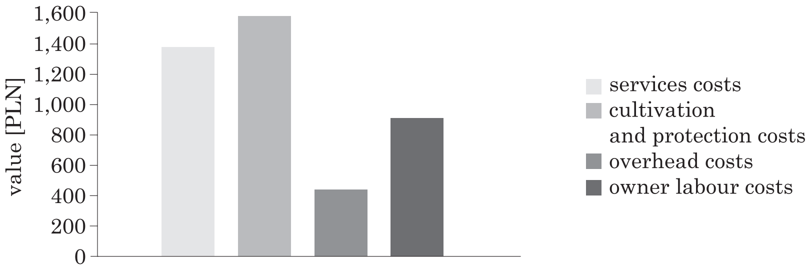

Fig. 1. Indirect costs

Source: own study.

As the analysis demonstrates, the indirect costs had the highest share in sugar beet cultivation (Tab. 1) with the highest effect of the costs of sowing and harvesting services, as well as liming operation – 18.80% followed by the costs of plant cultivation and protection – 22.59%, overhead expenses – 5.52% and owner/operator labour – 11.84.

The direct costs also had strong influence (39.26%), the costs of fertilizers – 15.74%, seeds – 9.58%, plant protection products – 13.96%. The Figure 2 shows direct costs in sugar beet production. The Figure 3 shows the breakdown of revenue from sugar beet production.

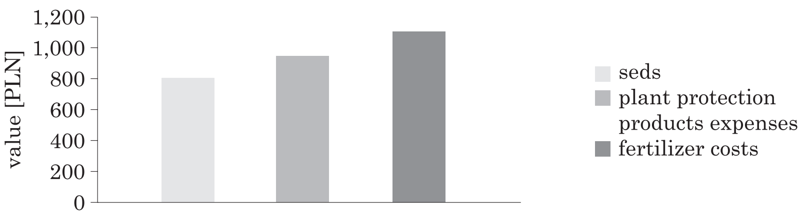

Fig. 2. Direct costs

Source: own study.

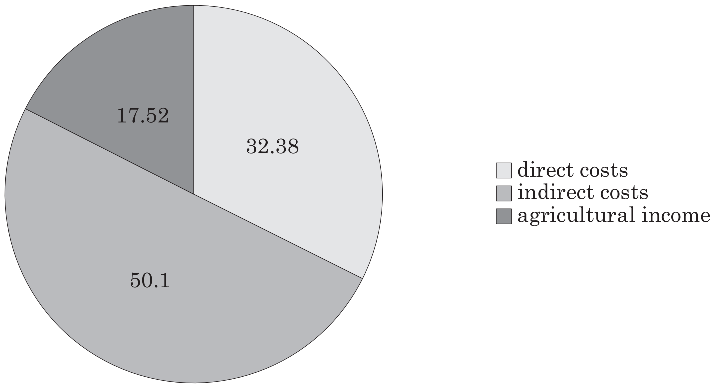

Fig. 3. The breakdown revenue from sugar beet production
Source: own study.

The analysis of revenue from sugar beet production shows that 82.48% are production costs and only 17.52% are agricultural income (Tab. 1, Fig. 3).

The profitability of sugar beet production in the analysed campaign decreased by PLN 147.09 in relation to the campaign of 2019/2020 This is mainly due to an increase in indirect costs by 0.63%. The analysis shows that income reduction was not compensated by an increase of PLN 1.47 for sugar beets or a 0.63% reduction in direct costs. All this is due to an increase by 2.09% in total costs compared to the previous campaign (Krzysiak, 2010, p. 127). Despite this, the financial result from sugar beet cultivation was beneficial for growers. It should be assumed that for a positive financial result from sugar beet cultivation, a sugar surcharge will be paid to hectares of sugar beet, amounting to PLN 1,524.16 and a direct payment per hectare (SAPS) of 471.64 PLN. The existence of these subsidies means that the cultivation of sugar beet is profitable, also in the third year after the abolition of production quotas.

It is still one of the most profitable traditional agricultural crops in the Lublin region, despite the varied income in particular years (Jansen & Stibbe, 2007; Lee *et al.*, 2015; Krzysiak, 2020, p. 343).

Discussion

In the analysed Lublin region represented by sugar beet growers supplying to the KSC S.A. branch – Krasnystaw Sugar Factory campaign for 2019/2020 ended with a good result. The conditions of plant emergence immediately after sowing were good, and during their further growth there were also favourable sugar beet growing conditions. The harvest of sugar beet roots in the first half of the procurement campaign was very good, only in the second half of the campaign there were temporary difficulties related to weather conditions.

1030000 tonnes of sugar beet were purchased. This year the buying campaign in Kransystaw Sugar Factory – KSC S.A. branch began on 17th September 2019 and lasted until 20th December 2020. Due to favourable weather conditions in the spring and not much rainfall in autumn, the average value of polarization was 17.56%.

The average yield from 1-hectare was 54.46 dt, while the average contamination of the raw material was 8.88%.

Some growers had surplus of the raw material.

The surplus price was set at 40 PLN/dt. In the KSC S.A. branch – Krasnystaw Sugar Factory sugar beets cultivated 3,485 farmers, covering 18,421 ha.

The development of beet production in both Lublin region and in Poland as a whole is dependent on the common agricultural policy in the European Union.

The report on the development of European agriculture for 2019-2030 prepared by the European Commission shows that sugar production in this period in the EU will reach 18.5 million tons, while at the same time the possibilities of export outside the EU will increase to 2.2 million tons per year by 2030, while imports will reach 1.3 million tons (Gawryszczak, 2020a, p. 3). Considering these facts, it can be concluded that the cultivation of sugar beet will develop and its profitability will depend on the price of sugar (Jansen & Stibbe, 2007; Lee *et al.*, 2015).

The discussed campaign ended with a slight decrease in the profitability of sugar beet cultivation. This happened at almost unchanged prices for the means of production. In 2019, economic conditions may change even more as the price of white sugar has decreased.

Conclusions

1. The cost analysis of sugar beet production indicated profitability at the average income level of 1,600.31 PLN/ha and the profitability index 1.21.
2. It was found that the income from sugar beet production is primarily affected by the indirect costs (60.74%) which are higher than the direct costs by 21.48%. The fertilizer costs which were shown to make up as much as 15.72% of the direct costs determine the production costs to the greatest degree.
3. The main factor influencing the income from sugar beet cultivation was the price for the raw material, which in the considered business year in relation to the previous season increased by only 0.77 PLN/t).
4. Sugar beet growing is characterized by high production costs accounting for 82.48% of revenue from the production.
5. The main factor affecting the income from sugar beet cultivation was the price for the raw material, which in the considered marketing year compared to the previous season increased by only 1.46 PLN.

6. The limitation of the presented analysis of the costs of cultivation and profitability of sugar beet production is its preparation for a model farm with specific criteria.

7. Further research should be carried out taking into account the division of the analysed farms into groups with different criteria, this will allow for a better approximation of the performed analyses of cultivation costs to the actual conditions.

8. A good direction for the development of individual farms is to combine science with practice in the pursuit of cooperation between growers and scientists indicating the economics of sugar beet production.

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ORIGINAL PAPER

DIVERSIFICATION OF FISCAL AND ECONOMIC CONSEQUENCES OF MUNICIPAL TAX POLICY ON THE EXAMPLE OF REAL ESTATE TAX

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Key words: real estate tax, fiscal policy, municipal budget, own revenue, social and economic development.

Abstract

The aim of the article was to assess the fiscal and economic differentiation of the municipal tax policy on the example of real estate tax in Polish cities with poviat status. This is an important theoretical and practical issue. On the one hand, the application of high tax rates may contribute to an increase in the budgetary revenues of cities, and on the other hand, may discourage potential investors from operating in the city and deteriorate its economic and social condition. The research allowed to state that the use of municipal tax policy is an instrument that strongly regulates fiscal and economic processes taking place in local government. It was found that the largest real estate tax revenues were in cities with a fiscal tax policy (where the highest tax rates were applied), while cities with relatively low real estate tax rates achieved in 2018-2020 an average revenue three times lower than cities applying fiscal tax policy. Moreover, the research proved that the most developed local governments in terms of socio-economic use applied fiscal tax policy. The least developed socially and economically was the group of cities with a liberal tax policy, and therefore applying relatively low tax rates.

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ZRÓŻNICOWANIE FISKALNYCH I GOSPODARCZYCH SKUTKÓW GMINNEJ POLITYKI PODATKOWEJ NA PRZYKŁADZIE PODATKU OD NIERUCHOMOŚCI

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Słowa kluczowe: podatek od nieruchomości, polityka fiskalna, budżet gminy, dochody własne, rozwój społeczno-gospodarczy.

Abstrakt

Celem artykułu była ocena zróżnicowania fiskalnych i gospodarczych skutków gminnej polityki podatkowej na przykładzie podatku od nieruchomości w polskich miastach na prawach powiatu. Jest to zagadnienie istotne, zarówno pod względem teoretycznym, jak i praktycznym. Stosowanie wysokich stawek podatkowych z jednej strony może się przyczyniać do wzrostu wpływów budżetowych miast, z drugiej natomiast może zniechęcić potencjalnych inwestorów do prowadzenia działalności na terenie miasta i pogorszyć jego stan gospodarczy i społeczny. Badania pozwoliły stwierdzić, że wykorzystanie gminnej polityki podatkowej jest instrumentem silnie regulującym fiskalne i gospodarcze procesy zachodzące w samorządzie terytorialnym. Ustalono, że największe dochody z tytułu podatku od nieruchomości odnotowały miasta, w których prowadzono fiskalną politykę podatkową (tzn. stosowano najwyższe stawki podatkowe), natomiast miasta stosujące relatywnie niskie stawki podatku od nieruchomości uzyskały w latach 2018-2020 średni dochód trzykrotnie niższy niż miasta stosujące fiskalną politykę podatkową. Ponadto w toku badań dowiedziono, że najbardziej rozwinięte pod względem społeczno-gospodarczym samorządy stosowały fiskalną politykę podatkową. Z kolei najmniej rozwinięta społecznie i gospodarczo była grupa miast prowadząca liberalną politykę podatkową, stosująca zatem relatywnie niskie stawki podatkowe.

Introduction

The local government has been organisationally and legally separated in the state structure. Its independence has been guaranteed in the legal act of the highest rank among other sources of law, which in Poland is the Constitution of the Republic of Poland (1997). A functional manifestation of self-government independence is handing over to it all tasks in the field of public affairs, which can be attributed a local character. Such organization of exercising power in the state is associated with the introduction of broadly understood decentralization (Wichowska, 2021, p. 199-201).

The basic determinant of decentralization – its scope and level, is ensuring financial autonomy for local government units. In this aspect, revenues is of key importance. Thanks to the accumulated own revenues, the local government can define and implement its own tasks and set its own priorities in this regard. The municipalities own revenues includes taxes, local fees and property revenue. In the literature on this subject, the most important among own revenues are those from local taxes and fees (Gornowicz & Wichowska, 2017, p. 65-67), which are closely related to the territory of a given local government unit.

In addition to the possibility of collecting their own revenues, municipalities have statutory fiscal powers that allow them to freely determine the amount of tax rates and other elements of the tax technique, especially in the field of taxes: agricultural, forestry, real estate, means of transport, inheritance and donations. Tax policy of municipalities allows to stimulate its development. Decisions made by local government authorities thus affect not only the level of own revenues, but also the possibilities of financing public tasks. These, in turn, affect non-fiscal aspects such as the socio-economic development of a local unit.

In connection with the above, the article deals with the problem related to the dilemma of local units with regard to the application of appropriate tax policy and its fiscal and economic consequences. The use of high rates of local taxes may contribute to an increase in budget revenues in a given unit and, consequently, to having greater possibilities in the implementation of local government tasks, but on the other hand, it may lead to less economic activity undertaken in a given local government unit or transfer of activities by entities to other municipalities. This may happen as a result of the city's deteriorating tax competitiveness.

The aim of the research was to evaluate the fiscal and economic differentiation of the municipal tax policy on the example of real estate tax. The following research hypothesis was adopted in the research: an increase in the real estate tax rate increases the budget revenue on account of it and improves the socio-economic development of the city. This dependence is important for local government units conducting fiscal policy, as well as for the entire society, because the level of local development affects the life and its quality of every resident.

The territorial scope of the research covered all cities with poviat rights in Poland. According to the Act of 5th June 1998 on poviat local government (1998), a city with poviat rights is a municipality that performs poviat tasks under the terms of this act. These units are characterized by a relatively high frequency of economic, demographic and social changes, which was the reason why they were indicated as a research entity in this article. Currently, there are 66 municipalities in Poland, these are: Jelenia Góra, Legnica, Wałbrzych, Wrocław, Bydgoszcz, Grudziądz, Toruń, Włocławek, Biała Podlaska, Chełm, Lublin, Zamość, Gorzów Wielkopolski, Zielona Góra, Łódź, Piotrków Trybunalski, Skierniewice, Kraków, Nowy Sącz, Tarnów, Ostrołęka, Płock, Radom, Siedlce, Warsaw, Opole, Krosno, Przemyśl, Rzeszów, Tarnobrzeg, Białystok, Łomża, Suwałki, Gdańsk, Gdynia, Słupsk, Sopot, Bielsko-Biała, Bytom, Chorzów , Częstochowa, Dąbrowa Górnicza, Gliwice, Jastrzębie-Zdrój, Jaworzno, Katowice, Mysłowice, Piekary Śląskie, Ruda

Śląska, Rybnik, Siemianowice Śląskie, Sosnowiec, Świętochłowice, Tychy, Zabrze, Żory, Kielce, Elbląg, Olsztyn, Kalisz, Konin, Leszno , Poznań, Koszalin, Szczecin and Świnoujście.

The study used data from the Local Data Base of Statistics Poland. The research also used data on the amount of real estate tax rates applied by municipalities, which come from the Tax Portal of the Ministry of Finance, and the budget revenues obtained from the Local Data Base. Due to the limited availability of statistical data, in particular data on the amount of the property tax rate, the analysis was carried out for 2018-2020.

The average level of real estate tax revenues to cities budgets was used to examine the fiscal effects of the municipal tax policy. In the next stage of the research, the research sample was grouped in terms of the tax policy pursued in accordance with the typology proposed by Swaniewicz (1996). And then the indexes of changes in the amount of revenues to municipal budgets due to real estate tax were calculated and compared with the type of tax policy applied.

The level of socio-economic development of cities was assessed using the TOPSIS method (*Technique for Order Preference by Similarity to an Ideal Solution*). This method consists in analyzing the level of the phenomenon under study using a set of indicators and replacing it with the analysis of an aggregated quantity, called a synthetic measure. Its construction consists in determining the distance of each multi-feature object from the so-called pattern and anti-pattern of development (Sokołowska & Filipowicz-Chomko, 2015, p. 176). The study was conducted in the following stages:

1. Selection of features and determining the direction of their preferences in relation to the level of economic development.

2. Unitarization of the values of simple features.

The character of the features was standardized by transforming the destimulant into stimulants and the values of all features were brought to comparability. Uniitarization was carried out on the basis of the following formulas:

For a stimulant:

$$z_{ik} = \frac{x_{ik} - \min_i .\{x_{ik}\}}{\max_i .\{x_{ik}\} - \min_i .\{x_{ik}\}}, \quad (i = 1, 2, \ldots, n;\ k = 1, 2, \ldots, m).$$

For destimulant:

$$z_{ik} = \frac{\max_i .\{x_{ik}\} - x_{ik}}{\max_i .\{x_{ik}\} - \min_i .\{x_{ik}\}}, \quad (i = 1, 2, \ldots, n;\ k = 1, 2, \ldots, m),$$

where:

$\max_i .\{x_{ik}\}$ – maximum value of the k-th feature,

$\min_i .\{x_{ik}\}$ – minimum value of the k-th feature.

3. Calculation of the Euclidean distance of individual aggregate units from the pattern $z^+ = (1, 1, \ldots, 1)$ and anti-pattern of development $z^- = (0, 0, \ldots, 0)$:

$$d_i^+ = \sqrt{\sum_{k=1}^{m} (z_{ik} - z_k^+)^2}, \quad d_i^- = \sqrt{\sum_{k=1}^{m} (z_{ik} - z_k^-)^2}.$$

4. Determination of the value of a synthetic feature using the TOPSIS method:

$$q_i = \frac{d_i^-}{d_i^+ + d_i^-}, \qquad (i = 1, 2, \ldots, n).$$

Higher values of measure indicate a higher level of socio-economic development of the municipality. Stages 2 to 4 were repeated for the remaining years in accordance with the adopted research period.

The level of socio-economic development depends on the type of measures selected for its calculation, however, there are no commonly known universal solutions in this regard. The complexity of the phenomena occurring in the development process implies the use of various measures reflecting the symptoms of this phenomenon (Marks-Bielska *et al.*, 2017, p. 24). The literature on the subject distinguishes four levels of regional development (Miłek & Paluch, 2016, p. 93): demography and the labour market, the level of social development, the level of economic development and the level of technical infrastructure. On the basis of the research of the above-mentioned authors, the features describing the socio-economic development were selected. These qualities were: X_1 – number of people registered as unemployed for more than 1 year, X_2 – number of beneficiaries of environmental social welfare per 10 thousand residents, X_3 – percentage of residential buildings connected to the water supply, X_4 – length of the active sewage network, X_5 – number of apartments, X_6 – number of units removed from the REGON register per 10 thousand residents, X_7 – population per seat in the cinema, X_8 – number population per 1 km^2, X_9 – the number of people of working age, X_{10} – number of people using the gas network, X_{11} – the number of investment outlays in gross enterprises, X_{12} – number of electricity consumers, X_{13} – number of natural persons running a business per 10 thousand residents, X_{14} – number of entities entered in the REGON register per 10 thousand residents, X_{15} – usable floor space of apartments, X_{16} – birthrate, X_{17} – average monthly gross remuneration, X_{18} – balance of migration, X_{19} – sale of thermal energy during the year, X_{20} – gross fixed capital formation. Indices X_1, X_2 and X_6 were assumed as destimulants, the remaining variables were considered stimulants.

The article consists of three parts: the theoretical background of the problem, analyzes of the fiscal effects of the municipal tax policy in the field of real estate tax, and analyzes of the economic consequences of this policy. The article ends with a summary containing the most important conclusions from the research and proposals for further research directions.

Tax policy of municipalities in the field of real estate tax – theoretical background

The main instrument stimulating the socio-economic development within the adopted in municipalities strategy is the fiscal policy. It is defined as deliberate actions undertaken by the local government aimed at achieving the assumed goals, with the use of appropriately selected methods that result from the adopted legal and financial standards (Felis, 2018, p. 145). Its aim is both to stimulate the local government units economy and to attract investors. Local business generates a very important category of budget revenues, which are largely responsible for the revenue autonomy of municipalities and the ability to make financial decisions (Wichowska & Wierzejski, 2019, p. 83). To achieve the above-mentioned goals, it is necessary, inter alia, a properly constructed and developed system of local taxes, the logic of which should result from the strategic goal implemented by municipalities (Felis, 2015, p. 80).

Local self-government may enact general provisions of local tax law, i.e. for the area of the entire municipality it manages and individual decisions. All kinds of allowances and exemptions, whether general or individual, are a form of incentives to support local socio-economic development. Fiscal policy may also serve to limit the types of activities undesirable from the point of view of the municipality and local community by establishing maximum tax rates (Podstawka & Rudowicz, 2010, p. 80).

The policy adopted by the municipality can be classified in various ways. This study adopts one of the best known typologies of local tax policy, developed by Swianiewicz (1996, p. 93). The author distinguished, in the case of real estate tax, the policy:

– liberal, when the rates of all taxes are relatively low;

– fiscal, when the rates of all taxes are high;

– stimulating, when the rates of taxes related to non-agricultural economic activity have been lowered;

– populist, when high taxes on economic activity and low taxes on residents have been applied.

Contemporary and in-depth studies of local tax policy include, inter alia, in the work of Łukomska and Swianiewicz (2015) and the Felis monograph (2015). The authors of the first study confirmed, inter alia, is that:

– decreasing the rates causes a decrease in budget revenues;

– local tax issues are a marginal topic of political debates in municipalities;

– the most important decisions on tax policy depend primarily on the mayor (executive authorities) – and the treasurer;

– the activity of municipality in tax policy is usually associated with putting themselves in the position of voters' representatives;

– the tax policy of municipalities is highly diversified, depending on the size of the given unit, its location in relation to the largest agglomerations, socio-economic characteristics and the level of development of the region;

– manifestations of tax competition are noticeable in local tax policy and that most politicians and local government employees do not have extensive proposals for changes to the local tax system.

In the second study, the main goal was to verify the research hypothesis, according to which, with the current structure of real estate taxes, the freedom of local tax policy by municipalities is limited. The literature on the subject also discussed issues related to the diversification of the tax policy of municipalities in the area of the most important local taxes, the effectiveness and intensity of the tools used in the area of tax authority granted to municipalities, as well as financial and non-financial consequences of tax policy. The conclusions reached by researchers of these issues include following:

– municipalities do not pursue a sufficiently flexible policy aimed at maintaining revenues at a constant level, and when they lower tax rates and apply their own allowances and exemptions, they follow non-fiscal goals (Śmiechowicz, 2016, p. 174);

– the effectiveness of lowering real estate tax rates in order to attract new investors to the local market is low (weak correlation between the rates of tax on buildings related to running a business and the quantities describing quantitatively the functioning of economic entities in municipalities) (Korolewska, 2014, p. 105);

– tax policy is correlated with the amount of tax revenues, but this relationship is not constant (Felis & Rosłaniec, 2017, p. 113).

Opinions on the effects of the tax policy implemented by municipalities vary. Many studies indicate that the tax policy of municipalities, but also of the state as a whole, is an instrument used to implement fiscal and non-fiscal functions, stimulating the socio-economic development of the micro-region and the state, and not only an expression of tax authority and passive implementation of statutory tasks (Filipiak, 2015, p. 224; Wierzbicka *et al.*, 2021, p. 91, 92). This development is a complex phenomenon that aggregates both qualitative elements and changes taking place in the economic, political, cultural, legal, institutional and technological spheres (Nazarczuk & Marks-Bielska, 2013, p. 40). Human capital, which depends on the competitive potential of the regional economy, also exerts a strong influence (Merło & Bogdański, 2017, p. 411, 412) and social capital constituted by universities that prepare qualified staff (Stanowicka, 2021, p. 689). Therefore, quantitative changes, expressed by economic growth indicators and qualitative transformations, such as a change in the quality of manufactured goods and services, are important. Socio-economic development at the regional level is a process based on the systematic improvement of the living conditions of the population and the growth of the region's potential (Miłek & Paluch, 2016, p. 90-92).

Pursuant to Art. 168 of the Constitution of the Republic of Poland (1997), local government units have the right to set the amount of local taxes and fees to the extent specified in the Act. The issues of granting local self-governments the tax authority are also regulated by the provisions of the European Charter of Local Self-Government (1985), which in Art. 9 stipulates that at least part of the financial resources of local communities should come from local fees and taxes, the amount of which these communities are entitled to determine in the scope specified by the Act. Kornberger-Sokołowska (2016, p. 190) notes that the Polish legislator has granted such law only to municipalities, and that it does not apply to all taxes constituting the source of municipal revenue. The author points out that the tax control over tax revenues is limited. Pursuant to Art. 217 of the Constitution, full power of taxation, including the right to impose taxes and determine their basic structural elements, rests with the legislature. Thus, municipalities have limited tax jurisdiction consisting in shaping those structural elements of local taxes that affect the amount of tax burdens. Tax jurisdiction varies according to the type of local tax. In the case of real estate tax, it includes the possibility of setting tax rates within the limits specified by the Act, introducing general tax exemptions, differentiating tax rates for individual objects of taxation, managing tax collection by means of collection, appointing collectors and determining the amount of remuneration for collection (Kornberger-Sokołowska, 2016, p. 193).

Real estate tax in the municipalities revenues system is of key importance due to its high share in total budget revenues. It is the most important and most efficient source of local revenue, and has the most important fiscal significance for the budgets of many municipalities, especially large-city and industrial ones. Revenue from this proves the revenue potential of municipalities and they meet the desired features of local taxes, which are: efficiency, even distribution of the tax base, unambiguous and permanent territorial relationship with the municipality, its "visibility" and the prevalence of burdens (Czempas, 2009; Felis, 2016). Pursuant to the provisions of the Act on Local Taxes and Charges (1991) this tax is subject to land (their area), buildings or parts thereof (usable area) and structures or their parts related to running a business (the value constituting the basis for calculating depreciation in a given year or the value of from the last year, when the structure was fully depreciated). Taxpayers are natural persons, legal persons, organizational units without legal personality who have the right to use real estate specified in the act, in particular their owners, independent or dependent owners, or perpetual users. The rates of this tax are the ratio of the tax amount to the tax base. The legislator defines their maximum level expressed annually in the regulation.

Fiscal consequences of the municipal tax policy

In the first stage of research on the fiscal effects of municipal tax policy, the focus was on the financial analysis of budget revenues from real estate tax and finding a relationship between their level and the tax rate applied. Table 1 shows the average revenues to municipal budgets on this account and the average tax rate on residential buildings in 2018-2020.

Table 1

Average revenue of Polish cities from real estate tax and average tax rates for residential buildings in 2018-2020

City	Average revenue	Average tax rate	City	Average revenue	Average tax rate
1	2	3	4	5	6
Warszawa	1,228,930,376.62	0.77	Ruda Śląska	79,462,882.44	0.57
Kraków	543,859,757.70	0.78	Jaworzno	79,294,109.96	0.71
Gdańsk	476,004,168.92	0.78	Świnoujście	75,134,254.07	0.78
Wrocław	461,020,606.40	0.78	Legnica	70,822,945.59	0.74
Łódź	448,331,457.81	0.79	Koszalin	70,509,571.70	0.58
Poznań	436,479,966.90	0.57	Konin	67,007,454.86	0.63
Szczecin	253,459,563.87	0.70	Elbląg	63,690,405.86	0.71
Katowice	243,169,091.20	0.71	Kalisz	62,832,365.91	0.64
Płock	240,810,120.83	0.76	Wałbrzych	62,706,696.15	0.55
Bydgoszcz	238,037,394.39	0.79	Jastrzębie-Zdrój	55,599,505.28	0.78
Lublin	213,730,143.88	0.78	Nowy Sącz	54,017,184.91	0.73
Gliwice	180,482,354.24	0.68	Grudziądz	53,082,126.20	0.73
Dąbrowa Górnicza	178,460,850.64	0.67	Jelenia Góra	52,338,734.56	0.76
Białystok	163,712,682.11	0.75	Słupsk	52,169,631.64	0.76
Gdynia	158,089,893.99	0.79	Piotrków Trybunalski	51,412,412.51	0.77
Bielsko-Biała	150,747,749.28	0.73	Suwałki	49,415,709.95	0.75
Częstochowa	145,677,532.22	0.75	Mysłowice	47,570,928.35	0.79
Sosnowiec	137,587,929.89	0.79	Żory	43,315,161.64	0.79
Opole	133,313,245.60	0.74	Ostrołęka	42,213,651.74	0.67
Toruń	126,486,738.73	0.52	Siedlce	39,223,821.19	0.70
Rzeszów	124,077,234.26	0.78	Chełm	36,391,965.62	0.72
Włocławek	120,810,098.08	0.68	Krosno	36,200,974.14	0.74
Kielce	114,243,603.99	0.66	Przemyśl	35,400,534.91	0.79
Tychy	111,351,072.07	0.64	Siemianowice Śląskie	35,186,905.39	0.60
Radom	111,257,187.32	0.75	Leszno	35,023,669.17	0.68
Olsztyn	108,303,803.79	0.64	Zamość	33,481,691.88	0.73

cont. Table 1

1	2	3	4	5	6
Rybnik	101,613,730.50	0.71	Łomża	29,154,740.74	0.69
Zabrze	92,075,024.79	0.73	Biała Podlaska	27,988,606.19	0.60
Tarnów	85,290,755.02	0.73	Skierniewice	27,414,297.07	0.73
Gorzów Wielkopolski	84,027,988.41	0.69	Piekary Śląskie	26,938,542.18	0.53
Zielona Góra	83,759,478.85	0.42	Świętochłowice	26,286,773.24	0.74
Chorzów	82,422,770.01	0.79	Tarnobrzeg	22,687,523.23	0.76
Bytom	80,010,215.76	0.76	Sopot	20,743,871.71	0.73

Source: own elaboration based on Statistic Poland – Local Data Bank (2022).

The highest average revenue to the municipal budget from real estate tax was achieved in Warsaw at the level of PLN 1,228,930,376.62, where the average tax rate was PLN 0.77 per square meter. The value of inflows exceeded PLN 200 million in: Kraków, Gdańsk, Wrocław, Łódź, Poznań, Szczecin, Katowice, Płock, Bydgoszcz and Lublin. In this group of municipalities, the average tax rate on residential buildings was in the range between PLN 0.71 and PLN 0.79 per square meter, except for Poznań, where a relatively low rate was adopted, i.e. PLN 0.57 per square meter. The tax rates were similar in Zielona Góra (PLN 0.42 per square meter), Ruda Śląska (PLN 0.57 per square meter), Koszalin (PLN 0.58 per square meter), Wałbrzych (PLN 0.55 per square meter) and Piekary Śląskie (PLN 0.53 per square meter).

In the next stage of the research, the cities were divided according to the tax policy pursued in accordance with the typology proposed by Swianiewicz (1996). A summary of this division is provided in Table 2.

The group of municipalities pursuing a liberal tax policy includes cities where, in the analyzed period, numerous reductions in the property tax rate of similar amounts were applied. At the same time, it is the most popular policy applied among the studied sample, it referred to 28 cities. In cities applying the fiscal tax policy in 2018-2020, the highest possible real estate tax rates were most often adopted. The cities applying the stimulus policy experienced the highest reductions in tax rates on land and buildings related to running a business. The last group to be distinguished were municipalities applying a populist tax policy, which were characterized by a relatively low tax rate on residential buildings. All the identified groups of cities, according to the tax policy pursued, were analyzed in terms of their average property tax revenue. The results are presented in Figure 1.

The highest average revenue was recorded among cities applying fiscal tax policy, it amounted to approximately PLN 320 million. The average revenue of PLN 116 million was reported by local government units applying populist tax policy. The next place was taken by a group of cities with a liberal tax policy

Table 2

Typology of cities with poviat status in Poland according to the applied fiscal policy in relation to real estate tax rates

Type of fiscal policy	Cities	Number of cities
Liberal	Legnica, Wałbrzych, Włocławek, Chełm, Zamość, Piotrków Trybunalski, Skierniewice, Nowy Sącz, Ostrołęka, Siedlce, Krosno, Przemyśl, Tarnobrzeg, Białystok, Łomża, Suwałki, Jaworzno, Piekary Śląskie, Siemanowice Śląskie, Sosnowiec, Świętochłowice, Zabrze, Żory, Kielce, Elbląg, Olsztyn, Świnoujście i Leszno.	28
Fiskal	Wrocław, Bydgoszcz, Lublin, Łódź, Kraków, Warszawa, Gdańsk, Gdynia, Sopot, Bytom, Chorzów, Jastrzębie-Zdrój, Rybnik, Poznań i Szczecin.	15
Stimulating	Jelenia Góra i Mysłowice	2
Populist	Grudziądz, Toruń, Gorzów Wielkopolski, Biała Podlaska, Zielona Góra, Tarnów, Płock, Radom, Opole, Rzeszów, Słupsk, Bielsko-Biała, Częstochowa, Dąbrowa Górnicza, Gliwice, Katowice, Ruda Śląska, Tychy, Kalisz, Konin i Koszalin.	21

Source*:* own elaboration.

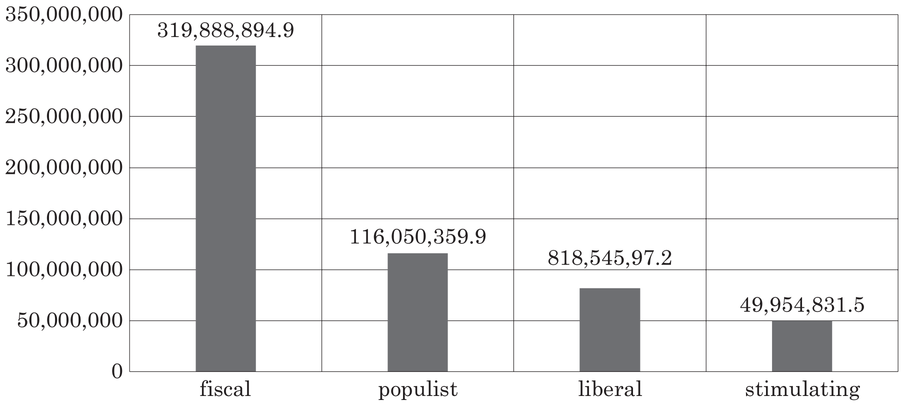

Fig. 1. Average property tax revenue depending on the type of tax policy in 2018-2020 [PLN]
Source*:* own elaboration based on Tax Portal of the Ministry of Finance, online.

with an average property tax revenue of less than PLN 82 million. The last group in the list were municipalities applying a stimulating tax policy, where the average revenue in the analyzed period was approximately PLN 50 million.

In order to analyze the evolution of budget revenues in particular groups of cities, Figure 2 shows the dynamics of changes in revenues to the city budget from real estate tax in the subsequent years of the research period compared to the initial year 2018.

The results of the research indicated that the cities pursuing a populist and fiscal tax policy in the analyzed period recorded an increase in revenue from real estate tax, while this increase in cities applying a populist tax policy

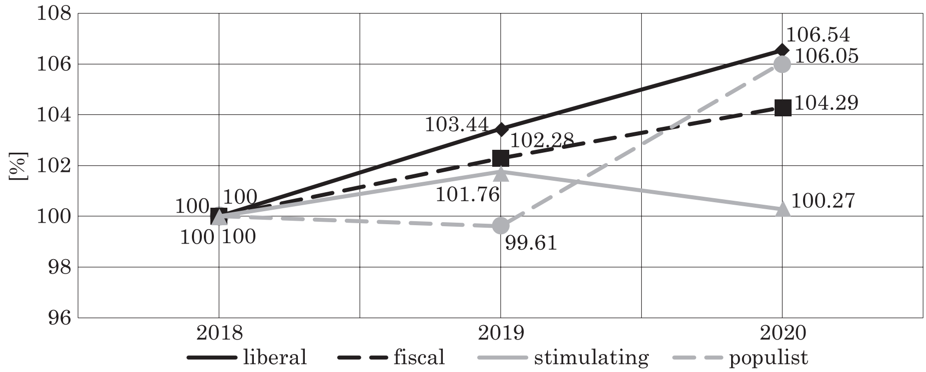

Fig. 2. Single-base indices of changes in the revenue of municipal budgets from real estate tax in 2018-2020 depending on the type of tax policy

Source: own elaboration based on Tax Portal of the Ministry of Finance, online.

was higher by about 2 percentage points than in units where a fiscal policy was adopted. In 2019, cities conducting a liberal tax policy saw a decrease in budget revenues by approximately 0.5% compared to 2018, but in 2020 these revenues increased by approximately 6% compared to the base year. Units that applied the stimulus policy initially achieved a revenue increase of around 2% in 2019 compared to 2018, and in 2020 the level of revenue decreased by 0.3% compared to the base year.

Economic consequences of municipal tax policy

In order to determine the economic effects of the municipal tax policy, the level of development of cities with poviat rights was quantified using a synthetic measure of socio-economic development using the TOPSIS method, according to the procedure specified in the methodological part of the article. The measure of socio-economic development in the subsequent years of the research period and its average value are presented in Table 3.

Warsaw was invariably the most developed city in the analyzed group in terms of socio-economic terms. The city of Kraków, Wrocław and Gdańsk also took the lead in the ranking. The lowest values of the development measure were found in the cities of Przemyśl, Świętochłowice, Grudziądz and Tarnobrzeg. In the context of the purpose of the research, it was considered crucial to relate the measure of socio-economic development to the type of applied policy. Therefore, it was important to find the relationship between the amount of the adopted tax rates and the level of the city's development. For this purpose, the average level of the measure of socio-economic development in groups of cities classified according to their tax policy was examined. The results of this activity are presented in Figure 3.

Table 3

Measure of socio-economic development and its average level
in cities with poviat status in 2018-2020

City	2018	2019	2020	Mean	City	2018	2019	2020	Mean
Warszawa	0.6562	0.6552	0.6506	0.6540	Zabrze	0.1360	0.1379	0.1368	0.1369
Kraków	0.3727	0.3879	0.3857	0.3821	Leszno	0.1377	0.1366	0.1361	0.1368
Wrocław	0.3303	0.3479	0.3508	0.3430	Świnoujście	0.1311	0.1379	0.1366	0.1352
Gdańsk	0.2996	0.3054	0.3010	0.3020	Tarnów	0.1296	0.1379	0.1379	0.1351
Poznań	0.2889	0.2934	0.2849	0.2891	Rybnik	0.1329	0.1379	0.1313	0.1340
Łódź	0.2199	0.2239	0.2270	0.2236	Bytom	0.1273	0.1392	0.1318	0.1328
Szczecin	0.2216	0.2326	0.2151	0.2231	Jaworzno	0.1306	0.1317	0.1334	0.1319
Katowice	0.2103	0.2091	0.2192	0.2129	Wałbrzych	0.1319	0.1273	0.1326	0.1306
Lublin	0.2041	0.2143	0.2142	0.2109	Elbląg	0.1284	0.1271	0.1342	0.1299
Gdynia	0.2016	0.2037	0.2045	0.2033	Jastrzębie-Zdrój	0.1291	0.1319	0.1270	0.1293
Białystok	0.1911	0.2025	0.1909	0.1948	Nowy Sącz	0.1230	0.1282	0.1272	0.1261
Rzeszów	0.1873	0.1914	0.1935	0.1907	Kalisz	0.1274	0.1234	0.1270	0.1259
Bydgoszcz	0.1934	0.1909	0.1851	0.1898	Zamość	0.1247	0.1276	0.1246	0.1256
Bielsko-Biała	0.1854	0.1893	0.1862	0.1870	Łomża	0.1208	0.1268	0.1237	0.1238
Chorzów	0.1773	0.1831	0.1813	0.1806	Ostrołęka	0.1257	0.1227	0.1221	0.1235
Toruń	0.1714	0.1751	0.1762	0.1742	Mysłowice	0.1230	0.1235	0.1239	0.1235
Opole	0.1721	0.1778	0.1724	0.1741	Żory	0.1188	0.1213	0.1203	0.1201
Gliwice	0.1716	0.1748	0.1746	0.1737	Ruda Śląska	0.1167	0.1192	0.1192	0.1184
Olsztyn	0.1699	0.1673	0.1705	0.1692	Siemianowice Śląskie	0.1144	0.1171	0.1189	0.1168
Zielona Góra	0.1637	0.1643	0.1660	0.1647	Włocławek	0.1139	0.1171	0.1158	0.1156
Kielce	0.1631	0.1632	0.1661	0.1642	Biała Podlaska	0.1138	0.1165	0.1150	0.1151
Sopot	0.1657	0.1579	0.1550	0.1595	Konin	0.1123	0.1136	0.1159	0.1139
Częstochowa	0.1572	0.1605	0.1593	0.1590	Siedlce	0.1299	0.1060	0.1050	0.1136
Tychy	0.1544	0.1645	0.1554	0.1581	Suwałki	0.1149	0.1146	0.1109	0.1135
Sosnowiec	0.1531	0.1636	0.1527	0.1565	Piekary Śląskie	0.1070	0.1163	0.1154	0.1129
Koszalin	0.1532	0.1592	0.1501	0.1541	Skierniewice	0.1099	0.1140	0.1109	0.1116
Gorzów Wielkopolski	0.1548	0.1520	0.1501	0.1523	Krosno	0.1126	0.1103	0.1114	0.1114
Płock	0.1481	0.1527	0.1504	0.1504	Chełm	0.1069	0.1128	0.1138	0.1112
Radom	0.1478	0.1469	0.1491	0.1479	Piotrków Trybunalski	0.1058	0.1104	0.1104	0.1088
Dąbrowa Górnicza	0.1435	0.1440	0.1392	0.1422	Tarnobrzeg	0.1063	0.1048	0.1072	0.1061
Legnica	0.1413	0.1411	0.1413	0.1412	Grudziądz	0.1014	0.1057	0.1078	0.1050
Słupsk	0.1399	0.1397	0.1424	0.1407	Świętochłowice	0.1026	0.1058	0.1035	0.1040
Jelenia Góra	0.1412	0.1386	0.1407	0.1402	Przemyśl	0.1009	0.0984	0.0944	0.0979

Source: own elaboration based on Statistic Poland – Local Data Bank (2022).

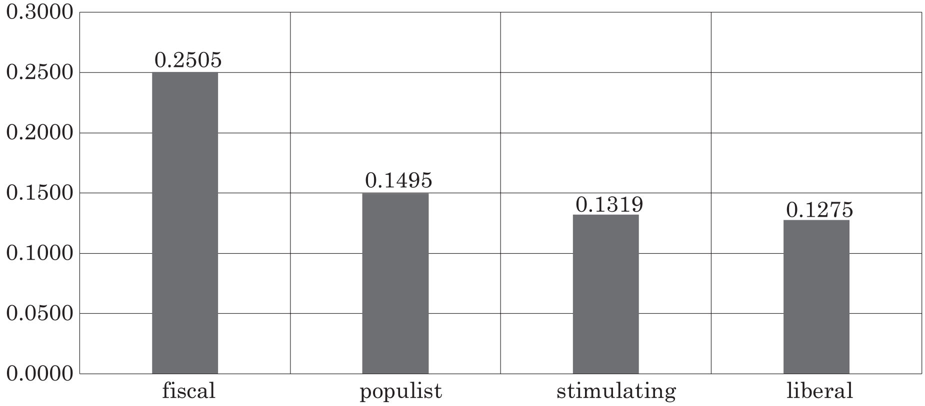

Fig. 3. Average measure of socio-economic development in groups of cities with poviat status in 2018-2020 depending on the type of tax policy
Source: own elaboration based on Statistic Poland – Local Data Bank (2022)

Cities with poviat status applying fiscal tax policy were characterized by the highest average measure of socio-economic development. It was on average 0.25. The cities with populist fiscal policy were characterized by a lower development rate, then those that pursued a stimulating policy, and lastly, a liberal tax policy. Changes in the described value over the years 2018-2020 are shown in Figure 4.

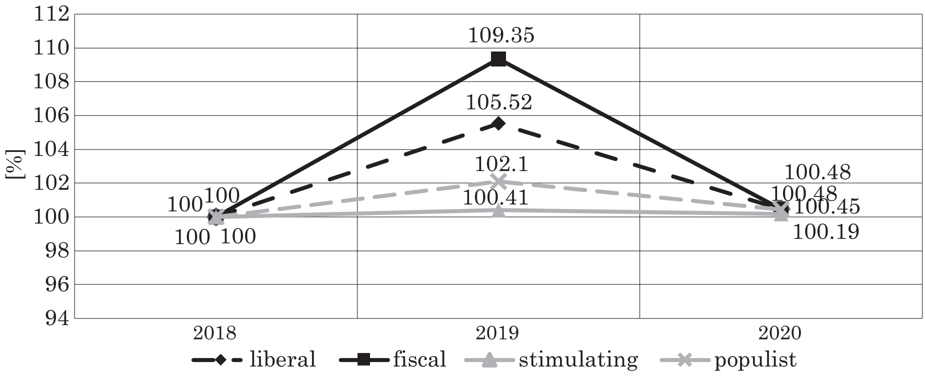

Fig. 4. Single-base indices to measure socio-economic development in 2018-2020 depending on the type of tax policy
Source*:* own elaboration based on Statistic Poland – Local Data Bank (2022).

In all analyzed groups of cities, an increase in the measure of socio-economic development was observed in 2019. This increase was the highest among cities applying the fiscal tax policy (by approx. 10% compared to 2018), lower in cities applying a liberal tax policy (by approx. 6%), then in cities applying a populist tax policy (by approx. 2%), and the lowest in cities applying a stimulating tax policy (by approx. 0.5%). In 2020, all groups recorded a decrease in the level of the measure of socio-economic development and approached the value of the indicator at the base year level. Municipalities pursuing a populist tax policy maintained the indicator at a level of approx. 1.5% higher than in 2018. It can be assumed that this situation was not directly related to the collection of property tax, but to the effects of the COVID-19 pandemic.

Conclusions

The literature review proved that the diversification of the effects of the municipal tax policy has been a subject that has been discussed in large numbers by economists for decades, and opinions in this area are still varied. However, it is noted that when making decisions, local government units should take into account financial and economic aspects, as well as social and economic effects.

The analysis of the fiscal consequences of the municipal tax policy presented in the article proved that the cities with fiscal tax policy recorded the greatest financial profits. The results are reflected in economic theory – the higher the tax rates applied, the more revenue was achieved. In the years 2018-2020, cities applying relatively low real estate tax rates obtained budget revenue on this account over three times lower than cities applying fiscal tax policy. An analysis of changes in these revenues has shown that growth is a stable, gradual process for individuals with the highest tax rates. On the other hand, municipalities that adopted a liberal tax policy initially recorded a decrease in revenues, and only in 2020 an increase. Therefore, the first part of the research hypothesis was confirmed.

The functions of tax policy can be divided into fiscal and non-fiscal. Decisions made by local government units affect both budget revenues and the entire municipality environment, such as changes taking place in the economic and social sphere. The study of the measure of socio-economic development in each of the four groups of cities listed on the basis of the tax policy in place allowed for the assessment of the cities in terms of quality. The results of the research indicated that the most developed local governments applied fiscal tax policy, which confirms the second part of the research hypothesis. On the other hand, the least developed socially and economically was the group of cities pursuing a liberal tax policy, and therefore applying relatively low tax rates.

Based on the presented data, it can be concluded that the application of the highest possible tax rates is the most favorable for municipalities, both in terms of fiscal and economic terms. However, will long-term fiscal policy pursuit have the same effects? This issue is of particular interest in the context of future research. The Laffer curve concept, well-known to economists, describing the relationship between the tax rate and the amount of tax revenues, may be an interesting point of reference in the context of local politics. It may turn out that reaching a certain limit, the application of the highest tax rates, its further application or increasing it will become unprofitable for cities, and even slow down the economic development of a municipality.

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ORIGINAL PAPER

CHOOSING A COURIER SERVICE: FACTORS IN CUSTOMER PREFERENCE

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JEL Classification: R41, M11.

Key words: logistics, logistical customer service, competitive advantage.

Abstract

Courier services are an integral part of logistic customer service and constitute a vital element from the standpoint of customer satisfaction. The aim of this paper is to identify the factors which inform customer decisions to choose a courier service by means of a survey conducted with a randomly selected group of respondents. The results were obtained using a questionnaire made available ONLINE. Decisions concerning the choice of a particular courier company depend on many factors, i.e. shipping price, timeliness of delivery, waiting time, as well as order completion time and customer service. The study also addressed the COVID-19 pandemic and its impact on the frequency of purchases through courier companies, showing that the lockdown affected that frequency substantially. The survey also found that courier and parcel stations are the most important form of delivery in the opinion of the respondents. It may be noted that, according to the survey, customers most frequently used courier services several times a month.

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UWARUNKOWANIA DECYZJI WYBORU USŁUG KURIERSKICH W OPINII KLIENTÓW

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Kody JEL: R41, M11.

Słowa kluczowe: logistyka, logistyczna obsługa klienta, przewaga konkurencyjna.

Abstrakt

Usługi kurierskie stanowią nieodłączny element logistycznej obsługi klienta oraz są istotnym elementem z punktu widzenia satysfakcji klienta. Celem artykułu była identyfikacja uwarunkowań dotyczących decyzji wyboru usług kurierskich w opinii klientów. Podjętą problematykę zrealizowano, posługując się metodą badań ankietowych na losowo wybranej grupie respondentów. Zaprezentowane wyniki pozyskano w badaniu online z wykorzystaniem kwestionariusza ankiety udostępnionego drogą elektroniczną. Decyzje dotyczące wyboru usług konkretnej firmy kurierskiej zależą od wielu czynników, tj. ceny za przewóz, terminowości dostaw, czasu oczekiwania na przesyłkę, czasu realizacji zamówienia, obsługi klienta. W opracowaniu podjęto również wątek pandemii COVID-19 oraz jej wpływu na częstość dokonywania zakupów za pośrednictwem firm kurierskich. Stwierdzono, że pandemia COVID-19 w dużym stopniu wpłynęła na częstotliwość dokonywania zakupów za pośrednictwem firm kurierskich. W wyniku badań ankietowych wykazano również, że przesyłka kurierska oraz paczkomaty są najistotniejszą formą dostawy w opinii badanych. Warto zauważyć, że na podstawie przeprowadzonych badań można stwierdzić, że respondenci najczęściej korzystali kilka razy w miesiącu z usług firm kurierskich.

Introduction

Logistical customer service is described by B.J. La Londe and P.H. Zinszer (Szydełko, 2012, p. 194-199), according to whom it comprises:

– all necessary activities, including pick-up, preparation, execution and financial handling of the customer orders, as well as resolving any issues that may occur;

– guaranteed and thoroughly efficient product delivery to the consumer while meeting all their needs;

– comprehensive activities involving each area of the business, with the aim of delivering products in such a form as to achieve the greatest possible satisfaction of customers.

Logistical customer service is a key element if a company is to achieve a competitive advantage. Courier services are used in practically every phase and element of logistical customer service. The ability to adapt to customers' needs and expectations translates into trust and favourable relations with the purchaser. The local services segment makes it possible to satisfy the following requirements:

– readiness for collection – service delivery time,

– shipment size – price – form of payment,

– additional services (cash on delivery, insurance, receipt).

Currently, X-press Couriers is one of the leaders, providing local services in the largest cities in Poland (Warsaw, Krakow, Wrocław, Katowice, Łódź, Poznań, Szczecin, Gdańsk). The company gains a significant advantage by providing services using vehicle and bicycle couriers. This offers the possibility of a much smoother ride through a congested city (Ratajczak & Lorenc, 2015, p. 1251-1261).

The principal criteria, as well as elements of logistic customer service with regard to courier services, include the following (Coyle *et al.*, 2010, p. 447-458; Barcik & Kubański, 2012, p. 393-402):

– order completion time in relation to the supplier or the customer;

– efficiency, which enables the purchaser to maintain adequate stock levels without the need for safety stock;

– communication, which enables the effective flow of information between specific departments within a company, as well as in a customer-seller relationship;

– customer convenience, which, in order to be achieved, requires a specific organisation to be highly flexible with respect to each link in the supply chain;

– reliability: standardised or expected delivery cycle time, encompassing safety and performance accuracy; it should be identified as one of the vital elements of customer service.

Customer service is a concept which may be variously defined and considered an important asset. It involves all the activities necessary to collect, prepare, execute and bill orders made by consumers, as well as eliminate errors at any point, should they occur. It is also a comprehensive effort in which all spheres of business cooperate mutually to perform the delivery and ensure invoicing of the organization's goods, taking advantage of methods which satisfy the buyer and promote the pursuit of the company's goals (Kuraś, 2013, p. 324-335).

The measurement and evaluation of customer service quality is indispensable when seeking to optimize the quality of logistical customer service since this is how an advantage over the competitors can be gained, while modern solutions offered by logistical operators enable modifications in the supply chains they operate.

Research methodology

The main objective of this study was to identify the determining factors behind customer preference for particular courier services. An attempt was made to answer four research questions:

1. Which element of logistical customer service has the greatest impact on the choice of a courier company in the opinion of the respondents?
2. How often do respondents make purchases online and use courier companies?
3. To what extent has the COVID-19 pandemic affected the frequency of making purchases online with courier delivery?
4. Which forms of delivery are the best according to the respondents?

The following research hypothesis was formulated: In the opinion of customers, the price of shipping is the primary factor determining the choice of services of courier companies.

In order to verify the above, a survey method was used, with 128 respondents taking part. Respondents were selected randomly, but due to the limitations caused by the COVID-19 pandemic, the group was confined to internet users.

A questionnaire was employed as a research tool; it was made available to respondents online so that the researcher's influence on the respondents and the obtained results was relatively low (Bendkowski, 2016, p. 25-38).

The survey questionnaire contained only close-ended questions concerned with the importance of factors influencing decisions to a courier company, the frequency of online purchases, the frequency of using courier companies, the impact of the COVID-19 pandemic on the frequency of purchases via courier companies, and the importance of delivery forms of the ordered merchandise.

The considerations presented in the paper can be a starting point for further research and a more precise and detailed analysis of the vision. Logistical customer service is a field that evolves and develops relatively quickly in practical as well as theoretical contexts. Knowledge of this issue is therefore crucial, for instance, when a company intends to increase its competitive advantage.

Identification of determinants of courier service selection decisions as perceived by customers

Logistical customer service consists of many elements, each of which involves distinct characteristics and applies to various areas of providing satisfaction to the customer. Determination of which of the elements is the most essential is entirely subjective and contingent on the preferences of the individual customer. The process is highly complex, ultimately aiming to provide the highest level of customer satisfaction and content. With individual factors described using a scale where (1) is the least important and (3) the most important, it is possible to determine – in the most precise, consistent and reliable manner – which factors influence the choice of a courier company to the greatest and the least extent. The results of the survey, which demonstrate the distribution of factors affecting respondent preferences with respect to a courier company, are presented in Table 1.

Competitiveness is also a significant factor which, according to Ch. Hampden-Turner and A. Trompenaars, consists of simultaneous competition and cooperation that results in the acquisition of the knowledge of relevant technologies and thorough insights into customers' needs and requirements (Hampden-Turner & Trompenaars, 2000, p. 7-35).

Table 1

Importance of factors influencing the decision to choose a courier company in the opinion of the respondents

Importance scale	1	2	3	Average
Factor	structure in %			
Shipping price	3	24	73	2.70
Order completion time	6	40	54	2.48
Availability of delivery times	13	41	46	2.33
Waiting time	5	33	62	2.56
Communicativeness of staff	38	45	17	1.80
Flexibility of order placement	21	45	34	2.13
Complaint options	13	36	52	2.39
Order integrity	6	37	57	2.51
Delivery integrity	7	41	52	2.45
Technical support	23	57	20	1.98
Ease of order placement	16	35	48	2.32
Interaction with company staff	37	34	29	1.92
Timeliness of deliveries	5	28	66	2.61
Various payment options	8	42	50	2.42
Tracking information/Status updates	7	37	56	2.49
Warranty on shipment	11	39	50	2.39
Polish company	36	37	27	1.91
Company reputation	16	43	41	2.24
Personal experience	13	35	52	2.40
Customer service	10	37	53	2.43

Source: compiled from a survey conducted by the author.

Given the obtained results, it may be stated that the factors which the respondents considered the most important were shipping price (2.70), timeliness of delivery (2.61) and waiting time (2.56), whereas the factors they found the least important were Polish company (1.91), interaction with the company's staff (1.92) and the communicativeness of the staff (1.80).

When analysing the responses in relation to the importance of individual factors, it follows that the shipping price, timeliness of delivery and waiting time were the most important factors in the opinion of the respondents. A Polish company, i.e. the origin of the company, ranked among the least important elements. This may indicate that the majority of respondents do not decide to choose a particular courier company on the basis of its origin, or they do not have sufficient information to determine the nationality of a given company. In addition, interaction with the company staff and their communicativeness were the least important factors. It would suggest that in most cases or throughout the process cycle, order placement and delivery are carried out without interaction with the staff or without any human factor being involved because most of the process or the entire process is automated.

Taking studies by other authors into account, it can be stated that when choosing the delivery methods, 58.95% of the respondents pay attention to delivery cost, 30.31% are concerned with delivery time and 8.15% with parcel safety. Only 2.59% of respondents indicated other aspects, such as the possibility to collect the parcel later if not present at the time of delivery (advice), which works particularly in favour of parcel stations (Mościcka & Grześ-Bukłaho, 2019, p. 87-101).

When asked about their preferences with regard to the area of transport-spedition-logistics (TSL) company operations, the respondents gave consistent answers. 79.4% of the respondents would largely choose a domestic logistics provider, while 6.06% would prefer a European/global enterprise. Only 4.84% of the respondents opted for a local company, although the vast majority of companies are, in fact, international, with the exception of Poczta Polska (Dyczkowska, 2015, p. 447-458).

The results obtained differ somewhat from the findings of other relevant studies in the field. This is particularly evident in the case of research by A. Gulc, in which price was not the most important factor either, but information and communications technology (ICT) solutions or confidence in the company were rated definitely higher from the customers' point of view (Gulc, 2017, p. 36-45).

When considering logistical customer service, one cannot fail to consider the type of company which provides given services due to the fact that each company, in this case, DHL, is characterized by a different operational modality and adaptation of their offer to a particular target customer of that enterprise. Respondents' preferences regarding the importance of factors in logistical customer service provided by DHL are presented in Table 2.

Table 2

Importance of factors influencing customer decisions to choose DHL as their courier service provider

Importance scale	1	2	3	Average
Factor	structure in %			
Shipping price	9	37	82	2.57
Order completion time	5	53	70	2.51
Availability of delivery times	11	62	55	2.34
Waiting time	14	51	63	2.38
Communicativeness of staff	28	65	35	2.05
Flexibility of order placement	19	56	53	2.27
Complaint options	17	53	58	2.32
Order integrity	12	51	65	2.41
Delivery integrity	17	45	66	2.38
Technical support	25	69	34	2.07
Ease of order placement	9	51	68	2.46
Interaction with company staff	24	64	40	2.13
Timeliness of deliveries	7	44	77	2.55
Various payment options	8	54	66	2.45
Tracking information/Status updates	15	45	68	2.41
Warranty on shipment	13	61	54	2.32
Polish company	35	53	40	2.04
Company reputation	10	68	50	2.31
Personal experience	10	54	64	2.42
Customer service	12	48	68	2.44

Source: compiled from a survey conducted by the author.

The above responses indicate that respondents rank shipping price (2.57), timeliness of delivery (2.55) and order completion time (2.51) the highest, while the factors which they found least important were Polish company (2.04), technical support (2.07) and communicativeness of the staff (2.05).

Analysing the responses in relation to the importance of individual factors, it follows that shipping price, timeliness of delivery and order completion time were the most important factors in the opinion of respondents. The factor which the respondents declared the most important for DHL was order completion time. On the other hand, a Polish company, technical support and communicativeness of its staff were the least important factors, with technical support scoring the lowest.

The importance of factors in logistical customer service was also examined with respect to Poczta Polska. Respondents' preferences regarding the importance of factors in logistical customer service provided by Poczta Polska are presented in Table 3.

Table 3

Importance of factors influencing customer decisions to choose Poczta Polska as their courier service provider:

Importance scale	1	2	3	Average
Factor	structure in %			
Shipping price	8	28	92	2.66
Order completion time	10	45	73	2.49
Availability of delivery times	14	56	58	2.34
Waiting time	20	46	62	2.33
Communicativeness of staff	31	56	41	2.08
Flexibility of order placement	18	58	52	2.27
Complaint options	18	59	51	2.26
Order integrity	13	48	67	2.42
Delivery integrity	21	66	41	2.16
Technical support	20	66	42	2.17
Ease of order placement	30	52	46	2.13
Interaction with company staff	13	52	63	2.39
Timeliness of deliveries	9	49	70	2.48
Various payment options	13	55	60	2.37
Tracking information/Status updates	13	58	57	2.34
Warranty on shipment	29	52	47	2.14
Polish company	9	63	56	2.37
Company reputation	19	47	62	2.34
Personal experience	13	45	70	2.45
Customer service	8	28	92	2.66

Source: compiled from a survey conducted by the author.

Analysing the results obtained, it may be stated that shipping price (2.66), order completion time (2.49) and customer service (2.66) were the most important factors in the opinion of the respondents. The factors which the respondents declared to be the least important were a warranty on the shipment (2.14), ease of order placement (2.13) and the communicativeness of the staff (2.08).

The rationale behind the factor rating for DHL and Poczta Polska was to compare a Polish company with a foreign equivalent in the context of logistical customer service. Based on answers concerning the importance of individual factors, it can be concluded that the shipping price, customer service and order completion time were the most important factors in the opinion of the respondents. Consequently, one readily sees that customer service is one of the leading factors to which the respondents attach significance in logistical customer service. Meanwhile, warranty on shipment, ease of placing the order and communicativeness of the staff were the least important factors in the opinion of the respondents.

Since logistical customer service is a vital aspect which cannot be disregarded when developing a competitive advantage, it was important to determine how often respondents made online purchases in view of the fact that the research took place during the COVID-19 pandemic and, in addition, was conducted using an online questionnaire. Figure 1 shows the results concerning the frequency of online shopping.

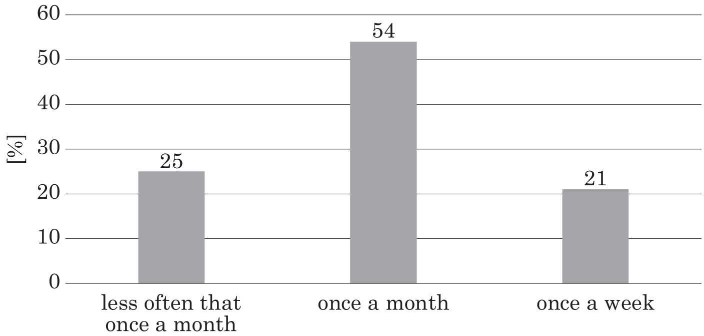

Fig. 1. Respondent opinions on the degree of the impact of the COVID-19 pandemic on the frequency of purchases via courier companies (in %)
Source: compiled from a survey conducted by the author.

The survey demonstrates that the highest proportion of respondents (54%) make purchases electronically once a month, while the fewest, i.e. 21%, make online purchases once a week.

The frequency of online shopping can depend on a number of external and internal factors, i.e. the demand for a certain product in a given month or the overall economic situation. Therefore, the reasons why customers make purchases more or less often cannot be unequivocally stated, but more than half of the respondents (54%) shop online once a month.

Other authors have determined that half of the respondents in their studies (50.09%) declared that they shop online once a month, while 34.83% make such purchases several times a month. Only 9.32% of respondents buy goods in online stores once a week, and 4.70% a few times a week. Only about 1% of those surveyed visit online stores every day. The frequency of shopping online shows that about 85% of the respondents shop occasionally. Considering the fact that e-commerce accounts for only 5% of the total retail turnover in Poland, the shopping frequency of the surveyed group can – roughly speaking – be considered typical for the Polish population of internet users (Mościcka & Grześ-Bukłaho, 2019, p. 87-101).

Another issue this study sought to clarify was how often the respondents use the services of courier companies. On this basis, it is possible to assess the extent to which courier companies in Poland are popular or frequently chosen as intermediaries in product delivery, as well as determine the frequency of purchases delivered mostly by courier companies while taking product types into account. The results showing how often customers rely on courier service providers are presented in Figure 2.

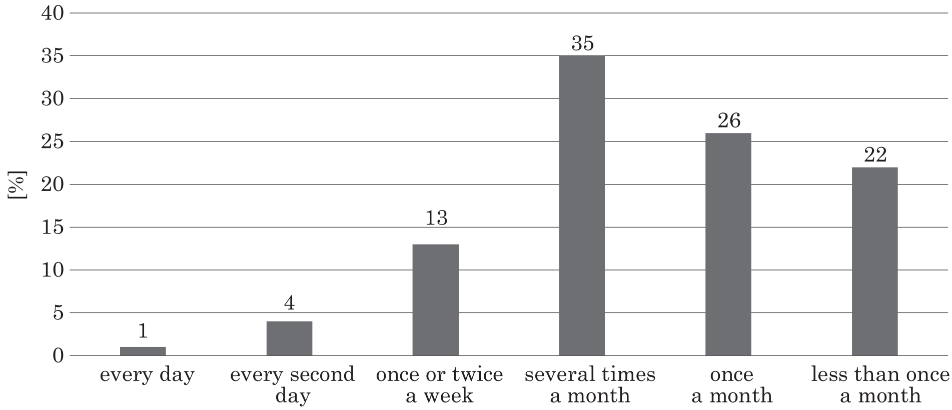

Fig. 2. Frequency of using courier services (in %)
Source: compiled from a survey conducted by the author.

The above demonstrates that the respondents most frequently used courier services several times a month (35%); customers who declared using courier services every day or every other day were the least numerous group (5%).

It follows from the obtained results that courier companies were used relatively often by those surveyed as shipping providers. This may be due to a range of factors informing such a choice, i.e. delivery costs involved in this means of shipping, as well as delivery waiting time. Therefore, the offer has to be adapted to the customer individually, catering to their expectations in terms of expenditure and quality. This is a very complex aspect and requires a more profound enquiry into the motivations and determinants of customer behaviour. The issue needs to be analysed in a manner which maximizes the efficacy of the actions taken and promotes a high frequency of such choices.

The answers returned show that 79% of individual customers rarely use the services of companies in the TSL industry, and only 21% do it often. However, with regard to business customers, the results were quite different; specifically, 72% of companies use courier services often and very often, while only 28% do it seldom or very seldom (Dyczkowska, 2015, p. 447-458).

Drawing on the results obtained by other authors, more than half of the respondents (58%) contact a company in order to make enquiries or make a transaction at least once a month, with as many as 27% using its services once a week or more often. Contact less frequent than once a year is declared by 23% of respondents, while 19% of customers place orders with a courier company once a quarter. The answers to this question allow the inference that a greater proportion of customers can be called loyal customers (Smolnik, 2016, p. 1546-1553).

Another important aspect was to assess the degree of impact of the COVID-19 pandemic on the frequency of purchases through courier companies. The question had a closed form, with the possibility of selecting only one answer. In effect, it was possible to determine the magnitude of that impact quite accurately; the results are presented in Figure 3.

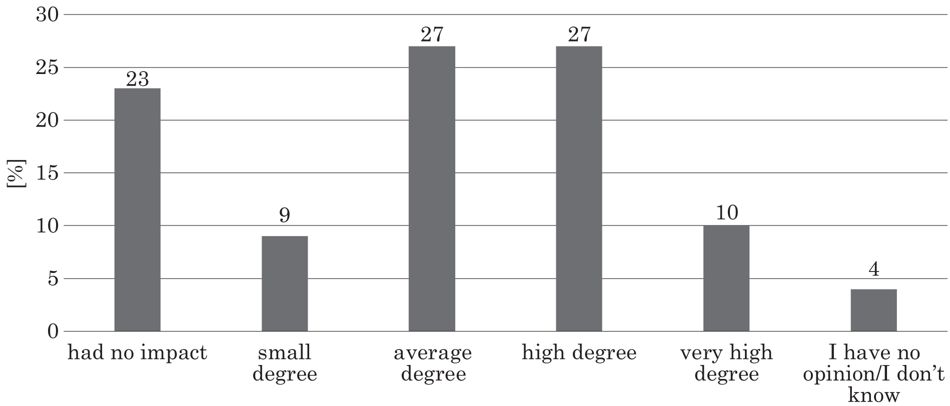

Fig. 3. Respondent opinions on the impact of the COVID-19 pandemic on the frequency of making purchases through courier companies (in %)
Source: compiled from a survey conducted by the author

According to the respondents, the COVID-19 pandemic had a medium (27%) and large (27%) impact on the frequency of their online orders with courier delivery, while 23% declared that the pandemic had no impact at all. The lowest proportion of the respondents (4%) had no opinion or could not estimate the degree to which the pandemic influenced the frequency of their purchases.

Receipt of delivery is as important as the payment for a purchase since it determines the waiting time for the shipment and its final cost. From the standpoint of courier companies, the main objective is to deliver the parcel in the shortest possible time while maintaining all quality standards. When choosing a courier company, the customer is guided by many component aspects which lead to the ultimate decision. All pertinent data are presented in Figure 4.

On the basis of obtained results, it may be stated that courier delivery (2.64) and parcel stations (2.63) are the most popular forms of delivery, while personal collection is the least popular (1.53).

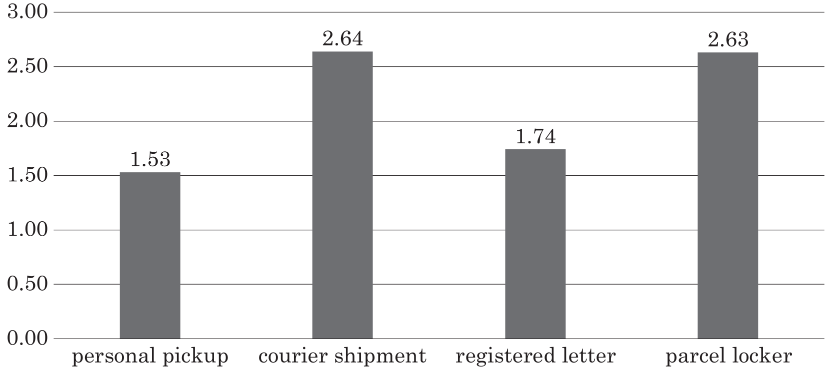

Fig. 4. Reported importance of package delivery forms (in %)
Source: compiled from a survey conducted by the author.

Referring to the research of other authors, the respondents most often chose courier delivery (58.11%). Only 11.41% of respondents prefer deliveries by Poczta Polska, and 25.90% opt for collection from parcel stations. Personal collection in respective stores enjoys little popularity (3.28%). Among other responses, respondents indicated that they had no particular preference for a delivery method, but they did not state an alternative to the forms of delivery listed in the survey (Chodak & Łęczek, 2014, p. 25-43).

Conclusions

The main objective of this study was to identify the determining factors which motivate customers to choose a particular courier service. The main features which guided the choice of a courier company included shipping price, timeliness of deliveries and waiting time, as well as order completion time and customer service. All of these constitute the principal elements in logistical customer service. The study has thus achieved its objective, yielding reliable and substantive findings, from which it follows that, in terms of logistical customer service, the choice of a company was determined primarily by shipping price, an aspect that customers pay most attention to and which affects customer preference to the greatest extent. It is important to note that the COVID-19 pandemic has substantially influenced the frequency of purchases through courier companies resulting in a shift in customer habits. Most frequently, the respondents used courier services several times a month, while most shopped online once a month. Following this research and in the light of obtained results, it is legitimate to conclude that parcel stations and courier parcels tend to be chosen by customers most often as the forms of delivery available with courier companies. The research hypothesis formulated in this study was thus positively verified.

In short, logistical customer service and its principal elements significantly influence customer decisions with respect to courier services. The conducted research may offer a point of departure for further, more complex analyses of the issue.

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ORIGINAL PAPER

FEASIBILITY STUDY OF THE USE OF RENEWABLE ENERGY SOURCES IN HOUSEHOLDS

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JEL Classification: Q01, Q41, Q42.

Key words: renewable energy sources, profitability, households.

Abstract

The present study presents an estimation of the effectiveness of photovoltaic panels and a heat pump installation. The objective of the research was to evaluate the economic feasibility of investing in combined systems relying on renewable energy sources. The research results corroborated the first hypothesis, namely that the use of photovoltaic panels fully supplies the energy needs of the heat pump installed in the household. The other hypothesis, however, was not supported; namely that a combined investment in photovoltaic panels and a heat pumps will pay back in a period shorter than the half of the project's lifetime. The period of financial return slightly exceeded the assumed time. This means that a combination of a heat pump and a photovoltaic installation is economically feasible, but some forms of support with external capital should be applied.

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OCENA OPŁACALNOŚCI ZASTOSOWANIA ODNAWIALNYCH ŹRÓDEŁ ENERGII W GOSPODARSTWIE DOMOWYM

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Kody JEL: Q01, Q41, Q42.

Słowa kluczowe: odnawialne źródła energii, opłacalność, gospodarstwa domowe.

Abstrakt

W opracowaniu przedstawiono ocenę efektywności ekonomicznej zainstalowania instalacji fotowoltaiczno-ciepłowniczej oraz pompy ciepła. Celem badań była ocena opłacalności ekonomicznej inwestowania w połączone systemy odnawialnych źródeł energii. Wyniki badań pozwoliły potwierdzić pierwszą hipotezę, że zastosowanie paneli fotowoltaicznych zaspokaja potrzeby energetyczne pompy ciepła wykorzystywanej na potrzeby gospodarstwa domowego. Nie potwierdzono jednak hipotezy drugiej, że łączona inwestycja paneli fotowoltaicznych oraz pompy ciepła zwróci się w okresie krótszym niż połowa przewidzianej żywotności projektu. Okres zwrotu przekroczył nieznacznie założony czas. Oznacza to, że połączenie pompy ciepła z instalacją fotowoltaiczną jest opłacalne ekonomicznie, ale warto zastosować bardziej rozbudowane formy wsparcia kapitałem zewnętrznym.

Introduction

In Poland, access is available to various types of renewable energy, which may create a safe and economic energy mix (Świdyńska & Witkowska-Dąbrowska, 2020, p. 194, 195). Photovoltaic panels and heat pumps have become the most popular options for households seeking to utilize renewable energy. For the energy independence of households, these are very attractive solutions. An installation of photovoltaic panels of suitable capacity lowers the household's energy bills, while the use of heat pumps helps bring down the cost of heating. This is a substantial financial relief over the years. However, the heat pump requires electricity for operation. Therefore, a question arises about the short term economic benefits of using photovoltaic panels and the heat pump in the household, and the time of return on such investment. The aim of this research was to evaluate the economic viability of investing in combined systems of renewable energy.

Methodology of research

Two hypothesis were posed for the research:

H1: the use of photovoltaic panels fully covers the energy needs of a heat pump operating for the needs of a household,

H2: the combined investment in photovoltaic panels and a heat pump will pay back in the period shorter than the assumed half time of the project.

The analyzed period included 24 months between 2020 and 2022.

The source of data were internal documents obtained from the subject of the research: the cost estimation of the investment, incoming electricity bills for years 2020-2022, readings from measuring devices for photovoltaic panels and heat pumps. The source data was processed with selected simple and complex methods (Pastusiak, 2003, p. 85-95).

The calculated simple period of return (PP - payback period) was defined as the time needed to refund the expenditure incurred (Sobczyk, 2011, p. 172); DPP (discounted payback period) means the number of periods upon the sum of which the discounted net cash flows will equal zero (Herman & Koroblowski, 2003, p. 51-56).

The simple ROE (return on equity) shows the profitability only from the owner's point of view, including the net profit:

$$\mathrm{ROE} = \frac{Z_n}{K_w} \cdot 100\%,$$

where:

K_w – own equity,

Z_n – net profit.

The results show how much operational profit (ROI) and net profit (ROE) falls for every zloty of the investment expenditure (total and own) in every period.

Another non-discounted method is ARR (accounting rate of return). This is the average annual return (sum of the net profit divided by the length of the project expressed in years) divided by the average yearly investment understood as the sum of the initial and final net accounting value of the investment.

$$\mathrm{ARR} = \frac{\bar{Z}_n}{N} \cdot 100\%,$$

where:

$\bar{Z}_n$ – average net profit,

N – average yearly investment.

The approach described above works under the assumption that the capital financing the initial investment expenditures is engaged until the last year of the investment project. As this assumption is not always real, the accounting rate of return can be calculated based on the condition that the invested initial capital is returned on an ongoing basis along with the write-off of the created assets (Świdyńska & Witkowska-Dąbrowska, 2020, p. 197, 198). The complex or discounted methods allow one to eliminate the shortcomings of simple methods, taking into account the changing value of money depending on the timing of cash flows incurred for the estimated investment (Pastusiak, 2003, p. 85-95). The NPV (net present value ratio) allows the estimation of investment projects with reference to the main objective of the company's operation, which is maximizing the value of the owners' income through maximizing of the company's value. NPV is the difference between the sum of discounted future cash flows generated by the project and the total value of expenditure (Brodziński *et al.*, 2021, p. 2087).

$$\mathrm{NPV} = \sum_{t=1}^{n} \frac{\mathrm{CF}_t}{(1+r)^t} - \sum_{t=0}^{n} \frac{N_t}{(1+r)^t},$$

where:

t – given period of the total number n of the project periods; $t = 0, 1, 2, 3\ldots, n$; n – duration of the project,

CF_t – cash flow generated in period t,

r – discount rate,

N_t – expenditure in the project.

Decision criterion applied for this project: NPV > 0 PLN: the project is profitable, i.e. it covers the cost of the capital needed to invest in the project and brings surplus income; when NVP = 0, the project is acceptable; when NPV < 0: the project must be rejected (Mielcarz & Paszczyk, 2013, p. 22, 23).

The IRR (Internal Rate of Return) is a rate expressed in percentage, for the value of NVP = 0.

$$\sum_{t=0}^{n} \frac{\mathrm{CF}_t}{(1+\mathrm{IRR})^t} = 0.$$

This method is applied to calculate the real rate of profitability of the estimated investment, which allows one to compare the threshold rate of profitability with the real profitability of the investment.

Justification for the use of renewable energy sources in households in relevant literature

The demand for energy has been growing rapidly, which calls for the introduction of processes which would satisfy the needs of the growing world's population and avoid energy crises. RE sources can play an important role in the light of the exhaustion of fossil fuel deposits and the global warming.

At the current rate of energy consumption, forecasts see an increase in demand by 65% until year 2030 (Metz *et al.*, 2007, p. 268). At present, most of the energy consumed worldwide is generated from non-renewable sources, like coal power plants. It is evident that this leads to serious problems, like emissions of greenhouse gases and global warming (Sharvini *et al.*, 2018, p. 257-266). As the levels of greenhouse gasses are growing at a hazardous rate, besides the strategies for the reduction of carbon dioxide, new energy sources are needed based on renewables (Behrouzi *et al.*, 2016, p. 1270-1281). In contrast to fossil fuels, renewable energy offers alternative sources of clean energy. It is also expected that RES will limit the future energy crises, playing a key role in satisfying the future demand for electricity. As the awareness of the clean environment is on the rise, it is now considered that the traditional dependence on fossil fuels has led to an excessive emission of greenhouse gases and damage to the environment (Lucas *et al.*, 2018, p. 449-445). RES may cover the domestic need for energy with the potential of providing energy services at zero or near zero emission of air pollutants and greenhouse gases (Fornara *et al.*, 2016, p. 1-10; Borovik & Albers, 2018, p. 33-39; Keramitsoglou *et al.*, 2016, p. 1332-1337; Bhowmik *et al.*, 2017, p. 796-813). It is therefore important to shape the policies and popularize RES also among households (Qazi *et al.*, 2019, p. 63837-63851; Wierzbicka, 2022, p. 1-16).

The market for photovoltaic collectors has an enormous potential in Poland; as yet, it seems that this potential has not been exploited. In 2025, the total installed capacity of PV collectors is to reach 7.8 GW, which means that this capacity will exceed the capacity assumed in the Domestic Plan for Energy and Climate until year 2030 (*Rynek fotowoltaiki w Polsce…* 2020).

To a large extent, the observed and forecast growth in the installed capacity of solar power is possible due to the government subsidies from programs like "My Electricity," "Clear Air," "Energy Plus," and "Agroenergy," as well as changes in the regulations which let the households engage in energy production and feed it into the grid, introduced in 2016 (Ustawa z 19 lipca 2019 r. o zapewnianiu dostępności osobom ze szczególnymi potrzebami), which should trigger interest in the production of green energy. Thanks to the government subsidies, support from EU programs, and new legal regulations, the RES industry was the only sector of the economy which managed to fetch more investment capital in years 2019-2020 than the sector of conventional energy.

Besides the lower electricity bills, another important factor which determines the return of investing in solar panels is the adequate level of sun exposure over the area of Poland (Żelazna *et al.*, 2020, p. 3978-3994).

Each region of Poland has different conditions, such as cloud cover, terrain shape, longitude and latitude. Meteorological conditions have a vital influence on the efficiency of solar collectors and impact the basic parameters determining the potential of solar energy use, like insolation [W/m^2], total solar radiation [J/m^2]. These parameters determine both the total radiation and its components, which is direct and dispersed radiation. At Poland's longitude, the sum of direct and dispersed radiation reaching the land surface can achieve the maximum instantaneous value of 1 kW/m^2 (*Global Solar…* , online). The month when the land is most exposed to the sun is June, when the sky is clear and the sun is in the highest point over the horizon. On the other hand, this energy is much lower in December, when the sun is at its lowest point (Chwieduk & Chwieduk, 2020, p. 3232-3249). Summer months have the largest number of insolation hours. Direct radiation can correspond to as much as 90% of the total radiation reaching the Earth, with the value of 1,050 W/m^2. At the same time, when the sky is completely clouded, only dispersed radiation reaches the land surface, and its value is between 50 and 150 W/m^2. From October to March, the number of insolation hours is the lowest; moreover, the absorption of this energy is further inhibited by strong winds and lower temperatures (Niekurzak & Kubińska--Jabcoń, 2021).

A heat pump makes it possible to use thermal energy from sources of low temperatures. It uses the heat from ground waters, surface waters, and atmospheric air. Its function is to absorb heat from the source of a lower temperature and pass it on to the source of higher temperature. Heat pumps use low temperature heat, which is difficult to utilize otherwise. The most common way of using heat pumps in Poland is to take advantage of the ground heat through the so-called ground collector. We distinguish heat pumps of vertical and horizontal heat exchangers. There are two types (*Odnawialne źródła…* online):

– horizontal heat exchangers (horizontal collectors) – laid 1.0-1.6 meters under the surface; a collector laid in the ground does not affect plant vegetation and gives most heat when placed in moist soil;

– vertical heat exchanger (vertical pump) – a vertical exchanger placed in a drilled well, which constitutes a closed loop in which non-freezing glycol-water solution circulates. The absorbed heat is exchanged by the heat pump into energy.

Geothermal energy in Poland is competitive in terms of ecology and economy against other energy sources; we have relatively large supplies of geothermal energy, potentially used for thermal purposes (*Energia geotermalna*, online).

Estimation of the feasibility of installing panels and pumps in a household

The study investigated the data obtained from a household fitted with a PV installation and a heat pump. The house is located in Skierniewice municipality, in łódzkie voivodship. The house area is 190 m^2 and is occupied by 4 residents. The łódzkie voivodship belongs to zone 3 of insolation, where solar radiation reaches 1,100 W/m^2. The studied household has a PV installation made up of 26 panels of the total 8.85 kWp capacity, installed in 2020. The panels are mounted on the roof and inclined towards the south, which is the most common recommendation in Poland. The roof inclination is 35 degrees. The vicinity of the house does not have trees or high rise buildings, which means that in no time during the day the panels are in shade, which would unnecessarily degrade their effectiveness. The installed panels are of high quality and their average longevity is estimated to be 40 years.

The cost of the PV installation, including workload and additional equipment, amounted to PLN 40,000, of which PLN 5,000 was granted by the government as part of "My electricity" program. The cost of the heat pump 10 kW F-1245 All-In-One, after the producer's discount of PLN 5,000, was PLN 30,000 plus the cost of the design and drilling to the depth of 240 meters of PLN 17,000, and installment with other materials priced at PLN 9,000, which composed the total cost of the investment equal PLN 56,000. The total cost of the installation was PLN 96,000. The annual production from the PV installation averages 8,800 kWh, while the annual demand for energy of the household reaches 10,000 kWh; the heat pump itself needs 4,000 kWh. The missing kWh is bought in the inexpensive tariff G12W, where the present price is PLN 0.39; there is also a fixed monthly payment of PLN 25. At present, the PV installation satisfies 88% of the energy needs of the household, the remaining 12% comes at the cost of PLN 885.

The total annual cost of energy and heating the water incurred by the household reaches approximately PLN 10,667, while the cost for the household fitted with the PV installation and the heat pump is just PLN 885 per year. This sum follows from the need to supplement the missing kWs and the fixed payment of PLN 25 per month; however, the night tariff G12W means that the household buys extra energy at just PLN 0.39/kWh. What follows from this is that the household makes an annual saving of PLN 9,782 and this sum is considered the annual return from the investment in the PV installation and the heat pump. The longevity of the investment was assumed to be 25 years, the discount rate 5%, and the fixed rates of payments for additional energy for the whole period of the investment.

Table 1 shows the production output from the PV installation of 8.8 kW capacity and the use of energy by the household in years 2020-2022. It can be seen that the data from 2020 and 2020 are incomplete, but when we combine them, they represent a full calendar year. The navy blue color in the table shows the months included in the heating season, the warm months are in green, and the transitory months between the heating season and the warm season are given in the salmon pink color. It is evident that the warm and the transitory months are characterized by the production higher than the energy use. During seven months of the year, the PV installation produced 5,341.85 kW, while the simultaneous energy consumption was 4,650.4 kW, which means a surplus of 691.45 kW produced in that period. In 2021, the installation was in operation throughout all year and yielded 8,816,41 kW, while the simultaneous consumption of energy by this household was 10,050,67 kW, which necessitated the purchase of the remaining 1,234,26 kW. In the first five months of 2022, the installation managed to generate 3,855,84 kW while the energy use of the household was 4,605,83 kW, which again shows that the remaining nearly 750 kW had to be bought. The highest production of energy was measured in June 2021 at 1,445,11 kW, and the lowest - in January 2021, at 97,12 kW. The largest consumption of energy by the household was in December 2021, the smallest in August 2020.

Table 1

Production of electric power from the PV installation and energy consumption in the household

Month	PV 8.8 kW					
	production [kWh]			consumption [kWh]		
	2020	2021	2022	2020	2021	2022
January	-	97.12	187.69	-	1,151.36	1,210.56
February	-	445.69	403.38	-	1,027.91	989.67
March	-	694.14	1,102.66	-	972.38	896.42
April	-	984.9	873.63	-	894.5	841.55
May	-	1,141.95	1,288.48	-	709.82	666.63
June	1,083.03	1,445.11	-	512.62	599.2	-
July	1,352.71	1,117.31	-	525.02	535.24	-
August	1,184.35	897.97	-	475.59	551.86	-
September	935.89	864.84	-	509.41	607.75	-
October	387.83	747.69	-	667.63	828.32	-
November	263.22	244.9	-	866.26	921.59	-
December	134.82	134.79	-	1,093.87	1,250.74	-
Total	5,341.85	8,816.41	3,855.84	4,650.4	10,050.67	4,604.83

Source: the authors, based on data obtained from the household submitted to the study.

The average annual production of energy by this installation amounts to approximately 9,000 kW, while the simultaneous demand for energy reaches 9,653 kW, which means that the PV installation satisfies 93.3% of the average annual demand for energy in this household. Table 2 presents energy consumption in the given periods by the heat pump installed in the household.

The average annual consumption of energy by the heat pump reached 4,050.47 kW at the annual working time of 1,460 units, which includes 501 work units for heating the household water. The share of hot water in the pump's working time was 34.3%. The remaining 65.7% was used to supply the household with central heating. The average work use of kW/h in the studied period was 2.93 kW/h; the lowest consumption of work energy was 2.49 kW/h, the highest reached 4.48 kW/h. The total value of energy consumed within 2 years of the

Table 2

Data on the heat

Dates of measurements	Heat pump 10 kW F-1245 All-In-One					
	energy consumption in kW	working time		percent share in working time		kW/h of work
		total	cwu	cwu	co	
2020.04.04	-	-	-	-	-	-
2020.08.01	777.28	235	149	63.40	36.60	3.31
2020.12.05	1,004.84	335	145	43.28	56.72	3.00
2021.01.02	527.71	211	45	21.33	78.67	2.50
2021.02.02	671.17	270	49	18.15	81.85	2.49
2021.03.02	574.15	227	51	22.47	77.53	2.53
2021.04.03	484.65	188	55	29.26	70.74	2.58
2021.05.02	390.2	147	49	33.33	66.67	2.65
2021.06.01	211.6	66	46	69.70	30.30	3.21
2021.07.06	192.16	49	68	138.78	-38.78	3.92
2021.08.31	241.93	54	36	66.67	33.33	4.48
2021.11.03	451.72	142	72	50.70	49.30	3.18
2021.12.09	554.28	214	53	24.77	75.23	2.59
2022.01.11	690.38	274	55	20.07	79.93	2.52
2022.02.05	527.8	205	40	19.51	80.49	2.57
2022.03.01	406.82	156	38	24.36	75.64	2.61
2022.04.02	394.25	146	51	34.93	65.07	2.70
Total	8,100.94	2,919	1,002	–	–	–

Source: the authors, based on data obtained from the household submitted to the study.

heat pump's use would have amounted to PLN 5,590 if the above mentioned G11 tariff had been applied. Hypothesis One, marked as H1, which assumed that the use of photovoltaic panels would cover the power needs of the heat pump utilized for the energy needs of the household was confirmed. The studied PV installation produces the average of 9,000 kW per year, while the annual power consumption by the heat pump stands at 4,050 kW, which means its demand for power is covered twice over.

The simple payback period calculation is a method that is easy to apply, but this is a non-discounted approach, namely it does not account for the impact of time on the evaluated project; however, it can be used as an additional instrument. PP indicated for this project is 9.81 years, which is a satisfactory length given that the project's life span is set to be 25 years. This means that the whole investment will pay back after 9.81 years, which is less than half the time of the project. The discounted period of return was also calculated to eliminate the fault of the previous calculations, which did not take into account a change in the value of money over time. It differs from the previous indicator as the cash flows are discounted, which makes the financial result more realistic, and lengthens the period of return. The DPP indicator for the studied investment was set at 13.83 years, which is still satisfactory performance. This period is slightly longer than the halftime of the project, but still indicates high profitability.

Table 3 presents the indicators calculated for the estimated project. The ROI indicator shows how much operational profit is generated by every PLN of the investment. The ROE for the studied period reached PLN 1.55 of profit for every PLN 1.00 invested in the project. The ROE indicator, on the other hand, shows how much net profit was made per every PLN invested, and for this particular project the ROE amounted to PLN 1.63 of profit per PLN 1.00 invested. The investment was also estimated with the accounting rate of return, which is a different approach. It determines the difference between the average annual net profit and the capital spent to generate that profit. This indicator came up to 10.19%, which is a very satisfying result for an investor. The most important method for decision makers is the net present value (NPV). It is considered valuable in accounting as it allows for the factor of time on the value of money. The value of the studied investment, at the rate of return set by the investor to be 5%, was found to be PLN 41,866.93. The NPV > 0 value means that the investment is profitable considering the surplus of the discounted revenue over the discounted expenditure. This NPV value is satisfactory for the investor.

The investment will reach a positive value of return within 14 years of its commencement. This means that the investment will pay back after 14 years, and the remaining years of the project will generate profit. The second most important indicator of the economic viability of the project is the internal rate of return (IRR). This indicator was calculated with a spreadsheet and reached 9.01%, which means that the investment is profitable and attained a satisfactory IRR. The last method used to calculate the profitability of the investment was the profitability index (PI), which took the value of 1.4361, which means an acceptable level above PI>1. All of the calculations were based on the average rates of year 2021.

The second hypothesis, H2, assumed that the combined investment in the photovoltaic panels and the heat pump will pay back in a period shorter than half the time of the forecast life of the project. This hypothesis was not confirmed, as the maximum discounted return period should not have exceeded 12.5 years. It should be also noted that H1 shows that the project should have been launched even though it was not backed up by H2; the investment is still economically attractive, as the DDP only slightly exceeds the payback time assumed in H2. This is even more so given that the longevity of the project exceeds the payback time by over 11 years.

Table 3

Indices of the investment's economic profitability

Index	Result
Payback period (PP)	9.81 years
Discounted payback period (DPP)	13.83 years
Accounting rate of return (ARR)	10.19%
Return on Investment (ROI)	155%
Return on Equity (ROE)	163%
Net Present Value (NPV)	PLN 41,866.93
Internal Rate of Return (IRR)	9.01%
Profitability Index (PI)	1.4361

Source: the authors.

Summary

The conducted analysis of the economic profitability is particularly important to the investor, who in this case is a house owner. However, it should be taken into account that the estimation was based on average values for the period of only 2 years and the future years may differ from the assumed values. Savings were made by covering the energy consumption with own production, which turned out very beneficial for the household. The estimation indicated a high value of NPV and a satisfactory value of IRR. The discounted payback period of the investment was estimated to be around a dozen years; other indicators also point at the profitability if the realized investment. The PV installation satisfies the average annual energy consumption of the household in 93%. There is also a possibility to add more PV panels to render the household completely independent fro the grid power; however, the covering of the energy needs of the household at this point is satisfactory. It should also be noted that there are environmental benefits of this type of installation. The use of this hybrid system allowed the household to almost completely decouple the cost of heating from the market prices, which can be very volatile. A house fitted with such installations becomes more modern and eco-friendly, and more attractive in the real estate market. The awareness of the need to protect the environment is rising, and the use of such installations is a personal contribution to combating global warming.

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ORIGINAL PAPER

EMPLOYER BRANDING AS A MODERN FORM OF BUILDING THE EMPLOYER'S IMAGE – STUDENTS' PERSPECTIVE AS FUTURE EMPLOYEES

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Abstract

Under the conditions underlying the contemporary work market, the brand of an organisation as an attractive employer, especially in the opinion of young, talented people, can be a key factor leading to the success of the company in a longer perspective. From this standpoint, the concept of employer branding is gaining importance as a modern way of creating an image of an employer among the current and future employees.

The aim of this study has been to evaluate the effectiveness of employer branding activities implemented by organisations operating on the labour market in the eyes of students as potential employees. The study included students in the second cycle of studies at the Faculty of Economic Sciences, the University of Warmia and Mazury in Olsztyn. The study was carried out as a survey in the first quarter of year 2022.

The study has verified that a positive image of an employer has a significant influence on prospective applicants searching for employment in a given company. The most important role in this regard is played by employer branding activities conducted online, and creating the employer's profile in social media seems to be particularly valid. For raising the awareness of organisations active on the job market, it also turned out to be significant to participate in in-person job fairs and all other types of events held at universities to promote employment opportunities. Companies which wish to build an employer brand among representatives of the young generation, including university students, soon to be university graduates, should pay attention to using the mentioned solutions in their management practice.

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EMPLOYER BRANDING JAKO NOWOCZESNA FORMA BUDOWANIA WIZERUNKU PRACODAWCY – PERSPEKTYWA STUDENTÓW JAKO PRZYSZŁYCH PRACOWNIKÓW

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Abstrakt

W uwarunkowaniach współczesnego rynku pracy zbudowana marka organizacji jako atrakcyjnego pracodawcy, szczególnie dla młodych utalentowanych osób, może się stać głównym czynnikiem, mającym wpływ na sukces firmy w dłuższej perspektywie. Z tego punktu widzenia coraz większego znaczenia nabiera wykorzystanie koncepcji *employer branding* jako nowoczesnej formy budowania wizerunku pracodawcy, zarówno wśród obecnych, jak i przyszłych pracowników.

Celem prezentowanych badań była ocena skuteczności działań employer brandingowych podejmowanych przez funkcjonujące na rynku organizacje z perspektywy studentów jako grupy potencjalnych pracowników. Objęto nimi osoby realizujące studia stacjonarne II stopnia na Wydziale Nauk Ekonomicznych Uniwersytetu Warmińsko-Mazurskiego w Olsztynie. Badania przeprowadzono metodą ankietową w I kwartale 2022 roku.

Wyniki badań potwierdziły, że pozytywny wizerunek pracodawcy ma istotny wpływ na chęć do ubiegania się o zatrudnienie w danej firmie. Najważniejszą rolę w tym zakresie odgrywają działania employer brandingowe prowadzone w sieci, w tym szczególnie ważne okazało się prowadzenie profilu pracodawcy w mediach społecznściowych. Istotne znaczenie z punktu widzenia zwiększania świadomości o istniejących na rynku pracy organizacjach okazały się także mieć stacjonarne targi pracy i różnego rodzaju akcje przeprowadzane na uczelniach. Firmy chcące budować wśród przedstawicieli młodego pokolenia, do których należą studenci, a niebawem – absolwenci szkół wyższych, powinny zwrócić uwagę na wykorzystanie tych rozwiązań w praktyce zarządzania.

Introduction

For an organisation to operate in the contemporary, changeable environment, it is necessary to develop an effective form of human capital management, especially in terms of acquiring and retaining competent and valuable employees. This is becoming an ever growing challenge in the current social and demographic situation, particularly because of the important position of an employee on the labour market, where an interest in a company and motivating prospective employees to apply for work are associated with the company's positive image in the environment. In such circumstances, an organisation's brand created as an attractive employer, especially in the opinion of young, talented persons, can be a key factor leading to the company's success in a longer perspective.

Employer branding is indicated as an up-to-date current that enables companies to be supported in their attempts to attract and retain most talented employees. This concept is gaining importance, and many authors agree that employer branding can affect the operation of a company quite substantially (Ahmad & Daud, 2016, p. 691, 692). Among the main reasons in favour of employer branding, the following are mentioned: brand strength, growing pressure on greater engagement of employees, war for talents, and the impact of HR practices on business (Biswas & Suar, 2016, p. 58).

As regards the theory, the concept of employer branding has evolved in the science of organisation and management, which amalgamates knowledge from different domains. In this case, the idea of employer branding refers mostly to the achievements of human resources management and marketing. However, scholars also indicate connections with the concept of psychological contract or with the management of client relations (Dunmore, 2002, p. 195; Beaumont & Graeme, 2003, p. VII; Berthon *et al.*, 2005, p. 153; Rosethorn, 2009, p. 4).

The relevant literature provides several different definitions of employer branding, where it is understood as:

– everything that is communicated (intentionally or not) to every present or future employee (Mayo, 2001, p. 123);

– all communication efforts of an organisation carried out on the internal and external labour market, owing to which the organisation is seen as a desirable work place (Lloyd, 2002, p. 64-66);

– the process of creating, identifying and managing the image of an organisation as an employer (Spitzmüller *et al.*, 2002, p. 27, 28);

– the way in which present and potential employees see the promise made by the employer (Burke, 2007, p. 21);

– the sum of functional, economic and psychological benefits from being employed, and the sense of identity with the organisation (Barrow & Mosley, 2005, p. XV);

– the process of creating an organisation's identity and managing its image as an employer (Gillis, 2006, p. 271);

– the reason why people decide to become members of an organisation and stay in it (Rosethorn, 2009, p. 19, 20).

Building the employer brand is nowadays thought to be a long-term strategy of attracting, engaging and retaining talented, valuable employees in a company, aimed to create a coherent, positive image of the company as an employer in the eyes of both present employees and candidates on the labour market as well as business partners, clients and other groups of stakeholders. In other words, this is the process of creating values for stakeholders, which emerge as a result of the organisation's strong employer brand, understood as the sum of benefits it brings to all subjects involved as senders and recipients in the process of building employer brand (Wojtaszczyk, 2012, p. 86). In general terms, they are 'all efforts made by an organisation addressed to current and potential employees, with the aim to build the organisation's image as an attractive employer, and supporting the organisation's business aims" (Kozłowski, 2016, p. 13).

Building the employer brand, seen as a package of functional, economic and psychological benefits from employment, and associated with a given organisation, focuses on an analysis of employees' needs, based of which they are presented with an offer of values that are intended to attract or keep the employees, and to increase their satisfaction and dedication (Lewicka, 2010, p. 266). Considering the scope of effects, two types of employer branding can be distinguished (Stachowska, 2020, p. 79):

– internal – composed of activities addressed to people already employed in a given company, mostly to create a friendly atmosphere at work and opportunities for development;

– external – including activities undertaken outside a given organisation, addressed to potential employees, where the aim is to create an image of the company as an attractive employer.

These days, many companies focus on internal employer branding, wishing to enhance the engagement of their employees, and undertaking activities in order to raise their motivation and to maintain the best employees (Maurya & Agarwal, 2018, p. 313). Employer branding perceived as the building and offering of an organisation's identity in order to form emotional bonds with employees is associated with the system of motivating employees and shaping the work conditions (Sartain & Schumann, 2006, p. VI). This applies to all aspects of an organisation's personnel policy, including remunerations and benefits, work conditions, trainings and development, flow of information, possibilities of developing one's professional career, talent management, taking care of the work-life balance, or the social responsibility of business.

In turn, activities pursued within the employer branding addressed to external audience can be divided into two main categories (Kubiak, 2014, p. 8):

– image-related activities – with the aim to raise the awareness of potential employees of the brand, and to pass the information about the benefits to be gained by taking employment in a given company – often these are carried out as long-term campaigns addressed to the widest possible audience;

– recruitment activities – where the main goal is to acquire the best, most talented and valuable candidates from the standpoint of a given company, and to encourage them to apply for employment.

New technologies, innovative solutions and social media are now leading tools in the building of the brand of an employer outside a company, in addition to activities classified as 'word-of-mouth marketing', which make opinions about the company circulate among possible job applicants (Kozłowski, 2016, p. 92, 93).

The major areas where external employer branding instruments are used include the virtual environment (online activities) and the environment outside the Internet.

The online activities promoting an employer can be carried out using such online tools as a search engine in the SEM (Search Engine Marketing) and SEO (Search Engine Optimization) applications, which provide greater visibility of an employer's website. Other tools are: an updated „Career' tab on a company's website, seen as the company's showcase, and attractive job advertisements, coherent with the company's visual identity, as well as social networking sites, both professional (Goldenline, LinkedIn), and relations-building ones (Facebook, Twitter, Instagram, etc.), which are an excellent tool for communication with professionals and with young people, in addition to company blogs, newsletters, chats, etc., or online (virtual) job fairs.

Considering the fact that the Internet has become one of the most popular sources of information for all persons searching for employment (Eger *et al.*, 2018, p. 226), it is recommendable to include integrated online activities in the strategic plans of every company which intends to build its brand as an employer of choice (Nelke, 2021, p. 390). It is worth remembering that social media, which are currently used for business purposes all the time, are believed to be very effective in raising public knowledge of existing organisations, and in recruiting new employees; they are also key instruments for creating an attractive image of the employer (Samson & Rathee, 2017, p. 1).

Classic, offline employer branding activities include: job fairs, open doors day, presence of a company at colleges and universities (lectures, presentations, workshops, meetings with students, dual studies, or ambassador programmes), special educational projects or programmes of training placements and internships, competitions, as well as leaflets, brochures, posters or advertisements in newspapers and magazines. It is worth noting that in-house job fairs as well as all kinds of campaigns carried out at colleges and universities are important for raising the awareness about companies available on the labour market. Although young people entering the labour market now are the generation of the Internet, it turns out that offline, face-to-face meetings are still appreciated as they ensure better opportunities for starting social interactions (Budzanowska-Drzewiecka & Proszowska, 2015, p. 279-280).

Employer branding is now thought to be the key factor enabling a company to achieve success. Its use is associated many benefits for both the current and future employees (Figurska & Matuska, 2013, p. 39-41). The subject literature highlights the fact that an attractive image of a company has an immense influence on potential employees and on their willingness to apply for work in a given company (Kumari *et al.*, 2020, p. 90), and well-designed activities as well as the proper implementation of an employer branding strategy in a company can contribute to attracting and retaining valuable employees (Poonam, 2019, p. 669). Building an attractive image of a company is associated with an easier task of finding and hiring talents, greater engagement of employees, and much easier recruitment processes (Krawczyk, 2015, p. 311).

The opinion that is gaining popularity is the one that employees' motivation, which translates into their close bond with a given organisation or involvement in the tasks performed, can be reinforced by creating a strong brand of the company as a good employer (cf. Berthon *et al.*, 2005, p. 151-172). A strong employer brand brings about several benefits, including lower costs, stronger employee bonds, and improved employee-employer relationship (Collins & Stevens, 2002, p. 24-34). „A good employee wants to work in a good company" (Davis *et al.*, 2010, p. 54), and employer branding helps to recruit and retain talented persons for a longer time (Davenport & Barrow, 2009, p. 146). An organisation which is an employer of choice is better at attracting talents and preventing talent loss (Leary-Joyce, 2007, p. 16), which is why employer branding is often referred to as a product of the war for talents (Martin, 2007, p. 18), and is thought to be a complex approach to the management of talents in a company (Herman & Gioia, 2001, p. 63-78).

The role of employer branding as a communication instrument is also highlighted. As such, it enables a company to show its attributes, and can make persons from the target group wish to join the company (Gregorka, Silva, 2020, p. 1). One of the most important groups to which companies addressed their ongoing activities in the scope of employer branding are students. These activities are treated as an investment because a student will become a professional in their domain and can be a valuable employee, client or business partner of a company. It is worth drawing attention to the question of how effective employer branding activities are from the viewpoint of this group.

The purpose of this study has been to evaluate the effectiveness of employer branding activities undertaken by organisations operating on the market from the point of view of students as a group of potential employees. The study included persons in the second cycle of full-time studies at the Faculty of Economic Sciences, the University of Warmia and Mazury in Olsztyn.

Research methodology

A survey method was employed to achieve the assumed research aim. A questionnaire was addressed to all students in the second-cycle full-time studies at the Faculty of Economic Sciences, the University of Warmia and Mazury in Olsztyn (in total, 324 persons). 201 correctly completed questionnaires were received (62% of the research group). The study was carried out in the first quarter of year 2022.

In the studied population, 60.2% of the respondents were women, and 39.8% were men. The vast majority (93%) were 23-25 years old, while 6% were over 25 years of age and 1% – less than 23 years old.

In the population covered by the study, 78.1% were students in the course of studies Management (including 1st year students – 29.9% of the population, and 2nd year students – 48.3%), while 21.4% were students in the course of Economics (including 11.4% of 1st year students and 10% of 2nd year students).

The vast majority of respondents (89.1%) lived in towns, including 18.4% – living in towns with the population of up to 25 thousand, 4% – towns with 25 to 50 thousand population, and 7% – towns with 50 to 100 thousand people, 58.7% – towns with the population over 100 thousand. 11.9% lived in villages.

Most of the research participants (90.5%) had some professional experience, of which 52.2% – had worked for less than a year (including 10.4% – up to 6 months, and 41.8% – between 6 and 12 months). The seniority of 1 to 3 year was reported by 35.8% of the respondents, and over 3 years – by 2.5%. over, 9.5% of the surveyed population had not worked so far.

At the time of conducting the study, 57.7% of respondents were not in employment, and 42.3% were employed (of which 27.9% were employed in manual/physical jobs, 13.4% – in administrative/office jobs and 1% represented the management staff). Among the working students, most persons declared they were currently working in commerce (13% of the studied population), 10% worked in catering, 9% – in banking and finance, 5.5% – in culture and entertainment, and the others (in total 5%) in other sectors. A large percentage of the students currently in employment (30.8%) worked in towns with the population of over 100,000; 6.5% found employment in towns with up to 25 thousand residents; 3.5% – in towns with 25 to 100 thousand people, and 1.5% – in villages.

Research results

The survey results show that more than half of the students (51.3%) had not encountered the term 'employer branding' before, while the respondents who confirmed knowing the concept mainly associated it with the management of the employer's image (65.3%) and building the company's brand (29.7% of indications).

The survey contained questions about the effectiveness of activities undertaken by employers within internal and external employer branding. Among the solutions which – according to the respondents – most significantly contribute to the creation of a positive image of an employer in the eyes of employees were: an attractive package of benefits (74.1%), an objective remuneration system (68.7%), opportunities for professional training and development (62.7%), programmes helping to maintain a healthy balance between work and personal life (59.2%), and integration meetings (46.3%). As for the practices the students had encountered in their work places so far, the ones mentioned most often were: opportunities for professional training and development (54.7%) and an objective system of remuneration (42.3%).

The most evident differences in the replies regarding the solutions thought to be most effective versus the ones most often seen in practice concerned the activities aiming to maintain the work-life balance (39.3 percent points), additional benefits offered by the employer (43.8 percent points) and objective remuneration system (26.4 percent points) – Figure 1. It seems that companies should pay more attention to the implementation of these measures, and the role they play in building a brand of an attractive employer.

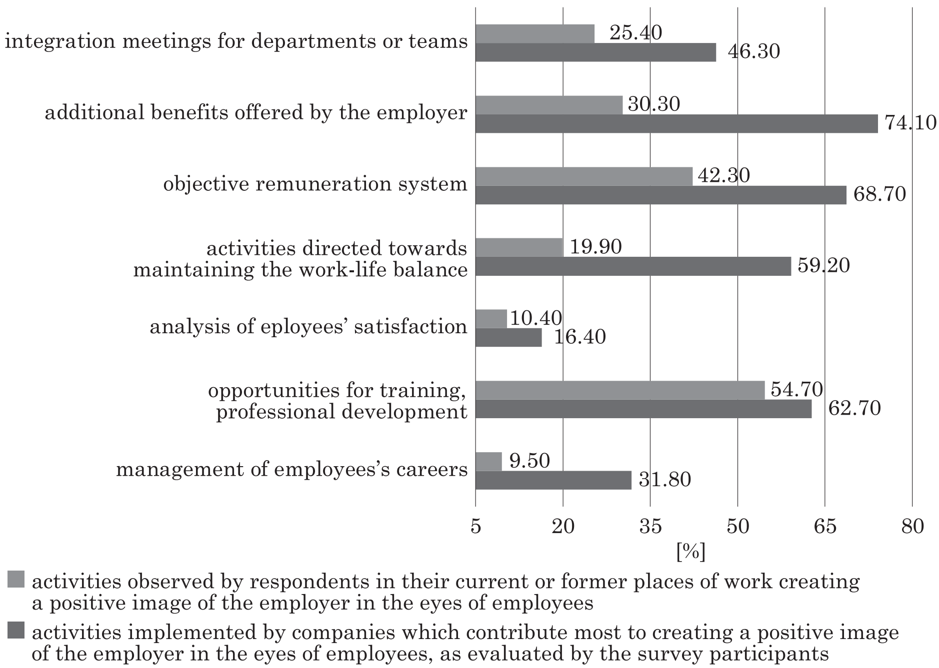


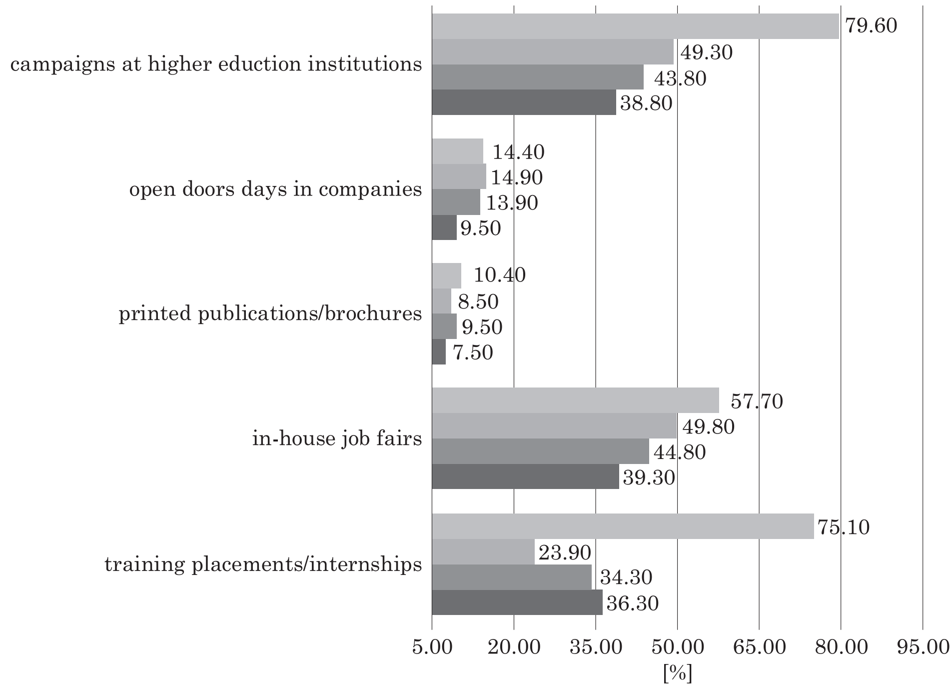
Fig. 1. Activities aiming to create an attractive image of the employer in the eyes of employees, according to the respondents

Source: the authors, based on the survey.

The external employer branding activities performed outside the Internet (offline) which were most often observed by the students proved to be campaigns held at colleges and universities – this answer was indicated by 79.6% of respondents. Subsequently, the following replies were chosen: training placements/internships (75.1%) and in-house job fairs (57.7%). Despite the relatively broad knowledge of such activities demonstrated by the students, their active participation is much less common. In-house job fairs were attended by 39.3% of the respondents, campaigns at colleges and universities – by 38.8%, and training placements and internships – by 36.6%. It is worth noting that 9.5% of the respondents had never taken part in employer branding activities held outside the Internet.

The activities which most significantly raise the awareness about employers operating on the labour market, according to the survey respondents, were: in-house job fairs (49.8%) and campaigns launched at higher education institutions (49.3%). These activities were evaluated as the most effective ones among offline employer branding activities conducted by employers (they were evaluated as such by around 44% of the respondents). In light of this finding, it seems that employers should consider more effective promotion of such activities in order to encourage the participation of larger groups of students.

Noteworthy is also the fact that the biggest discrepancies in the answers given in this part of the survey concerned training placements and internships, which are the form most often encountered by students but thought to be effective in terms of employer branding only to a small degree – Figure 2.



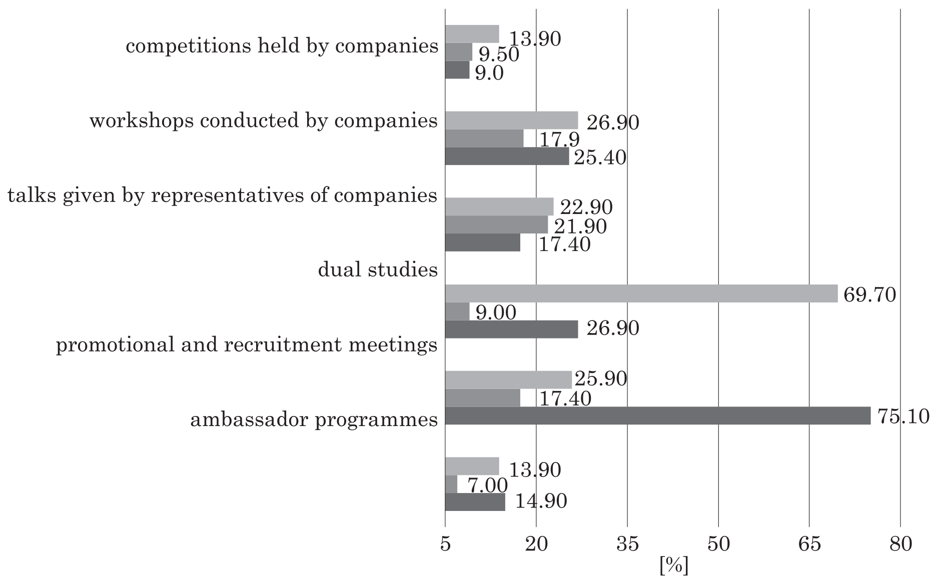
offline employer branding activities carried out by employers observed by the respondents
offline activities carried out by employers which – according to the respondents – most significantly raise the awareness of what companies operate on the labour market
most effective activities in creating an attractive image of the employer carried out outside the Internet
offline employer branding activities that the respondents had participated in

Fig. 2. Employer branding activities carried out offline by employers, from the viewpoint of respondents

Source: the authors, based on the survey.

Among the employer branding activities carried out at colleges and universities most often noticed by students, there are dual studies (69.7% of indications). Other options, like workshops (26.9%), talks and lectures conducted by companies (22.9%) or promotional recruitment meetings (25.9%), are indicated far less often. Although most of the students acknowledge an offer of dual studies, only 9% took part in such courses. Students are not very active either in other forms of employers' presence at higher education institutions. It is worth noting that little interest is raised among students by ambassador programmes or competitions held by companies. Special attention should be drawn to significant differences in the replies concerning promotional and recruitment meetings. They were considered to be the most effective employer branding tool among students by the majority of the surveyed population (75.1%), with a small percentage of respondents who indicated they had not come across such meetings in their university (25.9%) or had not taken part in them (7.4%) – Figure 3. It appears that employers should be advised to pay more attention to organising such meetings.

The employer branding tools used by companies on the Internet (online) that were most often noticed by the survey participants were: branding recruitment



employer branding activities observed by the respondents at their university
employer branding activities conducted by companies at colleges and universities in which the respondents have participated
employer branding activities held at colleges and universities most effective in creating an employer's attractive image

Fig. 3. Employer branding activities carried out by employers at colleges and universities, from the viewpoint of respondents

Source: the authors, based on the survey.

advertisements (87.1%) and profiles of employers in social media (82.1%). Virtual job fairs were followed the least often (3%).

The most effective form of online external employer branding, according to the respondents, consisted of employers' profiles in social media – this reply was selected by 82.1% of the surveyed population. The effectiveness of recruitment advertisements was ranked the highest by 45.8% of the respondents. It is worth noting that there was the biggest difference in the values attached to this item. Branding recruitment advertisements were noticed by the vast majority of the surveyed students, but less than half of them considered this as an effective online tool in terms of creating an employer's attractive image. A similar finding emerged in the case of the Careers tab on employers' websites – 32.3% of the respondents were aware of this tool, but only half of them believed it is an effective measure – Figure 4.

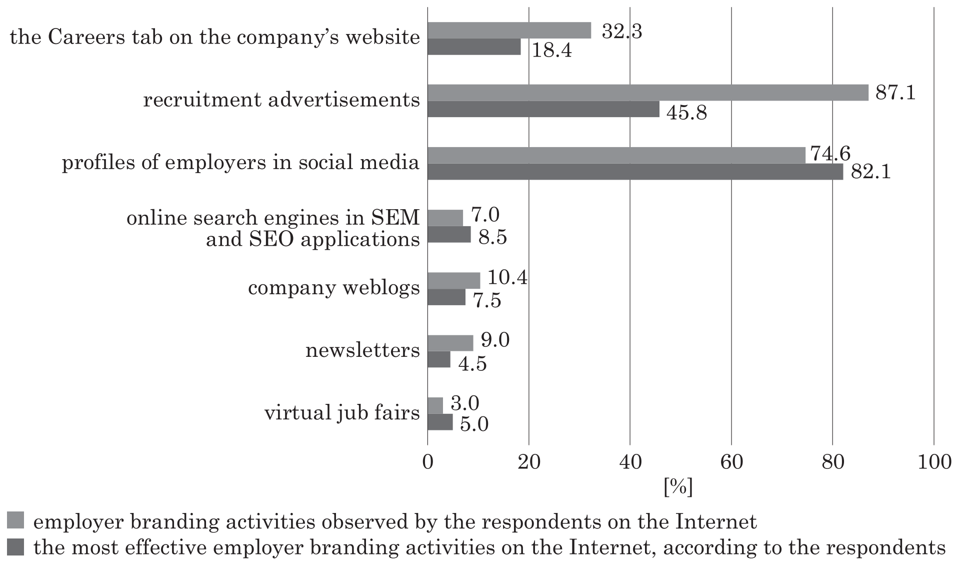


Fig. 4. Employer branding online tools used by employers from the viewpoint of respondents
Source: the authors, based on the survey.

The vast majority of the respondents (93.5%) agreed (of which 37.3% agreed strongly) that companies should use social media profiles to build their image as an employer. A considerable percentage of the surveyed population indicated that they followed employers in social media (74.6%), mostly on Facebook (66.2%), Instagram (43.8%) and LinkedIn (27.4%). Most of the respondents (83.6%) also agreed (of which 35.3% agreed strongly) that the information a potential employer provides in social media could have a significant influence on their decision to apply for a job in a given organisation. More than half of the respondents maintained that the profiles of companies in social media should include such basic elements as current job advertisements (62.7%), description of the company (59.7%) and description of work in specific posts (52.7%). The survey results confirm that social media have become a very important tool in employer branding, to which companies should pay special attention.

The majority of the respondents (81.1%) declared that they browse employers' websites. The components which are most often visited include current job advertisements (71.6%), announcements about internship programmes (46.8%) and the Careers tab (40.8%). Announcements about open doors days (17.9%) or the company's participation in job fairs (14.4%) were far less frequently indicated.

More than half of the respondents (58.7%) declared using the Careers tab on an employer's website, and the following were considered as its most important elements: a list of current employment vacancies (42.8%), information about benefits offered by employers (32.3%) and the section addressed to students (31.8%).

The vast majority of the respondents (98%) agreed (of which 43.3% agreed strongly) that opinions of people employed in a company were important in the context of creating an employer brand outside the company. Most respondents check opinions on the Internet about a potential employer before applying for a job (93%) and admit that such comments have a significant influence on their decision (94.5%). The survey results confirm the importance of the so-called 'word-of-mouth' marketing in employer branding.

According to most of the surveyed population (72.1%), employer branding activities carried out on the Internet play a more important role in creating an employer's image than the ones conducted outside the Internet. Importantly, the Internet tools, including social media, are gaining popularity, especially among representatives of the young generation. This may have been also a consequence of the COVID-19 pandemic, which made people become used to surfing the virtual world.

Finally, 92.6% of the respondents agreed (of which 28.9% agreed strongly) that employer branding was necessary for building an attractive image of an employer in the eyes of potential employees, which could encourage then to apply for work in a given company. The vast majority (97.5%) of the surveyed population of students agreed (of which 34.8% agreed strongly) that a positive image of an employer was important for them as people looking for employment.

Summary

An attractive image of an organisation as an employer plays an extremely important role on the contemporary labour market. It helps companies build a competitive advantage, acquire valuable talents, and retain the current, valuable employees. The foundation for building an employer brand is an analysis of the needs of potential or current employees made in order to create an offer of values. An important role in this regard is played by activities within internal employer branding, focusing on the persons already employed in a given organisation, and the ones within external employer branding, addressed to future employees, which can be carried out on the Internet (online) and outside it (offline).

The survey completed for this study dealt with the effectiveness of employer branding undertaken by organisations operating on the labour market, according to students as potential employees. Based on the results of the questionnaire, the following conclusions can be drawn:

1) Over half of the respondents did not know the term 'employer branding', although most of them had come across activities aiming to create a positive image of a company as an employer.

2) Building a positive image of an employer in the eyes of persons employed in a given company, according to the survey participants, is mostly affected by such elements as an attractive package of additional benefits, an objective system of remuneration, opportunities for professional trainings and development, and solutions which help to maintain work-life balance – they are the issues that employers should pay more attention to, as suggested by this study.

3) The activities most often observed by the respondents that employers undertake in the scope of employer branding outside the Internet (offline) are campaigns at colleges and universities, training placements and internships, as well as in-house job fairs. Few students, however, participate in such activities despite being aware of them. Considering the high value attributed by the survey participants to the effectiveness of the mentioned activities, it is worth recommending employers to pay more attention to the promotion of these activities, using various ways to stimulate greater participation of prospective employees.

4) According to the majority of respondents, the most important role in employer branding is played by activities carried out on the Internet. The most effective form of external online employer branding – according to the majority of respondents – is the presence of employers in social media. Most of the students participating in the survey followed profiles of employers in social media, at the same time indicating that the contents found there could significantly affect their decision to apply for work in a given company. The respondents also paid attention to companies' websites, looking for the information that was important for them as prospective employees. They also check opinions shared online about companies as potential employers, which were very important for them.

5) The overwhelming majority of the respondents acknowledge the validity of employer branding activities, indicating that a positive image of an employer is important for them from the standpoint of someone looking for employment.

The results of our study have confirmed that an attractive image of a company as an employer has a significant influence on prospective employees willing to apply for work in a given organisation. It is worth underlining that the Internet tools, including social media, play an important role in employer branding.

Implementing integrated activities in this area should be incorporated into strategic plans of every company which wishes to build their brand as a desirable employer on the labour market. As regards the effectiveness of activities addressed to students as a group of prospective employees, special attention ought to be drawn to the presence of companies as potential employers at colleges and universities during different types of events. It should be remembered that an effective implementation of thoroughly designed employer branding activities is a key to the success of an organisation in its efforts to build own market position, and to use the value of human capital for this purpose.

Translated by Jolanta Idźkowska

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ORIGINAL PAPER

CUSTOMER MANIPULATION IN A RETAIL OUTLET AND THE CUSTOMER'S PURCHASING DECISIONS

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Key words: manipulations, customer, sensory perception, special offer.

Abstract

The customer is one of the most significant participants of economic processes. However, not all purchasing decisions that consumers make can be deemed as rational ones. The irrationality that accompanies consumers when shopping arises from the human psyche and personality, where conscious acts of making choices merge with external stimuli (e.g. manipulations employed by retail outlets).

The basic aim of this study has been to determine the awareness of manipulative techniques used in shops among consumers, and then to try and evaluate their effectiveness. The study is an example of survey research and it used an online survey as a research tool. The study was participated by 194 respondents.

The research results show that according to the respondents the manipulations most often used are: psychological pricing ('odd prices'), promoting a product by offering some tangible benefits (enhancing the appeal of a product) and placing products near checkouts in order to induce impulse buying.

As for the effectiveness of the analysed techniques, it coincides with their intensity. Apart from the ones mentioned above (manipulating prices, promoting sales and checkout zone), a proper and interesting arrangement of the shop's layout is worth attention. The respondents declared that fragrance marketing was demonstrably less effective.

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Most respondents do not consider manipulations targeting the behaviour of clients as unethical actions. There were no distinctly negative attitudes to the applied manipulative techniques. Based on the survey results, it can be concluded that manipulations of customer behaviour in retail outlets are very common, if not standard actions. Customers understand how such manipulations work, are at least to some extent vulnerable to them and, most importantly, are satisfied with them. The respondents see manipulations in the context of benefits that can be gained rather than the costs they can incur.

MANIPULACJA KLIENTEM W PLACÓWCE HANDLOWEJ A JEGO DECYZJE ZAKUPOWE

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Kody JEL: M31, M39.

Słowa kluczowe: manipulacje, klient, merchandising, sensoryka, promocja.

Abstrakt

Konsument jest jednym z najistotniejszych uczestników procesów gospodarczych. Nie wszystkie jego decyzje zakupowe można jednak określić mianem racjonalnych. Irracjonalność towarzysząca konsumentom w zakupach jest efektem ludzkiej psychiki i osobowości, gdzie mieszają się procesy świadomych aktów wyboru z bodźcami zewnętrznymi (manipulacje stosowane przez podmioty handlowe).

Podstawowym celem przeprowadzonych badań było określenie rozpoznawalności przez konsumentów technik manipulacyjnych stosowanych w placówkach handlowych, a następnie próba oceny ich skuteczności.

W artykule wykorzystano metodę badania ankietowego. Narzędziem badawczym była ankieta internetowa. W badaniu wzięło udział 194 respondentów.

W wyniku przeprowadzonych badań można stwierdzić, że w opinii konsumentów najczęściej stosowanymi w handlu manipulacjami są wszelkie zabiegi kształtujące cenę produktu w aspekcie psychologicznym (ceny niepełne), elementy promocji sprzedaży dostarczające namacalnej korzyści (co podnosi atrakcyjność produktu) oraz umieszczenie towaru przy kasach, w celu zachęcenia klientów do dokonywania zakupów impulsywnych.

Jeśli chodzi o skuteczność badanych technik, to pokrywa się ona z ich intensywnością występowania. Oprócz trzech już wymienionych (manipulacje ceną, promocja sprzedaży i strefa kas), należy jeszcze zwrócić uwagę na właściwą i ciekawą aranżację sklepu. W deklaracjach respondentów wyraźnie jako mniej skuteczny jest postrzegany marketing zapachowy.

Większość respondentów nie odbiera manipulacji służących do sterowania zachowaniem klientów jako działań nieetycznych. Nie odnotowano wyraźnych postaw negatywnych wobec stosowanych technik manipulacyjnych. Na podstawie zaprezentowanych wyników badań należy stwierdzić, że manipulacje zachowaniami klientów w placówkach handlowych są bardzo częstym działaniem, a w zasadzie standardowym. Klienci rozumieją ich działanie, przynajmniej częściowo, są na nie podatni i co najważniejsze są z nich zadowoleni. Respondenci traktują manipulacje zdecydowanie bardziej w kategoriach osiąganych korzyści, niż ponoszonych w związku z tym kosztów.

Introduction

In the face of growing competition, a key to developing an effective system of communication between an enterprise and the surroundings is to understand consumer behaviour and the mechanism of decision-making by consumers. Research shows that as many as 70% of decisions are made by a consumer while doing the shopping. This is why there are so many marketing activities carried out at points of sale (Witek, 2006, p. 72), which may be seen as manipulating the shopper's behaviour.

Manipulation is understood as exerting some pressure on another person and purposefully misleading that person, but also as setting up such conditions that will increase the chance that the manipulated person will act, respond, accept certain opinions, views or attitudes as intended by the manipulator but not necessarily in the interest of the manipulated person (Bańko, 2005, p. 47). Manipulation means abusing one's trust or taking advantage of one's lack of knowledge in order to take control over the manipulated person's behaviour and thereby to gain benefits (Martysz, 2015, p. 112).

The goal of manipulation in the economic sphere is to exert the planned and deliberate influence on consumers, guiding their behaviour. The success of manipulation arises from the consumer being unaware of the actual reasons why some techniques affecting his purchasing decisions are employed (Rybanská *et al.*, 2019, p. 289). While being developed, manipulation techniques have become increasingly sophisticated (Podolski, 2019, p. 115).

This article raises the most important questions associated with manipulation techniques shaping the behaviour of consumers that are applied nowadays in retail trade. The discussion proceeds through several stages, where the following aspects are focused on:

– merchandising and some of its basic techniques;
– sensory marketing;
– psychological pricing;
– sales activation and some of its basic techniques, and
– presentation of own study results, concerning knowledge and attitudes of consumers towards some of the manipulation techniques mentioned above, which were submitted to an assessment by consumers.

Merchandising

Merchandising is a set of techniques to display merchandise in retail outlets, which significantly control the flow of customers in a shop and affect their purchasing decisions. The principal aim of merchandising, as highlighted by Nowacki (2005, p. 147), is to raise sales and consequently the revenues of enterprises. However, apart from this main goal, merchandising also aims to (Rybowska, 2018, p. 168):

– strengthen the loyalty of buyers;
– strengthen the reputation of an enterprise and its market position;
– shape the image of a shop;
– direct the customer's attention to advertised products.

The display of products and the arrangement of shelves in a shop are carefully thought out so as to arouse the buyer's interest and the desire to buy more products than intended. Merchandising is a set of specific techniques, where no improvising is expected. The best chance to be sold is had by the products located on shelves at a height of 120 to 160 cm, that is within the customer's eye level. Slightly worse, but still attractive are the shelves at a height from 80 to 120 cm, within the customer's reach. Shelves above 160 cm and below 80 cm are definitely less favourable. The probability of selling products placed on these shelves is much lower. They may go unnoticed or their purchase entails some physical effort (Matysik-Pejas & Pakosz, 2013, p. 344).

The optimal layout of customer flow routes, location of shop furniture, refrigerators and freezers, and the display of products, particularly the distribution of product categories, enable the setting of optimal routes from entrance to exit leading throughout a whole shop. As the route which a customer navigates in a shop is lengthened, so is the time they spent in the shop. Poor organisation of the sale area layout or the absence of clear signposting to inform about single groups of products force the customer to search for products and discourage them from returning to the shop (Kewalramani & Hedge, 2012, p. 458).

The sale area of a shop is divided into zones, which play a significant role in the influence exerted on the customer who is visiting this shop. The 'golden zone', i.e. the area around checkouts, is very important in the sale of impulse products. Impulse purchase is the purchase of an item not planned ahead of time, which is bought on impulse, on the spur of the moment, without a second thought (*Magia strefy kasy…*, online). The area at the checkouts is there retailers have the best chance of arousing an impulse in a customer to make an additional purchase. The display of products at checkouts is to make a customer aware of a need and to enable them to satisfy this need instantly.

Sensory marketing

The consumer receives some information from the environment the moment when one or more of their senses come in physical contact with an impulse carrying that information (Lisińska-Kuśnierz & Ucherek, 2006, p. 14). In sensory marketing, it is significant to activate the highest possible number of senses, ideally all five, of potential buyers (Bartkowiak, 2010, p. 4). However, it is worth bearing in mind that this is not always possible.

One of the basic human senses is sight. An example of visual perception is to provide customers with large shopping trolleys so as to enable them to place as many products as possible. Meat and meat product counters are equipped with mirrors and adequate light in order to create the image of freshness and abundance; the same impression is achieved by placing green lettuce leaves among cuts of red meat (Bartkowiak, 2010, p. 117).

Another important sense is hearing. To create auditory stimuli, many shops pave the floors with small tiles along the shelves with products which do not require much thought to buy, so that the clatter of trolley wheels is more frequent and consumers pass by these shelves more quickly. Contrarily, where decisions require deeper thought, the floor tiles are larger, which slows down the flow of customers. Furthermore, pleasant background music puts shoppers in a good mood (Podolski, 2019, p. 122). The pace of music also influences the pace of human traffic – a more rapid pace accelerates the flow of customers through the shop, while slower music induces slower traffic. This is particularly important in peak hours, when it is reasonable to relieve increased traffic in order to provide shoppers with more space (comfort) and during off-peak time, when the shop is less crowded and customers should be retained in the shop as long as possible. It has also been observed that music distracts people's attention from the passage of time (Sullivan & Adcock, 2003, p. 202, 203).

The sense of smell also plays an important role when people are doing shopping. Scent marketing (aroma marketing) is based on the most reliable of man's senses and the role which fragrance compositions play in purchasing decisions. The sense of smell acts automatically, and is used by the body mechanically – hence, applied smell psychology creates an unlimited number of possibilities in merchandising. Smell creates a positive atmosphere in a point of sale (Rudzewicz, 2010, p. 42, 43). The sense of smell plays the most important part in the purchase of food and cosmetics. In most grocery shops, bread sections are located near the entry because the smell of fresh bread is intense, stimulating taste buds and creating the sense of being hungry (Sadowska, 2010, p. 18). Shops, but also restaurants and pizza parlours spray fragrances outside their premises to attract the attention of consumers (Martysz, 2015, p. 121).

The sense of taste is thought to be the one best controlled by man (Maas, 1998, p. 83). Taste is most often used in sale of food products, which can be sampled. Customers return more willingly to shops which offer free samples of food (Kolasińska-Morawska, 2012, p. 95).

The last sensory element mentioned in the subject literature are tactile sensations. For the sense of touch, the temperature and weight of a product as well as the form and softness of the material from which it is made are important. Inorganic materials, such as glass, stone or metal are perceived as cold and heavy, whereas organic materials, like leather or wood, are sensed as warm and soft. Plastic items are associated with being modern, but when they are light – they can be thought of as less durable (Podolski, 2019, p. 122). The sense of touch plays a very important role in the purchase of clothes, electronic goods, food or a car. Other goods often touched before buying are bed linen and towels (Grzybowska-Brzezińska & Rudzewicz 2013, p. 70, 71).

Price psychology

Prices are the basic factor influencing the behaviour of a consumer. Thus, the knowledge on how consumers perceive and remember prices is of utmost importance for marketing experts and economists (Niedzielski, 2013, p. 6, Barzykowski *et al.*, 2010, p. 125-144).

Enrico Trevisan (2013, p. 12) analysed mechanisms which raise the consumers' willingness to buy a product. This is the effect of opportunity. In many cases, however, it turns out that the cost the consumer is willing to accept is dependent on rational arguments to a lesser extent than the context or the way a product is being sold (Koprowska, 2017). The mentioned researcher conducted an experiment, in which participants were divided into two groups. One was to make a choice between opening a current account for the price of 1 euro versus the current account plus a credit card for the price of 2.5 euro. The other group, apart from the two offers given to the former group, had an option to buy only the credit card for 2.5 euro (Fig. 1).

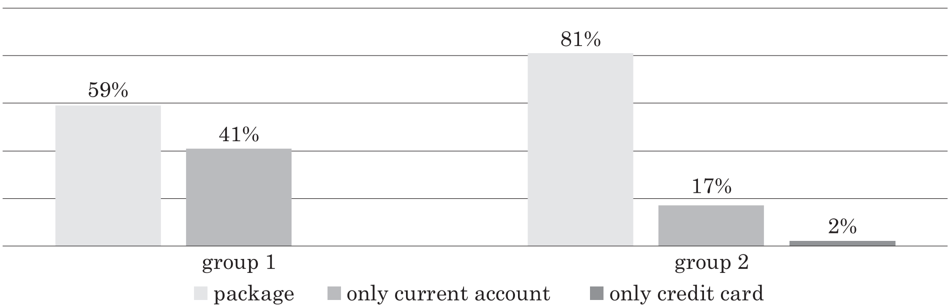

Fig. 1. Results of Enrico Trevisan's experiment
Source: the authors, based on Trivesan (2013, p. 13).

The experiment results showed that 59% of the persons in group one chose the package while 41% opted for the current account only. In the other group, 81% chose the package, 17% – the account, and 2% – only the credit card. The fact that buying the credit card appeared as a third option raised more interest in the package and changed the distribution of preferences among the experiment participants. For the same price, the package offered more benefits than the credit card alone, although the credit card was most probably not needed by the consumer.

One of the most popular pricing techniques is to quote a price ‘from …’, which aims to attract a consumer’s attention. This practice is often employed in adverting slogans, and in the sale of tourist and telecommunication services, cars and many other products (Rogowski, 2010, p. 360). Another quite common technique is to place notices about large price cuts, for example by 30%, 50% or even 70%, when actually these products are sold out or are available in a very limited assortment (Rogowski, 2010, p. 362).

Odd prices are another way to influence consumers’ subconsciousness, as these are perceived as a good opportunity because such products seem less expensive than ones offered for a full price, even when the actual difference is small. For example, the price of PLN 6.99 is seen as being closer to PLN 6 than PLN 7. Luxury products, however, are priced differently, as their prices are purposefully rounded up to a full amount so that they will appear more attractive and of superior quality (Jeznach, 2007, p. 69).

Another popular technique used by retailers is to make apparent price cuts, that is to take advantage of the fact that customers pay more attention to the first figure on the left-hand side. For example, the difference between prices PLN 59.99 and PLN 45.99 versus PLN 63.99 and 49.99 is the same (PLN 14), but the difference between the first pair of numbers seems bigger than between the other pair because people subconsciously omit the second figure in a number. Buyers more quickly and easily remember the co-called marketing prices, which consist of the same figures, for example 7.77 or 2.22 (Urbański, 2019).

Sale promotion (activation)

Sale promotion is a set of activities driving interest among potential clients in a given product by raising its attractiveness. This notion comprises several instruments, which create additional and extraordinary impulses of the economic and psychological character. The main sale promotion tools addressed directly to clients include:

- samples, that is small amounts of products or services offered free of charge;
- vouchers which grant some savings when buying a given product;
- price discounts, where products are offered at a lower than standard price;
- competitions and lotteries, where attractive prizes are awarded;

– multi-packs – for example three items for the price of two. A variant of this promotion tool is to offer a larger package for the current price;

– loyalty programmes, where consumers are rewarded depending on how often they make purchases and how much they buy (Kotler, 2005, p. 623-625, Olejniczuk-Merta, 2001, p. 188).

Sale promotion very often employs advertising slogans. Such slogans as ‘weekend only’, ‘the last pair’, ‘while stocks last’, ‘only today’, ‘limited quantity’, or ‘limited series’, ‘last sale’ are examples of manipulation consisting in the rationing of a special offer in terms of either time or quantity. The rule of limited availability applies in this case (Filar, 2012, p. 244). The information about the limited availability of goods can be true or false. The aim is to emphasise the limited quantity of a given product, which only few will be able to buy, and consumers often appreciate the value of products according to their availability. This technique affects the consumer by inducing the sense of threat, unavailability or loss of something that may never reappear (Żeleźnik, 2013, p. 92). We desire some goods when they are unavailable but we desire them the most when the unavailability results from other people desiring them as well. This principle is taken advantage of in advertisements which claim that we must hurry up because the demand for the advertised product is so high that it may soon be sold out (Cialdini, 1996, p. 71).

Sale promotion activities should not be constant but used at specific, short-lasting moments. The consumer must have the impression that he has come across a unique bargain.

Research methodological background

The main aim of the study has been to determine the awareness of manipulation techniques used in retail outlets among consumers, and then to evaluate the effectiveness of these techniques.

Because of the type of the research problem, the chosen research technique was a survey. A questionnaire was prepared in a Google form, and made available from September to November 2021. The questionnaire was distributed via such social media as Facebook and Messenger. In total, 194 respondents submitted their replies.

Among the respondents, 52% were women and 48% were men. Nearly ¾ of the questionnaires were completed by young persons (age 21-30 years). Around 5% were persons from 31 to 40 years old, and the same percentage consisted of persons up to 20 years of age. 12% were in the age brackets of 41 to 50 years, and the oldest group (51 years of age and older) composed 7% of the sample (Tab. 1).

Table 1

Socio-demographic characteristics of the respondents

Data	Variables	Percentage
Sex	women	52.1
	men	47.9
Age	up to 20 years	4.6
	21-30 years	71.1
	31-40 years	5.2
	41-50 years	12.4
	51 years and more	6.7
Education	primary	1.5
	secondary	55.2
	higher	43.3
Net monthly remuneration	none	18
	up to PLN 3,000	36.6
	PLN 3,001-4,000	21.1
	PLN 4,001-5,000	11.9
	over PLN 5,000	12.4

Source: the authors, based on the research results.

Over half of the analysed population had secondary education (55%), while 43% had higher education and 1.5% had primary education only. The highest percentage declared net monthly earnings of no more than PLN 3,000 (37% of the sample). More than one in five respondents reported earning between 3,001 and 4,000 Polish zloty a month. As many as 18% of the respondents had no remuneration at all. The average monthly net remuneration of PLN 4,001-5,000 and more than PLN 5,000 was declared by an approximately same percentage of respondents, i.e. 12%.

Consumers' knowledge of and attitudes towards manipulations used in retail trade

Awareness of manipulation techniques

Retail outlets search for effective ways of influencing shoppers. Consumers certainly come across some of manipulations on a daily basis, and the awareness of their presence in shops has been presented in Table 2.

Table 2

Most common manipulations in retail commerce

Specification	Scale of answers [%]					Mean [points]
	5	4	3	2	1	
Price manipulations ('odd' prices)	85	11	3	1	0	4.8
Scent manipulations	20	35	26	14	3	3.5
Manipulating the arrangement of a shop's layout	47	39	10	2	0	4.2
Manipulations in the checkout zone	55	28	12	3	1	4.3
Manipulating the display of products on shelves	34	31	18	10	2	3.7
Manipulations enhancing the appeal of a product	67	26	6	1	0	4.6
Manipulations with slogans (limited availability)	38	34	22	4	1	4

Source: the authors, based on the research results.

The mentioned recognisability of manipulation techniques was assessed by the surveyed consumers on a scale from 1 to 5, where 5 meant a technique a respondent came across most often, while 1 corresponded to a technique encountered least often. Some persons had no opinion on a given manipulation and such cases were not included in the aggregated results (hence the total of all responses in every row does not always equal 100%).

The manipulations the respondents most often encountered were clearly the ones connected with pricing (96% of all respondents assigned 4 or 5 points to this category), such as giving 'odd' prices or prices ending with PLN .99. In principle, every respondent knew this technique (4.8 points). The second most common technique, according to the respondents, was sale promotion (increasing the appeal of a product), mostly using some type of a free offer (discounts, multi-packs), which 67% respondents claimed they came across very often, while a further 26% opting for the answer 'often' (4.6 points on average). Over half of the surveyed population admitted they very often observe an attractive display of products near checkouts in order to prompt impulse buying (4.2 points). The respondents are clearly less aware of the other techniques. For example, less than half the population asked declared they very often noticed those techniques in shops. Nonetheless, the general layout of a shop, that is, in gross simplification, placing the most essential products at the back of a shop, is recognised very well by 46% of the respondents, which after averaging with the remaining scores let this technique gain 4.2 points. Promotional slogans, like 'limited quantity', or 'while stocks last' are very often seen by 38% of the surveyed sample, and eventually scored 4 points. Of the analysed techniques influencing consumers' subconsciousness, the ones which were the least recognisable included the display of products on shelves (their proper height) – 34% of the respondents giving it the highest score, and scent manipulations (20%), which obtained the final average scores of 3.7 and 3.5 points, respectively. This may have been due to consumers being unaware of how such manipulations work. They may appear very natural and inobtrusive. In reality, however, they largely affect consumers' subconsciousness and are very difficult to analyse deeply.

Gaining a deeper insight into the question of the ethics of manipulations in the process of making purchasing decisions by consumers seems another challenge. The respondents expressed their opinion on this aspect on a scale from 1 (absolutely unacceptable) to 7 (completely acceptable) – Figure 2.

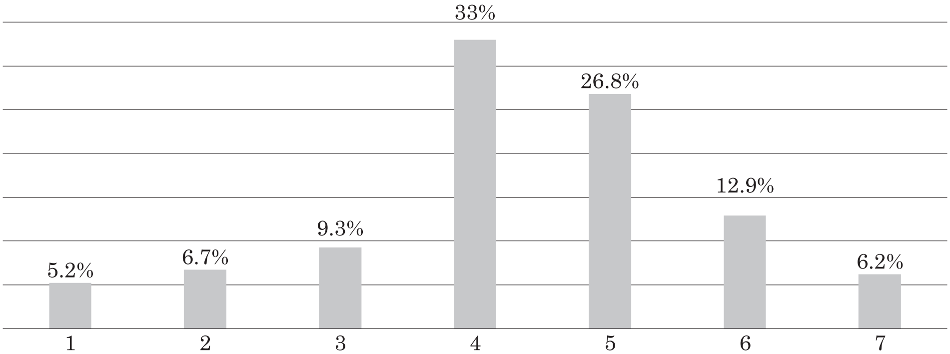

Fig. 2. Evaluation of the ethical aspect of manipulations in retail commerce
Source: the authors, based on the research results.

As demonstrated in the diagram, many of the surveyed consumers show an ambivalent attitude to manipulations of their behaviour. Nearly 70% of the respondents declared their attitude on a level between 3 and 5 points. Around 12% showed a negative attitude, of which only 5% consider manipulations as extremely unacceptable. On the other hand, 19% state that manipulations are acceptable, and 6% even claim that totally accept manipulations. It appears than consumers perceive manipulations as an opportunity to gain additional benefits. They pay less attention to the risk of buying more than they need or buying unnecessary products, which they would not buy without a retailer's deliberate incentive.

Effectiveness of manipulation techniques

It is important to know how vulnerable consumers are to manipulation techniques, that is to identify which ones most effectively induce buying decisions. The analysed techniques were evaluated by the respondents on a scale from 1 (completely ineffective) to 5 (very effective) – Table 3.

As demonstrated, price manipulations have the strongest influence on the analysed population of consumers (49%), with the highest score 4.1 points.

An apparently lower price (odd price) is one of the most important criteria taken into consideration by a consumer when making a decision to buy a product. Next, the respondents pointed to short-term sale promotion techniques clearly enhancing the attractiveness of an offer of products (this opinion was shared by 40% of the respondents) Also in this case, the consumer had an impression of gaining some tangible benefits on the purchase of a product (3.8 points). The following effective techniques were placing products in the checkout zone and the general arrangement of a shop's layout (3.5 points).

Table 3

Effectiveness of manipulation techniques in retail commerce

Specification	Scale of answers [%]					Mean score [points]
	5	4	3	2	1	
Price manipulations ('odd' prices)	49	24	16	5	5	4.1
Scent manipulations	17	29	28	17	9	3.3
Manipulating the arrangement of a shop's layout	24	26	29	15	5	3.5
Manipulations in the checkout zone	26	28	24	14	8	3.5
Manipulating the display of products on shelves	19	30	27	18	6	3.4
Manipulations enhancing the appeal of a product	39	25	21	10	5	3.8
Manipulations with slogans (limited availability)	28	18	26	17	11	3.3

Source: the authors, based on the research results.

Customers often complain about having to wait too long in a queue to a checkout, but this creates an opportunity to look at products displayed nearby. The products that are often displayed near checkouts include chocolate bars, medications, chewing gums, cigarettes, and in summer ice-creams in fridges, etc. These are relatively cheap products, so putting them to a shopping trolley does not significantly change the total amount on the receipt. However, it is true that if these products were placed on shelves inside the shop, many customers would not buy them. In turn, the arrangement of the shop's layout and the way goods are displayed on the shelves should not make it difficult for shoppers to find and buy any products. However, consumers appreciate the fact that they are encouraged to purchase additional products while navigating among the shop shelves.

Slightly less attention is paid by the respondents to the display of products on shelves (3.4 points) or to the possibilities inherent in sensory marketing (3.3 points) and in slogans suggesting the time limit of a special offer (3.3 points). However, over ¼ of the respondents (28%) agree that such slogans as 'only today' or 'until stocks last' are very effective. This means that promotional slogans fulfil their task of activating sales.

In line with the aim of the research, it should be noted that the surveyed consumers have a good understanding of the manipulation techniques used in trade. Especially the visual, tangible and measurable ones. These are attractive activities, encouraging increased purchases, without showing any unethical elements.

Conclusions

The success of a retail company operating on the market depends on many factors. Some dynamically developing retail marketing tools are merchandising, sensory marketing, psychological pricing as well as sale promotion techniques.

The above study shows that shop owners most often use price manipulations and sale activation promotional techniques. Another technique which consumers often encounter is the manipulation in the checkout zone, which affects impulse purchases. Customers are aware of these manipulation techniques and understand them perfectly well. If there are any gaps in the recognition of manipulation techniques, they concern scent marketing. The reason is probably the fact that this manipulation and its influence on the consumer's behaviour are not directly palpable.

With respect to the declared effectiveness of the analysed techniques, by and large it overlaps the recognisability of these methods. Apart from the three mentioned techniques (price manipulation, sale promotion and checkout zone), it is worth noting the arrangement of a shop's layout. Notably, all these forms of manipulation are effective. However, consumers are often unaware how some manipulations work and affect their decisions. An example is scent marketing.

The article describes only a few examples of manipulations, which nevertheless prove how difficult it is to be a rational consumer, and how easily buying choices can be manipulated, thus limiting one's independent decision-making capacity.

Although manipulations in commercial establishments by definition interfere quite strongly with consumers' shopping behaviour, consumers do not display negative attitudes to such activities. Manipulations are not perceived or evaluated as unethical actions. One can even get the impression that the consumer's ability to use the offered manipulation technique shapes his satisfaction. It is a form of additional tangible profit that is not accompanied by any expense.

Based on the review of the literature and the results of the survey presented in this paper, it can be concluded that manipulations of the behaviour of customers in retail outlets are a very common, if not standard solution. Customers understand how they work, at least to some extent are vulnerable to them and, most importantly, are pleased with them. The respondents treat manipulations in the context of gained benefits rather than the costs incurred in connection with such marketing endeavours.

Translated by Jolanta Idźkowska

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ORIGINAL PAPER

IMPACT OF DIRECT SUBSIDIES ON BUDGETS OF AGRICULTURAL FARMS

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JEL Classification: Q01, Q14, Q18.

Key words: production subsidies, agricultural farms.

Abstract

The article investigates the impact of direct subsidies on the budget of agricultural farms and the level of investment in the farms. A questionnaire survey was made among clients of a company which provides services in farming in Nidzicki District (powiat nidzicki). The respondents were farmers who benefit from direct subsidies to agricultural production. The research confirmed the research working hypotheses, in which the direct subsidies constitute 1/3 of the profit generated by agricultural farms and have a significant influence on the level of investment. The research aimed to determine the impact of direct subsidies on the budget of agricultural farms and their investment in fixed assets.

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WPŁYW DOPŁAT BEZPOŚREDNICH NA BUDŻETY GOSPODARSTW ROLNYCH

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Kody JEL: Q01, Q14, Q18.

Słowa kluczowe: dopłaty do produkcji, gospodarstwa rolne.

Abstrakt

W pracy omówiono wpływ dopłat bezpośrednich na budżet gospodarstw rolnych oraz na poziom inwestycji w gospodarstwach. Wśród klientów firmy zajmującej się kompleksową obsługą rolnictwa na obszarze powiatu nidzickiego przeprowadzono sondaż z wykorzystaniem kwestionariusza ankiety. Respondentami byli rolnicy korzystający z dopłat bezpośrednich do produkcji rolniczej. Przeprowadzone badania pozwoliły na potwierdzenie wcześniej postawionych hipotez, według których dopłaty bezpośrednie stanowią ponad 1/3 zysku gospodarstw rolnych oraz istotnie wpływają na poziom prowadzonych inwestycji. Celem badań była identyfikacja wpływu dopłat bezpośrednich na budżety gospodarstw rolnych oraz inwestycji w środki trwałe.

Introduction

Since Poland's accession to the European Union, the Polish agriculture has made significant progress owing to the EU programmes and direct subsidies. The farming profession has ceased to be perceived as an occupation from simple, uneducated people; together with the increase in profitability, the professionalization of the industry has also risen, and farming nowadays requires broad and expert knowledge. The EU funds have helped farmers to purchase new machinery, which greatly facilitates farming work, making it easier and more gratifying; owing to the possibility of precise sowing, cultivating, and harvesting, the losses usually incurred during such activities have begun to decrease. Moreover, thanks to the development of other industries and the general prosperity of the society as well as the opportunity to export the produce abroad, the demand for agricultural goods offered by farmers has risen, which translates into higher revenue. However, the technical facilities remain the most important issue for farmers, both at present and in the future. With the current mechanization rate and overall larger farm size, most farming cannot be carried out without agricultural machinery and equipment. Also, suitable buildings for storing the produce or rearing animals and all other facilities needed for efficient farming minimize losses and maximize profit. This is an issue which farmers give most thoughts to – would modern farming cope without direct subsidies? This is why it is vital to explore what share of the budget of a typical farm consists of direct subsidies. The objective of this research was to examine the contribution of direct subsidies into the budget of agricultural farms, and their impact of the level of investment in fixed assets. Two hypotheses were posed in this respect:

H1: Subsidies to the operational activities in farms make a substantial part of investment financing.

H2: Subsidies to the operational activities in farms constitute approximately 1/3 of their profit.

The need to support agriculture in economic theory

At the turn of the 19^{th} and 20^{th} centuries, economics was dominated by a neoclassical theory and its unwavering belief in "the invisible hand of the market". During the Great Depression of 1929-1933, there was a shift in these ideas and a new economic theory was created by John Maynard Keynes. The ideas he elaborated called for a combination of the market, as the basic regulator of economic processes, with an active role of the state to correct the shortcomings of the market mechanism. This marked the emergence of interventionism in various sectors of the economy. It was also the time when first concepts of support for agriculture were elaborated, as agriculture was seen as a sector particularly prone to fluctuations in the economic cycle. Another factor which made intervention in agriculture an immediate necessity was the need to rebuild its industrial potential after the Second World War (Jambor & Harvey, 2010, p. 3). To this effect, in the late 1950s and upon conclusion of the treaty establishing the European Economic Community in 1957, the principles for the Common Agricultural Policy were developed. The CAP was launched in 1962 and has been implemented in the EU since then. Although the Keynesian approach was rejected during the so-called neoliberal revolution of the 1970s and 1980s, the CAP as a type of state interventionism was in progress, both institutionally and financially. There were attempts at limiting its impact, but they were effectively overridden by the majority of the EU member states, even when the neoliberal economic doctrine dominated the mainstream economics (Czyżewski & Stępień, 2017, p. 678).

At this point, it is worth considering what motivates the continuation of mandatory support for the agricultural sector. With regard to the liberal theory and its demand for the micro-economic rationality, we would have to assume that state and communal interventions constitute an unjustified, unique right of the food production sector, which is seen as an additional cost incurred by the society. This reasoning does not account for the fact that agricultural production is subject to specific conditions, nor does it take into consideration the agricultural factor (Czyżewski, 2007, p. 15-23). Another feature of agriculture is its heterogeneity, which follows from the properties of the production environment, for instance the soil quality in a given location, surroundings and location of farms, and their agricultural structure. Another fact attesting to agriculture's specific nature is that it does not follow the free market rules, such as a relatively large number of buyers and sellers, the freedom to enter and exit the market, and the state of perfect information about the market. Agriculture is also characterized by seasonality and cyclical performance due to the volatility of climate conditions, which impact the supply and prices of goods in the food market (Stępień, 2015). The agricultural sector is exposed to high risk, and the market mechanism is inadequate to prevent the scope of risk, which warrants a widely understood support for the sector (Czyżewski & Stępień, 2017, p. 678).

Even under free market conditions, food producers are constantly pressurized to maximize production, both its scale and specialization. This makes it more difficult to play non-commercial roles, while the market simultaneously promotes the concentration of food production in better adapted areas and the termination of production is areas with less favourable conditions for agriculture (the principle of marginal cost elimination). The liberal approach to agriculture conveniently ignores external effects, which we distinguish as negative (deprivation of weaker farms, degradation of the natural environment) and positive ones, creating the foundation for the supply of public goods. The criterion of economic effectiveness overrides all other factors; It becomes crucial to locate the capital where it can generate the highest profit, often in areas characterized by lower standards of environmental protection, animal welfare, or applied technologies. Consequently, food travels longer routes before it is delivered to the consumer. Such detachment means that the food producer is unknown, hence there is a risk that food of lower quality enters the market, which may be detrimental to people's health. In conclusion, the implementation of support systems for agriculture counteracts and perfects the market mechanisms. Support to farming is also necessary in view of economic, social, and environmental criteria (Czyżewski & Stępień, 2017, p .679).

Thendssion of Poland to the European Union has opened the local agricultural sector to many new solutions within financial support programmes. A comparison of agriculture to other industries indicates that it has the lowest profitability of all market sectors. It is therefore crucial to seek solutions aiming at narrowing the discrepancy between the income and the volume of the capital engaged in food production versus those in the production in other sectors of the economy. The funds received from the European Union constitute a significant share of income from agricultural production, which helps to improve the standards of living in rural areas (Barczyk, 2017, p. 32). There are many instruments in the CAP which serve to achieve the objectives and assumptions of this policy. These mechanisms have been implemented to make the agricultural sector more effective through support programmes. Over the years of its operation within the EU framework, the CAP has been subject to many reforms (Tomaszewski, 2017, p. 69; Wawrzyniak, 2017, p. 40, 41; Tomczak, 2009, p. 25; Maciejczak, 2010, p. 23; Kowalski, 2017, p. 100; Zbierska & Zbierska, 2017, p. 281; Majewski & Malak-Rawlikowska, 2018, p. 13; Hardt, 2008, p. 49; Drygas & Nurzyńska, 2018, p. 61). These ongoing reforms in the operation of the Common Agricultural Policy have made it better and more responsive to the needs of farmers in the ever-changing market.

The Common Agricultural Policy has contributed to the development of agriculture and rural areas in the European Union member states. It is also the best and the most important instrument facilitating the integration processes in Europe (Kowalski, 2017, p. 111). Direct payments constituted approximately 76% of the CAP budget in the 2014-2020 perspective. However, research studies show a very uneven distribution of direct support in agriculture. For example, in Bulgaria the payments are collected mainly by large scale farms, which generates problems for smaller farms and creates a structural imbalance. The distribution of the EU funds have had an impact on the level of investment, productivity and economic effectiveness of the Bulgarian agriculture (Beluhova-Uzunova *et al.*, 2017, p. 282-287). A similar correlation with the size of farms was found by Barczyk (2017, p. 31-48).

Methodology of research

The research focused on farms in Nidzica District (powiat nidzicki), in the Province of Warmia and Mazury (województwo warmińsko-mazurskie), north-eastern Poland. The study was conducted with an anonymous survey distributed among farmers receiving direct payments, who were also clients of a company providing services for agriculture. Copies of the questionnaire were distributed as print-outs. The study assumed a minimum sample calculated from the following formula:

$$n = \frac{u^2 \cdot p(1-p)}{\mathrm{ep}^2},$$

where:

n – sample size,
u – indicator dependent on confidence level; confidence level 0.95,
ep – estimation terror assumed at 5%,
p – share of selected group in total.

On the basis of these calculations, a group of 64 respondents was selected out of 80 clients of the company. The survey was distributed between 1 April and 1 May 2022. In line with the assumptions, the answers were based on real data: applications for direct payments submitted in 2021, sums of payments granted for 2021, and, in most cases, VAT registers of income and outcome (in the case of farmers who did not register as VAT payers, the answers were based on revenues and expenses in 2021).

The analysis was performed by calculating the budgets of agricultural farms, taking into account the income, expenses and the size of investment made in 2021. The amount of direct payments received by the farm was then added to the outcome. The flow of calculations was as follows: income in 2021 – expenses in 2021 – investment in 2021, and the formula: income in 2021 – expenses in 2021 – investment in 2021 + direct payments in 2021.

An analysis was also made excluding the investment. We subtracted the expenses from the income, and, in the second variant, added the direct payments. This approach allowed us to estimate the profitability of running a farm both with and without direct payment.

We also calculated the share of direct payments in the farm profit, subtracting the expenses from the income, then adding the sum of direct payments and dividing that sum by the income minus the expenses. If a negative value was obtained, following from a net loss, the indicator was given as an absolute value and added a value of 1. Next, an average indicator was calculated to demonstrate the average surplus in the profit made by the farm.

Only 12 of the respondents were women. The respondents chose between three age bands; 26 of them were aged 18-40. These are considered as young farmers, eligible for funds owing to their young age. 35 people declared being between 41 and 65 years old, and only three respondents were over 65 years old. In terms of residence, the respondents were asked to indicate the municipality in Nidzica District where their farms were located. Most farmers, 28 respondents, came from the municipality of Janowiec Kościelny. 13 farmers lived in Nidzica municipality; the same number came from Kozłowo. The smallest group of respondents lived in the municipality of Janowo (10 out of 64 respondents). The respondents were also asked to identify the main profile of their farms. 27 declared crop productions; this option was open to those who did not raised farm animals. If the farmers kept animals, but the income from animal production was insignificant, or if they also cultivated and sold crops, they indicated the option of mixed production (14 farmers). 23 farmers chose livestock production, which means that a farm produces crops for animal feeding; the animals are then sold or used otherwise, for example for milk production. Another question in the survey referred to the size of the farms. It turned out that the average area of a farm was 55.21 hectare (the largest farm area was 218.22 ha, the smallest one – 3 ha). The farms were divided into six groups depending on their size. The largest number of farms, 16, fell into the 20-40 ha band. 15 farms had between 0 and 20 hectares of farmland; the same number of farms had a size of 40-60 hectares. Another group was composed of 11 large farms (an area over 100 hectares). The smallest groups were farms with 60-80 hectares (4 farms) and 80-100 hectares (3 farms).

Research results

The survey contained 4 questions concerning the financial situation of the farms. The first one investigated the income of the farms in 2021. The average income reached PLN 305,079, and the median income was PLN 166,750. Because of the wide diversity in the size of the farms, the average income was made by both small farms with low income (the lowest was PLN 18,000) and large farms with high income (the largest income reported was PLN 2,150,000). When it comes to expenses of the farms, the average annual value was PLN 185,518, and the median was PLN 102,000. The lowest value of expenses among the studied farms was PLN 6,200, and the highest value was PLN 1,000,000. The average difference between the income and expenses was then PLN 119,561, and the median difference was PLN 64,750. However, when we calculated the share of expenses in the income of the farms, as an average and a median, we achieved an approximate value of 61%.

Fifty-seven out of all the studied farms declared making some investment into fixed assets in 2021. The average yearly value of the investment was PLN 147,848, and the median value was PLN 70,000. With regard to subsidies, the sum declared in the surveys referred to the basic direct payments enlarged by additional payments (i.e. direct payments and payments from other programmes, e.g. dedicated to ecology, dairy cows grazing, agricultural-environmental measures, etc.); it did not, however, take into account the participation in such programmes as funds for restructuring, young farmers, or modernization. What we arrived at was the average sum of direct payments received by one farm equal PLN 73,602, with the median at PLN 59,000.

Upon the analysis of the impact of direct payments on the investment, we can conclude that 53 farms of the total 64 farms under the study could afford to make investments in 2021 (Fig. 1). This was estimated based on the following calculation: we added the direct payments to the profit made by the farm and subtracted the amount of investment into fixed assets. These were the farms which, despite making some investments, still recorded a profit for the year. When we compare the number of farms where investment was made (57) with the number of farms where investment could have been made at the self declared level in 2021 (53), we obtain the difference of 4 farms. This discrepancy follows from the fact that farmers making investments in 2021 used funds from previous years as well as loans. If the investment in fixed assets is deducted from the profit, but the direct payments are not accounted for, only 28 farms could afford to invest at the level attained in 2021. This is by as much as 47% less than when direct payments are counted in; if we assume the average budget at the disposal of the farmers after the investment declared for 2021, it can be inferred to be different when direct payments are accounted for and when they are not. If we account for the direct payments in the budget, we arrive at the average amount of PLN 45,315 per farm; if we do not account for the payments, the amount decreases to PLN 28,287, which makes a difference of PLN 73,602. Similar calculations apply to the median values; in the first case, the budget would be PLN 32,750, while if the direct payments were not involved, it would fall to PLN 15,000, which gives a difference of PLN 47,500. Moreover, the fact that the farms would make a loss if the investment was made at the same level without the direct payments indicates that these payments are indispensable. The research results indicate the scale of the impact of direct payments on the budget of farms in 2021. The higher the amount of payments received by the farm, the wider the difference between the direct investment ability with and without the payments.

If we ignore the level of investment made in 2021 and only calculate the profit of agricultural farms in two analogous cases, including and excluding the direct payments, we detect that 62 out of 64 farms earned a profit in 2021 when direct

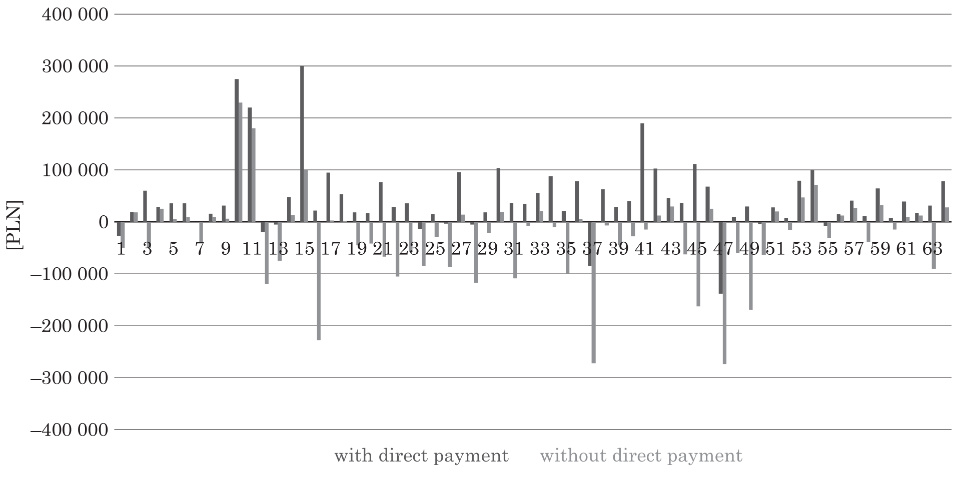

Fig. 1. Budget of farms with investment, including direct payments
Source: the authors, based on the research results.

payments were included (Fig. 2). If we exclude direct payments in the budget calculations and focus only on the income and expenses incurred by the farms, we see that only 59 out of 64 farms earned a profit. The average profit of a farm was PLN 119,561 without the payments and PLN 193,162 with the payments, which renders a difference of PLN 73,601. This means that direct payments constitute around 38% of the profit made by farms. For three farms, the payments were a crucial factor determining the profitability of production, making it possible to achieve a positive financial result. In two farms, the production was not profitable even despite the direct subsidies, but the amounts needed to achieve the positive result were just PLN 3,000 and PLN 8,995.

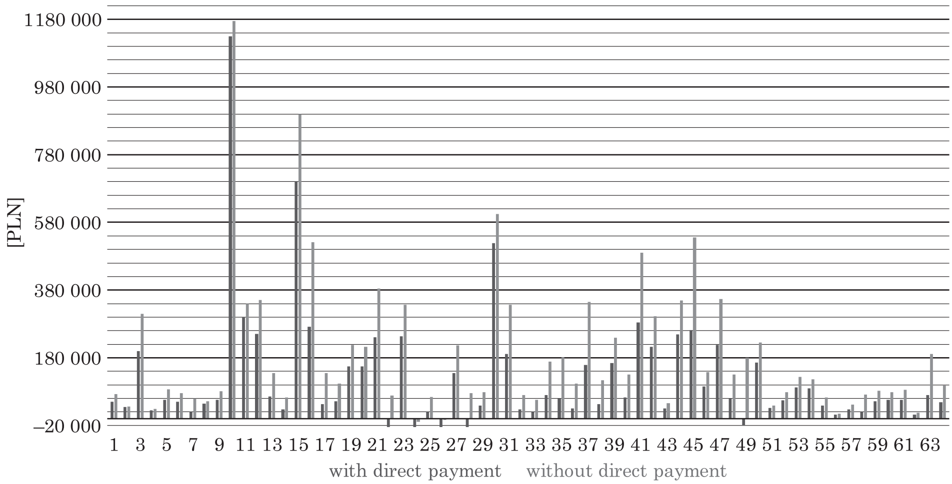

Fig. 2. Profit of the studied farms in 2021

Source: the authors, based on their research.

If we analyze the situation depending on the sex of farmers, it is evident that women farmers earned much lower incomes and also incurred lower expenses than the average. In both cases, the difference was approximately 50%. As for investments, this difference was even wider, as farms run by women invested less than the average by as much as PLN 82,018, or 56%. However, if we include the payments, farms owned by women invest only PLN 5,253 less than the general average. If there were no payments, women recorded a positive result with the other budget, at PLN 7,754. This means that 11 out of 12 farms managed by women can afford to invest with the use of funds from direct payments, and 8 of them even if direct payments were not available. Such differences may result from the fact that women are less eager to take a risk. Moreover, farms managed by women always earned a profit, of which the direct payment made up only 30%.

On farms run by men, both the income and expenses were higher than the average for all of the studied farms. Similarly, the sums of investment were higher (by over PLN 15,000) and so were the direct payments (by just over PLN 8,000). If we include the investment, the budget accounting for the direct payments was higher among farms run by men by PLN 200; where direct payments were excluded, the budget was lower by PLN 8,000. The number of farmers who could afford investment with the support of direct payments in the budget was practically the same as the general average, differing by just 1%. If the direct payments are excluded, the difference grows to 5%. Furthermore, three farms managed by male farmers recorded a loss in 2021, even when the direct payments were included. They constituted 39% of their income.

In the group of senior farmers, aged 65 years and more, the average income was PLN 288,667 and the expenses were PLN 162,400. These values are lower than in the general sample. Also, the sums of investments (PLN 133,333) and the direct payments (PLN 53,333) were lower than the overall average value. However, their budget when the investment is included is in better condition that the general average, both when the direct payments are included and when they are not. The profit made by these farms is higher than the general average without the direct payments, but lower when the payments are included. This is because the direct payments make up only 29% of the profit made by these farms.

On farms run by young farmers (aged below 40), direct payments made up 30% of the profit, and most of them did make a profit in 2021 (except for one farm, which made a loss in both cases). Their profit was higher than the average by PLN 23,391 with the payments, and by PLN 31,877 without the payments. These farms also recorded higher income by over PLN 34,000 and higher expenses by less than PLN 3,000. With regard to the investment, it was higher by PLN 11,490, even though the direct payments were lower than the general average by PLN 8,486. The percentage of farms managed by young farmers which could afford to make investments in 2021 using solely the funds from year 2021 exceeded the average by 10%. Also when the direct payments were excluded, young farmers were still able to make investments as planned, without incurring losses.

Farms managed by middle-aged farmers recorded lower income by around PLN 25,000, with the expenses lower by PLN 140. They also invested less by PLN 7,291 than the overall average; on the other hand, they received more direct payments, by PLN 8,041. However, their investment budget was lower than the general average for all the studied farms. Only 26 out of 35 farms, or 76%, invested at the level of the minimum profit supplemented with the direct payments for 2021. The other 24% had to finance the investment from other sources. In comparison to the general sample, fewer farmers (by 6%) in this group would make a positive financial result in this situation. In this age band, direct payments constituted 46% of the farms' profit. Three farmers could not have coped without the payments; one farmer could not manage to make a profit even with the support of the payments.

Conclusion

To summarize the research results, we can conclude that both of the posed hypotheses have been confirmed. The research indicates that subsidies to operational activities on agricultural farms constitute a significant part of investment financing. This is supported by two observations made during the conducted research. The first is that the budget of the farms which we analyzed by taking into account the amount of investment made by farms in 2021, supplemented by direct payments, differs from the average budget by PLN 73,602, which is an average amount of direct payments received by the farm. If these payments are accounted for, the average budget amounted to PLN 43,315; without the payments, the budget is in the negative, at – PLN 28,287. It is evident that the farms could afford to make investment on a desired level owing to direct payments, by financing it from the profit made in 2021 and not incurring the loss. The other fact is the performance of 53 farms out of 57 (64 farms minus those which did not make any investment) which could afford to make investment relying only on the profit made in 2021. If such payments were not available, only 28, or less than half of the farms, could have afforded to make such investments. All of this means that the first hypothesis has been corroborated: agricultural farms could not have afforded to make investments on the same level if they had not obtained direct payments, which made a substantial contribution to such outlays.

The second hypothesis has also been supported. Upon calculating two variants of the farm's profit in 2021, we arrived at the conclusion that when direct payments are accounted for, the profit is higher by 38.2% than if they are not, which means that direct payments subsidizing the operational activity of farms constitute over 1/3 of their profit, which is in line with the assumed hypothesis.

To sum up, we can conclude that the economic aspect of the Common Agricultural Policy is tantamount to the sustainability of the farm, understood as the ability to a long term survival in the market despite unstable conditions, which has an evident impact on the level of income (Smędzik-Ambroży & Sapa, 2020, p. 196).

Translated by Jolanta Idźkowska

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ORIGINAL PAPER

USE OF (SELECTED) E-BUSINESS MODELS IN THE AGRIBUSINESS SECTOR TO SHORTEN THE FOOD SUPPLY CHAINS

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JEL Classification: Q13, Q 14, Q18.

Key words: e-business models, short food supply chains.

Abstract

The aim of this paper was to identify and evaluate the potential of using e-business models to shorten short supply chains in food trade made by farmers. The research was based on a diagnostic survey. The interviews were conducted with a previously elaborated questionnaire. 104 food producers from the Province of Warmia and Mazury (województwo warmińsko-mazurskie) took part in the study. E-business models make it possible to shorten food supply chains. Farmers who sell their produce through e-commerce can eliminate intermediaries from the supply chain or at least limit their number, using such e-commerce platforms as polskiebazarek.pl, olx.pl, allegro.pl. The research results indicate that the most popular e-business model among food producers was the market creator model.

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WYKORZYSTANIE (WYBRANYCH) MODELI E-BIZNESU W SEKTORZE AGROBIZNESU W CELU SKRACANIA ŁAŃCUCHÓW DOSTAW ŻYWNOŚCI

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Kody JEL: Q13, Q 14, Q18.

Słowa kluczowe: modele e-biznesu, krótkie łańcuchy dostaw żywności.

Abstrakt

Głównym celem artykułu była identyfikacja i ocena możliwości wykorzystania modeli e-biznesu do skracania krótkich łańcuchów dostaw żywności stosowanych wśród rolników. W badaniach zastosowano metodę sondażu diagnostycznego, a techniką badawczą był wywiad przeprowadzony z wykorzystaniem wcześniej opracowanego kwestionariusza ankiety. W badaniach wzięło udział 104 producentów rolnych z województwa warmińsko-mazurskiego. Modele e-biznesu zwiększają możliwości skracania łańcuchów żywności. Rolnicy, sprzedając swoje produkty za pośrednictwem e-sklepów, mogą wyeliminować pośredników z łańcucha żywnościowego lub przynajmniej ograniczyć ich liczbę, wykorzystując takie platformy sprzedażowe, jak: polskiebazarek.pl, olx.pl, allegro.pl. Wyniki badań własnych pokazują, że spośród opisywanych modeli e-biznesu najbardziej popularny wśród producentów żywności jest model *market creator*.

Introduction

Short food supply chains are alternative systems of selling agricultural and food produce in comparison to the dominant, traditional forms of sales, based on long distribution channels of many intermediaries (food processors, wholesalers, retailers). Large retail chains usually enjoy a dominant competitive position, thanks to high concentration. The forms of distribution used in short food supply channels are characterized by few or no intermediaries between food producers and final consumers, or short geographic distances between the first and last link in the distribution chain (Parker, 2005, p. 2, 3; Deverre & Lamine, 2010, p. 57-73; Szymańska & Lukoszová, 2019, p. 92). The definition by the Agricultural European Innovation Partnership (EIP-AGRI) says that "a short food supply chain is such an organization of production, distribution and transactions between the food producer and the customer that limits the number of intermediaries engaged in the process to the necessary minimum" (EIP-AGRI, 2021).

A direct contact between the producers and consumer, as an effect of the shortening of the supply chain, has many benefits. It contributes to the consumer's understanding and recognition of the history and tradition of a given product and strengthens their loyalty and trust towards the producers and the products they offer. A direct sale is also accompanied by financial advantages gained by both sides of the transaction. Food producers obtain higher prices for their produce compared to what they would be paid by a processing plant or a wholesaler. On the other hand, the customer pays less because the margin imposed by the middlemen is eliminated. The shortening of the geographic distance between the food producer and the end customer brings down the cost of transport and may also have a positive effect on the environment through the reduction in the emission of greenhouse gases (Raszeja-Ossowska, 2017, p. 1; Szymańska & Lukoszová, 2019, p. 92).

Methodology

The main objective of this paper was to identify and evaluate the potential of using e-business models to shorten short supply chains in food trade performer by farmers. The study relied on the diagnostic survey method, and the research technique was an interview based on the previously elaborated questionnaire. 104 food producers from the Province of Warmia and Mazury (województwo warmińsko-mazurskie) took part in the study, which was conducted in June 2021.

E-business models in theory

A direct sale of agricultural products can be achieved in various ways. The most common forms of distribution used by farmers include: a direct sale on the farm, sale on a food market, or through the Internet (Chwast, 2021; Szymańska & Lukoszová, 2019, p. 94), with the use of various business models. There are many definitions of this concept in the literature (Tab. 1).

Every company operating in the e-commerce industry uses some business model. It provides solutions to, among others, the manner of generating operational income, and the ways to acquire and retain clients. A lack of a precise business model is one of the main barriers in the development of enterprises operating in the e-commerce sector (Nojszewski, 2006).

The shortening of the supply chains can be done through the engagement of producers and the implementation of information and communication technology – the Internet, and the sale of agricultural products through this channel. This is made possible by the implementation of the simplest existing e-business models, like direct sale instruments, mainly e-stores, and non-direct ones, most

Table 1

Definitions of business model

Author	Definition
M. Wierzbiński	„a manner (template?) of managing an economic enterprise for profit, or in broader understanding, along with the concept of managing through value (Value Based Management), to generate a satisfactory rate of return for the owners"
P. Timmers	„architecture of product, service and information flow taking into account the characteristics of various economic operators and their role"
P. Weill and M.R. Vitale	„a description of the role and relations between consumer, clients, business partners, suppliers, which determine the flow of goods, information and financial funds, as well as main benefits to the stakeholders"
J. Magretta	„a story which explains how the enterprises operates. In particular, the following questions should be asked to implore the business model: What clients are serviced by the enterprises? How is the value made for the client? How does the enterprise generate profit? How does the enterprise deliver value to the clients at justified cost?"
A. Afuah and Ch.L. Tucci	„a method of using and maximizing resources adopted by the enterprise to offer products and services to clients, whose value exceeds that offered by competitors, and which provides profit to the enterprise"

Source*:* the authors, based on: Tutaj (2019); Sitko-Lutek & Skurzyńska-Sikora (2016); Wierzbiński (2015); Ryszko (2014); Leszczewska (2013); Timmers (1998); Weill & Vitale (2001); Magretta (2002); Afuah (2004); Afuah & Tucci (2003).

commonly transaction platforms or models offered by organizers or creators of the market – OLX, Allegro, industry specific platforms.

The era of online stores (e-tailer) dates back to the launch of Amazon.com internet store. The main advantage of online shops is that they are available 24 hours a day, and business can be made without leaving home. Initially, e-tailers operated only online, with no physical representation. Along with the technological progress, the owners of retail stores began to build their own Internet websites, as they noticed the competitive edge of the new market participants, and new ways of acquiring and maintaining clients (Szulc & Kobylański, 2014, p. 65).

The e-tailer sector has low entry barriers and is highly competitive, with a potentially large size of the market. Every Internet user can be classified as a potential client. However, it should be said that sustainable presence on the market can only be possible upon the implementation of a suitable pricing strategy or focusing on building the marketing and applying loyalty programs. The products on offer are practically unlimited in terms of geographical availability and variety.

Market Creators are defined as entities which organize the market environment for both buyers and sellers. The original example of an e-business model is considered to be eBay.com platform, founded in 1995. It proposed an important change in the market contact, which enabled the introduction of the client-client relation in the e-commerce environment. The e-business model offered by market creators moved the traditionally organized physical venue of business in the geographical sense to the online environment. This shift allowed one to eliminate both physical and geographical constraints. The main service offered in this model is the organization of a virtual space, or guaranteeing the suitable technological infrastructure, allowing the buyers and sellers to meet, negotiate the price and make safe transactions. Sometimes the Market Creator e-business model is adopted to complement the model used by E-Tailers. Amazon is an example of an e-commerce company which is managed in this manner. Besides the main operation of an online store, the company is also an intermediary in the exchange of goods, providing a market environment for buyers and sellers (Szulc & Kobylański, 2014, p. 69).

In agriculture, the most popular companies operating in the Market Creator model are: allegro.pl, olx.pl, or polskiebazarek.pl, which was set up in 2020. On the olx.pl website, there are two categories where farmers can place offers of their products: “agricultural products” and “little market.” On 23 January 2022, they had 25,716 and 19,294 active offers, respectively (OLX, 2022). The newest of the platforms mentioned above, polskiebazarek.pl, was created in liaison with the Ministry of Agriculture and Rural Development (MRiRW) and the regional branches of Agriculture Advisory Centres (ODR) as an instrument of direct sale from the farmer to the consumer (Ministerstwo Rolnictwa i Rozwoju Wsi, 2020).

The availability of the technological infrastructure has been increasing, so entities in the e-agrobusiness sector begin to take advantage of its popularity and the effectiveness of operation it offers. The awareness of this technology is rising among individual food producers, who are particularly sensitive to lengths of the supply chain. They are negatively affected by the phenomenon of price spreads, which occurs when the institutional market infrastructure is poorly developed, leading to the growing asymmetry of the effectiveness of production and trade operations. The rise in the popularity of food purchases through the online channel, reinforced by the Covid pandemic, is a factor contributing to the development of this channel. This is why an interest in the shortening of supply chains as a result of the spread of the Internet and e-business models seems a logical result of the analysis of the business environment.

„Cooperation-Short Supply Chains” Measure as an example of the EU financing of an Internet store

Short supply chains and local sales have always existed, playing a vital role in the lives of urban and rural residents. However, it has been noticed that the European Union did not use to be as much interested in this type of sales as expressed now, in the present rural development policy (Kapała, 2015, p. 151).

Recent years have witnessed a significant impact of the European Union on the development of direct sales of agricultural produce. The growing demand among consumers for the local products of familiar origin encourages farmers to expand their offer array and produce ready-made food of better quality. To seek new markets for their products, beside the farms themselves, farmers began to create local food networks and the so-called short supply chains, i.e. doorstep sale, creating purchase baskets or organized street market sale.

The „Cooperation-Short Supply Chains" Measure was implemented to satisfy these needs, and proposed to complement the existing solutions with Internet stores and online sale.

The main objective of the "Cooperation" measure is to create short supply chains and local markets. This aims at reducing the number of intermediaries to no more than one, which will generate more economic, good value for money, fresh final product (Agencja Restrukturyzacji i Modernizacji Rolnictwa, 2021). First and foremost, the Rural Development Programme in Poland (RDP) assumes that short supply chains should support the horizontal integration of farmers. In turn, this integration should contribute to achieve the benefit of scale following from the shared production, sale, or ordering of means of production. Secondly, the short food supply chains are expected to support the vertical integration, motivating farmers to take consecutive steps connected with other phases of the food chain, like small scale food processing, so that food producers can save on the food processing and retail margins (RDP 2014-2020, 2014, p. 48).

Assistance is given to a group of at least five farmers who meet the basic requirements concerning sales; they should have registered one of the forms of sale, i.e. direct sale, agricultural retail trade (RDH), marginal operation, local and limited operation (MOL), direct deliveries, or economic activity in at least one of the types of activities enumerated in Chapter 10 and 11 of the Polish Business Activity Classification.

The first recruitment for the „Cooperation-Short Supply Chains" Measure was carried out between 29 March 2021 and 12 May 2021. The grants were allocated in two amounts, depending on the manner of implementing an investment. The higher grant of PLN 325,000 was given to operational groups aiming to purchase a means of transport as part of the investment; the lower grant of PLN 280,000 was given to other groups (Rozporządzenie Ministra… 2016).

The basic criterion for being qualified to either group was to pass the score threshold. An applicant group had to score at least 13 points. Points were assigned for such characteristics as: more than five participants in a group, diversified offer of products for sale, participation of at least one farmer who takes part in a quality system or organic farming system, launching of an internet store or a mobile application to sell agricultural products online, etc. (Rozporządzenie Ministra… 2016). These days, especially in the context of the Covid pandemic, this form of sale plays a key role in purchasing goods by customers.

The underlying assumption is that an online store should to become a new direction of distribution of agricultural products. Owing to such stores, products coming from farms can find their market more quickly, which will mean they will be sold fresher and for lower prices (Agencja Restrukturyzacji i Modernizacji Rolnictwa, 2021).

During the recruitment to the spring 2021 "Cooperation" measure, which was carried out between 29 March 2021 and 12 May 2021, 200 applications were submitted in Poland; 97 applications were accepted (SIR, 2021).

Research results

According to the Public Opinion Research Center (CBOS), the smallest professional group using the Internet were unskilled workers, closely followed by farmers (Komunikat z badań, 2019, p. 3).

104 food producers from the Province of Warmia and Mazury participated in the statistical research. Nearly 81% were farmers residing in the country, 19% were farmers living in cities. The largest groups were farmers aged 40-49 (34.62%) and 30-39 (30,77%); the respondents aged 50-59 (19.23%) and 20-29 (15.38%) represented the remaining sample. There were no respondents aged below 20 or over 59. Most of the participants had higher (53.85%) or secondary education (30.77%); 15.38% had vocational education. None of the respondents had only primary or lower secondary education.

The farmers who participated in the study did not own Internet stores, nor did they use this form of sale. However, nearly 35% of the respondents, even though they did not own an online store, sold their products online through auction websites like olx.pl, allegro.pl. More than 61% of the respondents declared that they do not usually sell products online (Fig. 1).

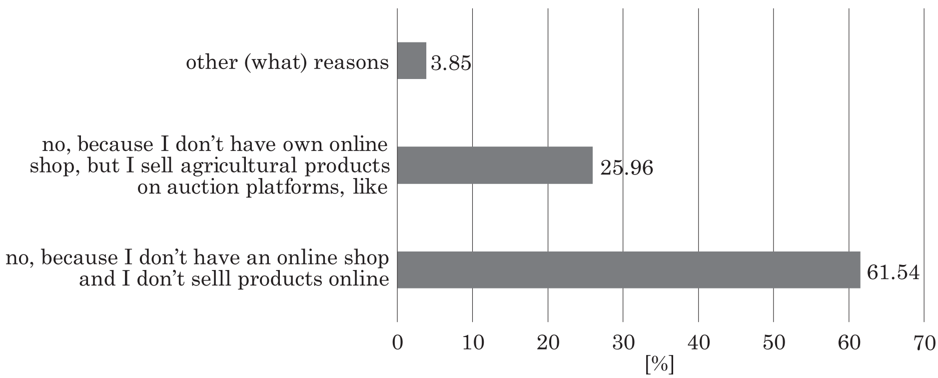

Fig. 1. Online sale of agricultural produce declared by farmers
Source: the authors, based on own research.

A large majority of food producers declared the purchases of means of production, spare parts for machines, machines, instruments, etc. in online stores (88.46%). They believe that online shopping saves money and time (51.92%), and that it is a very comfortable solution (36.54%). Close to 12% of the respondents do not buy online, as they prefer traditional shops (5.77%), and want to see the product before the purchase (5.77%) (Fig. 2).

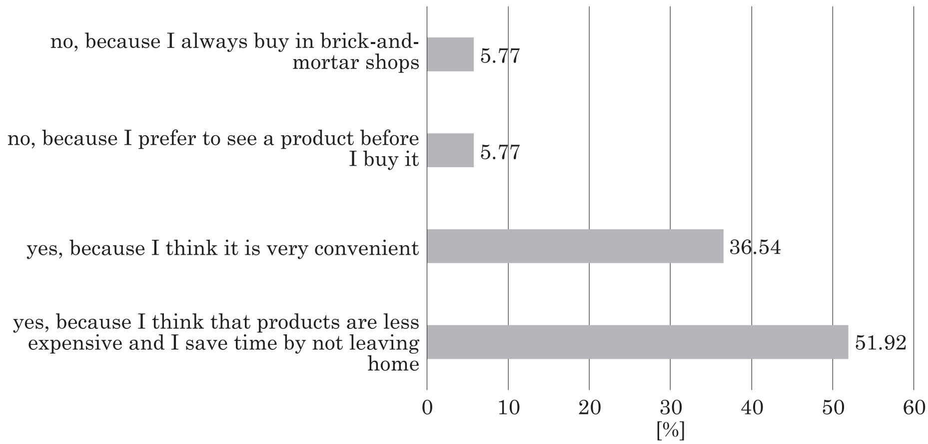

Fig. 2. Declarations of food producers on purchases of means of production, spare parts for machines, machines, instruments, etc. in online stores
Source: the authors, based on own research.

Food producers declare purchases through auction platforms; however, the largest group were the farmers who shop online less than once a month (60.87%); 21.74% buy online once per week, 17.39% once per month (Fig. 3).

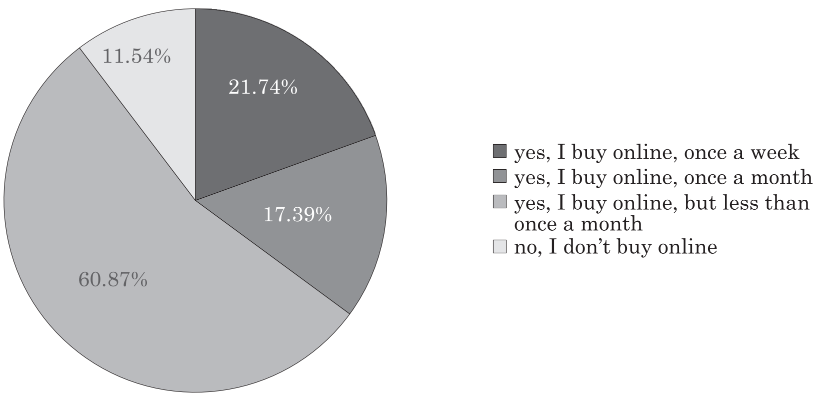

Fig. 3. Declarations of food producers on the frequency of purchases of means of production, animals, machines, machines, instruments, etc. through action platforms like olx.pl, allegro.pl, or sprzedajemy.pl
Source: the authors, based on own research.

Food producers sell means of production, animals, machines, machines, instruments, etc. through action platforms like olx.pl, allegro.pl, or sprzedajemy.pl, but the largest group were those who did so sporadically. 69.23% declared to make such sales less than once per month, 11.54% of the food producers sold this way once per month, 11.54% once per week (Fig. 4).

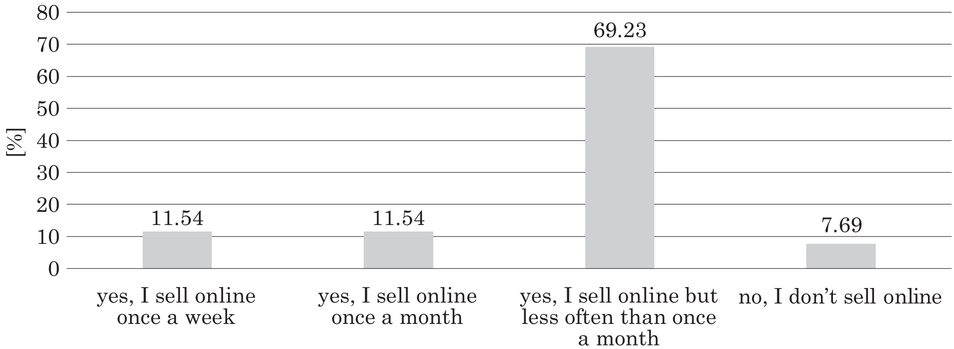

Fig. 4. Declarations of food producers on the sale of means of production, animals, machines, machines, instruments, etc. through action platforms like olx.pl, allegro.pl, or sprzedajemy.pl
Source: the authors, based on own research.

Most of the respondents have farms with an area no more than 25 ha (65.38%), followed by those whose farms are up to 5 ha of arable land (26.92%), farmers whose farms are between 6 ha and 15 ha (19.23%) and between 16 ha and 25 ha (19.23%) (Fig. 5).

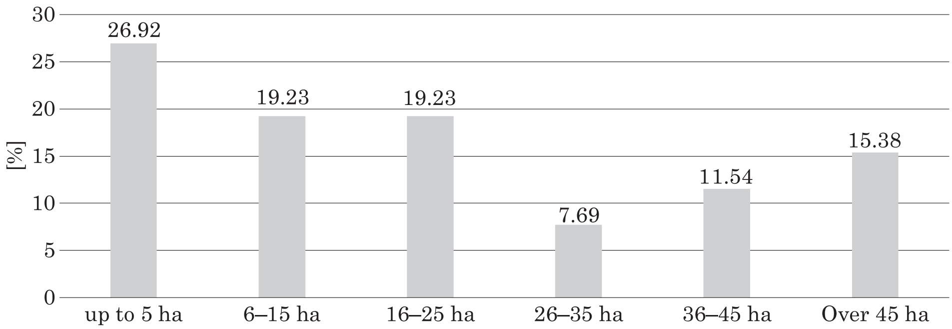

Fig. 5. Farm area declared by the respondents
Source: the authors, based on own research.

The research objective was to investigate a possible link between the farm area managed by the respondents and the sale of products through the Internet they engaged in. Unfortunately, none of the studied farmers owned an internet store. However, 90% of the respondents sold their products through auction platforms and advertisement portals. A chi-square test of independence was used to carry out this analysis. First, we combined the answers given by the respondents on the sale of products through auction and advertisement portals, and the area of their farms (Tab. 2).

Table 2

Declared sale of products on auction and advertisement portals by respondents and the area of their farms

Observed values							
Farm area	up to 5 ha	6-15 ha	16-25 ha	26-35 ha	36-45 ha	over 45 ha	total
Yes, I sell online once a week	4	0	0	0	4	4	12
Yes, I sell online once a month	4	4	4	0	0	0	12
Yes, I sell online, less often than once a month	12	16	16	8	8	12	72
I don't sell online	8	0	0	0	0	0	8
Total	28	20	20	8	12	16	104
Expected values							
Yes, I sell online once a week	3,23	2,31	2,31	0,92	1,38	1,85	12
Yes, I sell online once a month	3,23	2,31	2,31	0,92	1,38	1,85	12
Yes, I sell online, less often than once a month	19,38	13,85	13,85	5,54	8,31	11,08	72
I don't sell online	2,15	1,54	1,54	0,62	0,92	1,23	8
Total	28	20	20	8	12	16	104

Source: the authors, based on own research.

There are noticeable differences between the observed values (property of the person, entity or phenomenon, measured or observed) and the expected values (determining the expected results of a random experience). The analysis shows that the chi-square coefficient for the statistical significance $\alpha = 0.05$ and df = 15 is 46.37, while the critical value is 24.9958. The value of the chi-square test is higher than the critical value, which means that there is a correlation between the size of the farm managed by the respondents and their sales of products through the internet.

To analyze the strength of this correlation, we used the V-Cramer coefficient and the C-Pearson coefficient. The V-Cramer coefficient was 0.3855. It falls in the 0.3-0.5 band, which means that the strength of the correlation between the size of the farm and their sale of products on the Internet is moderate. The value of the adjusted C-Pearson coefficient was 0.6243, which means that the strength of the correlation between the size of the farm and their sale of products on the Internet is significant. The analysis of the collected data indicates that the farmers, depending on the size of their farms, engage in the online distribution of their sales in varying degrees

Conclusions

E-business models make it possible to shorten food supply chains. Farmers who sell their products through e-commerce can eliminate intermediaries from the chain or at least limit their number, using sale platforms like polskiebazarek.pl, olx.pl, allegro.pl, etc. Research suggests that the market creator model is more popular among food producers. This could be related to the convenience of using particular models. The sale of products through polskiebazarek.pl or olx.pl does not require the farmer to set up and administer own internet store, which would be much more complicated, time consuming, and costly.

E-business models have advantages and disadvantages, and therefore every farmer who decides which model to apply should consider a few issues. As shown above in this paper, best prices for agricultural products can be obtained in online shops. However, this is connected with additional obligations on the part of farmers. The economic size of a farm should also be taken into account. It would be hard to sell products only through an online store by large farms that produce, for example several thousand liters of milk per day or grow vegetables on hundreds of hectares. This is why the e-tailer model could be easier for farms with smaller agricultural production. Another issue is the direction of production on a farm. The research data show that some agricultural products are seldom or never sold through e-commerce, like grain which, without processing, has low or no value to the consumer. As mentioned before, processing of food means significant investment to equip the farm with suitable infrastructure, machines, devices, etc. This is why for some farmers, like those who mainly grow crops, the choice of the market creator model is a better solution, which may not completely eliminate brokers, but can constrain their number.

It is also possible to use a mixed model, for the sale of products with either the e-tailer and market creator models, and for selling products via the Internet or traditionally, in street markets or to purchasing centers. This solution allows a farmer to sell larger quantities of products more easily; it can also serve as a gateway to the sale exclusively through the Internet.

Translated by Jolanta Idźkowska

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ORIGINAL PAPER

GLOBALIZATION PROCESSES AND MIGRATION MECHANISMS

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JEL Classification: F69, J61.

Key words: globalization, globalization processes, migration mechanisms, migration, human resources.

Abstract

The aim of this article is to analyse and assess the impact of globalisation processes in the context of migration mechanisms. The analysis is based on statistical data from International Organization for Migration (IOM), United Nations Department of Economic and Social Affairs (UNDESA), United Nations High Commissioner for Refugees (UNHCR) and Eurostat. Essentially, globalization consists of ongoing processes involving the flow of goods, information, capital, human resources and the development of transport and communication on an international scale. With advancing globalization processes, procedures applicable to the movement of human capital are simplified, and, at the same time, international migration intensifies. With respect to migration mechanisms, international agreements play an important role, as they establish rules for the movement of migrants across the borders of the state parties to particular agreements. The continually unfolding globalization processes in the 21st century indicate an increasingly evident trend whereby people from poor countries migrate to more affluent countries. Due to the high correlation between migration and socio-economic development, the issue of human capital transfer has become a matter of interest for international economic institutions, particularly where developing countries are concerned. Consequently, greater attention is focused on migration processes and their impact on the social and economic circumstances in particular countries.

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PROCESY GLOBALIZACJI WOBEC MECHANIZMÓW MIGRACYJNYCH

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Kody JEL: F69, J61.

Słowa kluczowe: globalizacja, procesy globalizacji, mechanizmy migracyjne, migracja, zasoby ludzkie.

Abstrakt

Celem artykułu jest analiza i ocena wpływu procesów globalizacji w kontekście mechanizmów migracyjnych. Analizę przeprowadzono na podstawie danych statystycznych z IOM, UNDESA, UNHCR oraz Eurostatu. Istotą globalizacji jest rozwój procesów związanych z przepływem dóbr, informacji, kapitałów, zasobów ludzkich, rozwoju transportu oraz komunikacji w skali międzynarodowej. Postępujące procesy globalizacji przyczyniają się do uproszczenia procedur związanych z przepływem kapitału ludzkiego oraz nasilenia się międzynarodowej migracji. W kontekście mechanizmów migracyjnych ważną rolę odgrywają porozumienia międzynarodowe, na których mocy są ustalane zasady przemieszczania się migrantów przez granice państw uczestniczących w porozumieniu. Efektem rozwijających się procesów globalizacji w XXI wieku jest nasilająca się tendencja, według której osoby z ubogich krajów migrują do państw bardziej zamożnych. Ze względu na wysoką zależność między migracjami a rozwojem społeczno-gospodarczym w przypadku państw rozwijających się problem związany z transferem kapitału ludzkiego zaczęły rozważać międzynarodowe instytucje gospodarcze. Doprowadziło to do skupienia większej uwagi na procesach migracyjnych i ich roli w kształtowaniu sytuacji społeczno-ekonomicznej w danym państwie.

Introduction and methodology

The emergence of innovative solutions which enhance the flow of information, human capital and technology, as well as the international agreements signed by numerous states to regulate the movement of citizens between countries, have contributed to migration waves of unprecedented magnitude. The directions of major migration flows are changing as a result of global structural change. The mass migrations of the 19^{th} century were markedly different from the contemporary flow of human capital. Today, the largest waves of emigration are observed in the Middle East and Central Africa, while the lower number of migrants in relation to the global population constitutes the main difference between contemporary migrations and the 19^{th} century movement. In contrast to the latter, one sees a growing trend whereby the proportion of women migrants has increased substantially (Freeman, 2006, p. 152-154).

Technological developments have resulted in accelerated communication, information and transport flows which, in turn, yielded more extensive prospects and opportunities for businesses and populations. Contemporary means facilitating the movement of people have led to significant changes in how countries approach migration. Today, migration policy is one of the main pillars of the internal policies of the European countries. Still, despite the advantages offered by technological development, globalization processes precipitate the negative effects of migration mechanisms, including urban overpopulation, environmental pollution and the disappearance of national and cultural values.

This current paper analyses globalization processes while considering their impact on migration mechanisms, focusing on the persons who choose to relocate to another country. The principal research problem is to determine how globalization processes contribute to shaping migration mechanisms. The paper attempts to identify the relationship between globalization and the global migration of persons and, given the problem thus formulated, the following hypothesis is advanced: "globalization processes contribute to an increase in the scale of migrations". In order to verify the adopted hypothesis, desk research was carried out to obtain a thorough review of pertinent literature, followed by an analysis of secondary statistical data from IOM, UNDESA, UNHCR and Eurostat.

The essence of globalization in the context of migration mechanisms

In order to define globalization, it is necessary to highlight several key factors. This phenomenon is said to encompass such elements as population migration, international expansion of enterprises, the development of technology and the propagation of cultures. Globalization is a very complex phenomenon, the scale of which is influenced by various determining factors; it is multidimensional and affects many spheres of life. To a substantial extent, the current scale of globalization owes to the interdependencies and interactions of the states that constitute the world system. The relevant literature distinguishes three basic types of globalization (Micał, 2008, p. 150, 151):

– universalization, which involves the standardization of needs, goods and services across different regions of the world, which consequently leads to the standardization of norms and regulations;

– internationalization, which describes the increase in trade between countries and the increase in dependency among the participants in that trade;

– liberalization, which notes the formation of the so-called world economy, i.e. a system in which there would be no restrictions applied to the exchange of goods or the migration of people.

Globalization can be considered in its economic aspect, with particular attention drawn to the processes taking place in the micro- and macroeconomic domains.

Currently, globalisation processes are leading to the creation of a single world economy and are gaining momentum as more barriers between local, regional, national and continental markets are removed (Kryńska, 2017, p. 139, 140). One of the crucial corollaries of globalization is the increasing mobility of capital, which enables the appropriate allocation of resources in countries where the cost of their use is lower. Considered in terms of social issues, globalization processes result in a shift within the population which gravitates toward the so-called "global society" (Okólski & Koryś, 2004, p. 7, 8). The increasing mobility of the human capital, supported by state-of-the-art technologies of information flow, means of transport and communication, has led to the compression of many cultures in places which offer higher living standards. Moreover, as a result of globalization processes, racial and religious conflicts have subsided. The homogenization of cultural values and the disappearance of national identities of individual social groups have fostered the emergence of a worldwide value system (Paleczny, 2007, p. 168, 169).

In recent decades, numerous ground-breaking technological solutions have precipitated globalization. One of the most significant of those was the invention and spread of microprocessors, which today are used primarily in telecommunications equipment, transport and manufacturing processes. The creation of a worldwide system of connections (the internet) has amplified the flow of information from a global perspective. Technological innovations in the communications industry have reduced transport costs and increased its accessibility (Okólski & Koryś, 2004, p. 9-11).

In the wake of modernization, extensive human capital flows across borders took place as early as during the industrial revolution, but contemporary migrations trends are distinct from the mass movements of people in the 19th century. The main difference is that the migrants are fewer in relation to the global population. Furthermore, the migration structure shows an increasing proportion of women. The directions of migrations around the world are fluctuating, which is due to the economic situation in individual countries. Currently, the regions from which the largest number of people are seen emigrating include Central Africa and the Middle East. A global increase in the number of international migrants can be observed in each successive year. According to statistics, in 2020, the estimated number of people who migrated abroad was 280.6 million (Fig. 1).

Between 1990 and 2020, the number of international migrants worldwide increased by approximately 83.4 per cent. The steep rise in the number of migrants in highly developed countries has prompted a reaction from international organizations, whose previous activities focused mainly on the economic aspects. Institutions such as the Organization for Economic Co-operation and Development (OECD), the World Bank (WB), the International Monetary Fund (IMF) and the World Trade Organization (WTO) began to study the phenomenon of international migration and simultaneously established dedicated departments within their

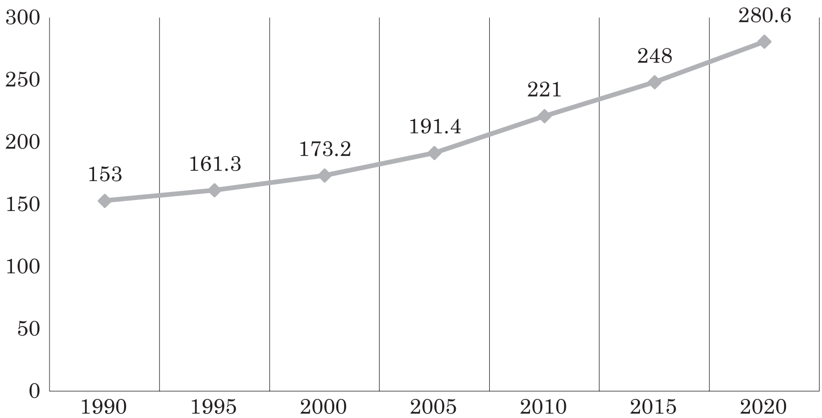

Fig. 1. Number of international migrants globally in 1990-2020 (in millions of people)
Source: based on: *Total number of international migrants…* (2021).

structures to deal with issues relating to migration mechanisms. The task of these designated agencies is to publish and analyse reports concerned with the phenomenon of human capital flows. Other tasks of those designated departments in international institutions include cooperation with government representatives and independent experts in the field (Lesińska, 2014, p. 11-13).

Restrictions related to the COVID-19 pandemic have had a major impact on migrant mobility. From 10 March 2020 (the day before the World Health Organisation announced the COVID-19 pandemic) until 28 February 2022, 122,823 movement restrictions were imposed worldwide (*Migration data relevant for the COVID-19 pandemic*. 2022). In 2020, the scale of permanent immigration to OECD countries is estimated to have decreased by more than 30%, and 2020 alone saw the lowest migration flows to OECD countries since 2003 (OECD, 2021, p. 168-170). The decline in migrant inflows, as a result of the COVID-19 pandemic restrictions imposed, has had a major impact on the demographics of some European countries. Data from 2020, collected by the German Federal Statistics Office, suggests that Germany's population did not increase for the first time in the last decade due to a reduction in immigration (German Federal Statistics Office, 2021a). According to data from the Italian National Statistics Institute, in 2020 the largest population decline was in Italy (0.6%), followed by Romania (0.7%) and Poland (0.3%) (Italian National Statistics Institute, 2021, p. 5). At the end of 2020, the total number of foreigners in Germany increased by 1.8%, the lowest growth rate in the last decade in Germany (German Federal Statistics Office, 2021b). In the same year, the number of immigrants in Germany decreased by 24% and emigrants by 22% compared to 2019 (German Federal Statistics Office, 2022). In Sweden, the number of residence permits issued in 2020 decreased by approximately 25% compared to the previous year and is the lowest value since 2007.

International agreements on human capital flows

For many years, the European continent has witnessed large flows of human capital, which are conditioned by the differing economic situations in the various European countries. Increased migration within the European Union is the result of a number of important agreements that have been made to standardise standards and regulations for international migration (Tab. 1).

Table 1

Selected international agreements governing international migration

Year	Event	Description
1948	Universal Declaration of Human Rights	the document passed at the Third Session of the UN General Assembly includes the human right to freedom of movement, to seek asylum and to choose one's place of residence within the borders of each state
1951	The Refugee Convention	UN Refugee Convention, during which international standards for refugee rights were established
1985	The Schengen Agreement	agreement under which controls at the internal borders of the Member States were abolished
1993	The Maastricht Treaty	the treaty defines and clarifies the right to asylum applicable within the EU
2009	The Treaty of Lisbon	the treaty introduced a qualified majority voting procedure for legal migration, as well as a new legal basis for integration measures
2011	Global Approach to Migration and Mobility (GAMM)	the draft adopted by the European Commission establishes a general framework for EU relations with third countries in the field of migration
2014	Open and secure Europe	the programme proposed by the European Commission in the area of freedom, security justice, which emphasises the need for a global approach to migration
2015	The European Migration Programme	the programme proposed by the European Commission, whose guidelines concern immediate action to deal with the migrant crisis in the Mediterranean region. This draft also includes actions to be taken to manage migration more effectively in all its aspects in the future
2018	Global Compact for Safe, Orderly and Regular Migration	a pact initiated by the UN and signed in Marrakech, whose main objective was to establish standards and rules governing the behaviour of states in the movement of people across international borders
2020	New Pact on Migration and Asylum	it represents a continuation of migration policy reforms. The main objectives of the Pact are to define the methods of managing the external borders, to be prepared in case of a crisis through a response in combination with a solidarity mechanism, defining relations with key third countries with main third countries, and integrating the asylum procedure into the overall management of migration

Source: own elaboration based on: *Polityka imigracyjna.* (2022).

One of the main documents defining the rules and regulations for international migration was the Lisbon Treaty, concluded in 2007, with the creation of the so-called Single Market. The goal of establishing such a single market within the EU and participating third countries was to ensure the so-called four freedoms, namely (Czermińska, 2016, p. 63):

– the free movement of goods;
– the free movement of capital;
– the free movement of persons;
– free movement of services.

The free movement of people is very important for the migratory flows of people within EU countries. Its basic principle is to balance surpluses and shortages in the labour markets of individual countries, and in the long term to equalise wage levels (Organiściak-Krzykowska & Machnis-Walasek, 2016, p. 93, 94). The earlier Schengen Agreement, concluded in 1985, was an important steppingstone which served as a model for all subsequent agreements related to the movement of human capital. Its chief premises included the abolition of control at the borders of countries within the community and free migration between countries. Being economic in nature, it was intended to optimize the supply chains of economic entities and reduce the price of transport services. Another important from the point of view of migration policy is the New Pact on Migration and Asylum, which is the EU's response to the challenges posed by migratory pressures and the labour needs of individual Member States' labour markets. Presented by the European Commission, the draft aims to build confidence by introducing more efficient procedures for crossing the external borders of the Union and balancing responsibility and solidarity among EU members (Nowy Pakt Migracji i Azylu. 2020).

The scale of migration in Europe

After both the Lisbon Treaty and the Schengen Agreement entered into force, the scale of international migration within the community increased. These developments resulted in massive flows of human capital for labour. Most often, highly developed countries were the preferred destinations of migration because they offered good living standards and higher wages. According to statistics collected by the European Commission, there were 23.7 million third-country nationals residing in the European Union in 2021 (Migration and migrant population statistics. 2022). The predominant reasons behind the arrival of non-EU nationals in the community included the presence of their family and the search for employment (Fig. 2). According to the statistical data gathered, 9% of third-country immigrants applied for asylum, and only 3% immigrated to EU Member States for educational purposes.

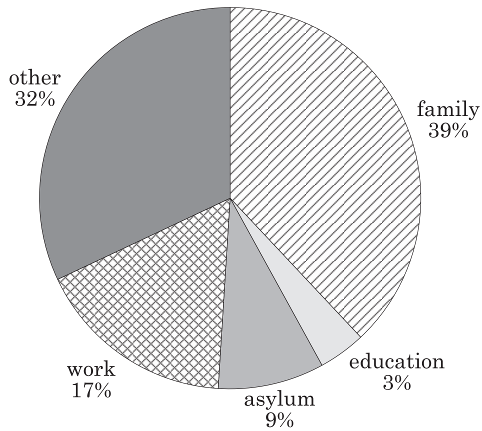

Fig. 2. Reasons for third-country migrations to Europe
Source: based on: *Imigranci w społeczeństwie europejskim – ogólne dane liczbowe* (2021).

Since 2014, Europe saw very large flows of migrants from Africa and the Middle East. The phenomenon intensified in the following months, with the largest waves of migration recorded in 2015. Many of these people migrated to Europe for fear of persecution and armed conflict. The challenge of receiving such large numbers of people in a brief period of time exposed the weaknesses of the European asylum system. As a result, the European Parliament decided to allocate adequate financial resources from the EU budget to enable more effective migration management (*Kryzys migracyjny w Europie*. 2020). The international agreements concluded by EU countries regarding the movement of human capital also resulted in increased migration of people across the internal borders of the EU. In Poland, a negative migration balance was observed for several consecutive years. However, due to the substantial immigration of people from the countries of the former Soviet Union, the Polish migration balance in 2018 shifted to positive values (Tab. 2). In 2012-2020, countries which recorded a negative migration balance were Bulgaria, the Czech Republic, Greece, Spain and Poland.

The phenomenon of negative migration balance most often affects countries with high unemployment, low wages, widespread issues resulting from the social policies of the government and exacerbating inflation. Conversely, the highest positive migration balances are observed in highly developed countries such as France, Germany and Italy, where the main reasons for high immigration rates are better pay, a greater number of employment opportunities and an extensive social benefits system. In the case of Spain, the significant increase in migration balance in 2018 was due to securing the Eastern and Central Mediterranean routes through which migrants from Africa and the Middle East headed to Europe. As the Italian government blocked access to the country's ports in 2017, NGO ships with rescued migrants would sail to the ports in Spain (Pawłowski & Szymańska, 2018).

Table 2

Migration balance in selected European countries in 2012-2020

Country	Year				
	2012	2014	2016	2018	2020
Bulgaria	-2,512	-2,112	-9,329	-3,666	30,715
Czechia	-11,769	1,429	25,219	39,168	27,241
Denmark	10,746	23,962	21,729	4,288	3,408
Germany	352,174	560,672	496,090	353,471	240,468
Greece	-66,494	-47,791	10,332	16,440	6,384
Spain	-142,553	-94,976	87,421	334,158	219,357
France	71,509	32,280	64,087	86,490	138,440
Italy	244,556	141,303	143,758	175,364	87,642
Hungary	10,822	12,368	13,729	34,759	8,106
Austria	39,745	62,771	65,081	38,421	40,984
Poland	**-58,057**	**-46,024**	**-28,139**	**24,289**	**48,949**
Sweden	51,312	75,729	117 127	85,621	33,581
Norway	47,215	37,595	26,766	20,706	14,840

Source: own elaboration based on statistical data from Eurostat.

The scale of international migration is steadily increasing. In 2000, the number of migrants in a global perspective was 173 million, while by 2020, this figure has risen to 281 million people. A very interesting phenomenon is the increase in the share of women in the structure of international migration. In 2020, women accounted for 48% of the total number of migrants worldwide (UNDESA, 2022). Women's migration became an independent research issue in the research community when an increasing number of women started to be active in foreign labour markets (Marks-Bielska, 2019, p. 147). The latest data from the International Organisation for Migration in 2019 shows that women accounted for 41.5% of the 169 million working migrants. Of the 70.1 million working women, 47.9% were of working age. This represents a slight change from 2013 data, when the share of women in the total number of migrants was 44.3% (*World Migration Report…*, 2022, p. 36, 37). Disparities in female and male shares over time and in other regions of the world can vary, e.g. female participation rates are higher in countries with a tradition of immigration such as Canada and Australia. Some countries are characterised by a fairly constant migration trend, which is considered on a gender basis. Such countries may include Mexico, where emigrants are mainly men, and the Philippines, where the share of women in overall migration statistics is higher (Jakimowicz-Pisarska, 2017, p. 82, 83).

One of the most important aspects of population movement is political migration, which, as defined, refers to displacement, refugees and other causes triggered by political action (*Migracja*, 1997-2022). Under international law, there is a fundamental difference between a refugee and a migrant. A refugee, as defined by the Geneva Convention, is a person who, owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the borders of the State of which he or she is a national (Convention Relating to the Status of Refugees, 1951). According to UNHCR data, there were 26.6 million refugees worldwide in mid-2021. Following the aggression of the Russian Federation on 24 February 2022 against Ukraine, Europe was faced with a scale of refugees unprecedented since the Second World War. UNHCR figures from 13 September 2022 indicate that there are more than 7.2 million Ukrainian refugees across Europe. In Poland, there are more than 1.3 million registered Ukrainian citizens who have been forced to leave their country for fear of armed conflict. As of 24 February 2022, more than 10 million people have left Ukraine, while some 5.7 million people have immigrated into the country.

Conclusions

Technological progress has significantly enhanced the flow of information and capital as well as promoted the development of transport, all of which has, consequently, led to massive population migrations around the world. Figures for 2019 indicate that there were approximately 20.9 million third-country nationals within the European Union. The considerable scale of human capital flows has prompted both the European Union and many other international organisations to take extensive measures to contain and study the migration phenomenon. Very often, migrants choose highly developed countries as their destination. Western European states offer a telling example of the relationship between migration and socio-economic development, whereby nations such as Germany, France and Italy have seen a high, positive migration balance for many years.

The advancing globalization processes make it considerably easier for people to cross borders between countries, primarily in practical terms but also in the legal sense. The Schengen Agreement concluded in 1985 between the current EU members and selected third countries became the foundation of subsequent treaties concerned with the movement of human capital. In 2007, the Lisbon Treaty established the so-called Single Market, which consequently contributed to the free movement of persons, capital, goods and services between the countries participating in the agreement. Data from UNDESA shows a trend whereby the number of women who choose to migrate internationally is increasing every year. The proportion of women in the overall structure of migrants is also increasing. An important element of international migration policy is the establishment of norms and regulations that set rules for the reception and assistance of refugees.

According to data from the UNHCR, there were 26.6 million refugees worldwide in mid-2021. Secondary data shows that 7.2 million Ukrainian citizens have migrated to Europe since the beginning of the armed conflict in Ukraine.

The globalisation processes observed around the world have a strong impact on international migration. The flow of human capital is determined by economic, political, socio-cultural and environmental factors. On the basis of international agreements, migration procedures are being standardised and simplified in many countries around the world, making the population more willing to emigrate to seek better living conditions.

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