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STRENGHTHENING WOMEN'S OPPORTUNITIES IN THE LABOUR MARKET – THE CASE OF POLAND

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K e y w o r d s: gender equality, opportunities in the labour market, women labour market.

A b s t r a c t

Poland is one of the countries which has made the most progress in making the labour market more available and friendly for women. The concept of supporting women is a collection of interconnected devices that create a system which is specific for Poland and which, despite functioning well in Poland, would not necessarily work well in other countries. The policy of equalisation of opportunities for women in the labour market involves many entities – not only state institutions and the state as such, but also local authorities, social partners and non-governmental organisations. Money spent on realising this policy is never regarded as wasted.

The article is a review. The article presents examples of Polish solutions, which on one hand facilitate women's inclusion into the labour market, and on the other hand, reduce unfavourable factors which constitute barriers to access to employment. It is not only support in the field of professional activation, but also a number of legal and systemic solutions. These are mainly activities aimed at creating favourable conditions for reconciling work and family life, such as the availability of childcare points, government programs, introducing paternity leave, or encouraging women to acquire qualifications.

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WZMACNIANIE SZANS KOBIET NA RYNKU PRACY – PRZYKŁAD POLSKI

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S ł o w a k l u c z o w e: równość płci, szanse na rynku pracy, rynek pracy kobiet.

A b s t r a k t

Polska znajduje się wśród krajów, które dokonały największego postępu w zakresie dostępności i przyjazności rynku pracy dla kobiet. Koncepcja wspierania kobiet to cały zestaw przenikających się narzędzi, które tworzą system specyficzny dla Polski, przy czym to, co działa w Polsce, niekoniecznie musi zadziałać w innych krajach. W politykę wyrównywania szans kobiet na rynku pracy angażuje się wiele podmiotów – nie tylko instytucje państwowe i państwo jako całość, lecz także samorządy, partnerów społecznych, organizacje pozarządowe, a wydatków na nią nie traktuje przez pryzmat zmarnowanych pieniędzy. Artykuł ma charakter przeglądowy i stanowi podsumowanie aktualnego stanu wiedzy na temat rozwiązań polskich, które z jednej strony ułatwiają włączenie kobiet do rynku pracy, z drugiej zaś zmniejszają niekorzystne czynniki stanowiące bariery w dostępie do zatrudnienia. Jest to nie tylko wsparcie w zakresie aktywizacji zawodowej, lecz także wiele rozwiązań prawnych i systemowych. Są to głównie działania na rzecz stworzenia dogodnych warunków do godzenia pracy zawodowej z życiem rodzinnym, jak: dostępność punktów opieki nad dziećmi, programy rządowe, wprowadzenie urlopu ojcowskiego czy zachęcanie kobiet do zdobywania kwalifikacji.

Introduction

One of the most important activities which could lessen demographic problems in the developed countries is the equalisation of employment opportunities of women, including a reduction of unfounded wage disparities. The issue of gender equality is one of the most important issues discussed at both national and international levels. In the PwC "Women in Work Index" 2019, Poland was placed eighth and it was the second country (Luxemburg being the first) which has made such a significant rise since the year 2000 in the category of availability and friendliness of the labour market for women. Poland has moved up by 11 positions from 19th in the year 2000[1]. Also, the unemployment rate among women in Poland (5%) and the percentage of full-time employed

[1] The main aim of the ranking is the assessment of women's participation in the labour market and of equality of opportunities for women in the labour market in comparison with men in 33 countries which are members of The Organisation for Economic Cooperation and Development (OECD). In this report, five areas of equalities/inequalities are analysed and assessed: gap between female and male earnings, female labour force participation rate, gap between female and male labour force and participation rates, female unemployment rate and share of female employees in full-time employment.

women (91%) look positive. Still much needs to be done in the area of women's professional activity – Poland was classified in the bottom of the ranking with a result of 63%. In this area, the top countries were Iceland (86%), Sweden (81%) and Switzerland (79%). The rise of Poland in the PwC rank is mostly due to the decline in unemployment among women and the increase in the number of women working full-time (*Women in Work…*, 2019).

Other rankings are less positive concerning Poland. The Gender Equality Index (GEI) used by the European Institute for Gender Equality (EIGE) includes six core domains: work, money, knowledge, time, power and the health of women. There are two additional domains: intersecting inequalities and violence against women. The Index uses a scale of 1 to 100, where 1 is for total inequality and 100 is for total equality. Poland (with 55.2 points out of 100) is in the 24th place in the EU in the domain of gender equality. In the years 2005–2017 Poland improved its position, but still it is significantly lower than the entire EU average – the difference being 12.2 points. At present, Poland's results are lower than the EU results in all six domains described in the Index, namely work, time, power, money, health and knowledge. The gender inequalities are most visible in the domain of power (29.1 points) and time (52.5 points). Although it is much lower than in other EU member countries, the domain where Poland has reached the highest result is health (83.2 points). Since 2005, the Polish result has improved the most significantly in the domain of money (by 13.7 points), while a drop has appeared in the domains of knowledge (by 0.2 points) and time (by 2.1 points).

Table 1

Gender Equality Index for the European Union (EU) and Poland, 2017

Specification	Gender equality index	Work	Money	Knowledge	Time	Power	Health
EU	67.4	72.0	80.4	63.5	65.7	51.9	88.1
PL	55.2	67.0	75.1	56.5	52.5	29.1	83.2
Place in ranking	24	24	18	17	20	23	23

Source: author's calculation based on *Gender Equality…* (2019).

In the Gender Inequality Index (GII) used by the United Nations Development Programme, UNDP, which measures gender inequalities in three dimensions – reproductive health, labour market and social empowerment, Poland was classified in the 32nd position among 160 countries in 2017.

Until 2019, the Polish labour market was characterized by better and better indicators: professional activity and employment grew, and unemployment was falling, reaching values unheard of for years. The favourable situation in the labour market also had a positive impact on the professional situation of women

and an increase in their activity in recent years. The outbreak of the coronavirus epidemic has shocked the labour market, but the available data do not show a significant deterioration in the situation of women, including women living in rural areas.

The aim of this article is to show that for a few years the situation of women in Poland has been changing gradually, which is connected with the contemporary labour market transformations. However, despite some positive trends, such as increasing participation of women in the labour market and their gaining higher levels of education, there are still domains where inequalities exist. A crucial role in the equalisation of women's opportunities in the labour market belongs to the programmes and devices financed by the state which help to remove the negative effects that the breaks from work caused by motherhood have on a professional career. The activation schemes aimed at women returning to the labour market may, and in fact they often do, equalise opportunities for women in the labour market and remove the gaps between them and men. The activation programmes' role is to buffer the results of the breaks in employment which may even last for a few years. On the other hand, common social programmes addressed to families also have a positive influence on the possibilities of women's professional fulfilment. Thanks to the activities introduced to help women, the employment inequalities between men and women are no longer so great. In this area, Poland compares well with other European countries. The programmes mentioned above also lead to the equalisation of men's and women's earnings and their involvement in parental duties.

The article presents examples of Polish solutions, which on the one hand facilitate women's inclusion into the labour market, and on the other hand, remove the factors that are barriers to their access to employment. At the same time, the following thesis were put forward:

– in periods of deterioration of the labour market situation, unfavourable changes affect men more often, i.e. the number of unemployed men grows faster, and thus their share among the registered unemployed increases. At the same time, in the face of favourable conditions in the labour market, they find employment faster and constitute a smaller percentage of the registered unemployed;

– the situation for women in the labour market is worse than the situation for men due to the social roles the former perform. This happens in all European countries, and it is reflected in women's lower earnings;

– the projects which are addressed to women and which are connected with their return to the labour market may, as it often happens, equalise women's chances in the labour market or eliminate the differences between men and women;

– combining the two areas – professional career and family life – is possible not only because of the creation and availability of new stable positions for employees and implementation of flexible working hours, but also due to the availability of care services for children and the elderly.

On the one hand, the employment policy of, in my opinion, every country aims at the professional activation of women. On the other hand, it is important for the aging European society to encourage women to have more children. These two aims are discrepant unless measures are taken to make it easier for women to combine family and professional duties. Also the steps taken to increase the employment standards, that is creating new high quality job positions with a good salary, good working conditions or flexible working time, are important. If working conditions are satisfactory and encouraging to combine professional and family duties, there will be no need to encourage and keep women in the labour market as wise and rationally thinking women will decide to work anyway.

Women's work in Poland in comparison to other European Union members

Women in Poland account for 52% of the entire population and 50% of the working-age population. Polish women are better educated than Polish men – in 2018, 32.6% of working-age women had a university degree (in comparison to working-age men – 27.2%). In the academic year 2016/2017 over 63% of all university graduates were women. According to European Commission data, 19.3% of women finish courses in science, technology, engineering and mathematics (STEM), while for men this figure is 23.5% (*She Figures*…, 2019).

Despite the better education, the women's employment rate and activity rate are lower than men's employment and activity rates. In 2018, the activity rate[2] for women aged 15-64 was 63.3% (while it was 77% for men). Also the employment rate[3] for women was significantly lower than for men – respectively 60.8% for women aged 15-64 and 74% for men. Both of these indicators place Poland lower than the EU average (Tab. 2). The number of working women aged 15-64 (7,281,000) has increased by 160,000 in comparison to the year 2015, and the number of working women aged 25-49 has increased by more than 115,000. The activity rate for women aged 15-64 has increased from 61.4% to 63.3% (among women aged 25-49 it has decreased from 80.4% to 79.4%), and the employment rate has increased from 56.6% to 60.8% (among women aged 25-49 it has increased from 74.5% to 76.6%). However, we need to remember that the upper limit of the working-age for women in Poland is 60. The possibility of retirement at that age is a privilege, not an obligation, and each woman takes this decision individually. The fact is, however, that according to the data of the Social Insurance Institution, the number of newly granted pensions in 2018

[2] The activity rate is the percentage of economically active population aged 15-64 in relation to the comparable total population of the same age.

[3] The employment rate is the percentage of employed persons in relation to the comparable total population.

was nearly 4.5 times higher than in 2010 and amounted to 228.8 thousand, respectively in 2016, 416.9 thousand in 2017, and 354.6 thousand in 2018 (*Structure of the amount…*, 2019).

Year by year, a noticeable increase in the main indicator values which describe the situation in the labour market has been observed both for women and men in Poland, and the situation has improved in comparison to the European Union. For example, in 2004, when Poland joined the European Union, the employment rate for the working-age population was 11 percentage points lower than that of the EU. In 2015, the employment rate for the working-age population was 62.9% and it was lower by 2.7 percentage points than in the EU; whereas in 2018 this rate was lower by only 1.2 percentage points (67.4% compared to 68.6%). In fact, it was already in 2017 that Poland reached the national target described in the Europe 2020 Strategy concerning the employment rate for people aged 20-64. This target for Poland was defined at the level of 71% and the annual average of this rate was 70.9% in 2017. In 2018 this rate increased to 72.2%, which means that it exceeded the target set for Poland in the Europe 2020 Strategy by 1.2 percentage points[4]. It was made possible thanks to the high level of economic growth in Poland. The rate of GDP[5] growth was constantly exceeding the EU-28 average, especially during the last economic crisis. In 2009, Poland was the only EU member state, where the GDP increased by 2.8%. GDP also grew significantly in 2010 and 2011; after that period the growth slowed down but the economy started growing again at the level of 3-4% (*Gross domestic product…*, 2019). It had a positive impact on employment – the number of working people grew steadily from 2002 (from 13.7 million to 16.4 million in 2018) (*Demand for work…*, 2019).

In the first quarter of 2020, i.e. after the outbreak of the COVID-19 epidemic, the economic activity rate of women aged 15 and older amounted to 47.8% and was 0.4 pp lower compared to the same period the year before. At the same time, the economic activity rate of women living in rural areas decreased by 0.5 pp to the level of 46.1%. Thus, Poland's distance to the European Union deepened in terms of the professional activity of women. This is primarily the result of significantly lower indicator values for women in the groups up to 29 and over 55, which may result from the difficulties of Polish women in providing institutional care for both children and other dependent persons, because it should be remembered that it is, according to the applicable social norms, obligatory to care not only for children, but also for sick parents and grandchildren. This is confirmed by the LFS results – among economically inactive people of mobile age who

[4] It needs to be stressed, however, that in the Europe 2020 Strategy the employment rate for people aged 20-64 was taken in to account, while the upper limit of working-age is different in Poland than in other countries (in Poland 60 is the upper limit of working-age for women; therefore the rate for women below the age of 60 would be higher).

[5] Gross domestic product (GDP) is a monetary measure of the market value of all the final goods and services produced in a specific time period, often annually.

Table 2

Situation of women in the labour market in Poland and in other EU states

Specification	Activity rate (aged 15 to 64) in %			Employment rate (aged 15 to 64) in %			Unemployment rate (aged 15 to 64) in %		
	2018			2018			2018		
	women	men	total	women	men	total	women	men	total
European Union – 28 countries	68.2	79.2	73.7	63.3	73.8	68.6	7.2	6.8	7.0
Belgium	64.3	72.8	68.6	60.7	68.2	64.5	5.6	6.3	6.0
Bulgaria	67.0	75.9	71.5	63.9	71.5	67.7	4.7	5.8	5.3
Czech Republic	69.6	83.3	76.6	67.6	81.8	74.8	2.8	1.8	2.3
Denmark	76.6	82.1	79.4	72.6	78.0	75.4	5.2	5.0	5.1
Germany	74.3	82.9	78.6	72.1	79.7	75.9	3.0	3.9	3.5
Estonia	75.6	82.6	79.1	71.4	78.1	74.8	5.5	5.4	5.4
Ireland	67.1	78.8	72.9	63.3	74.1	68.6	5.8	6.0	5.9
Greece	59.9	76.6	68.2	45.3	64.7	54.9	24.4	15.5	19.5
Spain	68.6	78.8	73.7	56.9	67.9	62.4	17.1	13.8	15.4
France	68.2	75.8	71.9	61.9	68.9	65.4	9.2	9.1	9.1
Croatia	61.7	70.9	66.3	55.9	65.4	60.6	9.5	7.8	8.5
Italy	56.2	75.1	65.6	49.5	67.6	58.5	11.9	10.0	10.8
Cyprus	70.4	79.9	75.0	64.2	73.3	68.6	8.8	8.3	8.6
Latvia	75.1	80.5	77.7	70.1	73.6	71.8	6.6	8.5	7.6
Lithuania	75.8	78.9	77.3	71.6	73.3	72.4	5.6	7.1	6.3
Luxembourg	67.4	74.7	71.1	63.4	70.6	67.1	5.9	5.4	5.6
Hungary	64.9	79.1	71.9	62.3	76.3	69.2	4.0	3.5	3.7
Malta	63.8	84.8	74.7	61.5	81.5	71.9	3.5	3.9	3.7
Netherlands	75.8	84.7	80.3	72.8	81.6	77.2	4.0	3.7	3.8
Austria	72.0	81.6	76.8	68.6	77.4	73.0	4.7	5.1	4.9
Poland	63.3	77.0	70.1	60.8	74.0	67.4	3.9	3.9	3.9
Portugal	72.4	78.1	75.1	66.9	72.7	69.7	7.6	6.9	7.3
Romania	58.3	76.9	67.8	56.2	73.2	64.8	3.6	4.8	4.3
Slovenia	71.7	78.2	75.0	67.5	74.5	71.1	5.8	4.7	5.2
Slovakia	65.9	78.7	72.4	61.2	73.9	67.6	7.1	6.2	6.6
Finland	76.3	79.5	77.9	70.6	73.5	72.1	7.4	7.6	7.5
Sweden	81.2	84.6	82.9	76.0	79.0	77.5	6.4	6.6	6.5
United Kingdom	73.2	82.6	77.9	70.3	79.1	74.7	4.0	4.2	4.1

Source: based on data from: *Activity rates…* (2019), *Employment rates…* (2019), *Unemployment…* (2019).

do not look for a job due to family obligations and those related to running a home, women constitute approx. 90%. Research conducted in Poland shows that among unemployed women 19% are people who have never performed any paid work, while among men it was almost 27%. The common reasons for stopping work among women are: retirement, loss of job as a result of liquidation of a company or job, or termination of temporary work. Women much more often give reasons for unemployment related to caring for independent persons (mainly children) and poor non-financial working conditions (Żmurkow-Poteralska, 2017). It is worth noting that the percentage of women working part-time in Poland is 9.7% compared to 3.7% of men, which on the one hand may result from the relatively inflexible labor market, and on the other hand, the economic situation of many families who can afford to resign from full-time work or to reconcile it with better care for children or other dependents (Skórska, 2019).

On the other hand, the attitude of women to taking up employment is changing, and it increasingly becomes a tool for self-fulfilment. This is evidenced by, among others, an increase in the employment rate of women aged 15 and over – from 45.9% in Q1 2019 to 46.3% in Q1 2020 (an increase of 0.4 percentage points). The employment rate of women living in rural areas increased by 0.6 pp to the level of 44.4%.

At this point, however, it is necessary to mention the OECD report published in April 2020 entitled "Women at the core of the fight against COVID-19 crisis" (*Women at the core…*, 2020), which highlights the disproportionately negative impact of the crisis on them. Women are playing a key role in the health care response to the COVID-19 crisis. Women constitute an estimated two-thirds of the health workforce worldwide, and while globally they are under-represented among physicians, dentists and pharmacists, women do make up the overwhelming majority of the long-term care workers who not only dominate employment in the care sector, but also do most of the unpaid work at home. In OECD countries, on average, women spend just over four hours a day on unpaid work than men. Even in Denmark, Norway and Sweden – countries that express a strong and progressive approach to gender equality – the gaps in unpaid gender work are still around one hour a day. Most of women's unpaid working time is spent caring for children. In OECD countries, on average, women spend just over 35 minutes a day in childcare activities – more than twice as much time in men's childcare activities (15 minutes). However, many women also look after adult relatives, especially parents, even while they are employed in the workforce (just over 90%, on average across OECD countries).

In the OECD report, we read that in the context of the COVID-19 crisis, there is concern that gender employment gaps such as these put women at a greater risk of losing their jobs than men; that the lower status of women in the labour market makes them more vulnerable and easier to dismiss. These fears did not come true in Poland. By contrast, they can work well in developing countries and emerging economies, where large numbers of working women continue

to engage in "informal employment" – often undeclared jobs and generally lacking basic social or legal protection and employee benefits.

The level of entrepreneurship among women in Poland (the self-employed and employers) has been more or less the same over the last decade (around 34%). For years the women's entrepreneurship rate in Poland (including the self-employed ones) has been one of the highest in Europe (in 2013 Poland was in the fourth place) and among the OECD countries. The percentage of self-employed among all the working women is one of the highest in the EU countries, and much higher than the EU average (in 2016 it was 13%, while the EU average was below 10%). After 1989, the number of women starting their own companies increased threefold, whereas the number of men starting their own companies increased twofold (*Policy Brief…*, 2017). One in three companies in Poland (33.4%) has been founded and is run by a woman. Poland is one of the European leaders in this field (the European average is 31%).

It is worth mentioning that in 2018 (Dutta & Mallick, 2018) a study was conducted which showed that starting new businesses by female entrepreneurs is a path to prosperity, even in countries with a low fertility rate. Factors such as higher female enrolment in tertiary education and a higher female-to-male labour force participation ratio can offset the negative impact of the fertility rate and may indeed make the impact positive. In addition, greater access to informal funding sources makes women's enrolment in schools more effective in mitigating the negative impact of the fertility rate.

According to Eurostat data, Poland has one of the lowest gender pay gaps in the European Union (the difference between average gross hourly earnings in the entire economy)[6]. In 2017, it was 7.2% to women's disadvantage, whereas the EU average was 16.2%. Poland is one of the five countries with the lowest pay gaps among all countries included in the Eurostat data. In 2016 a lower pay gap appeared only in Romania, Italy, Luxemburg and Belgium (*Gender pay gap…*, 2019).

In all of the EU countries, the pay gap was higher among the private sector employees and lower in the public sector. In 2016 in the public sector in Poland, the pay gap rate was only 2.8%, which was one of the lowest figures presented, while in most of the EU countries this rate was above 10%. In the private sector the difference between female and male earnings in Poland was 16.1%, which is on the average level in comparison to other EU countries. The pay gap in Poland was very low among the employees approaching the retirement age (2.8%) and

[6] The unadjusted gender pay gap (GPG) represents the difference between average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. The GPG is calculated on the basis of: the four-yearly Structure of Earnings Survey (SES) 2002, 2006, 2010 and 2014, and with the scope as required by the SES regulation, national estimates based on national sources for the years between the SES years, from reference year 2007 onwards, with the same coverage as the SES (*Gender pay gap in unadjusted form – NACE…*, 2019).

Table 3

Gender pay gap in EU countries

Specification	2010	2011	2012	2013	2014	2015	2016	2017
European Union – 28 countries	17.1	17.1	17.4	16.8	16.6	16.5	16.3	16.0
Belgium	10.2	9.4	8.3	7.5	6.6	6.5	6.1	6.0
Bulgaria	13.0	13.2	15.1	14.1	14.2	15.4	14.4	13.6
Czechia	21.6	22.6	22.5	22.3	22.5	22.5	21.5	21.1
Denmark	17.1	16.4	16.8	16.5	16.0	15.1	15.0	14.7
Germany	22.3	22.4	22.7	22.1	22.3	22	21.5	21
Estonia	27.7	27.3	29.9	29.8	28.1	26.9	25.3	25.6
Ireland	13.9	12.7	12.2	12.9	13.9	–	–	–
Greece	15.0	–	–	–	12.5	–	–	–
Spain	16.2	17.6	18.7	17.8	14.9	14.2	15.1	15.1
France	15.6	15.7	15.6	15.5	15.5	15.3	15.3	15.4
Croatia	5.7	–	–	7.7	8.7	–	11.1	11.6
Italy	5.3	5.7	6.5	7.0	6.1	5.5	5.3	5
Cyprus	16.8	16.1	15.6	14.9	14.2	14.0	13.9	13.7
Latvia	15.5	14.1	14.9	16.0	17.3	17.0	17.0	15.7
Lithuania	11.9	11.5	11.9	12.2	13.3	14.2	14.4	15.2
Luxembourg	8.7	7.9	7.0	6.2	5.4	5.5	5.5	5.0
Hungary	17.6	18.0	20.1	18.4	15.1	14.0	14.0	14.2
Malta	7.2	7.7	9.5	9.7	10.6	10.4	11.0	12.2
Netherlands	17.8	18.6	17.6	16.6	16.2	16.1	15.6	15.2
Austria	24.0	23.5	22.9	22.3	22.2	21.7	20.1	19.9
Poland	4.5	5.5	6.4	7.1	7.7	7.4	7.2	7.2
Portugal	12.8	12.9	15.0	13.3	14.9	17.8	17.5	16.3
Romania	8.8	9.6	6.9	4.9	4.5	5.8	5.2	3.5
Slovenia	0.9	3.3	4.5	6.3	7.0	8.1	7.8	8.0
Slovakia	19.6	20.1	20.8	18.8	19.7	19.6	19.0	19.8
Finland	20.3	19.1	19.2	18.8	18.4	17.6	17.4	16.7
Sweden	15.4	15.6	15.5	14.6	13.8	14.0	13.3	12.6
United Kingdom	23.3	21.8	22.6	21.0	20.9	21.0	20.7	20.8

Source: based on data from *Gender pay gap…* (2019).

it reached the lowest level among the 21 EU countries, for which it was possible to estimate this rate. The highest value of this indicator was observed among people aged 35-44 (12%). The analysis of the Eurostat data on the size of the unadjusted gender pay gap according to the sector of economic activity shows the presence of a negative pay gap, which means that on average women earn

more than men. This phenomenon is characteristic for the industries where the participation of women in the workforce is low. An example of this is the construction industry, where the unadjusted gender pay gap rate in 2017 was 14.8%, which implies that on average women employed in this sector earned almost 15% more than men. This is due to a small percentage of women working in this industry (6.5%) and is also due to the different responsibilities that women have (they more often do office jobs than work at the construction site). The sectors where the highest levels of the gender pay gap are observed are: finance and insurance (the rate is 30.4%) and the information and communication technology sector (25.9%). When these sectors are considered, Poland is one of the countries with the largest earnings difference to the detriment of women. The differences between male and female average earnings increase together with the increase in qualifications and responsibilities required at a given position. The biggest imbalance between men's and women's earnings occurs among the public authority representatives, higher level officials and managers (*National Research into Payment…*, 2018).

The positive changes in the Polish labour market are reflected in the figures on the unemployment among women. For a few years now, Poland has had an historically low level of unemployment, thanks to which the unemployment rate is lower than the EU (28) average. It is worth noticing, because in the years 2004-2006 Poland was the country with the highest unemployment rate in the European Union (19.4% in 2004), whereas now it is one of the countries with the lowest unemployment rate (3.8% in 2018). This indicator was 3.1 percentage points lower in Poland than in the EU (28) (7.0%).

Indicators describing the situation of women, despite positive changes over the years, are still significantly lower than in the case of men, which is presented in detail in Table 4. The number of unemployed women has been falling systematically since 2010, but on the other hand the percentage of women among all the registered unemployed is growing. At the end of 2018 there were 542,600 women and 426,200 men registered in the labour offices, which meant that 56% of all the registered unemployed were women. The situation of women, their living and working conditions, social and political roles also depend on where women live. In the country earnings are lower, because it is more difficult to find a job and the infrastructure is not as well-developed as in the city. Therefore, it is more difficult to cover vast distances in order to reach the potential employers, who are usually concentrated in urban centres. At the end of 2018, there were 133 unemployed women for every 100 unemployed men, while in the city there were 123 women for every 100 men. The unemployed women were younger and better-educated than men.

The fall of unemployment in general and women's unemployment has been steady in Poland since 2014. This fall has been faster among men than women, but this is not surprising since it has become the rule that in good economic times unemployment among men falls faster, while in worse economic times men were

Table 4

Unemployment in Poland from 2010 to 2018

Specification	Registered unemployed	Of whom			
		female		male	
	in numbers		% of the registered	in numbers	% of the registered
	at the end of the year				
2010	1,954,706	1,014,792	51.9	939,914	48.1
2011	1,982,676	1,060,204	53.5	922,472	46.5
2012	2,136,815	1,099,186	51.4	1,037,629	48.6
2013	2,157,883	1,099,456	51.0	1,058,427	49.0
2014	1,825,180	939,648	51.5	885,532	48.5
2015	1,563,339	816,138	52.2	747,201	47.8
2016	1,335,155	712,227	53.3	622,928	46.7
2017	1,081,746	595,530	55.1	486,216	44.9
2018	968,888	542,642	56.0	426,246	44.0

Source: author's calculations based on *Bezrobotni zarejestrowani…* (2019).

also more likely to become unemployed. However, the number of economically inactive women who used to work before is growing. The reasons women give for resigning from work and from looking for it are family and personal matters as well as duties in the family and at home (the number of such women is estimated at 126,000) (*Economic activity…*, 2019).

In periods of a deteriorating situation in the labour market – which we are dealing with during the COVID-19 epidemic, unfavourable changes affect men more often, i.e. the number of unemployed men grows faster, and thus their share among the registered unemployed increases. At the same time, given favourable conditions in the labour market, they find employment faster and constitute a smaller percentage of the registered unemployed. At the end of August 2020, 557.5 thousand unemployed women were registered and 470.4 thousand unemployed men. Compared to the end of August 2019, the population of unemployed women increased by 60.8 thousand. persons (i.e. by 12.2%), and the number of unemployed men increased by 101.6 thousand, i.e. 27.6%. The same, the percentage of men in the total number of the unemployed amounted to 45.8% as compared to 42.6% the year before. On the other hand, it is worth adding that the increase in the percentage of men among the registered unemployed was visible at the end of 2019 (44.7%) compared to the end of 2018 (44.0%). Moreover, this trend also holds with the number of unemployed men and women at the end of August 2020 until the end of February 2020. The growth dynamics were almost identical – the number of unemployed women increased by 11.8% and the number of unemployed men increased by 11.7%.

The Family 500+ Programme

In 2016 in Poland, the Family 500+ Programme was introduced. It was first of all created to prevent the negative effects of the demographic situation[7]. The second aim of this programme was to invest in human capital – supporting families with financial transfers was to enable children to get a good education, good nutrition and treatment. The third aim was to reduce poverty among the youngest. The received child benefit thanks to this programme means an additional 6,000 PLN per year to spend on raising a child (500 PLN per month).

Parents, legal guardians or customary primary carers of a child (that is the person who actually takes care of a child if they applied to the guardianship court for adoption of this child) are entitled to the child benefit until the child is 18 years old. Until the end of June 2019, the reception of the child benefit for the first child depended on an income criterion. However, the benefit for the second and succeeding children under 18 in the family was paid to all families regardless of their income. Since 1 July 2019, the income criterion has not been applied. The child benefit is 500 PLN clear per month for every child. This sum is free of income tax and of social insurance and health insurance contributions. The benefits and the costs connected with the benefit's distribution are financed in the form of targeted subsidies from the state budget, while the benefit's distribution is the responsibility of the municipalities (local authorities).

The first noticeable effect of the programme was a drop in the poverty level. From 2015 to 2017, the drop in poverty level was most noticeable among children. According to the Household Budget Survey, extreme poverty in 2017 was 4.3% and it was lower by 35% compared to 2015 (*Household budgets…*, 2019). The main beneficiaries of the drop in poverty level were single parents with children (a drop of over 60% in comparison to 2015) and large families (a drop of over 50% in the same period). When considering age groups, the biggest beneficiaries were children under 17 years of age as among them the poverty level went down by almost 50% in comparison to 2015. In 2018 the trend of poverty decline slowed down, which was connected with, among others, a depletion of the effects of the programme on household expenditure taken into account when the extreme poverty level is measured. However, the poverty level in 2018 still remained lower than in 2015. Besides the child benefit, an improved situation in the labour market and wage increases also resulted in the decline in poverty among children and the decline in poverty in general.

The better financial security of families and more stable financial situation resulted in a higher birth rate in the years 2016-2017. In 2016, 328,300 children

[7] In Poland for almost 30 years we have been facing a decrease in the number of births, which in turn does not make the generation renewal possible. In 2015 the total fertility rate was 1.29, which meant that for 100 women at childbearing age 129 children were born. The optimal fertility rate, necessary for stable demographic development, is 2.1–2.15. The main causes of a low fertility rate for many years were bad economic situations of families and their uncertain economic future.

were born, that is 13 thousand more than during the previous year, whereas in 2017 402,000 children were born, which is 19.7 thousand more than in the previous year (Sprawozdanie Prezesa Rady Ministrów…, 2019). Consequently, the total fertility rate increased from 1.289 in 2015 to 1.357 in 2016 and to 1.453 in 2017. In 2018 the number of children born fell by 12.4 thousand until it reached the level of 360,800, but this was connected with the smaller number of women of childbearing age. As a result, in 2018 the total fertility rate in Poland became slightly lower, namely 1.435, but it still remained at a relatively high level. In the years 2017-2018, the fertility rate reached its highest level.

Despite some research, which stressed the negative influence that the child benefit may have on women's work (*OECD Economic Surveys*…, 2018; Haan & Wrohlich, 2011), this benefit did not significantly change the situation in the labour market of women aged 25-49.

When quarterly data based on the research by Labour Force Survey (*Labour force*…*,* 2019) were analysed, it was concluded that the programme did not have much influence on the changes in the labour market situation of women aged 25-49[8]. In all the quarters of the year 2018, the number of women (aged 25-49) who resigned from work because of looking after children was similar – around 370,000 (with the exception of the third quarter, when this number fell to 345,000 because of the seasonal activity increase), which accounts for 28% of all economically inactive women in the age group analysed. The data analyses indicates that in 2018 there was a slight change in the structure of the group of women (aged 25-49) who resigned from work because of childminding (Sprawozdanie Prezesa Rady Ministrów…, 2019). It was reported that there was a fall in the number of economically inactive women in the household where the child benefit was granted (from 275,000 in the first quarter of the year 2018 to 261,000 in the fourth quarter of the year 2018, that is by 14,000 women), while at the same time the number of such women in the households where this benefit was not granted increased (from 96,000 to 106,000, that is by 10,000 women).

Some surveys confirm these conclusions. A report by GUS entitled "Work versus family duties" showed that among 2,932,000 mothers around 92% declared that receiving the child benefit did not trigger any activities which would change their situation in the labour market. Only 1% of mothers admitted that the child benefit led to their decision to resign from work (*Work versus family*…, 2019).

Women give up work when their families have an assured income, that is when the working husband is able to maintain the family. The improving situation in the labour market as well as the growing salaries may also lead to a situation when women can simply afford to give up work temporarily and devote their time

[8] The analysis was done by the Ministry of Family, Labour and Social Policy in Poland and it was based on quarterly unit data bases by LFS from 2018. To do the analysis, quarterly unit data bases on the respondents' individual situation (Survey – research on people's economic activity) and on the household situation (Household file) were put together. In the calculations only the households which received the child benefit and women aged 25-49 were included.

to family life. Moreover, the possibility of one-year paid maternity or parental leave may result in a larger number of women who stop working temporarily.

Experts from the Polish Institute for Structural Research are critical of the 500+ Program (Magda *et al.*, 2018). The authors of the report hypothesize that the greater outflow of women from unemployment to inactivity is due to the introduction of family allowance. The authors of the study indicated that as a result of the introduction of the 500+ benefit, the professional activity of women with children is lower by approx. 2.4 percentage points than the level that could be achieved without the introduction of the program. Indeed, with the new 500+ payment, the income from unemployment has increased significantly for families. The new child benefits could therefore strengthen the long-lasting decline in the economic activity of women with lower qualifications in Poland. The increase in non-work income, such as the "Family 500+" benefit, reduces the financial attractiveness of employment and weakens the incentives to look for a job – this is the so-called income effect.

The fact is that three years after its introduction, poverty in families with children decreased, although, according to the authors of the report, this effect could be achieved at a much lower cost. The number of births increased in 2017 and decreased in 2018, however, these changes cannot be attributed to the "500+" benefit. The authors of the research believe that the program is very expensive, but economically ineffective. In addition, the authors criticize that the program has not been included in the entirety of family policy activities – there is no coherent vision of goals, assumptions and action strategies. The high costs of the program also means the lack of funds in other areas, potentially more desired by the society (education, health protection) or more broadly related to development perspectives (e.g. public infrastructure, including transport, air quality).

It is worth mentioning that the benefits paid to parents or guardians who bring up children are present in the legislation of all European Union member states. Legal regulations in each country are very different regarding the scope of benefits, conditions necessary to receive the benefit, the amount of the benefit, the rules of financing them and their construction. Solutions similar to the Polish ones can be found, for example in France, Ireland, Germany or Sweden, but in those countries the amount of the benefit grows with each subsequent child. In the EU countries, there are also many other additional allowances, such as additional allowances for working parents with low income, aid for housing, allowances for schoolchildren, allowances for orphans or for parents of disabled children. Usually they depend on an income criterion. According to Eurostat, the highest percentage of expenditure on benefits for families (compared to all social expenditure) is in Luxemburg. In 2016 it was over 15% of all money spent on social allowances in that country. The next positions are taken by Estonia and Poland. In Poland, according to Eurostat, the allowances for families account for 13% of all expenditure on social benefits. This is much more than the EU average, which is 9%.

Pro-employment policy for supporting women

One of the factors determining a lower employment rate among women is the limited availability of child care services, which especially concerns children under three years of age. Therefore developing high-quality childcare services is vital to promote female employment and make it easier for people to have many children. Studies from other countries show that the availability of subsidised childcare has a positive effect on female employment (*OECD Economic Surveys…*, 2018). As an example, the fertility rate in Germany has started to rise from a low level, and research suggests that massive investment in childcare is a factor behind this (*OECD Economic Surveys…*, 2018; Haan & Wrohlich, 2011).

In Poland, there functions a programme called Maluch+ (Toddler+) which supports the development of a childcare system for children under three by financially supporting, with the state budget and Labour Fund money, the initiatives aimed at creating or maintaining the functioning childcare institutions for children under three. The subsidies are available to the institutions of local authorities as well as to private facilities. The development of a childcare system for small children makes it possible for parents to choose between home and outside institutional care, which in turn allows them to combine professional and family life. The possibility of using the outside childcare institutions aids professional activation, especially that of women, who are usually responsible for taking care of the small children. An important change is the increase in budget resources of the programme. In 2018 its budget was 450 million PLN and, what is important, the regions where the unemployment rate is 150% higher than the country's average may receive preferential treatment. Thanks to this, the programme supports the activities in the labour market even more.

At the end of 2018, in Poland childcare institutions provided 146,000 places for the youngest children, that is almost 74% more than in 2015. By the end of 2019 thanks to this programme, 27,600 new places for children under three have been created in crèches, kids clubs and by day-care providers. In 2018, 23,000 places were created. At the end of 2018, the rate of availability of childcare spots for children under three in Poland (including nannies) was 19.4%, which is 60% more than in 2015. In 2019 this rate will be 24.9% (Program Maluch+, 2018).

The percentage of working and job seeking women depends on many factors, such as the number of children in a family (the bigger the number, the lower the professional activity). When the influence of motherhood on professional activity is considered, institutional solutions are always crucial, especially the access to crèches and kindergartens as well as regulations concerning maternity/paternity or parental leaves. The wider availability of childcare institutions as well as the possibility of a more equal share of duties connected with child upbringing between parents both have positive effects on women's professional activity.

The current regulations of the Polish Workers' Statute include solutions which enable women to combine the possibility of working with effective participation in family life and raising children. These solutions are connected with the organisation of working time (for example, flexible working hours, task-based working time, part-time work, individual working time, system of equivalence), with the place of work (for example, telework) and other ideas which facilitate taking care of family members (for example, company nurseries or kindergartens, providing day-care for children or dependent persons). In 2016 Poland introduced contributions from irregular work contracts, and in 2017 a minimum hourly wage for contract labor was introduced, which was at a level similar to that of the minimum hourly wage in employment contracts. At the beginning of 2019, legislative solutions were introduced which allowed people employed with non-standard contracts to consociate in trade unions. These solutions concerned all employees, including women. The changes mentioned above have already brought positive effects. In the period between the third quarter of 2016 and the third quarter of 2018 around 14,000 fewer women were employed with only irregular contracts (while the number of women with employment contracts increased).

Moreover, the regulations of the Polish Workers' Statute included various privileges connected with being an employee and a parent at the same time. For instance, these people have the possibility of taking maternity, parental or child-care leaves. These privileges are constructed in a way that parents may use them according to their needs and they may flexibly combine professional life and family responsibilities. The regulations state that parents may share these leaves and, in the case of parental and child-care leaves, they may combine these leaves with part-time work.

There is also a wide range of non-statutory regulations which make the balance between work and family life easier to keep, for example medical care packages, financial support for sport and cultural activities, trainings for mothers coming to work after maternity/parental leave or the possibility of using the tools of the trade while on maternity/parental leave.

We should not forget about women who look after a dependent family member. On January 1st 2019, the Solidarity Fund for Persons with Disabilities was created in Poland, which enables many different activities to aid the disabled. One such activity is respite care – a programme for helping family members to take care of a person with a severe disability and disabled children through providing an alternative form of short-term respite care. The support provided by the Solidarity Fund for Persons with Disabilities also includes a wide array of activities connected with taking care of disabled persons, such us increasing the access to care services, specialist care services and other short-term services (the so called support devices).

Activities by employment services for improving women's situation in the labour market

There are groups in a very special situation. They are women who do not work, but devote their time to raising children as well as the women who want to go back to work after a break for child upbringing. The changing role which women play in our times requires a combination of the two functions – that of a mother and of a professionally active person. This situation calls for changes in the labour market which would make it easier for women. In Polish labour market policy, these two groups are treated as being very important and labour offices take various steps to activate women. The support activities for women include (among others):

1. The possibility of maintaining the status of an unemployed person despite their not being available for work – a pregnant women cannot lose the unemployed person's status due to not being able to work for 90 days because of pregnancy, except for the situation when the woman herself applies for resigning from this status.

2. The possibility of reporting the fact of not being able to work because of taking care of a child – a mother cannot lose the unemployed person's status due to not being able and ready to work because of taking care of a child for the period of time during which she would be entitled to maternity benefit during the maternity leave, adoption leave and parental leave.

3. Preference in participation in special programmes – women who want to return to the labour market after a professionally inactive period caused by child upbringing and who have at least one child under the age of 6 or at least one disabled child under the age of 18 are treated as unemployed in a special situation in the labour market and they are entitled to preference in participation in special programmes. These programmes, thanks to the usage of specific elements enhancing employment, adjusted to individual needs of people taking part in the programme, help to remove the barriers to employment access, which make it difficult to go back to the labour market.

4. A longer period of unemployment benefit entitlement – 365 days (if a woman has at least one dependent child under the age of 15 and her husband is also unemployed and he lost the entitlement to the unemployment benefit).

5. A longer period of unemployment benefit entitlement – if a woman gives birth to a child while taking the unemployment benefit or within a month after this period has finished, the period is extended by the period during which a woman would be entitled to maternity benefit according to other regulations.

6. The possibility of reimbursement of costs of taking care of children under the age of 7 – the reimbursement will not exceed half of the sum of the unemployment benefit for each child who is taken care of.

7. A grant for telework and activity benefit – instruments supporting creation of new work places for people returning to the labour market after the break caused by child upbringing. They give the possibility to create a work place at home.

8. Exemption from paying the contributions to the Labour Fund and the Employee Benefits Guarantee Fund for the employer who employs workers returning from maternity leave for the period of 36 months starting with the first day of the month.

Women raising disabled children receive special support. For example, facilitations connected directly with returning to professional activity by the care-givers of the disabled include such mechanisms as preferential terms for starting one's own business (one-off financial support for starting one's own business and a loan to start one's own business). The employers of the care-givers of the disabled receive more beneficial terms for creating new work places (the reimbursement of costs of equipping or improving the work place created for the disabled person's care-giver and a loan for the company to create a work place for the disabled person's care-giver).

Employers and entrepreneurs may receive a subsidy for the salary of employing an unemployed woman who is over the age of 50. The reception of the subsidy for the salary lasts for twelve months if the woman is between 50 and 60 years of age.

Women who register as unemployed or employment seeking in the local labour office are allowed to use a wide range of support solutions for professional activation offered to all registered persons, which is described in the Act on employment promotion and labour market institutions. These solutions include, among other things: recruitment support, career counselling, trainings, assistance in gaining subsidy employment, work placement, and socially useful work.

Labour offices also offer support for working women at the age of 45 and over, who register at the labour office as seeking employment. They may attend a free of charge course, which is organised by a training institution at the demand of the labour office (according to an office training schedule), or they may choose any educational offer available on the market which is interesting for them and – after applying – they may receive the reimbursement of costs of such a training up to 300% of an average salary. Women over 45 may receive a reimbursement of the cost of exams which enable them to receive certificates, confirmations and professional qualifications and licences up to 100% of an average salary; moreover, there is a possibility of financing the costs of commuting to these exams. Women may also choose postgraduate university courses they want to attend and – after applying (and stating the purpose of their course) – they may have this course financed up to 300% of an average salary. Finally, women may apply for a loan to finance the cost of a training up to 400% of an average salary, the loan is interest-free and should be paid back within 18 months.

In 2018, with the use of various labour market instruments, 185 300 unemployed women were professionally activated, which accounted for 53.9%

of all the unemployed who used the instruments. By comparison, in the first half of 2020, 53.9 thousand people were activated as part of various forms of activation of the unemployed in Poland (despite the suspension of the activation of the unemployed during the first wave of the COVID-19 epidemic). Unemployed women constituted 56% of the total number of unemployed who benefited from these forms of assistance. According to the data collected in the MRPiPS-01 report on the labour market, in January-September 2020, 163.2 thousand people benefited from active forms of support. Of the unemployed, 91.7 thousand were women, and they constituted about 56.2% of the total number of unemployed who were activated.

Summary

Whether to work or not should be a matter of choice. However, it is important that the choice be a rational decision, and the state institutions' role is to make people aware that professional inactivity today may be costly in the future. Women's professional activity depends on many factors such as: family's income (which determines whether or not women can afford to temporarily stop working and devote themselves to family life), the possibility of combining a professional career and family life (with a sufficient number of institutional care places, not only for children but also for other dependent persons, especially in the country, flexible working time), quality of the jobs offered (the working and payment conditions in the local labour market), the level of infrastructure development enabling easy access to places of work (the distance from big cities, the public transport available), the costs of institutional care for children and dependent persons in relation to the woman's income, and the awareness of the benefits from working.

In the case of women who totally devote themselves to motherhood, a long period outside the labour market results in their qualifications and skills becoming out-of-date and their value for employers decreasing. In the case of women reaching the retirement age, it is crucial to make them understand that every additional month of working will be reflected in the level of their future pension.

For women who want to develop their professional careers, a stable balance between professional and family life is crucial. Therefore, it is important to promote women's employment, and this promotion should not be limited to professional activation but there is a whole array of legal and systematic solutions removing barriers which impede, and very often prevent women's entrance or return to the labour market. They are mainly activities aimed at creating conditions favouring a balance between professional and family life, for example: the availability of childcare spots (crèches, kids clubs or kindergartens)

and institutional care places for dependent persons (that is the elderly or the disabled), developing and promoting flexible forms of employment, encouraging women to gain qualifications, as well as undertaking activities aimed at equal treatment for women and men in the field of earnings.

The outbreak of the epidemic changed the face of the current labour market on many levels. The crisis related to the pandemic has overvalued the economy, in Poland it was possible to prevent a high increase in the registered unemployment of Poland. Although from April to July 2020 the number of unemployed was growing, which usually does not happen in this period of the year, and the growth rate slowed from month to month. According to Eurostat data, in August 2020 Poland was the second country in the EU after the Czech Republic with the lowest unemployment rate calculated according to the LFS methodology (BAEL), reaching the rate of 3.1% compared to 7.4% on average among the EU27 and 8.1% in the Euro zone (*Eurostat: Polska nadal…*, 2020). One of the factors influencing the stabilization of the labour market in Poland was the support offered under the Anti-Crisis Shield. As part of the instruments offered by Poviat labour offices (salary subsidy, business activity subsidy, micro-loan), a total of almost 2.6 million applications were submitted, of which 99.6% of applications have been considered, and over 2.3 million applications for the discussed instruments, funds from the Labour Fund in the amount of PLN 14.7 billion were disbursed, and almost 3.5 million people were covered by support (*The MRPiPS-01 report…*, 2020).

The crisis related to the coronavirus pandemic in recent months affects many people, including women. It is also not without significance that industries that were particularly affected by the effects of the pandemic included gastronomy, the hotel industry, and the events industry, where the employment of women is characteristic. In periods of deterioration of the labour market, however, unfavourable changes affect men more often than women, i.e. the number of unemployed men grows faster, and thus their share among the registered unemployed increases. However, this does not affect the fact that Poland still remains a country with a low economic activity for women. This is primarily the result of significantly lower values of indicators for women in the groups up to 29 and over 55, which may result from the difficulties of Polish women in providing institutional care for both children and other dependent persons, because it should be remembered that it is, according to the applicable social norms, obligatory to care not only for children, but also for sick parents and grandchildren. However, there is still a lot to be done to improve the professional activity of women, and this is one of the main challenges of Polish labour market policy for the next few years.

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EMPLOYEE MOTIVATION AS AN ELEMENT OF THE DEVELOPMENT PROCESS IN AN ENTERPRISE

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K e y w o r d s: employee, motivation, development perspective.

A b s t r a c t

Motivation is one of the most important elements from an enterprise development perspective which, in turn, provides a basis for the development of other strategic perspectives. However, several barriers may distort the positive correlation between staff motivation and the development perspective of the enterprise. The research problem concerns the location of employee motivation in the development perspective as one of the key elements of the strategic scorecard. The research objectives within the research problem are the analysis of the level of employee motivation and the correlation of the level of motivation with the results of the organization.

The aim of the article is to analyze the level of motivation of employees in a production and trade company. The subject of research is the motivational system. The basic research method was a survey. The research results demonstrated which elements of the motivational process, and to what extent, should be analysed and improved, as required by the evaluation. There exists a close relationship between employee motivation and the perspective of internal processes, the client's perspective and, consequently, the financial perspective.

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**MOTYWACJA PRACOWNIKÓW
JAKO ELEMENT PROCESU ROZWOJU PRZEDSIĘBIORSTWA**

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S ł o w a k l u c z o w e: pracownik, motywacja, perspektywa rozwoju.

A b s t r a k t

Motywacja to jeden z najważniejszych elementów perspektywy rozwoju przedsiębiorstwa, który z kolei daje podstawę do rozwoju innych perspektyw strategicznych. Problem badawczy dotyczy lokalizacji motywacji pracowników w perspektywie rozwojowej jako jednego z najważniejszych elementów strategicznej karty wyników. Celem badawczym w ramach problemu badawczego jest analiza poziomu motywacji pracowników oraz korelacja poziomu motywacji z wynikami organizacji. Celem artykułu jest analiza poziomu motywacji pracowników firmy produkcyjno-handlowej. Przedmiotem badań jest system motywacyjny. Podstawową metodą badawczą jest ankieta. Wyniki badań wskazują, które elementy procesu motywacyjnego i w jakim zakresie powinny być analizowane i poprawiane, jeśli wymaga tego ocena. Istnieje ścisły związek między motywacją pracowników a perspektywą procesów wewnętrznych, perspektywą klienta, a w konsekwencji perspektywą finansową.

Introduction

Employee motivation is one of the key successes of an organisation. An employee who is satisfied identifies himself or herself with the organization and likes the work performed, is effective, committed, productive, loyal to the employer and is efficient. The essence of human work performance lies in the acquisition of his or her internal motivation. An employee should want to work and not be forced to do so. Only when people show their willingness to do something and are properly motivated to do it can the results be assured.

Employee motivation provides reasons why people want to do their job well. Each management system must take into account the basic values of the employee, which can be achieved through work (Kozłowski, 2010, p. 11-13). Therefore, this involves the potential inherent in people, and not their legal authority to make decisions (Walkowiak, 2008, p. 4).

Motivation is one of the basic management functions. It is the process of exerting a deliberate and purposeful impact, through appropriate means, on the behaviour of employees by creating the opportunities and situations necessary to achieve their own goals and to achieve the goals of the organisation (Damij *et al.*, 2015, p. 3-6). Nevertheless, the process of acquiring a properly motivated workforce is extremely complex (Bratnicki *et al.*, 1988, p. 24-28; Nogalski,

1998, p. 45-48). The knowledge of employee needs and personalities may be of interest to managers; yet, most importantly, a future manager should be able to understand people so that he or she can offer them appropriate working conditions and affect their behaviour. Therefore, managers who can find the key to the internal motivation of employees can draw on a vast source of productive energy (Drucker, 2003, p. 56-59) .

The motivational function in business management poses the greatest challenge for managers, as it refers to understanding and, as far as possible, satisfying the needs of employees of different personalities (Penc, 2001, p. 75-77). Motivation is treated as a complex, internal process of controlling human behaviour. The function of this process is to control behaviour, i.e. to determine direction. The condition for the occurrence of the motivational process is to bind the result of the undertaken action to a certain value (Jamrożek & Sobczak, 2000, p. 69-71).

The research problem concerns the location of employee motivation in the development perspective as one of the key elements of the strategic scorecard. The research objectives within the research problem are the analysis of the level of employee motivation and its correlation with the organizational motivation to obtain results for the organization. The aim of the article is to analyze the level of motivation of employees of a production and trade company in terms of company development. The subject of research is the motivational system. Research was conducted in November 2019 among 56 employees from the production, sales and accounting departments. The primary research method was a survey procedure.

The place of employee motivation in the development process of the enterprise

When analysing the employee motivation process, it is necessary to translate it into the effectiveness of the company by defining a measure of the level of employee motivation and its influence on the development of particular areas of the examined entity. A tool to correlate motivation with company development is a strategic scorecard, which is used as a tool to quantify the motivation within the enterprise.

In addition to financial measures, the Strategic Scorecard also includes measures which determine other elements that affect the future of the company and result from the vision and strategy of the organization (Tyagi & Gupta, 2010, p. 35-38). The factors are considered from the viewpoint of four perspectives: financial, client, internal processes and development. The most difficult perspective to measure and determine its impact on the company's development is the perspective of development (Kaplan & Norton, 2002, p. 41-43).

The perspective of enterprise development identifies human resources that the organisation must acquire or develop to create a basis for long-term development and performance improvement (Kaplan, 1990, p. 130-136). Employee motivation in the perspective of company development is the potential that forms the foundation of the enterprise. With this foundation, business prospects, such as the financial perspective, customer service or internal processes of the enterprise, can develop (Fig. 1).

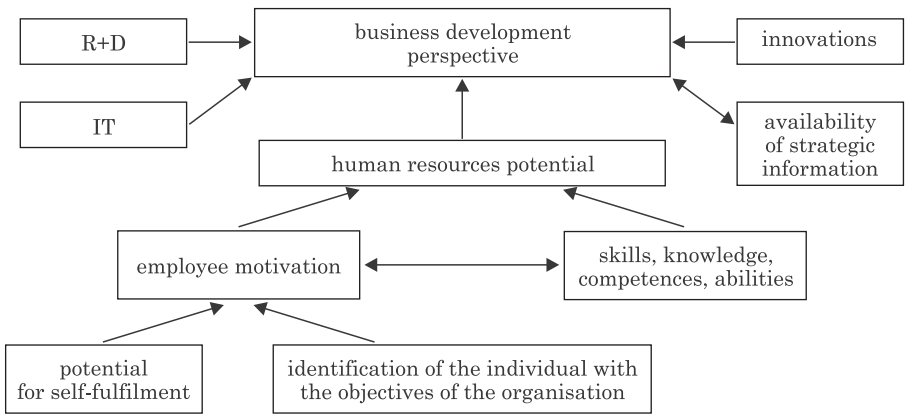

Fig. 1. The place of employee motivation in the perspective of the company's development
Source: own work.

The most important elements affecting the level of employee motivation, which should be the subject of specific care on the part of managers, include two key elements, i.e. the identification of the individual with the objectives of the organisation and the potential for self-fulfilment (Fig. 1) (Pietrasiński, 1994, p. 17-19). Self-fulfilment of an employee refers to the possibility of improving skills and acquiring knowledge (including those exceeding the scope of the position held) which often results from employee self-direction in development (Tokarski, 2007, p. 71). If these two areas are neglected, demotivation, a sense of meaninglessness and a general frustration among employees will replace motivation.

It should therefore be assumed that:

– the level of employee motivation is positively correlated with the development of the enterprise;

– the higher the level of motivation of employees, the greater the perspective of the development of the enterprise;

– a measure of the relationship between employee motivation and development prospects is an increase in the company value.

The theory of organisational and management sciences provides a number of approaches describing employee motivation, most of which have been covered

by a vast amount of empirical material. The most common classification of the motivation theory in the literature is based on content theories, process theories and enhancement theories (Griffin, 2002, p. 459-465). In management practice, the so-called Japanese approach to motivation is gaining in importance. "Japanese" motivation is not a separate theory or a model of motivation, but it is rather related to the management philosophy. The basic assumption is to create a partnership between the management and its employees. This means that both the managerial staff and the employees form one group and one team. However, it is hard not to ask the question: In the culture of the European school of management, are we able to break down stereotypes concerning the relationship between those two groups? Can Machiavellianism as a dominant feature of the European School be naturally turned into the *bushido* code?

That question will be left unanswered. From a practical perspective, the most popular models for analysing employee motivation in the organisation include: models developed by A. Maslow, M. Richards and P. Greenlaw, F. Herzberg, Ch. Argyris, J.W. Atkinson, D.C. McClelland, C.P. Aderfer, Ch. Skinner, V. Vroom, L. Porter and E. Lawler, E. Latham and E. Lock, J.S. Adams (Kozłowski, 2017, p. 31-51).

From the practical point of view, verification of the above-mentioned theory is often reduced to assessing the motivational system as one of various separate systems, which helps to determine whether the level of motivation is high or not, which motivators and mental factors (e.g. remuneration) are satisfactory and which should be improved. A separate analysis of the motivational system in the company and the lack of measurement of the correlation between motivation and development strategy results in a decrease in the role of motivation in management. The time of organised organisations is coming to an end and the era is beginning in which the ability to understand, facilitate and support self-organisation processes becomes the essential skill, which cannot be achieved without an appropriate level of employee motivation. Organizations of the information era are established under new assumptions regarding the conditions in which they will conduct their operations, i.e. with interdisciplinarity, globalisation, innovation, as well as an educated and motivated staff.

The new model of organization imposes the necessity to integrate perspectives (functions) affecting the implementation of the company strategy (Antoszkiewicz, 1996, p. 56-60, Kubik, 2005, p. 23).

Managers often face the need to cut costs and decide to reduce expenditure on training or improving employees' qualifications, thus contributing to lower motivation and, consequently, the perspective of company development (Allaire & Firsorotu, 2000, p. 264-268).

Motivation is one of the most important elements of the business development perspective which, in turn, forms the basis for the development of other aspects, crucial from the perspective of the company strategy (Woolridge, 1988, p. 134-136).

There are several barriers preventing a positive correlation between the motivation of employees and the development perspective of the company, such as:

– no information on the company's vision and development strategy for employees;

– no participation of all employees in the implementation of the company strategy;

– the objectives of individual units, teams and employees are not linked to the company strategy;

– the feedback is of a tactical, not a strategic nature;

– the motivational system is not in line with the company strategy;

– no information or education programs are in the company;

– discrepancies between the implementation of the strategic scorecard and the method of management by objectives;

– domination of Machiavellianism[1] over humanism in business management.

Analysis of the motivation level based on the example of a manufacturing and trading company

The measurement of motivation was based on F. Herzberg's model (Herzberg, 1987, p. 29, 30), which assumes that the motivation of employees is influenced by two groups of factors: motivators and mental hygiene factors. According to the model, employee satisfaction and dissatisfaction is due to the level of intensity of motivators and mental hygiene factors. Only motivators can affect the motivation to work. On the other hand, mental hygiene factors can block motivation if their level is not in line with employee expectations. An important claim of the model is the definition of remuneration as a factor of mental hygiene.

Ten motivators and ten mental hygiene factors which could have a significant impact on employee satisfaction or dissatisfaction were defined (using the expert method) in the examined company. The intensity of these factors was then measured and compared with the level of employee expectations.

The survey was conducted among 56 employees, representing 85% of the total workforce. The analysis of the above table shows that motivational factors related to the level of the diversity of tasks performed, independent task performance and delegation of tasks are characterized by the highest level of employee satisfaction (they exceed or are at the level of employee expectations). A large discrepancy between the satisfaction and the expectations of the employee occurs with such

[1] Machiavellianism is characterized by cold calculation and the manager's desire to have power. In order to maintain power in the company, a rational "prince" is not guided by Humanism or Romanticism, but, above all, he surrounds himself with people who are unable to take away his power in any way.

Table 1

Level of motivators in the examined company

Motivational factor	Level of expectations Scale 1-5	Level of satisfaction Scale 1-5	Deviation
Recognition of commitment and success	4.7	3.6	-1.1
Clearly defined objectives and tasks	5	4.8	-0.2
Delegation of tasks to an employee	3.5	4	+0.5
Training policy	4.7	4.0	-0.7
Competence development	4.8	2.5	-2.3
Performance reporting	5	4.0	-1
Clear career path	3.4	2.4	-1
Independence in task performance	4	4.5	+0.5
Diversification of tasks	3.0	3.0	0
Open employee assessment	4.8	3.6	-1.2

Source: own work.

motivational factors as: competence development, open employee evaluation, lack of proper recognition for achieving professional success, inadequate reporting of achieved results and lack of a clear career path in the enterprise. The level of discrepancies in some of the examined areas is high (from -1 to -2.3), which may indicate the demotivation of employees and thus their limited role in the development of the organisation.

As regards factors of a mental nature, ten items were identified and presented in Table 2.

Table 2

Level of mental hygiene factors in the examined enterprises

Mental health factor	Level of expectations Scale 1-5	Level of satisfaction Scale 1-5	Deviation
Remuneration	4.80	4.3	-0.50
Good atmosphere at work	4.5	3.6	-1.9
Employment security	3.5	4	+0.5
Social benefit package	4	4.1	+0.1
Flexible working hours	4.4	5	+0.06
Communication in the company	5	3	-2
High standard of the workplace	3	3.5	+0.5
Integration meetings and trips	3	3.5	+0.5
Participation in board meetings or study groups	3	2	-1
Interest shown to the employee regarding issues not related to work	2	2	0

Source: own work.

The analysis of the table above shows that the employees do not find mental comfort as a result of poor communication within the organization (level of satisfaction in relation to expectations -2), negative atmosphere in the company (-1.9) or lack of participation in senior level meetings. Higher levels of satisfaction for particular elements of the motivational system in relation to the expectations concerned employment security (+0.5), workplace standards (+0.5) and integration meetings (+0.5).

Knowing the level of discrepancy between the intensity of individual factors of the motivational system and the level of employee expectations, it is possible to focus on areas that require improvement. Naturally, this depends on the capabilities and organisational culture of the company. According to the research, remuneration determined by the situation, related to effects, competencies or skills of employees, is considered to be the best method of motivation (Armstrong, 2009, p. 282). Finding answers to two fundamental questions: (1) what is the basis upon which we want to evaluate employees and their work? and (2) what are we prepared to pay them for? is important in the process of establishing such remuneration systems (Stachowska, 2010, p. 230).

Conclusion

Motivation is one of the most important elements of the business development perspective which, in turn, forms the basis for the development of the remaining perspectives in the strategic scorecard model. Creating a perspective for the development of a company based on the potential and motivation of employees depends on understanding, and at the same time simplifying the techniques for measuring motivation, which seems to fill a gap between the values and the economy of the enterprise.

Employee satisfaction is a prerequisite for increased productivity, flexibility, product quality and proper customer service. Therefore, it is important to implement an annual employee satisfaction survey. The overall satisfaction indicator can be included in the strategic scorecard and, subsequently, concerning departments, sections or individual managers. An important role in the examined motivation process is the ability to identify individual factors of the motivation system, to measure them and then improve those which are characterized by a large discrepancy between employee satisfaction and expectations.

Building a development perspective for the company based on employee potential and motivation is contingent upon understanding the nature of motivation, which fills a gap between values and the economy of the enterprise.

Satisfaction of employees with their work determines the increase in productivity, flexibility, quality and proper customer service. Therefore,

it is important to implement an annual employee satisfaction survey. The overall satisfaction indicator can be included in a strategic scorecard, and subsequently, in relation to departments, sections or individual managers.

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INFORMATION TRANSFER IN LOGISTICS USING WIRELESS TECHNOLOGIES

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JEL Classification: O330, R41.

K e y w o r d s: logistics, information logistics, wireless technologies, technologies of short-range networks, local networks, wide area networks, low-power wide area networks, global computer networks.

A b s t r a c t

The aim of the study was to indicate by the author the possibility of using wireless technologies as part of improving information transfer, with particular reference to activities in the field of logistics. The article is a review in which the theoretical aspects of logistics and information logistics are highlighted. A review and analysis of domestic and foreign literature was used as the theoretical scope. To determine the examples of the use of appropriate technologies in information logistics, an Internet database was used as the source of enterprises presenting selected technologies. The author focused on 5 main technological aspects used in information transfer in logistics, such as: short-range technologies, local networks, wide-area networks, low-power wide-area networks and global computer networks. The analysed application allowed conclusions to be drawn clearly indicating that the use of appropriate wireless technologies allows for a more effective provision of appropriate information resources in logistics.

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**TRANSFER INFORMACJI W LOGISTYCE
Z WYKORZYSTANIEM TECHNOLOGII BEZPRZEWODOWYCH**

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Słowa kluczowe: logistyka, logistyka informacji, technologie bezprzewodowe, technologie sieci bliskiego zasięgu, sieci lokalne, sieci rozległe, sieci rozległe małej mocy, globalne sieci komputerowe.

Abstrakt

Celem opracowania było wskazanie możliwości wykorzystania technologii bezprzewodowych w ramach usprawnienia transferu informacji, ze szczególnym odniesieniem do działań z zakresu logistyki. Artykuł ma charakter przeglądowy. Uwypuklono w nim aspekty teoretyczne z zakresu logistyki i logistyki informacji. Wykorzystano przegląd i analizę literatury krajowej i zagranicznej z zakresu teoretycznego. Do wyznaczenia przykładów zastosowania odpowiednich technologii w ramach logistyki informacji skorzystano z bazy Internetu jako źródeł przedsiębiorstw prezentujących wybrane technologie. Autor skupił się na pięciu głównych aspektach technologicznych wykorzystywanych w transferze informacji w logistyce: technologiach bliskiego zasięgu, sieciach lokalnych, sieciach rozległych, sieciach rozległych małej mocy oraz globalnych sieciach komputerowych. Przeanalizowane zastosowanie pozwoliło na sformułowanie wniosków jasno wskazujących na to, że wykorzystanie odpowiednich technologii bezprzewodowych umożliwia efektywniejsze wykorzystanie odpowiednich zasobów informacyjnych w logistyce.

Introduction

All activities of each enterprise, especially the realization of main and logistical processes is not possible without the provision of adequate resources. In accordance with the 5R rule (aims), the logistics service aims to provide the right resources, in the right place, at the right time, with the right cost and at the right amount (Chaberek, 2002, p. 11; 2014, p. 4-6). Well-developed systems of automatization along with the common usage of the internet has led to a situation where we can encounter everywhere the information resources as new technologies and ideas. The introduction of concepts such as the Internet of Things or Internet services has disseminated the flow of information between participants of supply and logistics chains (Lasi *et al.*, 2014, p. 239-242; Ning & Liu, 2015, p. 19; Szozda, 2017, p. 403). In present times, which are dominated by e-commerce and information society, we are dealing with the evolution of modern ways of communication and information transfer. D. Weiland in his elaboration clearly points out that running a business in the era of e-commerce development has contributed to an increased demand for logistics services (Weiland, 2016, p. 97, 98).

In such a case, it may be stated that during the time of digital market sales, all the actions in the range of logistical services from the realization of supplies by suppliers up to the reverse movement of goods require adequate information as a key resource, therefore the right logistics will testify to an efficient course of the main processes (basic processes supported by the logistics processes).

The aim of this paper was an attempt to present that using modern wireless technologies within the operations of logistics may improve the transfer of information, which should enable the increased efficiency of such operations.

Methodology

The paper is a descriptive one. Focus was put mainly on the theoretical aspects of logistics and information, as well as the chosen wireless technologies. For the theoretical description, a review of the literature was used, both domestic and foreign. The literature was criticized and analysed. Scientific article databases were also searched, including the Web of Science in accordance with the topic being elaborated. For the technology part of this paper, the broad network of the internet was overviewed as an aim to seek information about the chosen technologies. Descriptive information was used as well as practical examples provided by various enterprises, who use, produce or supply such technologies. Based on the gathered literature overview, a description, analysis and critique was prepared, which was then summed up with conclusions.

Information logistics

It is clear that any production of goods or provision of services needs the right resources, which should be supplied in accordance with the aims of 5R, and thus all of the actions (processes), of which the aim is to provide the required resources to the basic process may be defined as logistical processes. It is worth mentioning at this point that the definition of logistics may vary in different elaborations. In his work, M. Chaberek points out many problems in the process of defining this term (Chaberek, 2020, p. 89-105). Chosen definitions from the research literature prepared for this article are presented in table 1, as the proper definition is needed for further consideration.

The definitions proposed by J. Długosz and M. Chaberek (5R rule) were considered to be the most accurate in accordance with the logistics actions.

After determining what should properly be considered as logistics, the focus should now be moved to the resources of information. Information as a resource is not typical, which is mainly caused by its immaterial character. In addition, the interpretation of what information really is and how it should be understood

Table 1

Selected definitions of the term "logistics"

Author	Definition
Council of Logistics Management, 1986	logistics is the process of controlling the flow of goods from raw material producers, through all phases of production and trade to the final recipient, in such a way that the desired goods are in the right amount, place and time of demand for them, at minimum cost
European Conference of Ministers of Transport, 1987	logistics is a synchronized technique of controlling the flow of goods, moved and stored in the process of distribution (…), production (…) and supply
F.J. Beier & K. Rutkowski, 1995	logistics is generally understood as the mean of management, handling and storage operations intended to facilitate the movement of products from their origins to the places of final consumption, as well as related information to be offered to the customer
H. Zijm *et al*., 2000	logistics refers to the transport and storage of materials, parts and products along the supply chain. Logistics includes inbound and outbound processes to and from warehouses, as well as internal and external operations of handling and transport. It also covers the provision of services and the transfer of information between the various stages of the supply chain
J. Długosz, 2000	generally speaking, it can be said that logistics is about rationalizing relations in a specific system. By detailing its content a bit and referring to its various dimensions, resulting from the evolution of views, one could assume that logistics means the process of management integration by rationalizing the relationship between the elements of a given system, starting with the links involved in the time-spatial transformation of goods, through comprehensive coordination of the supply network environment, overcoming conflicts of goals on the scale of the entire system and its environment
S. Krawczyk, 2011	logistics is a term used to describe the process of planning, implementing and controlling the efficient and economically effective flow of raw materials, materials for production, finished products and relevant information from points of origin to points of consumption to meet customer requirements

Source: own elaboration based on: *Council of Logistics Management* (1966); *The role of Shippers*…, (1987, p. 31); Beier & Rutkowski (1995, p. 16); Zijm *et al.* (2000, p. 49); Długosz (2000, p. 86); Krawczyk (2011, p. 59).

is also problematic. One of the definitions of information points out that it is the name of content taken from the outside world as the senses adapt to it (Weiner, 1971, p. 152). A different definition is provided by J. Gościński who claims that information should be considered as a content forwarded by the sender who may be any item or person to its recipient, who also may be an item or a person who is a link, command, imperative or recommendation (Gościński, 1968, p. 19). As a continuation of theoretical assumptions, the most useful definition defines information as a resource, which increases knowledge about the reality which surrounds us (Falkiewicz, 1971, p. 37). Regardless of the interpretation, its nature cannot be clearly defined; which does not mean that it should be treated

in any way differently than material resources. In accordance with the definition by M. Chaberek (2002, p. 11), logistics is a process which aims to service every activity of human or enterprise by supplying the right resources in accordance with the 5R rule. With such definitions of logistics and information, it may be stated that information is a full-fledged resource without which the proper level of logistics service cannot be provided, thus the execution of the main (basic) process becomes impossible. The author would also like to develop the concept that the term „information logistics" is a new term, and that is why there are many problems with defining it. Above all, it is worth to quote the considerations of D. Weiland or P. Wierzbowski who point to the fact that the term „information logistics" is not a „new" type of logistics and it may be characterized only in terms of specific activities (Weiland & Wierzbowski, 2020, p. 13, 14). Usage of this term may be quoted as a mental shortcut, and thus the author is opting for the Sopot School of Logistics definition (Chaberek, 2002; 2011; 2020) that treats information as a full-fledged resource.

In relation to information considered as a resource, the systems of information provision needs to be mentioned. Their goal is to process data into information. Data is influenced by various transformations, which characterize the results as individual needs of recipients working as a creation of information transmitted to this recipient. The gathered information contributes to the gaining or broadening of knowledge (also the logistic knowledge) which, as mentioned before, is necessary (Szmelter, 2013, p. 3, 4; Szmelter-Jarosz, 2020, p. 22, 23). Independent of its action, each enterprise or person who is dealing with production or services own their own supply, processing, storage and distribution of information systems. A system which is working properly allows the support of workers in a conducted activity and facilitates the process of making the decisions (Jagersma, 2011, p. 143). In addition, in a world where technological development is so dynamic it is information that becomes one of the most important resources within the enterprise, because it not only allows the production of goods or services, but its proper usage additionally enables success to be achieved in the case of gaining a competitive advantage in the market (Weiland, 2016, p. 99, 100). Information is created, stored and sold by enterprises, so it can also be a resource. However, at the same time it can be a finished product, according to the present stage of needed basic processes.

The considerations quoted clearly show that information resources have become very important in recent times, in terms of the proper functionality of any enterprise. Furthermore, they are needed for a fully effective logistics service. Technological development has not led only to the formation of an information society, but also to the fact that its plurality and presence in every aspect of human life and enterprise may be problematic. In case of such a challenge, it is worth considering some potential options which may improve information transfer.

Chosen technologies supporting the transfer of information in logistics

Information has become one of the most important resources of the XXI century, and is in constant movement. Technological solutions have improved in a significant way the transfer rate which has contributed to many effects, both positive and negative. At present almost in every place on earth, conducting any type of economic activity, as well as regular living seems to be impossible without wired or wireless access to the global network. This is the result of a dynamic development in the tech sector which has been initiated by the introduction of first phones operating on a 3G network (transmission of data with high speed) in 2002 and next the inauguration of a process which may be referred to as the smartphone revolution in 2007 with the case of the first iPhone (Vorhees, 2017). Wireless technology has become something convenient. It turns out that it is cheap and easy to introduce a way to help communicate between people or to conduct economic activities. In accordance with DHL Trend Research, it turns out that connectivity has become one of the basic needs of humans, which is presented in Figure 1 (Heutger & Kuckelhaus, 2020, p. 4).

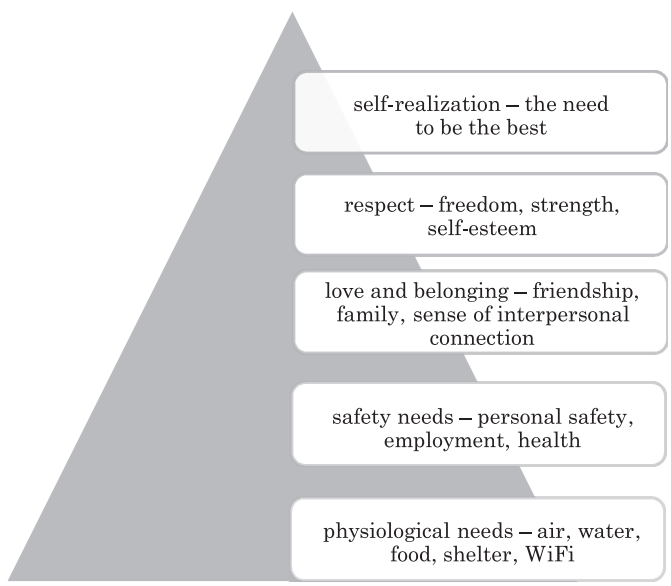

Fig. 1. „Updated" pyramid of needs
Source: based on Heutger & Kueckelhaus (2020).

The usage of wireless technology has helped to not only improve the availability of the Internet to all people in the world, but it has also allowed the adjustment of various elements to the network functionality within many industries. As an example, in the case of logistics such usage may be observed in the positioning of vehicles and goods during transport and on live demand (Mrozek, 2019). In some cases, there is also the idea of creating virtual supply chains operating in an automated way due to the usage of connectivity (Szozda, 2017, p. 404, 405). New generation wireless connectivity is defined as a series of various technologies allowing communication and data transfer without using any wires. Among such technologies, some examples may be: Wi-Fi, Bluetooth or new standards like 5G which is in the process of implementation around the world. It is also worth mentioning the less popular solutions which are low-power wide area networks (LPWANs) (Ismail *et al.*, 2018, p. 1-3) and satellites of low Earth orbits (LEO) (Ritchie & Seal, 2020). The presented technologies represent significant progress and the further development of world „connection".

In this elaboration, the main focus was put on the usage of 5 technologies used in logistics, concerning data transfer and information. Such a choice was deliberate and concerns these possibilities which are most popular and have the broadest spectrum of usage. These technologies also tend to be the most important link between the connection of places characterized by the biggest limitation. The chosen technologies are:

– technologies of short-range networks,
– local networks,
– wide area networks,
– low-power wide area networks,
– global computer networks.

In the case of short-range networks, examples would need to be RFID, NFC and Bluetooth. RFID represent an interesting option as an older technology, but its versatility makes it a popular solution even in the present day. What is more interesting is the fact that this type of technology does not require an external source of power. Mainly it is used in logistics in order to identify cargo, transport or trucks and makes the picking, storage and identification processes easier (Mašek *et al.*, 2016, p. 232, 233; Chudy-Laskowska, 2018, p. 222-224). It contributes mainly to the introduction of the automatization of processes of inventory management[1]. A much newer technology is Near Field Communication (NFC) which may also be described as an innovative example of RFID. It has much broader usage, as its functionality is present in almost every model of smartphone, which allows for many applications, ex: contactless payments. Of direct use for logistics, NFC is used to monitor the state of cargos

[1] The author refers to the functioning of RFID technology in a large extent in his other study (Wieczorek, 2015).

during transport, especially the fragile ones such as pharmaceuticals. Of key importance for NFC, since it is displacing RFID, is the growing popularity of devices which can operate it, and thus this is the cause of lower costs, which may be present with the implementation of RFID (Heutger & Kuckelhaus, 2018, p. 16-18). Another popular technology is a network also used within mobile phones but not exclusively: Bluetooth. In terms of logistics, it is mainly used to monitor and track shipments and trucks. Suitable adapters are adopted to shipments and works similar to RFID tags, but they are also characterized by improved data transfer and a better working range. Proper transmitters may be used within warehouses to improve the movement of robots or workers and thus automate certain related processes (*Automation of…*, 2020, p. 4-6). Bluetooth labels may also be used to monitor fragile cargo (as in the NFC example), especially for pharmaceuticals as mentioned previously (Chou *et al*., 2013, p. 1, 2).

Another point of interest is the usage of local networks and, in this case, Wi-Fi should be the starting point. Mainly, this network is used in warehouses, places where goods are sorted, but also within the enterprises where access to the internet is needed. In addition, Wi-Fi 6 technology will provide the users a larger capacity for data and information. At present, enterprises such as DHL are using autonomous robots for shipment completion, and for them it is necessary to use a wireless network. Beside this example above, all types of wearable devices also need access to a network, due to the fact of allowing better transfer of information which may contribute to increased efficiency of work in warehouses and in transport processes (McGuire, 2017). Some types of Wi-Fi development may be Li-Fi which is a type of network based on the usage of LED light, which eliminates some of the limitations in information transfer, such as immunity to radio interference which is a problem in the case of Wi-Fi (Subha *et al*., 2020, p. 2403-2409). Implementation of Li-Fi, besides improving information transfer, also leads to a reduction in material costs and necessary wiring (*High-speed Internet…*, 2020). Broadband network as a development of Wi-Fi and a complementary network may be used in logistics especially for the tracking of products in real time and the optimization of space used to store cargo. It is a highly effective solution, especially with the complementary use of Wi-Fi in accordance with processes connected with managing the warehouse space (*Real-time Locating…*, 2020).

Another aspect of wireless network usage concerns the wide range of access. The most important examples are mobile phone networks and the wireless networks 4G, LTE and fresh 5G. Development of these networks has been present since 2009 at least, and it is guaranteeing increased data throughout, improved transfer and what is one of the most important points in the case of 5G, i.e., additional bandwidth for users (approx. 10 times more than in the case of 4G) (Rejeb & Keogh, 2020, p. 3, 4). The application of 5G in logistics may be described based on few examples. Above all, firstly 5G connectivity may be a solution

for some enterprises to connect. Expectations concern its common implication in advanced logistical hubs ex. harbour, airport, and warehouse complexes. The adoption of 5G will allow not only a more efficient flow of information, but will also make it easier to cover large usable spaces while using only one network, which will definitely improve the efficiency of information transfer and the introduction of additional technologies such as augmented reality (*Lufthansa Technik and…*, 2020). Other enterprises point out that 5G will be the only network which will allow the connection of every element in the transhipment port (containers, cranes, vehicles etc..), which will enable some degree of automation of loading, the completion processes, and the level of safety; hence, a more efficient logistics service (*Port of Antwerp…*, 2020). Another application of 5G directly concerns the processes of transport. The implementation of 5G in a system of traffic control allows the limiting of traffic congestion and shortens the time needed for the provision of transport services, while simultaneously decreasing fuel costs. Besides implementing different levels of connectivity and transparency in the logistics process (especially in accordance with information), 5G will be a key element in the case of growth and development and implementation of autonomous (and may be in the future fully automatic)[2] systems of truck driving systems, in particular for road and long-haul transport (Külaots, 2019). Another case of use refers to the functionality of supply chains. One proposed solution concerns the creation of digital copies of chosen elements in a supply chain. Such an example allows one to maintain control and affect not only digital parts but also physical attributes, such as resources or any other element of the supply chain. Such a creation has already been used in harbours or within large warehouses in order to design, plan or manage their future operations. It is obvious that such a solution is not a simple one, it generates many costs and it requires high precision and high quality data. Wireless technologies headed by 5G may be a solution for such requirements. The presentation of information about the state in harbours 1:1, localization, and the availability of products needs high capacity and reliability of links which may be provided by the common usage of 5G. In addition, its adaptation may enable the connection of other networks and the transfer of data from various devices without any problems concerning compatibility, which is very important in case of the introduction of new technologies, thanks to which it will be possible to collect almost any stream of information transfer (*Lift your cranes to…*, 2020).

The next section concerns wide networks of low power (LPWAN). These are somewhat like a main competitor of 5G networks in that this is a present innovation concerning data transfer. Often, they are defined as narrowband and as for their construction they should provide functionality similar to Bluetooth (BT) or RFID while at the same time possessing the ability of data transfer over long distances (in accordance with small distances such as in BT or RFID).

[2] The author refers to the conceptual difference discussed in his study (Wieczorek, 2017).

This should also generate a smaller cost of introduction than 4G or 5G. Their main advantage is above all availability due to the fact that some of them are already in commercial use, and their implementation is fast and cheap (Heutger & Kuckelhaus, 2020, p. 24). They are perfect for places where a small amount of data is transferred in one period. In relation to logistics, their adoption can be seen mainly as a tracking and monitoring of resources flowing through various supply chains. An example of such an adoption may be airports, which are using them for the identification of cargo and the coordination of ground equipment and other vehicles. The system allows the localization of luggage equipment, vehicles and all other moving resources and in addition it may positively influence the level of safety (*Semtech's LoRa…*, 2019). Another positive example of LPWAN usage is indirectly connected to information transfer, because proper aspects of monitoring and tracking, especially in the case of postal services, allow the reduction of mistakes and losses. Such use of advanced information transfer enables improved efficiency of postal enterprise activity, but it may also contribute to the lowering of costs (*Deutsche Post DHL…*, 2019). Another adoption may be observed in the case of fleet or shipyard management. One such shipyard is using this network for the improvement of management. They are using special sensors which transmit data to the main desktop of central place management, which significantly improves the effectiveness of coordinating drivers and vehicles. An exact view of what is happening in the harbour or in the work place allows increased safety and reduces the need for a workforce as well as shortening the working distance of some machines, devices or vehicles. Such a solution may be used in each type of reloading yard, distribution centre or any other industry complex. Another adoption may be compared to the tracking of vehicles based on GPS. Chosen technologies of LPWAN allow the tracking of vehicles with a lower energy consumption and at the same level of telemetric data transfer. In addition, such a module is characterized by small dimensions, which enables its usage in case of unpowered resources (ex. containers), as well as for rental fleets or ones used by third parties (*Omnitracs Volvo…*, 2020; *Real-Time…*, 2020).

Finally, it is worth describing the global area networks, because even the newest wireless technologies have their limitations. It is obvious that the ranges of various types of networks are getting better and better, yet this is caused by the operators who are investing in their base stations etc., however, in a situation where the provision of proper infrastructure is not possible then another solution should be considered. One solution may be the XXI century satellites that are also sharing access to the internet network. Satellites used by such solutions are those that move in a low orbit around the Earth (such a solution reduces delays and allows global access to the service compared to geostationary satellites). This technology is at present not too expensive and this is thanks to implementations by enterprises such as SpaceX in relation to the functionality of commercial markets (Seemangal, 2017). Many other enterprises are also planning

to extend their activity to provide access to global networks by using Earth satellites (*How O3b mPower…*, 2020). The technology of satellite connectivity is an attractive offer for enterprises who are dealing with the logistics service. It would allow the constant tracking of shipments around the world, while at the same time eliminating the so-called black spots of connectivity, ex. ships on the open ocean. Such functionality could be implemented commonly and should provide improved monitoring of goods flow and resources within supply chains in a place where no other technology could access (Skylo, 2020). In addition, Earth satellites may positively influence remote control and management of machines and devices of various enterprises which are not operated directly by humans, no matter where they are (*Satellite Technology…*, 2020).

Summary

The presented technologies and their implementation in logistics are an example because there are many other possibilities allowing the improvement of data transfer using wireless technology. The selection of presented technologies was because they represent the real functions and examples from existing enterprises who are dealing with production, services or logistics. Information is one of the most important resources of logistics, and must be provided in accordance with the 5R rule. It is an indispensable element of the proper functioning of any type of enterprise, therefore it is very important to support data transfer with modern technologies. On one side, they allow the conduction of various activities, and from the other they improve existing processes (as part of providing 5R with relations to information) allowing faster, more accurate transfer, thus contributing to the increased effectiveness of activities performed, within the processes connected with logistics service, when providing information. The logistics industry requires the effective coordination of human and material resources. The more and more common introduction of wireless technologies has the chance to find its application in logistics activities. RFID can be further used in warehouses or other environments that require control to improve tracking processes. NFC may be more commonly used, allowing for secure transmission of information for logistical needs. Bluetooth technology will enable local logistics structures to communicate without any problems, and therefore it will enable the more efficient operation of warehouses based on simple automation processes. 5G will allow for a global network connection of large producing factories and corresponding logistics centres and may also be a key factor in the development of autonomous (or automatic) transport. Extensive low-power networks will enable basic connectivity with most parts of the world. Low-power global networks using satellites will extend the range of access to the internet in most remote corners of the world. In view of such consideration, it can be easily noted that

wireless technologies are a point of interest with regards to logistics, especially information logistics. It is obvious that enterprises will have many challenges with matching the proper devices and infrastructure with the right costs, yet even now the logistics sector is taking serious action in the development of wireless connectivity and trouble-free usage of its benefits.

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METHODOLOGICAL ASPECTS OF THE TYPOLOGY OF REGIONS AND TERRITORIAL FORMATIONS

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A b s t r a c t

This paper presents the typology of regions in developed countries. It includes illustrated scientific concepts of describing development of regional territorial systems based on local cores used as the basis for the typology. The article identifies typologies, highlighting reasons behind the attractiveness of individual regions for capital and labour; as well as links among economic operators. Typology methods for European regions are discussed, including typologies associated with transport accessibility, economic specialisation and the functional structure of regions. In most typologies, the basic developmental factors and solutions to practical issues are taken into account. A special role is played by typologies that are associated with economic growth and those that take into consideration a GDP per capita increase; along with the population density factor. Attention is drawn to the use of research on the typology of regions with regards to developmental planning, modelling and strategizing.

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ASPEKTY METODOLOGICZNE TYPOLOGII REGIONÓW I JEDNOSTEK TERYTORIALNYCH

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S ł o w a k l u c z o w e: typologia regionów, jednostki terytorialne, NUTS.

A b s t r a k t

W opracowaniu omówiono aspekty metodologiczne w typologii regionów i jednostek terytorialnych. Przedstawiono najważniejsze naukowe podejścia do rozwoju regionalnych systemów terytorialnych na podstawie modeli i metod, które są typowe dla terytoriów o różnych poziomach taksonomicznych i stanowiły podstawę typologii. Wskazano typologie, w których określono przyczyny atrakcyjności określonych regionów dla kapitału i siły roboczej, powiązania między podmiotami gospodarczymi. Omówiono sposoby typologii regionów w UE. Są to typologie związane z dostępnością transportową, specjalizacją ekonomiczną i strukturą funkcjonalną regionów. Większość typologii uwzględnia podstawowe czynniki rozwoju i przystosowane do potrzeb rozwiązywania zagadnień praktycznych. Szczególną rolę odgrywają typologie związane ze wzrostem gospodarczym i uwzględniające wzrost PKB na jednego mieszkańca oraz współczynnik gęstości zaludnienia. Zwraca się uwagę na wykorzystanie badań nad typologią regionów w planowaniu, modelowaniu i strategii ich rozwoju.

Methodological Aspects of Typology

In methodology[1], great importance is given to the typology, classification, and taxonomy of research objects. In the second half of the 20th century, research on territorial typology in developed countries was very popular. So many methods and proposals of scientific typologies emerged that it seems impossible to analyse and assess them in detail in this article. In this paper, only the most famous and interesting studies are discussed (Bilczak *et al.*, 2016, 2020).

In the 1960s, J. Friedmann studied the interdependencies between the centre and the outskirts. Papers on that topic had been published long before, to name a few authors: F. Perroux, D. Beaudeville, J. R. Lasuén, P. Pottier and

[1] Methodology is a system of principles and ways of organizing and constructing theoretical and practical activities.

others. Based on all of that research, J. Friedmann singled out four stages of the development of a country (Friedmann, 1966).

In the first stage, a territory is a system of local centres with each of those centres having its own sphere of influence. In the second stage, one of the centres will develop in a more advantageous and dynamic manner, which polarizes and forms the region; thereby, transforming it into the main centre of the country surrounded by vast peripheral regions. In the third stage, in certain peripheral regions, regional centres tend to grow faster and transform into new production zones, as a result of which a monocentric territorial structure shifts to become a polycentric construct. The fourth stage is defined as the inter-metropolitan stage. It is the most dynamic component of the structure. As a consequence of the intensification of land use combined with the dispersion of centres, vast urban constructs with active and dense economic activity emerge (Münter & Volgmann, 2020).

Even though Friedmann's typology at the outset related to the territory of a country, it later turned out that the model in question also applies to territories at various taxonomic levels. As a result, the concept of a "core-periphery" served as the basis for the typology of economic regions. In this typology, the following are singled out: core regions, upward transitional regions, resource frontier regions and downward transitional regions.

Another typology is the typology proposed by A. Markusen who studied the basis of attractiveness of regions for capital and labour in an industrial region (Markusen, 1996). According to A. Markusen, an industrial district is a large, spatially limited territory specialised in the exploitation of resources, the production of products, the provision of services, and is especially orientated in trading the above-mentioned commodities. Markusen singled out four types of industrial regions. The first of them was a Marshallian industrial district. Its name comes from the name of A. Marshall, a famous researcher. In his time, Marshall wrote that an industrial district is an area inhabited by a population working at small and medium-sized companies, in a special industrial sector or was linked to it in some way. In accordance with the foregoing, Italian industrial districts were created which were referred to as districts (Marshall, 1920).

Within an industrial district, close and permanent links between purchasers and sellers are formed and long-term contracts are concluded. Employees can change the company where they work and, together with the business owners, they identify themselves with a specific region or zone more than with a specific company. As practice shows, such a form of growth exerts a positive influence on the competitiveness of the region where a given district is located.

The second type of industrial district is the "hub-and-spoke" region. Here, employees identify themselves primarily with large companies, then with regions, and only later with smaller companies. It is completely understandable that in the face of vacancies in large companies, employees will choose to leave a small

company and go to a large company. All of that leads to market imbalances and adversely affects the competitiveness of the region.

In districts of the second type, large companies are actively involved in activities related to the development of educational institutions and medical establishments as well as to infrastructure improvement which, in turn, increases the competitiveness of the region. At the same time, there is a risk that the "hub-and-spoke" industrial regions may completely rely on the development of the primary industry. If the strategy for the development of this industry fails, it will result in a catastrophic situation in regions of this type.

The third type of industrial district consists of industrial platforms constituting a group of medium and large-sized non-interrelated assembly plants of foreign international concerns. In regions resembling industrial platforms, of key importance are large companies located outside the region, which make important investment decisions. Of all types of industrial regions, it is the most attractive one. It is only when industrial platforms emerge in problematic and neglected regions that population incomes increase, new jobs are created and the competitiveness of the region grows. This region type is most advantageous for highly qualified employees, blue collar workers specialised in engineering and mechanical systems, as well as for white collar workers of various categories.

The fourth type of district is the state-oriented region where a state-owned company is located in the centre and independent vendors and subcontractors are dispersed around it. The key role is played here by state-owned companies and institutions which ensure the transfer of technology, funds and infrastructure. These are customer-to-service providers who purchase local products, and who control the migration of labour. In developed countries, this type of region is characteristic of the arms industry.

In the scientific literature concerning the subject, the classification and typology of American counties is often presented. The point is that this typology differs from the typology of other territorial entities and is of scientific interest. All counties, depending on their economic specialisations, are divided into the following types: agrarian, mining, and industrial counties; counties dependent on state spending; service counties; and counties without a clearly defined specialisation. An advantage of the said method is that due to different prioritisation, the typology of US counties is not only of a scientific character, but it also provides for an analysis of the main growth drivers of specific territories. In addition, from a methodological perspective, the typology of US counties has the advantage of being performed on the basis of various scientific approaches and statistical data.

Typology of Regions within the European Union

Researchers have become interested in different ways of classifying regions in the European Union. At the end of the 1990s, great attention was paid to the development of peripheral regions. In order to improve the development of peripheral regions, an availability factor has been developed, which is characterised by such indicators as travel expenses, daily availability, and potential availability. The daily availability factor is the time in which one can get from the place of departure to the place of destination. For instance, a single business trip to a place of destination takes three to five hours. The potential availability factor assumes that there are differences in the attractiveness of a given place. The basis assumed is an inexpensive trip which takes little time. An example might be a trip to large shopping centres and hubs.

In particular, it must be emphasised that an availability factor value is always defined by the peripheral character, both in geographical and economic terms. On that basis, all peripheral regions were identified, although the method in question was used to develop an EU transport policy. Of the greatest popularity in the EU is a typology based on the economic specialisation and functional structure classified under NUTS 1, NUTS 2, and NUTS 3. However, one should remember that Eurostat data and its methodology of statistical calculations, as well as NUTS classification, are used in science. The NUTS classification serves to form regional policies of European Union countries and is used to carry out analysis of the level of socio-economic development of regions. In our study the development of NUTS territorial units and the changes that have been introduced since 2018 were used. All of the EU Member States were divided under NUTS in 2013 into 1,716 NUTS units: 98 NUTS 1 units, 276 NUTS 2 units and 1,342 NUTS 3 units. Once that division was approved, the typology of territorial units used for statistical purposes in 2003 was reviewed and the number of NUTS units was increased by 340. These include first and foremost the NUTS units of new EU Member States (Tab. 1).

NUTS was used for the first time by M. Heidenreich in 1997 (Heidenreich, 1998). 202 EU regions were selected as units of classification and five indicators that best reflected the social and economic specialisation and situation of the regions were adopted as criteria. The classification took into account the following:

– unemployment rate;
– share of people employed in the working age population;
– income per capita;
– share of residents employed in industry;
– share of residents employed in services.

Table 1

NUTS Territorial Units in EU Member States

Country	NUTS 2003 (11.07.2003–31.12.2007)			NUTS 2006 (01.01.2008–31.12.2011)			NUTS 2010 (01.01.2012–31.12.2014)			NUTS 2013 (01.01.2015–31.12.2017)			NUTS 2016 (01.01.2018–currently)		
	NUTS Level														
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Austria	3	9	35	3	9	35	3	9	35	3	9	35	3	9	35
Belgium	3	11	43	3	11	44	3	11	44	3	11	44	3	11	44
Bulgaria	-	-	-	2	6	28	2	6	28	2	6	28	2	6	28
Croatia	-	-	-	-	-	-	-	-	-	1	2	21	1	2	21
Cyprus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Czech Republic	1	8	14	1	8	14	1	8	14	1	8	14	1	8	14
Denmark	1	1	15	1	5	11	1	5	11	1	5	11	1	5	11
Estonia	1	1	5	1	1	5	1	1	5	1	1	5	1	1	5
Finland	2	5	20	2	5	20	2	5	19	2	5	19	2	5	19
France	9	26	100	9	26	100	9	26	100	9	27	101	14	27	101
Greece	4	13	51	4	13	51	4	13	51	4	13	52	4	13	52
Spain	7	19	52	7	19	59	7	19	59	7	19	59	7	19	59
The Netherlands	4	12	40	4	12	40	4	12	40	4	12	40	4	12	40
Ireland	1	2	8	1	2	8	1	2	8	1	2	8	1	3	8
Lithuania	1	1	10	1	1	10	1	1	10	1	1	10	1	2	10
Luxembourg	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Latvia	1	1	6	1	1	6	1	1	6	1	1	6	1	1	6
Malta	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2
Germany	16	41	439	16	39	429	16	38	412	16	38	402	16	38	401
Poland	6	16	45	6	16	66	6	16	66	6	16	72	7	17	73
Portugal	3	7	30	3	7	30	3	7	30	3	7	25	3	7	25
Romania	-	-	-	4	8	42	4	8	42	4	8	42	4	8	42
Slovakia	1	4	8	1	4	8	1	4	8	1	4	8	1	4	8
Slovenia	1	1	12	1	2	12	1	2	12	1	2	12	1	2	12
Sweden	1	8	21	3	8	21	3	8	21	3	8	21	3	8	21
Hungary	3	7	20	3	7	20	3	7	20	3	7	20	3	8	20
United Kingdom*	12	37	133	12	37	133	12	37	139	12	40	173	12	41	179
Italy	5	21	103	5	21	107	5	21	110	5	21	110	5	21	110
TOTAL	89	254	1,214	97	271	1,303	97	270	1,294	98	276	1,342	104	281	1,348

* The United Kingdom's membership in the EU, which had lasted since 1973, was terminated at midnight from January 31 to February 1, 2020.

Source: based on data from Główny Urząd Statystyczny (2020).

Based on a cluster analysis of the said indicators, the regions were subdivided into eight types:

– type 1 – metropolitan regions with a highly developed sphere of services comprising the largest cities of the European Union;

– type 2 – semi-peripheral administrative regions and regions specialised in services;

– type 3 – poor regions specialised in services. Those are only the regions of Spain and Italy;

– type 4 – regions – industrial centres (cores);

– type 5 – industrial semi-periphery;

– type 6 – industrial periphery;

– type 7 – emergency industrial regions;

– type 8 – agricultural mediterranean regions.

An advantage of the aforementioned classification is the fact that, first of all, it is relatively easy and convenient for analysing various factors in each type of region and, second of all, it defines a clear framework for comparative research on the specifics and features of each type of region, e.g. regions – industrial centres.

It is noteworthy that in the EU, this method is universally applied to institutional management and policies. It is continuously improved through changes. NUTS was last changed in 2016, the changes concerned eight EU Member States and applied to all of the three levels. For instance, France changed the boundaries of territorial units under NUTS 1 from 9 to 14, and Finland changed the boundaries of territorial units under NUTS 3. Likewise, the Netherlands changed the boundaries of seven territorial units under NUTS 3. Ireland and Lithuania changed the number of units under NUTS 2. In those countries, as well as in Hungary, separate units related to administrative boundaries of capital cities were singled out as separate structures. In addition, similar changes occurred in Hungary under NUTS 2. The greatest changes occurred in the UK under NUTS 2. An additional unit was established in Scotland. In addition, the number of territorial units under NUTS 3 increased from 173 to 179. In Germany, there were changes in the boundaries of two units under NUTS 3 with the remaining two units merging together.

The typology singling out eight types of regions is of great significance and will be used in numerous scientific studies. It is a typology where geographical factors are taken into consideration. It may be useful in solving practical tasks. These are the following regions under this typology (Sepik, 2005):

– growing megalopolises – these are cities and urban areas in the heart of Europe, including capital cities, where headquarters of large companies, R&D centres, educational institutions and cultural establishments are located. Such regions are considered to be the richest regions in the EU;

– dynamic urban regions outside the primary zone of economic development of Europe. The demographic and economic potential of such regions fosters R&D

activities and, over time, closer relationships with the most important European and international decision-making centres;

– rural regions located near large cities and integrated with the global economy. They are characterised by economic growth and an increasing population. They are usually in the immediate vicinity of large cities. Employment is mostly concentrated in spheres of industry and services; however, a considerable area of land is used for agricultural purposes;

– intermediate rural regions which are relatively far from larger urban centres, although they are well-connected to them and have highly-developed infrastructure. Predominantly, they are characterised by a stable population at the stage of economic diversification. They are very often home to large agricultural undertakings;

– isolated rural regions. They are characterised by a low density of population and location on the periphery, far from large cities and main transport hubs. Their population is usually ageing, their infrastructure is underdeveloped, the level of basic services and average income per capita are low, and the economy is insufficiently integrated with the global economy. Usually, the population is associated with agriculture to a large extent and is in decline;

– depressed regions characterised by a declining population. Typically, they are characterised by low population income, a high unemployment rate, a high share of people employed in industry and agriculture, a small number of young people and low population density. An exception is certain capital cities characterised by an increase in a population living outside the official city limits;

– regions in an unfavourable area characterised by special geographical conditions that hinder their growth. These include remoteness, insular location and mountains. Their core problem is difficult access to the rest of the EU and issues connected with EU integration. In many cases, a population or the market size is below the critical mass required for investing from an economic perspective. This problem is additionally intensified by an ageing and declining population as young people decide to leave these regions;

– regions undergoing economic transformations. These are primarily poorly developed regions which began the transformation of their economic structure due to their originally low competitiveness. They are characterised as having high unemployment and a low GDP.

In the EU, the typology of regions developed for research on economic growth is currently very popular (*A Study on the Factors of Regional Competitiveness*). This typology defines all regions where there is production, though an analysis is based on two essential factors – population density and the GDP per capita. As a consequence, all the regions were subdivided into three basic types: regions – industrial platforms; regions – sources of income increases; regions – knowledge centres. It appears that production in regions – industrial platforms is cheaper because labour, land and capital are available and cheap there. Such regions are attractive in terms of direct foreign investments, since their attractiveness

is based on location or, in other words, on the concentration of economic activity. Thus, in developed countries, labour, land and capital – but labour in particular – are characterised by a very high price. However, it is different when an analysis is carried out for poorly developed EU Member States or for peripheral regions, but such a conclusion is well-grounded. In the literature on the subject, such regions include Ireland, Central Scotland, Southern Wales, Western Poland and certain parts of the Czech Republic and Hungary.

The second type, "regions – income increase sources", is also characterised by a high rate of increase, average population density and highly developed economic structure. They are so-called "dynamic regions". Such regions are especially rich in specialised sectors. Apart from that, qualified professionals, intra-company division of labour, a developed market and availability of supplies significantly improve the attractiveness of those regions.

The most interesting regions from a practical point of view are regions of the third type – "regions – knowledge centres". They involve an agglomeration economy which is of the utmost importance in the EU. In large agglomerations of Western Europe, virtually the entire scientific and technological policy is implemented there. Furthermore, there is rapidly developing innovative scientific and technological progress. Since such cities have always been centres of knowledge and information, professional promotion and the implementation of important R&D initiatives require the involvement of academics and researchers – making regions of this type attractive for famous and talented scholars and practitioners.

Changes underway in all of these three types of regions cause a given typology – depending on the socio-economic progress and possible crises – to undergo considerable changes, which means that regions may migrate from one group to another. The last crisis (2008) proved that many regions with favourable conditions have lost their attractiveness and, even now, their economic standing has been difficult. Entire countries (Ireland, Southern Europe) have been in a depression for a long time. That is why typologies are temporary and contractual.

There have been significant changes in the typology of regions in the province of North Brabant in the Netherlands where, at the beginning of the 1970s, an acute crisis led to the emergence of the concept of economic transformation of a region through the development of small tech companies. As a consequence, that region became a special centre of technology.

The typology in one of the most developed regions of Germany has been changed considerably as well. In the Ruhr Area (coal mining and steel production), through the restructuring of associations and the collaboration with small specialised companies, it was possible to overcome the crisis and achieve a high level of industrial modernisation (Cohen, 2006). A parallel example can be found in West Yorkshire (Great Britain) where an association of state-owned companies, private companies and other various agencies in the machine industry was established which, as a result, allowed a new type of region to emerge: "region – business & innovation centre" (Poblan, 1996).

Conclusions

Research has shown that the typology of regions has deep roots and traditions. To date, the most complex typology of territorial units – NUTS – has been improved and takes into account contemporary processes of change in regions undergoing globalisation. This solution has been implemented in numerous developed EU Member States. This trend indicates that, depending on socio-economic growth and socio-economic changes, every typology can vary considerably, which means that regions can migrate from one group to another; especially when individual countries have significant problems with socio-economic growth due to recent crises. Therefore, the typologies of those regions are definitely temporary and conditional. Many regions of this type are portraying distinct development. The aim of this examination has been achieved. The typology of regions in developed European countries show compound dynamic processes, with much creativity and individual assessment for every region.

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THE SOCIAL SECURITY OF FARMERS IN POLAND AND IN SELECTED EU MEMBER STATES

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K e y w o r d s: social security for farmers, social safety net, Agricultural Social Insurance Fund (KRUS).

A b s t r a c t

The subject of the present article is the social security of farmers. The main aim of this research paper is characterizing the functioning of the social security system for Polish farmers in comparison to such systems in selected member states of the European Union. The research investigated social security systems in Finland, France, Austria, Germany and Poland.

The research involved a review of the literature on social security systems for farmers, provisions of law regulating the principles of such systems and the information furnished by the Agricultural Social Insurance Fund (KRUS), as well as statistical data provided by KRUS and Eurostat.

The following research methods have been applied: descriptive analysis of the documents in order to verify the diversity of agricultural security systems, a critical review of the literature and online data concerning social security, and a comparative analysis.

Each of the investigated countries has its own, distinct social and historical conditions, which has led to the development of independent institutions of social security for farmers. One factor which all these systems have in common is significant support from the national budget. In the future, financial inefficiency may pose the most significant risk to security systems in agriculture. Except for their social role, the social security systems presented below also participate in the management of agricultural policy, the aim of which is the development of rural areas and the welfare of the natural environment.

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UBEZPIECZENIA SPOŁECZNE ROLNIKÓW W POLSCE I WYBRANYCH PAŃSTWACH UNII EUROPEJSKIEJ

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Kody JEL: G22, G52, H55.

S ł o w a k l u c z o w e: ubezpieczenia społeczne rolników, zabezpieczenie społeczne, Kasa Rolniczego Ubezpieczenia Społecznego (KRUS).

A b s t r a k t

Przedmiotem artykułu są ubezpieczenia społeczne rolników. Głównym celem opracowania jest charakterystyka ubezpieczeń społecznych polskich rolników na tle ubezpieczeń społecznych rolników w wybranych państwach Unii Europejskiej. W badaniach wzięto pod uwagę systemy ubezpieczeń w Finlandii, Francji, Austrii, Niemczech oraz Polsce. Przeanalizowano literaturę poświęconą zagadnieniom związanym z systemem ubezpieczeń społecznych rolników, przepisy regulujące zasady ubezpieczenia społecznego rolników oraz informacje udostępnione przez Kasę Rolniczego Ubezpieczenia Społecznego. Ponadto wykorzystano dane statystyczne publikowane przez KRUS i Eurostat.

Zastosowano następujące metody badawcze: analizę opisową dokumentów w celu zweryfikowania zróżnicowania systemu ubezpieczenia społecznego rolników, przegląd piśmiennictwa oraz danych internetowych dotyczących systemów ubezpieczeń, analizę porównawczą.

Wszystkie z omawianych państw mają różne uwarunkowania społeczne oraz historyczne, które doprowadziły do powstania niezależnych instytucji zajmujących się ubezpieczeniem rolników. Czynnikiem łączącym wszystkie te systemy jest znaczna pomoc finansowa z budżetu państwa. W przyszłości niewydolność finansowa może być największym zagrożeniem rolniczych ubezpieczeń. Przedstawione systemy ubezpieczeń rolników, oprócz realizowania funkcji społecznej, prowadzą politykę rolną, która ma na celu rozwój terenów wiejskich oraz utrzymanie dobrostanu środowiska naturalnego.

Introduction

Agriculture is a sector of the national economy which produces and provides bare necessities. The stability of its operation depends on many factors, including a properly managed system of social security, providing protection to farm owners. The Polish system of social security in agriculture is autonomous and specific, as it also pursues the aims set by the national social and agricultural policies. As farm work differs from other occupations, separate principles for its operation have been applied.

After nearly 30 years of operation, the Polish system of social security addressed to farmers calls for reflection on what it means for the farmers themselves and how it stimulates the development of rural areas. The issue of farmers' social security has been disputed and misunderstood over the last several years. This has mostly followed from the growing interest in this issue after Poland's accession to the European Union and the significant financial support for farmers offered under the umbrella of Common Agricultural Policy.

Social security is one of the most important instruments of social policy and the basic form of the social safety net. It is also an issue of great importance to farmers. As Poland is a 20% agricultural economy, and was even more so in the past, the government decided in 1991 to create a separate system of social security for farmers and formed an institution responsible for the system called the Agricultural Social Insurance Fund (KRUS). The main responsibilities of the Fund include the collection of contributions towards the insurance, administration of payments, implementation of preventive policies and medical rehabilitation. The Social Security in Agriculture Act, to keep up to date with the needs and expectations of farmers, has had to be amended several times.

The main aim of the present article is to describe the operation of the social security system dedicated to Polish farmers in comparison to such systems in selected member states of the European Union.

The research investigates social security systems in the EU countries and presents security systems in Finland, France, Austria, Germany and Poland.

The author reviewed the literature regarding the issues of social security systems for farmers, provisions of law regulating the principles of such systems and the information furnished by the Agricultural Social Insurance Fund (KRUS), as well as statistical data provided by KRUS and Eurostat.

The following research methods have been applied: a descriptive analysis of the documents in order to verify the diversity of the agricultural security systems, a review of the literature and internet data concerning social security, and a comparative analysis.

Social Security System for farmers in Finland

The Finnish equivalent of the Polish Agricultural Social Insurance Fund is Maatalousyrittäjien eläkelaitos (MELA – Maatalousyrittajien Elakelaitos), formed in 1969. The institution was set up so early because Finland used to be a typical rural country with very low population density (16 people/km^2). MELA is a classic example of the Scandinavian model in social security (Czyżewski & Matuszczak, 2014). As a matter of principle, the Scandinavian model treats every citizen in the same way. No matter if an individual is elderly or young, disabled, sick or incapacitated, MELA ensures that they are part of the particular community they live in. This means that no support is given to offset the existing

shortcomings or inadequacies. This is probably why no separate professional institution was formed to address the farmers exclusively (Musiał, 2014).

The insurance of farmers in Finland is mandatory, even in the case of the family members who are on salary jobs. Social security may cover individual farmers, woodland owners, fishermen or reindeer breeders. Since 2009, the system has also covered artists or scientists who earn income on land. Beside these individuals, the mandatory insurance also covers their family members. The minimum acreage of farmland is 5 hectares and the annual value of labour cannot be lower than EUR 3000. The system also covers part-time farmers (Jedynak, 2017).

The Finnish system of social security provides insurance to 84 thousand farmers, which includes 59 thousand farming households and 160 thousand individuals in total.

Mutual Social Support Fund in France

The system of social security has a long tradition in France, based on the national community and intergenerational continuity. Since the end of WW2, the system has been operated by Mutualite Social Agricole (MSA), a non-public, decentralized institution, which manages public funds. The institution was formed mainly to service the obligatory social insurance for farmers and all employers and employees in the agricultural sector, including their families (Pawłowska-Tyszko, 2011). Besides, Mutualite Social Agricole, as the first institution in France, offered the largest specialized system of a social safety net, providing both regional and national services. Over the years, the system has invariably proven to have excellent adaptability to the current needs of its environment (*Rolnicze systemy…*, 2006)

The social security in France covers not only individual farmers and their family members, but also people employed in the agricultural sector, including those in seasonal employment. These employees can also apply for social security for their family members. To qualify for this insurance, one must be employed in agriculture, fishery, forestry, animal husbandry, animal training, professional agricultural organizations, agrotourism and business activities in agriculture, or in private vocational schools for farmers. To be covered by the social security for farmers, one must own at least 0.25 hectares of farmland. However, this minimum area varies between regions and depends on the type of business activity. If no precise area can be established, the criterion is then based on the amount of labour needed to manage the land – no less than 1200 hours annually (Jedynak, 2017).

Social Security Fund for Farmers in Austria

Austria is one of the five countries assessed which joined the European Union before 2004 and which possesses a purpose-built system for social security for farmers, known as the Social Security System (SVB – Sozialversicherungsanstalt Der Bauern).

Social security in Austria covers individual farmers and their families, including spouses, children, stepchildren, adopted children, in-laws and grandchildren. The farming social security is mandatory for anyone who undertakes business activity in agriculture, understood as farming, fruit-growing, horticulture, grape-growing, hunting and fishing. The Austrian law provides that social security for farmers covers the individuals whose value of production exceeds EUR 150 in the case of emergency insurance, and EUR 1,500 for pension and health insurance. If a farm is smaller, social security contributions are only obligatory when the income earned by the farmer comes mainly from agricultural activity (Jedynak, 2017). Austria has implemented a contribution scheme, and the amount of contributions paid by the farmer depends on the value of his farm and the estimated income from the farm. The value of the farm is calculated by the tax office every 10 years. The evaluation takes into account the size of the farm, its geographic location and the soil quality. The farmer who engages in business activities other than in agriculture has more than one insurance policy, which guarantees higher pensions (Czyżewski & Matuszczak, 2014). It is estimated that the number of farmers in Austria exceeds 270 thousand, half of whom are actively engaged in business agricultural activity (Musiał, 2014).

Each farmer is obliged to pay a contribution towards social security once per quarter throughout the year, regardless of the number of insured persons. The contribution amounts to approximately 25% of the farmer's income, reduced by the amount of ground rent if the farmer cultivates rented land. The Social Security System is financed from the national budget by 70%. Every type of insurance has a different share in the contributions and obtains a different level of financial support from the national budget. In 2009, the total state expenditure on subsidies reached nearly EUR 3 billion (Pawłowska-Tyszko, 2011).

If a farmer, any individual permanently employed on his farm or a family member cannot work on the farm due to sickness for a period longer than two weeks, the cost incurred by the absence of this person can be borne by the SVB. The owner of the farm may take advantage of the so-called farmer's technical assistance for a period of up to 6 months, with no obligation to pay their insurance contributions (*Rolnicze systemy…*, 2009).

For pregnant women and young mothers, all the medical expenses as well as medical assistance, midwife service and rehabilitation will be paid from the health insurance. In addition, maternity allowance and child care allowance are also covered by the policy (*Rolnicze systemy…*, 2009).

Insurance Institution for Agriculture, Forestry and Horticulture in Germany

The beginnings of social security in Germany date back to the second half of the 19th century, or 1883 to be precise, when Chancellor Otto von Bismarck introduced an act of law concerning sickness insurance. A year later, another act introduced insurance against occupational accidents and in 1889 an act on insurance for the elderly was issued. All these acts of law included farmers. Although these acts have been amended several times since then, they still constitute the foundation of the current system (Bochińska, 2007).

In many ways, the social security for farmers stands out against the principles and rules of the general system of social security. Due to the distinct character of the farming work, the policy makers in Germany decided to create a separate system of social security for farmers. The system of social security is a synthesis of social, economic and environmental aspects.

In Germany, the institution responsible for the management of social security for farmers is Die Landwirtschaft lichen Sozialverscherung (LSV). Pension and health insurance covers individual farmers and their families. Furthermore, their permanent or seasonal employees can also be covered with accident, sickness and supportive insurance. Accident insurance is mandatory for owners of farms larger than 0.25 hectares of acreage. In the case of pension and health insurance, the minimum area of a farm is 6 ha, and the exact size depends on the region. The range of business activities of the insured includes agriculture and forestry, animal husbandry, environmental protection and landscape management; as well as agricultural education and vocational training (Jedynak, 2017). Every farmer, whether individual or not, is obliged to pay identical contributions towards social security. If a farmer manages more than one farm, they pay only one contribution. If both spouses are covered by the insurance, only one pays the contribution. Depending on the financial condition, every farmer may apply for a subsidy to the contributions; these subsidies may reach 80% of the contributed amount (Strzelecka, 2004). The amount of the contribution is calculated proportionally to the size of the farmland and the estimated income.

Social Security for Polish Farmers

For Polish people, agriculture is different in character and plays a different role than in many other countries in Europe. At present, nearly 20% of the working age population in Poland is employed in agriculture. This figure in Germany stands at 4.8% and in Spain at 8.1% of the population. A significant decrease in the number of individuals employed in agriculture, by as many as 1 million, followed the economic transformation and the accession to the EU

(years 1995–2008). At the same time, the rise in the average income in this sector reached 107% in Poland, against 52% in Slovakia and 55% in the Czech Republic (data based on Eurostat reports). Farmers' earnings have long been a controversial issue in Poland. Initially, the creators of the social security system for farmers sought the balance in the living conditions of the agrarian population – the benefits were low, but so were farmers' contributions, and the system was much more heavily subsidized from the national budget than security systems for other social groups (Puślecki, 2015).

Social security for farmers in Poland has a supply character and is maintained by taxpayers. The institution responsible for insuring this group is called the Agricultural Social Insurance Fund. The main obligations of the Fund include: insuring farmers, collecting contributions towards the insurance, granting and servicing payments to pensioners or disabled persons or persons on sick or maternity leave. The Fund also engages in preventive measures and rehabilitation activities. Preventive measures aim at the elimination of risk due to living in the countryside and working on farms, thus reducing the number of accidents or alleviating their negative consequences (Nagel, 2010). The organizational structure of the Fund includes the Central Office, 16 Regional Funds, 256 Field Offices, 1 Training and Rehabilitation Center, and 6 Farmer Rehabilitation Centers.

The social security system is based on such life events as maternity, work-related accidents, disability, or old age. The main objective of the social security system is to insure its clients against poverty. This is not only in the interest of the individuals exposed to that risk, but in the interest of the whole nation, both citizens and authorities, as the main obligation is a just distribution of funds in case any unfortunate events occur, which may result in the loss of employment. Thus, every citizen has a guaranteed income and decent living conditions (Woś, 1998). Social security is then a safety net not only for an employee, but also for family members; it is also a protective measure against the negative consequences of income loss (Kapusta, 2008).

The operation of the Agricultural Social Insurance Fund is regulated by the Act on Social Security for Farmers, of 20 December 1990 (Ustawa z 20 grudnia 1990 r. o ubezpieczeniu społecznym rolników. Dz.U. z 1991 r., nr 7, poz. 24). The fundamental activity of the Fund involves the management of social security for farmers, which includes two types of insurance:

– pension-disability insurance, financed by both farmers' contributions and the national budget;

– accident, sickness and maternity insurance, financed solely by farmers' contributions.

The act envisaged two forms of insurance cover:

– statutory (mandatory), when the size of farmland exceeds 1 conversion hectare;

– on request (voluntary), when the acreage is smaller than 1 conversion hectare (1 ha or less).

Article 5 of the act stipulates that all its provisions concern both farmers and their spouses, on condition that the spouse works on the same farm and household. The legislators distinguished between farm work and work in the household, yet any of these occupations is sufficient for the insurance coverage (Ustawa z 20 grudnia 1990 r. o ubezpieczeniu…).

However, to qualify for farmer social security as a household member, an individual must meet all of the following criteria (Ustawa z 20 grudnia 1990 r. o ubezpieczeniu…):

– at least 16 years of age;
– living with the farmer in the same household or in the close vicinity;
– work in the farm on a permanent basis but with no employment contract.

Farmers, their spouses and household members are entitled to payments from their insurance policy. The pension-disability insurance pays farmer disability allowances for individuals who are unable to work due to disability, family allowances, training allowances, pensions and pension supplements, as well as a funeral allowance. The accident, sickness and maternity insurance pays sickness and maternity allowances as well as work accident compensations.

The following table presents the current data on the number of individuals insured by KRUS.

Table 1

Number of individuals insured by KRUS as of 31 December 2014-2019

Specification	2014	2015	2016	2017	2018	2019
Total number of insured individuals	1,432,725	1,375,462	1,335,198	1,270,525	1,233,685	1,199,285
Including						
Farmers	879,761	839,117	807,983	766,103	739,973	717,213
Spouses	398,575	380,509	365,996	344,436	332,419	320,952
Household members	154,341	154,862	155,712	153,111	152,896	152,054
Farm assistants	–	–	–	–	–	809
Number of persons under mandatory insurance due to farming or non-farming business activity	–	–	–	–	–	75,961 (which constitutes 6.3% of the insured individuals)

Source: own elaborations based on KRUS data.

An analysis of the statistical data published by the Agricultural Social Insurance Fund shows a systematic decrease in the number of insured individuals. Five years ago, in 2014, this number stood at 1,432,725 persons, while 10 years ago, in 2009, it was 1,570,328. The number of persons under mandatory social insurance of farmers due to agricultural business activity remains steady

(no decreasing or increasing trend); in 2014 this number reached 83,436 individuals, compared to 72,269 persons in 2009.

Table 2 compares the total payments in billion EUR, share of subsidies (in 5), the total number of insured individuals, the total number of payment recipients, pension age for men and women, and other types of financial and self-financing benefits in the countries analyzed above.

What follows from the above data is that France allocates the largest support to farmers from the national budget, in total EUR 28 billion, while the value is the lowest in Finland – EUR 1 billion. Therefore, the share of subsidies in the system is also the highest in France. Despite the fact that Finland allocates only EUR 1 billion, the share of subsidies in their system is not the lowest.

Table 2

Comparison of social insurance of farmers in selected states of the European Union

Country	Total financial benefits in bln EUR	Share of subsidies (in %)	Total number of insured individuals	Total number of payment recipients	Retirement age		Types of financial and self-financing benefits
					women	men	
Austria	2.45	74.3	292,000	387,000	65	65	– accidents at work and occupational illnesses – health benefits – pensions – family benefits
Finland	1	75	84,000	162,000	65	65	– accidents at work and occupational illnesses – pensions and family benefits
France	28	80	1,260,000	1,600,000	60	60	– for employees in agriculture – individual farmers
Germany	6.6	75	1,600,000	270,000	65	65	– accidents at work and occupational illnesses – health benefits and pensions
Poland	4.05	67	1,180,000	1,440,000	60	65	– accidents at work and occupational illnesses, health benefits – pensions, disability allowances, maternity allowances

Source: the author, based on ENASP data.

This figure is the lowest in Poland, where it stands at 67%. The largest number of individuals covered by social security for farmers live in Germany, while the fewest are in Finland. The highest number of benefit recipients was noted in France, the lowest in Finland. The retirement age is similar in the analyzed countries; women in France and Poland can retire at the age of 60, in Austria, Germany and Finland not until they turn 65. Men can retire at 60 only in France; in all the other countries, they can apply for pension at the age of 65.

The long-term experience of member states of the European Union, which manage separate systems of social security demonstrates that the system tailored specifically to meet the needs and expectations of citizens may be an effective instrument to guarantee the social security of farmers and an effective instrument of the agricultural policy.

Conclusion

The separate system of social security for farmers in Poland is by no means an exception in the European Union. Other than Poland, 6 other EU countries have decided to maintain an independent system: Austria, Finland, France, Greece, Germany and Luxembourg. These systems have been in operation for a long time, which proves their capability and efficiency. Nevertheless, each of these systems undergoes cyclical reforms to make them better suited to the changing needs of the insured. The Polish system has also been through many modifications, like the reform of the pension scheme, tying the level of contributions towards social security to the size of the farm, or allowing farmers to operate non-agricultural business activities.

The present article investigates the functioning of social insurance systems in selected countries of the European Union, i.e. Austria, Finland, France and Germany. Each of them presents distinct social and historical conditions, which led to the creation of independent institutions managing insurance for farmers. One element that all these systems have in common is the significant financial support from the national budget. In none of these countries, however, the operation of the system is as serious a challenge as it is in Poland, because the number of the insured farmers in these countries is remarkably lower. The financial failure of the system may pose the biggest risk for these systems in the future. It is worth noting, however, that the presented systems, beside their main social function, participate in the management of agricultural policy, the aim of which is the development of rural areas and the proper maintenance of the natural environment, to keep it in good condition.

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ORIGINAL PAPER

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PERFORMANCE OF THE POLISH INSURANCE SECTOR IN THE SECOND DECADE OF THE 21ST CENTURY

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K e y w o r d s: life insurance, property insurance, insurance market indicators.

A b s t r a c t

The study analyzes the performance of the Polish insurance sector between 2010 and 2019. The analysis was based on source materials from the Statistical Yearbook published by Statistics Poland (GUS), reports of the Polish Financial Supervision Authority (KNF) and the Polish Chamber of Insurance (PIU). The main indicators describing the performance of the insurance market, including its concentration, number of policies, market structure, competitiveness, consumer behavior, and the financial performance of insurance companies were identified and analyzed.

The strengths and weaknesses of the Polish private insurance market in the last ten years were determined. The main weakness was a considerable decrease in the sale of life insurance (branch I) policies, which was manifested by a steady decrease in gross premium, a continued decline in insurance density and penetration rate, deteriorating financial performance, and a decrease in the number of branch I insurance companies. Considerably better results were reported in the non-life insurance segment (branch II), where gross earned premium continued to improve and increased by around 64% over the analyzed decade. The non-life sector was also characterized by a steady improvement in density (increase of PLN 436), penetration rate (increase of 0.07%) and financial performance (net technical result increased by PLN 4.2 billion, net profit increased by PLN 1.5 billion).

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FUNKCJONOWANIE SEKTORA UBEZPIECZEŃ GOSPODARCZYCH W POLSCE W DRUGIEJ DEKADZIE XXI WIEKU

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Kody JEL: G22, G52, I13, O16.

Słowa kluczowe: ubezpieczenia na życie, ubezpieczenia majątkowe, wskaźniki rynku ubezpieczeń.

Abstrakt

W opracowaniu przeanalizowano funkcjonowanie polskiego sektora ubezpieczeń gospodarczych w latach 2010-2019. Do analizy wykorzystano materiały źródłowe z Rocznika Statystycznego GUS, opracowań Komisji Nadzoru Finansowego (KNF) oraz Polskiej Izby Ubezpieczeń (PIU). Określono i oceniono wartości podstawowych wskaźników charakteryzujących jego koncentrację, liczebność polis, strukturę, konkurencyjność, zachowania klientów i wyniki finansowe firm na nim funkcjonujących.

Funkcjonowanie ubezpieczeń gospodarczych w Polsce w ostatnim dziesięcioleciu cechowało się pewnymi słabościami i pozytywami. Do słabości tego rynku należy zaliczyć m.in.: duży spadek sprzedaży ubezpieczeń działu I. Świadczą o tym zarówno stały na przestrzeni analizowanych lat spadek przypisu składki, systematycznie pogarszające się rynkowe wskaźniki gęstości oraz penetracji, pogarszające się wyniki finansowe, jak i zmniejszająca się liczba zakładów ubezpieczeń funkcjonujących w tym dziale. Dużo lepsza sytuacja była w dziale II ubezpieczeń, tu wartość składki przypisanej brutto systematycznie się poprawiała i na przestrzeni badanego dziesięciolecia wzrosła o ok. 64%. Dobrą sytuację tego rynku potwierdzają także poprawiające się wskaźniki gęstości (wzrost o 436 zł) i penetracji (wzrost o 0,07 p.p.) oraz wzrastające wyniki finansowe zakładów (wynik techniczny wzrósł o 4,2 mld zł, zysk netto o 1,5 mld zł).

Introduction

The insurance market was one of the first sectors of the Polish economy to embrace free market principles after the political transformation of 1989. The process of legislative changes in the Polish insurance market were initiated by the Act of 28 July 1990 on insurance activity (Journal of Laws of 1990, No. 59, item 344, as amended). The above act introduced free market principles to the organization and operations of the Polish insurance market, thus enabling insurance companies to compete based on European Union standards. The solutions introduced by the act contributed to a rapid increase in the number of insurance companies and opened a new chapter in the development of the insurance market. Before Poland joined the European Union, a package of four insurance acts had been introduced on 1 January 2004 to further adapt the Polish insurance market to EU standards. The new solvency requirements were introduced by Directive 2009/138/EC of the European Parliament and of the

Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II). The above directive was implemented into Polish law by the Act of 11 September 2015 on insurance and reinsurance activity (Journal of Laws, 2015, item 1844, as amended) which came into force on 1 January 2016. Directive (EU) 2016/97 of the European Parliament and of the Council of 20 January 2016 on insurance distribution (referred to as the Insurance Distribution Directive) was adopted to better protect consumers concluding insurance contracts and to harmonize national provisions on insurance and reinsurance distribution. The provisions of the above directive were implemented into Polish law by the Act of 15 December 2017 on insurance distribution (Journal of Laws, 2017, item 2486) which entered into force on 1 October 2018.

In Poland, insurance activity may also be undertaken by foreign insurance companies in various legal forms[1].

The operations of insurance and reinsurance companies in the Polish market are supervised by the Polish Financial Supervision Authority (KNF). The Financial Ombudsman oversees the interests of the insured parties, policyholders and beneficiaries. The Polish Chamber of Insurance (PIU) is an organization that represents insurance and reinsurance companies operating in Poland. Insurance organizations and authorities play a very important role in the insurance market by initiating various measures to stimulate the development of the insurance market, controlling market operations, protecting stakeholder interests, and developing and evaluating drafts of legal acts concerning the insurance sector (Witkowska, 2014, p. 222).

Insurance products protect policy holders' property against random events (property insurance), secure the financial interests of policy holders and their family members (life insurance), and provide additional funds during retirement (pension insurance) (Pieńkowska, 2018, p. 522). Insurance contributes to social and economic growth in many ways. Insurance products stabilize the economy by offering protection against losses sustained by policy holders due to unforeseen events. Insurance companies assist their clients in managing their savings and investments in the medium and long term, thus creating capital and counteracting the negative effects of market fluctuations. Rapid changes in living standards and technological progress prompt insurers to introduce innovative products that meet the needs of evolving societies. According to Majewski (2017), the new personal transportation model will radically reduce road traffic and will significantly decrease the sale of motor insurance which is one of the major sources of income for insurance companies (Majewski, 2017, p. 68). Economic growth and

[1] By establishing a head office in Poland; by establishing a main branch when the company's head office is situated on the territory of a Member State of the European Union or the European Free Trade Agreement (EFTA) – European Economic Area (EEA); by notifying the Polish Financial Supervision Authority (KNF) of the company's intent to undertake insurance activity in Poland based on the freedom to provide services (applies only to insurance companies headquartered on the territory of an EU Member State).

income distribution significantly influence the growth of the insurance sector. Other factors can also affect the insurance market. The search for new and more effective distribution channels plays an important role. Process management solutions are being introduced by insurance companies in Poland to improve operational safety in a highly competitive market (Gąsiorkiewicz & Kruk, 2018, p. 39-51). An improvement in educational standards in the field of finance and insurance is a stimulating factor. National authorities can also cooperate with insurers by introducing tax incentives or compulsory insurance.

The Polish insurance sector is a relatively young market that continues to develop and evolve. Therefore, the insurance market should be regularly monitored to eliminate obstacles to its continued growth.

Research Objective and Methods

The main aim of this study was to analyze and discuss the performance and evolution of the Polish insurance market. The operations of insurance companies in the Polish market were analyzed between 2010 and 2019. The total number of companies operating in the Polish insurance market, including those operating in branches I and II of the market, was determined. The share of foreign and domestic capital in the equity of insurance companies headquartered in Poland was analyzed. The stabilization of the number of insurance companies and the concentration of the Polish insurance market were evaluated by calculating the market share of the largest and the five largest companies in branches I and II. In order to more accurately determine the level of concentration and competition in the insurance industry, the value of the Herfindahl-Hirschman index (HHI) was calculated in 2010 and 2019 for section I and II of insurance.

Market size was determined based on the total gross premium and the gross premium in each branch, and by calculating the following indicators: insurance density (ratio of total gross premium to population) and penetration rate (ratio of total gross premium to the gross domestic product). The insurance penetration rate was compared with the GDP of Poland. Changes in groups of insurance products were analyzed based on the structure of total gross premium in each group in branches I and II. Claims and benefits paid, and the main financial indicators (net technical result and net profit) were analyzed in the examined period in both branches of the Polish insurance market.

The analysis was based on source materials from the Statistical Yearbook published by Statistics Poland (GUS), reports of the Polish Financial Supervision Authority (KNF), the Polish Chamber of Insurance (PIU), as well as research conducted by the Department of Finance of the Faculty of Economic Sciences at the University of Warmia and Mazury in Olsztyn.

The study relied on the comparative method, and the structure and growth rate of the Polish insurance market were evaluated by calculating the relevant indicators. The results were described, as well as presented in tables and figure drawings.

Results and Discussion

Insurance is an important component of economic infrastructure in a market economy and the financial sector. It plays a vital role in the performance of entire economies by dividing large risks into smaller risks that are insured at a premium adequate to the given type of risk (Samuelson & Nordhaus, 2012, p. 2018).

There were 59 registered insurance and reinsurance companies in Poland at the end of 2019, including 25 companies in branch I (life insurance) and 34 insurance companies, including one reinsurance company in branch II (other personal insurance and property insurance). Only six companies operated as mutual insurance companies, and the remaining insurers were joint-stock companies. Foreign insurance companies were represented by 529 notified brokers under the freedom to provide business services on a cross-border basis within the EEA.

The number of insurance companies increased rapidly in the first years after the political transformation of 1989, but it stabilized in the last ten years (Fig. 1).

The number of life insurance companies (branch I) continued to decrease steadily in the analyzed period, from 30 in 2010 to 25 in 2019. The number of non-life insurance companies (branch II) decreased from 35 in 2010 to 30 in 2015, and increased to 34 between 2016 and 2019.

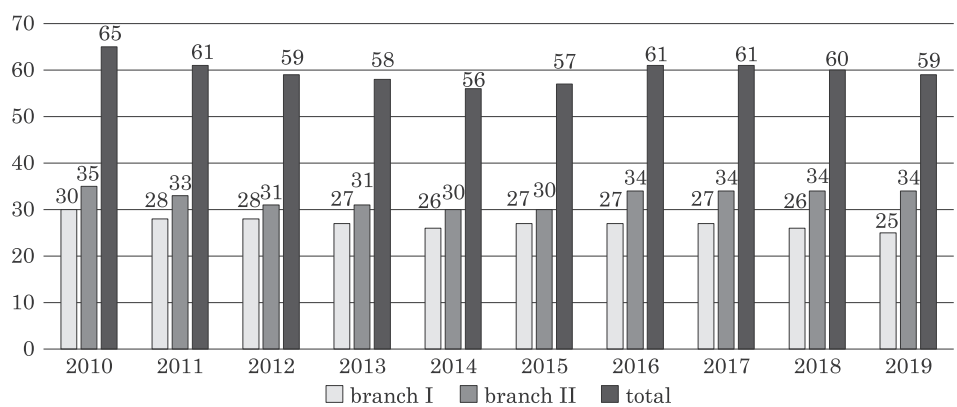


Fig. 1. Number of insurance companies in Poland in 2010-2019

Source: own elaboration based on Statistics Poland (GUS) and Financial Supervision Authority (KNF) data (2011-2020).

The share of foreign capital in insurance company equity decreased in the examined period. In 2009, foreign capital accounted for 84% of the total equity of insurance companies with headquarters in Poland. The share of foreign capital decreased from 77.4% in 2010 to 63.4% in 2019. The corresponding decrease was 71.2% to 59% in the life insurance sector, and 82.9% to 67.1% in the non-life insurance sector (Fig. 2). These changes resulted mainly from the fact that some European insurers (Skandia Zycie TU S.A.) exited the Polish insurance sector and new Polish companies (Pocztowe TUW, PKO TU S.A., Polski Gaz TUW, Pocztowe TUnŻ S.A., PKO Życie TU S.A.) entered the market.

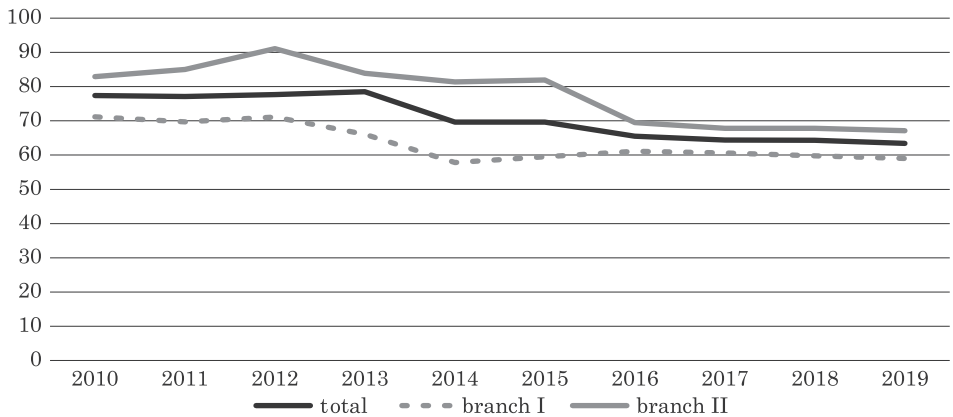


Fig. 2. Share of foreign capital in the equity of insurance companies in Poland (in %)
Source: own elaboration based on Statistics Poland data (Polish Insurance Market, 2012, 2015, 2019)

Similarly to previous years, foreign companies were represented mainly by Austrian, Dutch, French and German investors. The share of Canadian, British, American and Japanese capital in the Polish insurance market did not exceed several percent. Insurers from Luxembourg, Belgium, Ireland, Cyprus and the Virgin Islands (United Kingdom) accounted for less than 1% of foreign capital in the Polish insurance sector.

The decrease in the number of insurance companies in the last decade stalled the deconcentration of the life insurance segment in Poland. The value of the Herfindahl-Hirschman Index (HHI) in 2010 was 1,290, and in 2019 – 1,900. It is assumed that an HHI above 1,800 indicates an overly concentrated market. The combined market share of the five largest life insurers, expressed by the total gross premium, reached 66.2% in 2010 and 66.4% in 2019 (*Report on the insurance market for Q4*, 2019). The leading life insurance companies were: PZU ŻYCIE SA, TUnŻ EUROPA SA, TUnŻ WARTA SA, ING TUnŻ SA and NORDEA Polska TUnŻ SA. PZU ŻYCIE SA was the unquestioned leader with a market share of 40.3% that has continued to increase in recent years.

On the other hand, no risk of market concentration in section II of insurance was noticed. The value of the Herfindahl-Hirschman index (HHI) in 2010 was 1,511, and in 2019 – 1,470.

The combined market share of the five largest insurance companies in the non-life sector, expressed by the total gross premium, reached 69.1% at the end of 2019, marking an increase of 3.6 percentage points from 2010. The largest branch II insurers were: PZU SA, STU ERGO HESTIA SA, TUiR WARTA SA, TUiR ALLIANZ POLSKA and AXA UBEZPIECZENIA TUiR SA. PZU SA had a 30.6% share of the non-life segment. The leading market status of these insurers can be attributed mainly to a highly recognizable brand and a broad network of insurance agents.

The premiums collected in virtue of different product groups in each market branch were also analyzed and compared. At the end of 2019, life insurance (group 1) was the predominant group of products in the direct insurance sector, accounting for around 37% of total gross premium (Fig. 3). Life insurance was followed by group 3 products (unit-linked life insurance and indexed universal life insurance) which represented 32.1% of total gross premium, and group 5 products (accident and disability insurance) which accounted for 29.7% of total gross premium. A very low share of marriage and birth insurance (group 2, 0.5%) and annuity insurance (group 4, 0.7%) is characteristic of the Polish insurance market. The proportions of these insurance products remained low but stable in the analyzed period.

Compulsory motor third-party liability insurance (group 10) and motor casco insurance (group 3) were the dominant categories in the sector of other personal insurance and property insurance (Fig. 6). The share of motor insurance products in the non-life sector was determined at 56.2% in 2010 and 55.5% in 2019 (Fig. 6).

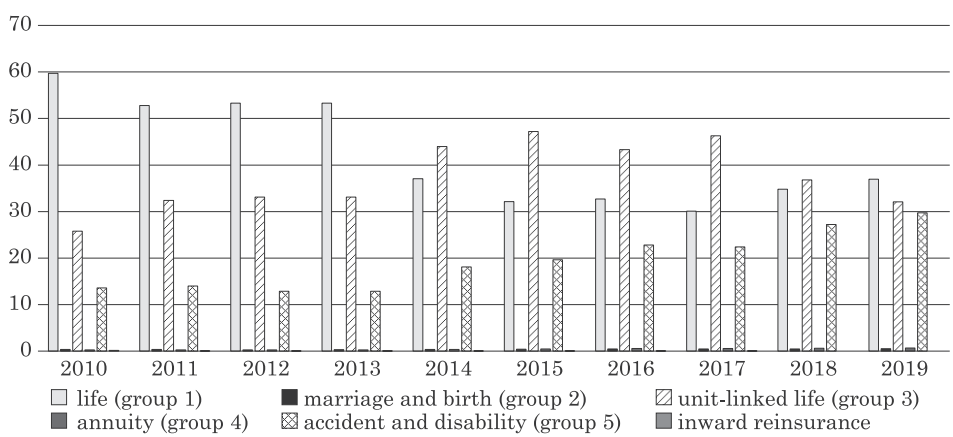


Fig. 3. Structure of gross premium in branch I (in %)
Source: own elaboration based on GUS and KNF data (2011-2019).

The second major group of non-life insurance products were two basic types of property insurance: insurance against property damage caused by natural disasters (group 8) and insurance against other damage or loss of property (group 9). The combined market share of these product groups reached 18.3% in 2010 and 17% in 2019. The share of group 8 and 9 products continues to decrease in the non-life insurance portfolio because small and medium-sized enterprises and some industries (such as agriculture and fisheries) rarely insure their operations. The property and assets of many Polish companies are also underinsured. The third major group of non-life insurance products are accident insurance (group 1) and disability insurance (group 2) whose combined market share was estimated at 7.1% in 2010 and 6.4% in 2019. The share of accident and disability insurance is several times lower in the Polish market compared to the European insurance market. The share of general third-party liability insurance (group 13) in the Polish market was determined at 5.5% in 2010 and 5.6% in 2019, and it was also significantly lower in comparison with Western Europe.

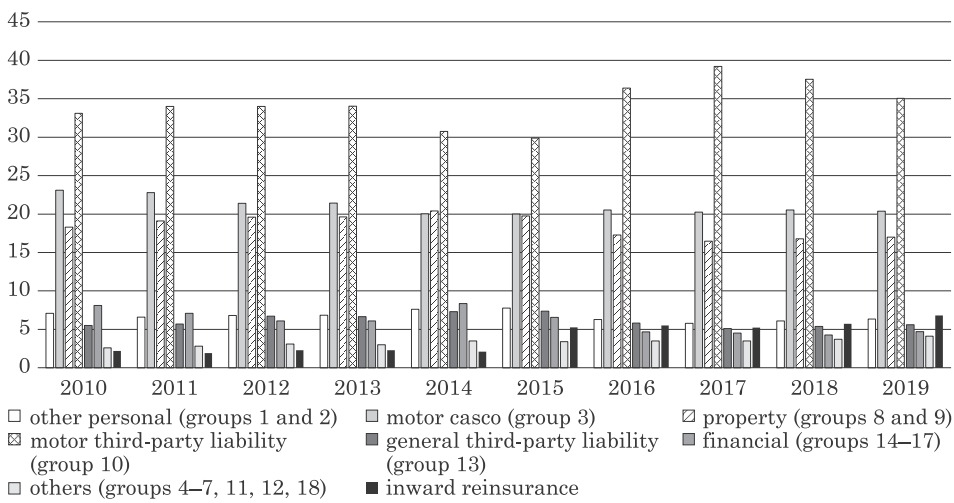
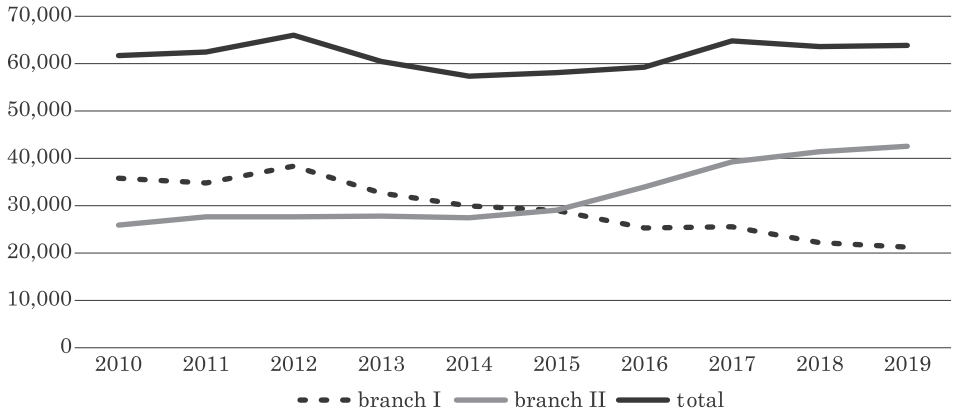


Fig. 4. Structure of gross premium in branch II (in %)
Source: own elaboration based on GUS and KNF data (2011-2019).

Under an insurance contract, the insurer undertakes, upon the occurrence of an insured event, to pay an agreed amount of compensation in return for a premium paid by the policyholder. The amount of the collected premium defines the economic value of insurance services, which is represented by the payments made by insurance companies and consumers in virtue of insurance cover. The value of the insurance premium is one of the key determinants for evaluating the performance and growth of every insurance company as well as the entire insurance market. The total gross premium for the analyzed period is presented in Figure 5.



*) values in PLN million are expressed in terms of real values for 2019 adjusted for inflation based on the inflation rate published by Statistics Poland

Fig. 5. Total gross premium in the Polish market (in PLN million)
Source: own elaboration based on GUS and KNF data (2011-2019).

In branch I, the total gross premium increased from PLN 35.8 billion in 2010 to PLN 38.3 billion in 2012, and continued to decrease steadily in the following years to reach PLN 21.3 billion in 2019. The total gross premium decreased by 41% between 2010 and 2019. There are many reasons for the dwindling popularity of life insurance in the Polish market. The insurance sector was affected by the economic downturn of 2008 (Rokicki, 2018, p. 194). Misselling also played a role, and some companies sold products that were not adapted to the clients' needs and financial capabilities and were generally superfluous. Abusive practices involved mainly tie-in sales of financial instruments such as loans, debit cards and saving accounts that involve the purchase of various types of insurance (Cichorska, 2018, p. 18). An opposite trend was observed in the non-life sector, where total gross premium grew steadily from PLN 25.9 billion in 2010 to PLN 42.6 billion in 2019, marking an increase of 64% in the analyzed period. The total gross premium decreased from 58.3% in 2010 to 33.3% in 2019 in branch I and increased from 41.7% in 2010 to 66.4% in branch II. Such a steep increase in the non-life insurance sector can be attributed to socioeconomic changes in the past decade. The GDP increased steadily in each year of the analyzed period (Fig. 6), which testifies to Poland's rapid economic growth and an increase in incomes. Growing levels of affluence significantly increased the demand for cars, apartments, homes, household appliances and other goods. The increase in wealth was naturally accompanied by the growth of the property insurance sector, as demonstrated by the global increase in total gross premium in branch II of the Polish insurance market.

The key insurance market indicators are penetration, density and concentration (Sangowski, 2002, p. 196). The penetration rate demonstrates how

the insurance sector relates to the entire national economy, and it is calculated as the ratio of total gross premium to the GDP. The higher the penetration rate, the higher the public awareness about the importance of insurance cover. Insurance density points to the maturity of the insurance market, and it is expressed by the ratio of total gross premium to the population of a country. In this case, higher density is also related to higher knowledge and awareness of insurance products, as well as (indirectly) to greater wealth. The average indicator for the European Union countries in 2017 amounted to EUR 2,254, including EUR 1,336 for life insurance, and EUR 918 for non-life insurance (*Polski rynek ubezpieczeniowy*, 2018). In Poland, average insurance spending per capita was determined at PLN 1602 in 2010 and PLN 1663 in 2019, marking a nominal increase of PLN 61 in the examined period (Tab. 1).

Table 1

Insurance market indicators in Poland

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total gross premium per capita										
Branch I	929	903	995	848	778	755	658	664	578	554
Branch II	673	717	718	722	713	756	884	1,022	1,078	1,109
Total	1,602	1,620	1,713	1,570	1,491	1,511	1,542	1,686	1,656	1,663
Total gross premium to GDP (penetration rate) (in %)										
Branch I	2.47	2.22	2.36	1.98	1.75	1.61	1.36	1.28	1.05	0.93
Branch II	1.79	1.77	1.70	1.69	1.60	1.61	1.82	1.97	1.95	1.86
Total	4.27	3.99	4.06	3.67	3.35	3.22	3.18	3.26	3.00	2.79

Source: own elaboration based on Statistics Poland data (Polish Insurance Market, 2012, 2015, 2019).

Gross premium per capita decreased steadily in branch I. Life insurance spending decreased by around 40% in the analyzed period. The reverse was noted in the segment of other personal insurance and property insurance (branch II), where total gross premium increased by around 65% in the analyzed period and reached PLN 1663 per capita in 2019. The levels of the penetration index (gross written premium as a percentage of the country's GDP) look worse. The average indicator for the European Union countries in 2017 was 7.5%, of which 4.4% was for life insurance and 3.1% for non-life insurance (*Polski rynek ubezpieczeniowy*, 2018). A systematic decrease in this indicator from 4.27% in 2010 to 2.79% in 2019 proves a slower pace of insurance development than the gross domestic product in Poland. Even less satisfactory results were noted in the life insurance sector where the penetration rate decreased from 2.47% in 2010 to 0.93% in 2019. In the non-life sector, following a minor drop in the first years of the analyzed period, the penetration rate continued to increase and reached 1.86% in 2019.

The insurance penetration rate and the GDP growth rate in the examined decade are presented in Figure 6. The insurance penetration rate exceeded GDP growth only in the non-life sector in 2016 (13%) and 2017 (8.3%). The penetration rate was below the GDP growth rate in all analyzed years in the life sector and in eight years of the studied period in the non-life sector, which confirms the observation that the development of the Polish insurance market lagged behind Poland's economic growth.

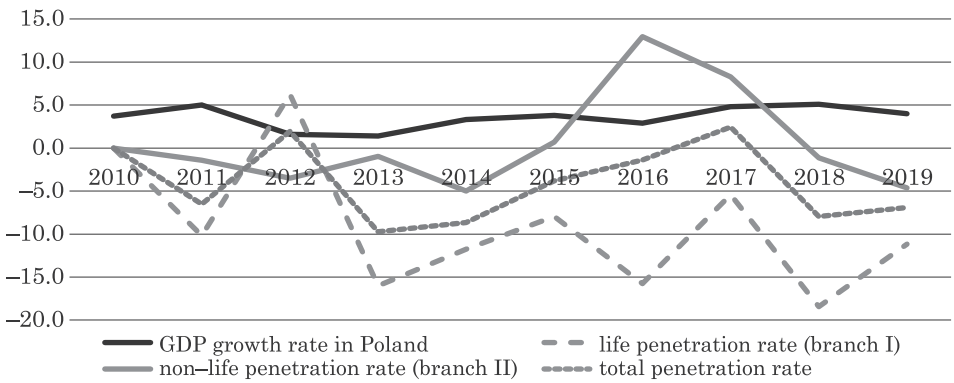


Fig. 6. Insurance penetration rate and GDP growth rate in Poland (chained volume series, previous year = 100%)
Source: own elaboration based on Statistics Poland and KNF data (2011-2020).

Pursuant to the provisions of Article 805, paragraph 1 of the Polish Civil Code, the insurer undertakes, upon the occurrence of an insured event, to pay an agreed amount of compensation in return for a premium paid by the policyholder. The total claims paid by insurance companies in 2019 amounted to PLN 40.87 billion (Fig. 7). In the life sector, gross claim payments decreased from around PLN 25.76 billion in 2010 to PLN 18.57 billion in 2019, i.e. by 38%. The main reason for this decrease was a dramatic drop in gross premium (from PLN 31.8 billion in 2010 to PLN 21.3 billion in 2019). In contrast, total claims paid in the non-life segment increased by 137% in the analyzed period, from PLN 16.3 billion in 2010 to PLN 22.3 billion in 2019. The total loss ratio (ratio of gross claims paid to total gross premium) was determined at 68.1% in 2010 and 64% in 2019. In the analyzed period, the loss ratio significantly increased in the life sector (from 72% in 2010 to 87.3% in 2019), whereas a significant improvement was noted in the non-life sector (from 62.7% in 2010 to 52.4% in 2019), with considerable differences between product groups.

The profitability and financial performance of life insurance companies in Poland decreased in the analyzed period (Fig. 8).

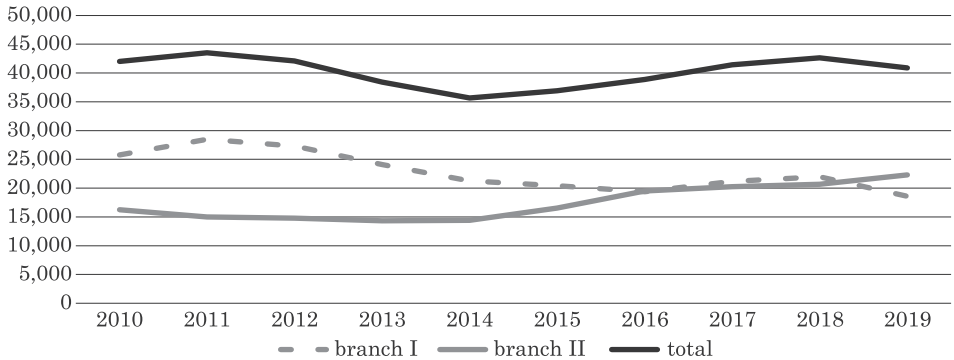


Fig. 7. Gross claims paid (in PLN million)
Source: own elaboration based on Statistics Poland and KNF data (2011-2020).

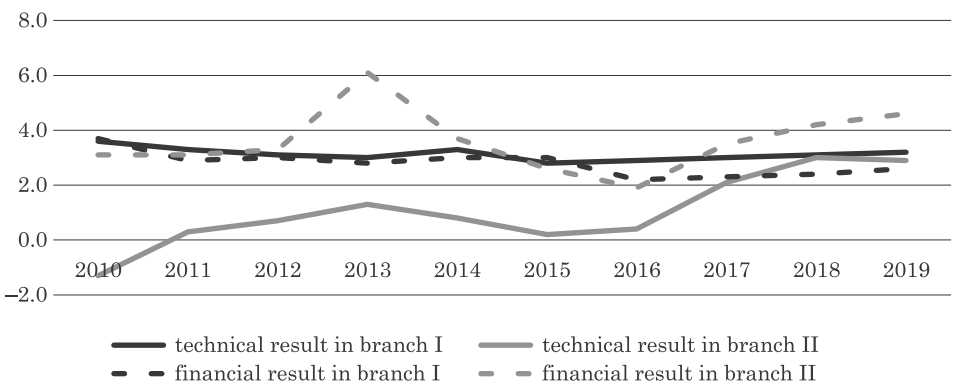


Fig. 8. Financial performance of the Polish insurance market (in PLN billion)
Source: own elaboration based on Statistics Poland and KNF data (2011-2020).

The technical result and the net profit decreased in the life sector in the analyzed period. The technical result was highest at PLN 3.6 billion in 2010, and it declined steadily in the following years to reach around PLN 2.9 billion in 2019. Net profit also decreased from PLN 3.7 billion in 2010 to PLN 2.6 billion in 2019. In contrast, the financial performance of the non-life sector improved considerably in the examined decade. The technical result had a negative value of -PLN 1.3 billion in 2010, and it continued to increase in successive years to reach PLN 3 billion in 2018 and PLN 2.9 billion in 2019. Net profit increased considerably from PLN 3.1 billion in 2010 to PLN 4.6 billion in 2019.

Summary

This article analyzed the performance of insurance companies operating in the Polish market between 2010 and 2019.

The number of insurance companies in the Polish market decreased from 65 in 2010 to 59 in 2019. The leading insurer in the life sector was PZU Życie S.A. which controlled 40.3% of the market. PZU S.A. was the largest insurer in the non-life sector with a market share of 30.6%. The value of the Herfindahl-Hirschman index (HHI) in 2019 was 1,900 in section I of insurance, which indicates too high a concentration of this market.

The share of foreign capital in the equity of insurance companies decreased from 77.4% in 2010 to 63.4% in 2019.

Life insurance sales declined in the analyzed period. The total gross premium in the life sector decreased from PLN 35.8 billion in 2010 to PLN 21.3 billion in 2019. In contrast, the non-life sector expanded at a steady rate in the examined decade, and total gross premium increased from PLN 25.9 billion in 2010 to PLN 42.6 billion in 2019. A decrease in the insurance penetration rate indicates that the Polish insurance market grew at a slower rate than the Polish economy. The ratio of total gross premium to the GDP decreased from 4.27% in 2010 to 2.79% in 2019. The drop in the insurance penetration rate was particularly pronounced in the life sector where this parameter decreased from 2.47% in 2010 to 0.93% in 2019. In the non-life segment, a minor increase in insurance penetration was noted, from 1.79% in 2010 to 1.86% in 2019. Average insurance spending per capita increased from PLN 1,602 in 2010 to PLN 1,663 in 2019. In the life insurance market, average spending per capita decreased significantly from PLN 929 in 2010 to PLN 554 in 2019. In contrast, average spending per capita nearly doubled in the non-life sector, from PLN 673 in 2010 to PLN 1,109 in 2019. In the structure of the insurance market of section I, group 1 insurance had the highest share (approx. 37%). In the structure of products, the offer in the group of annuity and dowry insurance is too small, and there is a stagnation and a decline in customer interest in group 3 insurance. On a positive note, the share of accident and disability insurance (group 5) nearly doubled in the analyzed decade. In the non-life sector, motor insurance remained the dominant category of products, with a combined 55.5% market share in 2019. The sale of property insurance (groups 8 and 9) and personal insurance (groups 1 and 2) products was stabilized in the evaluated period. The share of financial insurance decreased, whereas inward reinsurance increased, which points to an increase in the stability of Polish insurance companies.

The total loss ratio reached 64% in 2019. Insurance companies posted positive financial results for 2019. In the life insurance segment, total net profit continued to decrease in the analyzed period, from around PLN 3.7 billion in 2010 to PLN 2.6 billion in 2019. In contrast, total net profit increased in the non-life segment, from around PLN 3.1 billion in 2010 to PLN 4.6 billion in 2019.

The involvement of domestic capital in the equity of both life and non-life insurance companies increased in the analyzed period, which is a positive phenomenon.

The Polish insurance market still has a high growth potential. The insurance industry has the future ability to introduce new products, increase the number of customers, and establish closer relations with banks and the capital market.

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The "Olsztyn Economic Journal" (ISSN 1897–2721, e-ISSN 2083–4675) is a scientific journal, published in English by the Faculty of Economic Sciences of the University of Warmia and Mazury in Olsztyn. It publishes scientific papers of methodical, review and empirical nature in economic sciences. During the years 2007–2012 the journal was published semi-annually and from 2013 is published quarterly. The "Olsztyn Economic Journal" is published by the University of Warmia and Mazury in Olsztyn Publishing House. The print edition is the primary version of the Journal. All numbers of the magazine are available in the electronic format on the websites: https://czasopisma.uwm.edu.pl/indeks.php/oej, http://wydawnictwo.uwm.edu.pl (subpage Czytelnia), http://www.uwm.edu.pl/wne/olsztyn-economic-journal.

„Olsztyn Economic Journal" is indexed in the following reference databases: BazEcon, BazHum, Index Copernicus Master List (ICV in 2019 100 pts), The Central European Journal of Social Sciences Humanities (CEJSH), Central and Eastern European Online Library (CEEOL), POL-index, RePEc.

Since 4th July 2018 „Olsztyn Economic Journal" has been on the Italian, ministerial list of scientific journals prepared by National Agency for the Evaluation of Universities and Research Institutes (Italian name: Agenzia Nazionale di Valutazione del sistema Universitario e della Ricerca − ANVUR).

PUBLICATION PROCEDURE

Polish authors submit articles in Polish and in English. In order to ensure high quality of linguistic editing of the journal, the article should be verified by native English speaker(s). The costs of translating/verifying the article are borne by the Authors. Foreign authors submit articles in English. Additionally, the title, key words and abstract of the article should be submitted in Polish.

Articles should be submitted to the editorial board either: by the Journal e-Platform of the University of Warmia and Mazury in Olsztyn (https://czasopisma.uwm.edu.pl/index.php/oej), via e-mail (oej@uwm.edu.pl) or snail mail, to the following address:

"Olsztyn Economic Journal"
University of Warmia and Mazury in Olsztyn
Faculty of Economic Sciences
M. Oczapowskiego 4 Street
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Articles are subject to formal evaluation, initial evaluation by the editor-in-chief and associate editors, and then to evaluation by external reviewers and the statistical editor. The formal evaluation is made by the editorial secretary and refers, among other things, to: the length of the article, the inclusion of the title, abstract and key words (in Polish and English) and correctly formatted bibliography. Articles which do not meet the guidelines are sent back to Authors for revision. Articles which meet the guidelines are subject to evaluation by the editor-in-chief and associate editors, who assess its scientific character and relevance to the thematic scope of the journal. After a positive internal evaluation articles are submitted to the evaluation by external reviewers, who are appointed by the editor-in-chief.

The reviewing procedure:

1) At least two independent reviewers from research institutions other than the one with which the Author is affiliated are appointed to evaluate each article.
2) At least one of the reviewers is affiliated in an foreign institution other than the Author's nationality.
3) The Author or Authors do not know the identities of the reviewers and vice versa (double-blind review process). As regards the relations between the author and the reviewer, there is no:

a) direct personal relationship (kinship, legal ties, conflict),
b) professional supervisor-subordinate relation,
c) direct scientific collaboration in the course of the last two years preceding the preparation of the review.

4) The editorial board follows procedures preventing ghostwriting and guest authorship. Detailed description of the procedures can be found on the website.
5) The reviewer is obliged to abide by the copyrights. In the case of detecting copyright infringement by the Author, the reviewer is obliged to report it to the editorial board of the journal.
6) The reviewer is required to keep confidential all details of the article as well as the peer review process.
7) The review is submitted in the written form and ends with a clear statement as to whether the article is accepted for publication or rejected.
8) Only articles which have two positive reviews are submitted for printing. If one of the reviews is negative, the article is submitted for evaluation to a third reviewer.
9) The review form is available on the website.
10) Names of the reviewers for individual issues of the journal are available in the current issue and on the website.

After receiving two positive reviews and taking into considerations the reviewers' corrections and recommendations the Author revises the article and submits to the editorial board the following:

a) the final version of the article in English, together with the title, key words and abstract in Polish and English,
b) responses to reviews,
c) the Author's statement (the relevant form can be found on the website),
d) information about the name and last name of the translator and the native speaker,
e) consent for the processing of common personal data (the relevant form can be found on the website).

The final version of the article submitted by the author will be verified by the statistical editor.